The World Health Organization and the Globalization of Chronic Noncommunicable Disease

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This is an early draft of an article that has subsequently been published in Population and Development Review. Complete citation information for the final version of the paper, as published in the print edition of Population and Development Review, is available on Wiley Interscience's online journal service, accessible via the journal's website at http://www.blackwellpublishing.com/pdr."

Abstract

Chronic noncommunicable diseases (NCDs) in low- and middle-income countries (LMICs) have recently provoked a surge of public interest. This paper examines the policy literature, notably the archives and publications of the World Health Organization (WHO), which has dominated this field, to analyze the emergence and consolidation of this new agenda. Starting with programs to control cardiovascular disease in the 1970s, experts from eastern and western Europe had by the late 1980s consolidated a program for the prevention of NCDs risk factors at the WHO. NCDs remained a relatively minor concern until the collaboration of World Bank health economists with WHO epidemiologists lead to the Global Burden of Disease study that provided an "evidentiary breakthrough" for NCD activism by quantifying the extent of the problem. Soon after, WHO itself, facing severe criticism, underwent major reform. NDC advocacy contributed to revitalizing the WHO's normative and coordinative functions. By leading a growing advocacy coalition, within which *The Lancet* played a key role, WHO established itself as a leading institution in this domain. However, ever-widening concern with NCDs has not yet led to major reallocation of funding in favor of NCD programs in the developing world.

In 1971 Abdel Omran, an epidemiologist at the University of North Carolina, coined what was to become a classic phrase: “the epidemiologic transition”. The article containing this term was published in the *Milbank Quarterly* and aimed to support the World Health Organization’s (WHO) policies for family planning in the developing world; but the term associated family planning with the shift in the western world from infectious to chronic disease and posited that similar shifts were likely to occur as countries developed economically. This was hardly news so the article was largely ignored for nearly two decades. However starting in the late 1980s, the article was rediscovered and quickly became something of a citation classic. One reason for this sudden attention was the discovery of chronic diseases outside wealthy western nations and the gradual transformation of this discovery into a global health problem. The “epidemiologic transition” became a convenient formula for debating the meaning of changes purportedly taking place as well as the strategies for dealing with them (Weisz & Olszynko-Gryn 2010).

In the pages that follow, we describe how chronic disease (in international contexts called “noncommunicable” disease –NCD) gradually became a global issue. The WHO was the dominant but by no means only institution shaping this new social problem. We suggest that its activity was more than a response to reports of increasing incidence of NCDs in developing countries or to the elaboration of efficacious prevention and health care strategies. We argue that WHO programs for reducing cardiovascular diseases in the developed world during the 1970s, evolved into programs applicable to a range of diseases and to what we now call low and middle-income countries (LMIC) from the mid-1980s to the 1990s. During the latter decade, the World Bank changed the terms of debate by initiating the Global Burden of Disease (GBD) project that highlighted the growing statistical importance of NCDs. But at the turn of the century the WHO again assumed the leading role in this domain. Confronting the challenge of NCDs provided the

organization with a mission in which it exerted unquestioned leadership at a time when its overall influence was severely tested. Simultaneously it allowed the organization to combine the new economic cost-benefit orientation sweeping the world of international health with its earlier emphasis on community-based primary health care. WHO of course brings together diverse, often conflicting views and agendas. Our focus is on one group of actors within WHO that has managed to find allies outside the organization, most notably the prestigious journal *The Lancet,* but also among numerous western "experts" in chronic disease who have joined the rapidly expanding world of Global Health.[1]

First initiatives: 1950s to the 1990s

Chronic disease became a social problem in the United States early in the 20th century and by the late 1960s was central to American health policy discussions even if it was not dealt with very successfully. The particularity of the American approach was to see chronic disease as a single comprehensive problem requiring equally comprehensive solutions rather than numerous diseases-specific programs. It was a highly elastic concept that changed with context but that ordinarily included cancers, cardiovascular diseases, chronic lung disease, diabetes, arthritic conditions and eventually diseases of old age. Mental illness might sometimes be included but was generally treated as a distinct social and medical issue. European nations did not immediately follow the American lead in organizing programs around this comprehensive category, preoccupied as they were by the creation of national healthcare or health insurance systems (Weisz 2014). However the European Regional Office of the WHO (Euro) outflanked national governments and proved to be a key agent for transmitting American concepts of chronic disease. Although it was largely set up to deal with infectious diseases, it confronted other issues as well. In 1957, the year the Commission on Chronic Illness published its influential final report in the

United States, Euro held a symposium in Copenhagen on the Public Health Aspects of Chronic Disease (WHO Regional Office for Europe 1958). Subsequent meetings and technical committees on the role of hospitals and ambulatory and home care included influential American figures like E. M. Bluestone, a leading hospital administrator in New York City, who spread his views about the need for hospitals to play a greater role in prevention, rehabilitation, and home care of chronic patients (WHO 1957). In 1967, the agency published a technical report on the unique problems associated with epidemiological studies of chronic diseases (WHO 1967). That same year the organization published the first guide to screening practices. This set ten strict criteria for introducing screening programs that have become internationally accepted (Wilson and Jungner 1968).

An international meeting of 1973 focused mainly on the epidemiology of cardiovascular diseases (CVD) and cancer, respectively the leading and second leading causes of death in Europe and that had been objects of specialized expert activity for a decade. In 1964, WHO established an International Agency for Research on Cancer and several years later Euro launched three long-term programs – on mental health, the environment, and CVD that focused on prevention. At the request of member states, Euro in 1968 began a cardiovascular control program that included multiple national and professional partners. In the mid 1980s, the MONICA project was established to develop a pool of methods to document and study the occurrence of CVD and its risk factors. A network of forty-one collaborating centers utilized a standardized protocol to analyze data from 118 reporting centers in 28 industrialized countries. (WHO MONICA Project Principal Investigators 1988).

These programs led to more targeted CVD interventions. The North Karelia Project was launched in 1972 in response to local pressures to confront exceptionally high CVD mortality in

Finland. It quickly became part of the WHO program. The project, directed by Pekka Puska, was the first major community-based project for CVD prevention and became something of a poster child for such programs. Although its initial success was not very striking (at least with respect to mortality), and was less than convincing scientifically (significant reductions in risk factors occurred outside as well as within the program region) (Wagner 1982), it was from its beginnings viewed as immensely promising and was soon followed by several similar projects. It served as a model of its type because of its longevity, focus on the entire population rather than at-risk groups, wide community participation, and broadening reach to more and more conditions. It also provided a model of limited structural change by working with local industry and agriculture to lower fat and salt content of foods. In 1974 a new WHO program called Comprehensive Cardiovascular Community Control Programmes was established incorporating the North Karelia project and several other projects that had begun in the early 70s.

This initiative led directly to a broader initiative: a program using CVD prevention strategies for controlling NCDs generally. In 1974 disease-specific programs in Geneva headquarters were integrated into a Non-communicable Disease Division. The division seems to have been initially an administrative umbrella for the sections but in 1977 the Russian public health expert Igor Postovoj was named director and the division began acting independently, dominated by individuals from the Soviet block, which was at the time making an aggressive effort to influence WHO policy (Litsios 2002). Nonetheless, the NCD program that was developed reflected American risk-factor control as modified by the North Karelia program; it emphasized life style change, wide community participation, and where feasible structural and regulatory measures. When in the mid-1970s, director Halfdan Mahler reorganized the WHO, regional programs became integrated within global programs so that low- and middle-income

nations could benefit more directly. Euro in 1976 had become responsible for global programs on health protection of the elderly and traffic accidents; the NCD Division effectively expanded European concern with chronic disease to developing nations (Kaprio 1991).

The Division continued and expanded the strategy of the North Karelia project of prevention through risk-factor control. Starting with a meeting in Dublin in June 1978, ten consultations were jointly organized with Euro to plan a program meant to be comprehensive in three senses. First it aimed to develop programs dealing with factors responsible for multiple diseases. Second these programs were to be flexible enough to apply to many countries including less affluent ones. This was justified by recent research indicating that hypertension, cancers, heart and respiratory diseases, and especially diabetes, were emerging as health problems in some developing countries (Alberti 1993). Since this was blamed on the spread of unhealthy Western lifestyles, it seemed reasonable to intervene *before* the problem became intractable. Third it was comprehensive in the sense that it was meant to be "intersectoral"; activities in a wide variety of domains, from the medical to the social to the regulatory, needed to be coordinated within an integrated program.

In May 1985 the World Health Assembly passed resolution WHA38.30 calling for member states to elaborate new strategies for measuring their NCD problem (with special emphasis on CVD), and to implement action where necessary. Two programs were initiated. The Countrywide Integrated Noncommunicable Disease Prevention (CINDI) served the European region and sought to create national programs. The Integrated Programme for Community Health in Noncommunicable Diseases (INTERHEALTH) aimed at global interventions in 10 to 13 countries (the number varied with time) equally divided between industrialized countries (Finland, Cyprus, Lithuania, Malta, Russian Federation, the USA) and developing countries

(Tanzania, Mauritius, Chile, China, Thailand and Sri Lanka – the latter two eventually dropping out). INTERHEALTH coordinated more experimental local projects in order to develop a flexible template applicable to countries at different stages of development. This intervention model was based on the premise that "certain preventive measures will exert a favourable effect, not only on one disease but simultaneously on the several conditions which are linked. Scientific questions on pathogenesis can be by-passed to some extent by asking directly whether people following sensible daily living habits develop less disease" (WHO 1986, p. 9; WHO 1989). The National Public Health Institute of Finland served as a major coordinating center for INTERHEALTH (Berrios et al. 1997). Pekka Puska was an active and influential member of the supervisory committee. For the Americas, a demonstration project was set-up by WHO affiliate, the Pan-American Health Organization (PAHO).

Marginal though they were, these programs positioned WHO to move beyond traditional areas of concern and to assume a leadership role in confronting the emerging problem of NCDs in the developing world. The reports and articles produced by INTERHEALTH claimed to have demonstrated a growing NCD problem in LMICs and reported mixed but generally positive results from certain local programs. A retrospective summary of accomplishments published in 1997 highlighted surveys in 13 countries including some LMICs where the extent of risk factors was established for the first time (Berrios et al. 1997); evidence gathered suggested that the NCD situation in some developing nations resembled that of developed countries 30 years earlier. Community prevention programs, it was argued, had successfully reduced risk factors resulting in a decline in NCD mortality. The program was noticeable enough that other projects –including the WHO-Aids program expressed interest in working jointly with INTERHEALTH in Tanzania.

Independent NCD programs in Zanzibar, Syria and a half-dozen other countries expressed interest in joining INTERHEALTH (WHO 1992).

Mauritius' program received particular attention, with CINDI providing active support. One of the most visible areas of intervention had to do with nutritional trends and their dangers. A survey in Mauritius proved to be an important source of evidence for a 1990 WHO report on *Diet, nutrition, and the prevention of chronic diseases* (WHO 1990a). The Mauritius case supported arguments for the beginnings of an epidemiologic transition in developing countries due to changes in dietary and physical exercise habits. These factors were in turn consequences of broader processes of urbanisation, economic development and changes in production and marketing practices by the food industry (Brown and Bell 2008). This report anticipated many of the themes in the prevention discourse that would emerge more fully in the early 21st century. Mauritius also provided a model for regulatory action. In addition to the usual health education programs, the government in 1987 ordered that "ration oil" - the cheap cooking oil used by most Mauritians - be changed from high-saturated palm oil to soybean oil. Several articles subsequently reported significantly improved serum cholesterol levels, although rates of obesity and diabetes increased (Dowse et al. 1995; Nissinen, Berrios and Puska 2001).

These programs were marginal activities at the WHO. The organization's director Halfdan Mahler certainly supported the program but rarely mentioned NCDs in his public speeches. Meetings of the INTERHEALTH supervisory committee during the early 1990s complained about inadequate financial resources (WHO 1990b; WHO 1992). Lack of resources undoubtedly reflected the structural financial constraints at WHO, notably the refusal of some countries to pay dues and the increase of donor-defined assistance funding as opposed to general contributions, but internal politics and prioritizations may also have intervened. Although the rhetoric of NCD

programs was well within the WHO consensus of the 1970s, utilizing terms like “primary health care”, “community participation”, “horizontal” programming, and “low-technology” interventions, the focus was on individual risk-factor behavior modification rather than structural and social change. The Director of Euro asserted in a 1991 publication that the CINDI program had successfully combined the two approaches (Kaprio 1991, p. 103) but INTERHEALTH’s isolated local demonstration projects could make few claims to structural change (aside from the Mauritius cooking-oil success). The Ottawa Charter on Health Promotion in 1986 (followed by the Healthy Cities Project in 1987) expressed the views of many at the organization by referring directly to social reform and equity. Ideological preferences may partly explain why NCD programs were largely ignored within a WHO animated by Alma-Ata ideals. Nonetheless, while programmatic development of this agenda remained limited, the North Karelia project and INTERHEALTH developed the fundamental strategies of NCD control that would spread more widely at the turn of the century.

The World Bank and the Global Burden of Disease

INTERHEALTH continued to function during the 1990s. Despite complaints of shrinking allocations for NCDs and of inadequate training in prevention for health professionals, WHO had 43 collaborating Centers working in this field in 1995. By then there existed widespread agreement about the scope of the problem in developing countries; a WHO report stated flatly that NCDs were responsible for 40% of all deaths in these nations. It was also baldly claimed that 50% of all CVD and 30% of cancers were preventable. A variety of studies had satisfied at least some policy planners of the value of an “integrated approach to building local coalitions, implementing social marketing campaigns and evaluating overall impact of interventions in the community” (WHO 1995, p. 4).

By the end of the 1980s, the WHO was generally thought to be in crisis, and to have lost its preeminent role in international health policy to the World Bank (Brown, Cueto and Fee 2006). It is certainly the case that the former assumed a supportive role behind initiatives developed by the latter, which transformed the dominant ethos of international health during this decade. Serious World Bank involvement in health affairs officially began in 1979 with the creation of a Population, Health, and Nutrition Department to provide loans for health programs. The Bank together with the Rockefeller Foundation sponsored a meeting in Bellagio Italy including officials of the Rockefeller and Ford foundations, USAID, and UNICEF among other organizations to elaborate an alternative framework to the Primary Health Care (PHC) approach approved at the Alma-Alta conference the previous year and viewed by participants as excessively broad and idealistic. The result was the concept of "selective primary health care" based on pragmatic low-cost interventions (Cueto 2004).

In 1992, the World Bank published a report that argued that an "adult health policy vacuum" existed; "[o]ver the past thirty years, the focus of intellectual and research activity in international public health has been in two distinct areas – tropical diseases and the health of children." It was necessary to develop the concept of "adult health" in order to face issues ignored by international agencies (Feachem, Phillips and Bulatao 1992). Risk factors were given extensive attention as a major category of change within the "health transition" of developing countries. Another chapter of the report aimed to provide evidence of the economic burdens associated with adult ill health (Over, Huber and Solon 1992). The report thus noted and provided evidence for increasing prevalence of NCDs in developing countries, casting these phenomena as components of a new concatenation linking poverty, risk factors and the developmental bottlenecks caused by adult ill-health.

This report utilized existing mortality data but an evidentiary breakthrough would soon take place. In 1992, the World Bank commissioned the Harvard Center for Population and Development Studies to do a large-scale study to standardise mortality data and to obtain reliable estimates of morbidity and disability throughout the world. The WHO was quickly brought in as an equal partner in the Global Burden of Disease project. The primary authors of the report were Alan D. Lopez, a statistician at the WHO Geneva headquarters, and Christopher Murray, an associate professor at the Harvard Center for Population and Development Studies. The results were published over several years (Murray, Lopez and Jamison 1994; Murray and Lopez 1996a; Murray and Lopez 1997) and had significant impact. Web of Science attributes 2100 citations for one 1997 *Lancet* article and just under 2000 for another.

The GBD was an effort to develop a scientific, econometric approach to a policy sector that had, in their view, been excessively shaped by advocacy groups citing information that was "often filtered or biased". The authors hoped instead "to provide a framework for objectively identifying epidemiological priorities, which together with information on the cost-effectiveness of interventions can help when decisions on the allocation of resources have to be made" (Murray, Lopez and Jamison 1994, p. 495-496; Murray and Lopez 1996b, p. 740). The GBD introduced a new indicator, Disability-Adjusted Life Years, DALYs, to evaluate mortality and morbidity at population levels, integrating risk factors, disease incidence and "consequences" in its measurement.[2] DALYs were supposed to allow comparison between project cost and actual disability burden with a view to aligning the two. The measurement proved to be very controversial and was vigorously criticized on many different grounds (Anand and Hanson 1998; Arnesen and Nord 1999). Nonetheless, the DALY remained a widely cited if contested measure.

The GBD and the DALY provided powerful intellectual support for INTERHEALTH's focus on NCDs. In a 1994 article, Murray and a co-author compared DALY measures with health financing in developing countries (Michaud and Murray 1994). They found that leprosy received 75$ per DALY, onchocerciasis 55$, sexually transmitted diseases and HIV combined 4$, but that NCDs received on average 0.05 $ per DALY. These donor priorities were especially questionable considering how NCDs and injuries amounted to 49.6% of the burden of disease in developing countries, according to GBD results (Michaud and Murray 1994, p. 645). These widely publicized findings provided perhaps the strongest argument yet for more public health attention to these conditions. On the whole the GBD project did not strongly identify itself with NCD politics. But it provided ongoing evidence that could be utilized by a growing NCD movement that can only be described as one of those "advocacy groups" that GBD was supposed to eliminate.

The World Bank consolidated its influence on international public health with the publication of the 1993 edition of its *World Development Report*. This presented GBD data showing that communicable diseases remained the greatest burden for LMICs (World Bank 1993). Prevalence of NCDs was, however, expected to rise in the near future with the "demographic transition". The report also took up the theme of a "nutrition transition" (toward western diets) with potentially deleterious impacts on the burden of disease in LMICs. Although some parts of the report argued that relatively inexpensive improvements to primary care might reduce the burden of NCDs, other passages emphasized prevention through risk reduction. Most importantly, the document underlined links between health and economic growth, an idea that had been circulating for over 20 years and that now became authoritative. This justified spending on health "on purely economic grounds"(World Bank 1993, p. 17).

That same year, the bank published a collective volume, *Disease Control Priorities in Developing Countries,* in which affiliated authors explicitly aimed to draw the implications of "epidemiological change" for the developing world. "It should be clear that there is an urgent need to reassess health sector priorities in developing countries," stated two of its editors (Jamison and Mosley 1991, p. 19). This volume utilized DALY estimates to assess the cost-effectiveness of a range of public health and clinical interventions targeting the communicable and noncommunicable diseases of developing countries and warned that rising incidence of the latter would create major strains (Jamison 1993). Regulation of tobacco consumption and advertising, and mass prevention campaigns were proposed as responses to this problem.

Meanwhile, WHO's crisis of legitimacy intensified during the 1990s. Numerous critics lamented its inertia and inability to adjust to a changing world (e.g. Zwi and Mills 1995; Godlee 1997). A resolution of the UN Economic and Social Council took HIV/Aids out of its hands and launched a new agency, UNAIDS, in January 1996. Despite regular mention in reports of the need to strengthen horizontally integrated primary health care, critics characterized the organization as increasingly oriented toward disease-specific, vertical programming (Reid and Pearse 2003; Stenson and Stersky 1994). Growing collaboration with and movement of experts between WHO and the World Bank heightened this perception (Abbasi 1999). WHO was divided on the issue of DALYs; some groups within it were opposed to the measure on technical and political grounds, while the department in which Alan Lopez worked actively used it. The WHO's 1997 *World Health Report*, dedicated to the topic of NCDs, expressed scepticism about DALY measurements, but starting in 1999, the yearly series fully embraced DALYS and other GBD measures (WHO 1996; WHO 1997; WHO 1999b).

In brief, the mid-1990s saw significant new interest in global NCD control largely animated by the World Bank. The publications it sponsored reached a broad audience and authoritatively drew attention to the NCD problem of LMICs in a way that greatly surpassed the more technical initiatives of the WHO. New statistics like the GBD and new metrics like DALYs (however controversial the latter) provided a strong economic rationale for investments in the global NCD problem. The World Bank's interest in NCDs waned after this initial flurry of activity. It continued to warn periodically about the growing NCD problem and was active in efforts to control tobacco but essentially moved on to other tasks. An article published in 1996 declared: "The central theme of the World Bank's involvement in health in the coming years is to support policy formulation and the implementation of health care reforms in developing countries, focusing on the political economy of reforms, health care financing, and the development of analytical tools" (Claeson, de Beyer and Feacham 1996: p.268).

The WHO and Global Noncommunicable Disease

The final years of the 20th century brought dramatic change and growth to the structures of international health. A relatively small number of institutional actors were joined by many new philanthropic and activist organizations including the Bill and Melinda Gates Foundation (BMGF f. 1997), GAVI-the Vaccine Alliance (f.2000), and The Global Fund to Fight AIDS, Tuberculosis and Malaria (f.2002). These shook up traditional ways of functioning and together with national agencies and governments (notably in the US and to a lesser extent the UK) brought considerable new monies to international health. One policy report has called the first decade of this century a "golden age" of global health financing (Institute for Health Metrics and Evaluation 2012). Critics, usually on the left, have in contrast seen the influx of private funding by wealthy philanthropists and the private sector in a negative light. Public-private partnerships became

common with some commercialization of public health activity actively encouraged (Birn 2013). Perhaps as a sign that something new was emerging, the term “global health” rapidly became the standard term for the explosion of activity around what had previously been called “international health”. Despite these very real changes, the energy and funds of this new constellation of institutions were directed at infectious disease control. NCD programming and policy formation was left mostly to the WHO.

Part of this broader shift involved the revitalization of WHO that accompanied the arrival of Gro Harlem Brundtland as director-general in 1998. Brundtland was a former Prime Minister and Minister of Health in her native Norway and a previous leader of the U.N. World Commission on Environment and Development. With her prestige and international contacts, she was able to attract increased funding to the agency, impose a major internal reorganization, and hire a slew of experts to work in these expanded and reorganized units. She strengthened existing collaborations with other international agencies, notably the World Bank. The GBD study for instance moved to the WHO, bringing with it the DALY/cost-effectiveness orientation that Brundtland publicly endorsed. This shift along with Brundtland’s executive style provoked considerable tensions and conflicts within the organization (Lerer and Matzopoulos 2001; Horton 2002); but it also lead to expanded activity. A GBD update was undertaken in 2000; preliminary results appeared in *World Health Reports* and final results were published by the World Bank in 2006 (Lopez 2005; Lopez, Mather, Ezzati, et al. 2006). For the purposes of this paper, the key feature of her tenure was a significant escalation of the agency’s concern with NCDs.

There was a major restructuring of WHO bureaucracy and a reported 50% growth of staff at Geneva headquarters during Brundtland’s term (Benkimoun 2006). Derek Yach, a young South African, known for his work on tobacco control in Africa, was brought in as director of a new

Non-communicable and mental health cluster composed of a Department of NCD Prevention and Health Promotion and another of NCD management. Ala Alwan was recruited from the Regional Office for the Eastern Mediterranean to become first director of the former and then of the latter; he stayed until 2001 when Pekka Puska replaced him. Raphael Bengoa, a specialist in healthcare organization, became head of the NCD management unit. Ruth Bonita worked at a unit of Cross Cluster Surveillance that established a "WHO Global NCD InfoBase" (WHO 2002b). JoAnn Epping-Jordan, a clinical psychologist, became a Coordinator of a Health Care for Chronic Conditions project team. Christopher Murray left Harvard to join Alan Lopez in a new unit of Evidence and Information for Policy that housed the GBD 2000 study.

Although many individuals involved in NCD units gradually left the organization in the years following Bruntland's tenure, and WHO enthusiastically reclaimed its Alma-Ata heritage, the organizations' rhetorical emphasis on NCDs did not diminish. Just as the WHO NCD strategy developed through INTERHEALTH and CINDI had expanded while retaining its fundamental orientation under Bruntland, despite apparent changes in agency ideology, the policies of her successors continued for the most part along similar tracks. In 2003 the new Director-General, Lee Jong-wook, replaced Yach with the French economist Catherine Le Galès-Camus appointed to the upgraded position of Assistant Director General for Noncommunicable Disease and Mental Health (Brown 2007). The most visible member of the post-Brundtland NCD team, Robert Beaglehole, a professor of community health from New Zealand, replaced Puska as Director of the Department of Chronic Diseases and Health Promotion.

In her first address to the WHO, Brundtland urged that more attention be directed at the "new epidemic of noncommunicable diseases" (Brown and Bell 2008). One of her final speeches before leaving office addressed the same theme (Brundtland 2003). In between, the agency

produced a major policy paper, the "Global Strategy for the prevention and control of noncommunicable diseases" (GS) based on the recommendations of an expert consultation led by Puska. The document expanded on the principles of North Karelia and INTERHEALTH (WHO 1999a). Behind this intensified effort were regularly repeated claims of increasing prevalence of NCDs in LMICs. An editorial in the *WHO Bulletin* by the President of Britain's Royal College of Physicians titled "Noncommunicable diseases: tomorrow's pandemics" argued that NCDs "threaten to swamp the meager health care resources of many countries" (Alberti 2001, p.907). A second assumption was that the effectiveness of integrated preventive strategies focused on risk-factor control was now conclusively established. In 2001 this belief was challenged by the editors of the *International Journal of Epidemiology* who published a stinging critique of efforts to export to developing countries the risk-reduction programs for cardiovascular disease. These programs, they argued had not been very successful and the result would be to "export failure" (Ebrahim & Smith 2001). This prompted spirited rebuttals from figures like Puska who argued that poor results of some demonstrations were due to inadequate resources and short duration.

Using similar reasoning, the GS document specified that among the lessons that had been learned was that "interventions should be of appropriate intensity and sustained over extended periods of time." The document offered something to left-leaning critics by arguing for structural change as well. Community interventions required not just community support (a given for INTERHEALTH) but "supportive policy decisions, intersectoral action, appropriate legislation, health care reforms…. More health gains in terms of prevention are achieved by influencing public policies in domains such as trade, food and pharmaceutical production, agriculture, urban development, and taxation policies than by changes in health policy alone." The document carefully balanced the equity rhetoric of Alma Ata with the cost-benefit/market views of the

World Bank. It supported public-private partnerships, cost-effective interventions and the necessary “collaboration with nongovernmental organizations, industry and the private sector.”.

There is one other aspect of the GS that is worth emphasizing. The document stated repeatedly that WHO would be the major body overseeing NCD policy. While global networks and partnerships needed to be established, WHO “would provide the leadership and the evidence base for international action on surveillance, prevention and control of noncommunicable diseases. It will set the general direction and priorities….” In the area of technical expertise, “WHO will support implementation of programmes at national or any other appropriate level.” There is hardly any activity from production of healthcare guidelines to research of every sort that was not be led by WHO. The organization was clearly asserting its leadership role in this new and expanding domain of activity.

Nonetheless the WHO never had much money to spend on NCD. Aside from chronic financial shortages, it remained, either by choice or because so much of its funding was outside the core budget and went toward donor-defined, disease-specific programs, primarily concerned with infectious diseases and threats of pandemics. One study noted that in 2006–07, the organization allocated 87% of its total budget to infectious diseases, 12% to non-communicable diseases, and less than 1% to injuries and violence (Stuckler et al. 2008). Nonetheless it sought to be active in a number of areas. Its modest NCD work during the next decade can be divided into four categories.

The NCD Work of the WHO

1. At the end of the 1990s, INTERHEALTH disappeared to be gradually replaced by four new regional NDC networks joining CINDI (Europe primarily) and CARMEN (Latin America). The

networks were brought together annually from 2001 to 2004 in a Global Forum on Integrated NCD Prevention and Control to share experiences, information, and standards while raising visibility of the NCD problem (WHO 2003). A survey authored by Alwan in 2001 found that less than half of 160 member countries had formulated NCD policies and many had little awareness of the issue (WHO 2001a). From the beginning funds for programs were scarce despite numerous resolutions calling on nations to increase NCD funding. By 2010 the WHO could report that the 65 % of countries who responded to a survey had integrated national policies covering two or more NCDs, a 15% rise from ten years earlier. However only 43 % had "operational" policies and only 31 had operational policies with dedicated funding. The figures in lower-income countries were considerably lower. Disease specific programs were more common, with 80% of countries or more having cancer or tuberculosis "policies, plans or strategies". Again there were wide disparities according the wealth. By 2010 most countries were collecting NCD mortality and morbidity data as part of their health system activity with much of the rise occurring in LMICs (WHO 2012b). It goes without saying that such programs varied widely in quality. This report like most other WHO documents on the subject concluded by calling for expanded and improved programs supported by greater financial investment, with a special focus on lower-income countries. With the more energetic return to Alma-Ata rhetoric after 2007, NCD activity "simple inexpensive and cost-effective" was increasingly framed as part of "primary health care" programs with greater emphasis on governmental regulatory actions and on the link between chronic disease, poverty and health inequalities. This did not exclude cooperation with the private sector, including pharmaceutical companies and food producers, and raising new funding through public-private partnerships.

2. There was considerable pressure within WHO to move beyond individual behavior by confronting socio-economic conditions through governmental regulation. Tobacco became the

emblematic example of this strategy. Starting with the Tobacco-Free Initiative by WHO in the mid-1990s, discussion took place around the elaboration of a formal control treaty (Collishaw 2010). This was one of the few NCD issues in which the World Bank continued to play a leading role, publishing influential reports in 1999 and 2000 that argued for increased tobacco control to promote economic development. The Framework Convention on Tobacco Control (FCTC), largely elaborated due to WHO's efforts was arguably the most significant policy intervention for NCDs by the international public health community. Negotiations around it were arduous and tobacco companies and their political supporters were able to block key provisions. Several figures instrumental in its development noted that the treaty "neglects to incorporate many mechanisms used in other global framework conventions to encourage state parties to comply with their international legal commitments" (Roemer, Taylor and Lariviere 2005). But while some critics characterized the convention as excessively general and weak, others saw it as a tentative but promising first step that could be successfully implemented by "expanded global awareness and national political commitment" (Brandt 2007, p. 472-91). The FCTC was adopted by the World Health Assembly in 2003, and came into effect in 2005, with ratification by 165 countries by 2010 (Collishaw 2010; Yach, Leeder, Bell and Kistnasamy 2005). The treaty planned for a number of measures to be adopted by ratifying countries including increases of tobacco sales taxes, marketing bans, and the expansion of smoke-free environments. A WHO report of 2012 suggested that implementation of its provisions in national contexts remained uneven; 79% of countries that had submitted implementation reports had "strengthened their existing laws or adopted tobacco-control legislation after ratifying the convention." But a large number of countries remained far from full compliance with the treaty (WHO 2012a). Scattered data in reports suggested smoking had increased in some countries and decreased in others. Recently Derek Yach, a key player in establishing the FCTC, concluded that tobacco use had

increased in low-income and middle-income countries, “a result in no small part of illicit trade and cheap products from China and other unregulated state monopolies” (Yach 2014, p. 1171). He also pointed to the lowered profile of tobacco control largely due to the budgetary crisis of WHO, that was only partially compensated by contributions from philanthropies like the Bloomberg Foundation and the BMGF.

3. Diet, usually associated with physical activity, was from the beginning linked to NCDs and their prevention. Over-nutrition, in particular, understood as the globalization of western eating patterns and food-manufacturing processes, was seen as a major culprit in the rise of NCDs in LMICs. The central instrument for WHO action in this area was to be a *Global Strategy on Diet, Physical Activity and Health* proposed in 2002 and submitted to the World Health Assembly in 2004. Despite some pressure to take a strong regulatory approach, it was decided that unlike its tobacco counterpart, the food industry had to be treated as a partner rather than as an adversary. In Bruntland’s words: “The food industry is clearly part of the solution… Shifting the pattern of diet and physical activity behaviour across the global population demands a more nuanced and multifaceted approach than that adopted for tobacco.” Despite the call for “constructive dialogue with all parties” (Brundtland 2003) the global food industry, led by the sugar sector, vigorously opposed the initiative, enrolling at times the US government and various agricultural countries. One of the actors in this drama has argued that after Brundtland’s departure, the WHO leadership did not pursue the GSDPAH very energetically (Norum 2005).

The GSDPAH was passed in 2004 without quantified consumption thresholds for fat, sugar, and salt. It has been described as a facilitative, advocacy-based strategy that countries are urged to implement. Governments are to coordinate policy across various sectors, regulate marketing and health claims, set fiscal and agricultural policies, and promote physical activity. WHO followed up by creating in 2009 a National Guidance Steering Committee and a year later an

expert advisory group; it has developed a nutrition network with 131 full and part-time staff in its regional and country offices. These provide surveillance of and guidelines for national policies (WHO 2010). Nonetheless a recent study has determined that only a minority of LMICs have comprehensive policies in place (Lachat et al. 2013). Some low-income countries now face both malnutrition and obesity. This situation has resulted in increased demand for regulatory approaches that are less friendly to "big food" and have brought into being advocacy groups like the Conflicts of Interest Coalition based on the premise that there is fundamental contradiction between producing foods for profit and producing them to maximize health (Stuckler and Nestle 2012; De Vos, Stefanini, Ceukelaire and Schuftan 2013).

4. A final thrust of NCD policy was healthcare organization in LMICs. Mention of NCD healthcare was occasionally part of WHO reports of the 1980s and 90s and some guidelines for treatment of specific NCDs appeared among the numerous communicable disease treatment guidelines (WHO-EURO 1985; WHO-EMRO 1988). But when Rafael Bengoa, a health systems reform expert became Director of the Department of Management of Non-communicable Diseases under Brundtland, things changed. JoAnn Epping-Jordan was brought in to develop a new program, Innovative Care for Chronic Conditions (ICCC). This had its origins in the Chronic Care Model (CCM), one of the most successful of the initiatives that had emerged from the movement in the United States to control costs through managed care (Weisz 2014). Like other models (but with greater weight on transforming the entire healthcare system) it sought to develop team approaches and support structures for self-management of chronic diseases to prevent acute episodes. The originator of The CCM, Edward Wagner became a consultant to the cluster on NCDs and Mental Health in 2000 (Epping-Jordan, Bengoa and Yach 2003).

The ICCC project expanded the CCM framework to LMICs where, it was argued, NCDs made up "fully half of all required health care" (WHO 2001b, p. 1). At the policy level, the program returned to some of the themes of the 1970s arguing that governments invested too much in high-technology therapies instead of less expensive and more accessible forms of healthcare. The use of the term "chronic" instead of the more usual "noncommunicable" reflected the transfer of American concepts and models to the international arena and had practical implications. By focusing on the temporal aspects of disease rather than their cause, it was possible to include HIV/Aids as a long-term disease (WHO 2002a, p. 12). Thus cancer and diabetes could be placed under the same umbrella as HIV/Aids, a disease that mobilized enormous international attention and money.

The most significant project fusing NCD and HIV/Aids concerns was the Integrated Management of Adolescent and Adult Illness (IMAI) program developed after 2001 as a set of guidelines for comprehensive management in low-resource primary settings. In 2003 IMAI was re-focused exclusively toward the management of Aids where it was eventually implemented in 40 countries (Beaglehole et al. 2008). References to ICCC disappear completely after 2008. The most plausible explanation is that it was supported by only a handful of individuals and when these left the organization (Bengoa left in 2006, Beaglehole and Epping-Jordon a year later) the program was left to wither. The issue of care continued to have resonance and a report on primary health care appeared in 2008. But the focus was on health equity rather than disease management (WHO 2008). Self-care programs are now part of the ideal of primary health care because they are cheap and, it is hoped, might reduce demand for scarce health services.

To summarize, under Brundtland's direction and that of successors, WHO expanded the NCD agenda as part of its effort to redefine itself. It did not however have much money to spend

on this agenda because of financial constraints and the continued focus on infectious diseases. Its leaders did however insist on a coordinating / normative role for the organization and WHO was the major catalyst for a set of interventions that targeted tobacco consumption in a confrontational regulatory manner. This fit in with its wider attempt to reverse its decline by claiming a central role in the emerging policy space of "global health" (Brown, Cueto and Fee 2006). It also left it sufficient room to deal with the NCD problem (rhetorically at least) by combining the new language of cost-effectiveness with the Alma-Ata rhetoric of primary health care and community participation. It was however unwilling to use the same confrontational tactics when dealing with the food industry while efforts to apply emerging western healthcare models in LMICs did not get far. In many ways, the major achievement of WHO in this domain was its advocacy work.

Creating an Advocacy Coalition

A major "challenge" from the 1980s on was to make NCDs a global health priority. But this was a tall order. Even within WHO there were those who argued that HIV/Aids was a far more pressing issue. The UN Millennium Development Goals initiative (2000) and the WHO Commission of Macroeconomics and Health (2001) established authoritative lists of priorities for health and development support. The NCD agenda was completely ignored in the former much to the chagrin of its advocates (Beaglehole, Bonita, Horton, et al. 2004; Collin 2012). The latter report argued for sharply increased spending on health by both donor and developing countries. While it acknowledged the global burden of NCDs, it contended that HIV/AIDS, malaria and tuberculosis should be the highest priorities for donors to the poorest countries, a position supported by Brundtland's successor as head of WHO, Lee Jong-wook (WHO 2002c; Lee 2003). The World Bank also did not speak with a single voice on the subject, with a 2007 report advising

against excessive investment in NCD interventions narrowly defined (World Bank 2007). It did not help matters that the WHO in 2010 suffered a budget crisis that resulted in massive staff cuts.

With little money to invest, WHO became a well-oiled advocacy machine on behalf of NCDs, regularly producing slick guidelines, actions plans and reports. The Second Action Plan for controlling NCDs had as its first objective, "To raise the priority accorded to noncommunicable disease in development work at global and national levels, and to integrate prevention and control of such diseases into policies across all government departments" (WHO 2009, p.1). To achieve this aim others were recruited to the cause. The most important alliance was between Robert Beaglehole at WHO and Richard Horton, editor of *The Lancet*. In 2005 the two issued a call for papers for a series on NCDs (Beaglehole and Horton 2005). This was the first of four series or special issues of *The Lancet* devoted to the subject. Eventually, the Lancet NCD Action Group was formed; it was an informal but active group of experts chaired by Beaglehole, which published a number of influential collective articles emphasizing the significance of the NCD issue and suggesting priority responses (Beaglehole et al. 2011). In 2006, WHO published a "how-to guide" for NCD advocates (WHO 2006). It provided suggestions for establishing grassroots advocacy coalitions, and tips on creating and disseminating key messages, planning events and so forth.

While WHO in alliance with *The Lancet* (and independent figures like Beaglehole who retired in 2007 from WHO) remained the chief NCD advocacy group, it gradually became part of a wider international advocacy coalition. New organizations were created such as Oxford Vision 2020 (later Oxford Health Alliance), the Young Professionals Chronic Disease Network (Matheka et al. 2013) and the Global Alliance for Chronic Disease. The latter brings together six national health research agencies in order to devote some of their already considerable funding of chronic

disease research to the specific problems of LMICs. In 2008, the World Economic Forum identified NCDs as a leading threat to the global economy. Three years later it published a major report and established the Global Agenda Council on NCDs, a think tank to raise awareness and support action (Anderson and Nishtar 2011; Bloom et al 2011). Disease-specific organizations have also joined the fray. In 2011 the National Cancer Institute in the US announced the creation of a Center for Global Health. A year earlier, four international disease-based NGO federations – representing cardiovascular disease, diabetes, cancer, and chronic respiratory disease – came together to form the NCD Alliance. It described itself as a network of over 2,000 civil society organizations from 170 countries and is perhaps the most significant effort to overcome what is generally seen as the major weakness of the NCD movement: the lack of local grassroots groups able to put pressure on national authorities in LMICs (Geneau et al. 2010).

But the crowning moment was certainly the High-level Meeting on non-communicable diseases" hosted by the General Assembly of the United Nations in 2011. This was only the second time that the Assembly had met to discuss a specific health issue – the other being HIV/Aids – and like the earlier meeting this gathering was meant to draw international public attention to the problem. It called for new global targets and an action plan for addressing NCDs (UN Daily News 2011). A series of targets were subsequently outlined in a new action plan endorsed by the World Health Assembly (WHO 2013). The number of annual publications on NCDs listed in Web of Science has increased dramatically, from less than 100 before 2008 to 165 in 2010 to over 500 in both 2013 and 2014. The issue is clearly on the intellectual agenda at least.

Funds directed at NCDs also increased substantially –Nugent and Feigl estimated the increase at more than 600% between 2001 and 2008. However NCD programs still constituted only about 3% of Development Assistance for Health (DAH) funding (Nugent and Feigl 2010).

As a result, most governments in low-income regions appear to have done relatively little to deal with NCDs. It would seem that neither the UN meeting nor new organizational initiatives have succeeded in transforming patterns of investment in global health, although WHO in 2013 announced an increase of over 20% in its NCD allocations. A recent article has characterized international NCD policy as one of "malignant neglect" (Stuckler and Basu 2013). A report on implementation of NCD programs since 2011 concluded that "progress was insufficient and highly uneven, and that continued and increased efforts are essential"; nine ambitious new "global targets" were proposed (WHO 2014, p.11).

There are however signs of change. The Global Burden of Disease Report for 2013, produced by IHME, which is financed by the BMGF, was unequivocal in stating that NCDs were now the dominant problem everywhere but in Sub-Saharan African (Institute for Health Metrics and Evaluation 2013, p. 44). More recent IHME data was presented in a well-publicized report by the prestigious Council on Foreign Relations and indicated that mortality from NCDs is more than three times as high for people younger than 60 years of age in low-income countries than in rich ones (Tavernise 2014). Taken together with data suggesting declines in infant and communicable disease mortality, this raises the possibility that private philanthropies like BMGF, which has already invested in tobacco control and funded a study on obesity worldwide, might be shifting priorities (Nugent and Feigl 2010; Ng et al. 2014). Equally significant, the targets of NCD activity are taking a more active role in formulating policy. In July 2013, the inaugural meeting of the NCD Synergies Network took place in Kigali, Rwanda, hosted by the Rwandan Ministry of Health and attended by representatives from 18 countries, including policy makers from 13 African health ministries. As a "complementary agenda" to WHO's program to attempt to reduce mortality among individuals aged 30 to 70 from the four major chronic disease groups

by 25% by 2025, it proposed its own program to reduce premature mortality from *all* NCDs and injuries by 80% in individuals younger than 40 by the year 2020 (Binagwaho, Muhimpundu and Bukhman 2014). A study of the regional response to NCDs was undertaken by a new East African NCD Alliance Post-2015 Initiative, described as a loose coalition of civil society organisations working to tackle the challenge of NCDs in the East Africa region (Kallestrup 2014). However sluggishly, things do appear to be moving.

Conclusion

NCDs have been successfully added to the global public health agenda. A plethora of policy initiatives, organizations and writings dedicated to NCDs now exist and a cacophony of demands is being generated. The once small core of NCD advocates has expanded significantly. Many new organizations have appeared but WHO remains the major player in the NCD field. This may account for the continuity in NCD policy since the 1980s symbolized best by the fact that Pekka Puska, the original director of the North Karelia Project and then a major WHO player during Brundtland's tenure, was one of three leaders of international disease-based federations (in his case the World Heart Federation) that called in 2009 on members of the World Health Assembly to pressure their governments to place NCDs on the Agenda of the UN, thus leading to the High-level Meeting of 2011 (International Diabetes Federation, World Heart Federation and International Union Against Cancer 2009). Calls for regulatory approaches to multi-national corporations have become louder and more frequent and there is now more emphasis than in the past on medical treatment and secondary prevention; but the core of NCD policy remains largely unchanged.

Why is the burden of NCDs in LMICs only now widely perceived as a critical social issue? The rise of many countries to middle-income status, accompanied by changing disease

statistics and new demands by elites and middle classes is certainly part of the story, as is the visible suffering in poor countries caused by diseases like cancer (Livingston 2012). Nonetheless epidemiological and anthropological data must be created, interpreted, and mobilized, work that has been led by "experts" from developed western countries. Since so much of western public health and epidemiology is now devoted to NCDs, it is hardly surprising that western experts have brought this focus to a global health discourse that they have largely dominated. (Researchers from the global south have noted this point and are pushing back; see Carrillo-Larco, Demaio and Miranda 2013). Disease advocacy groups, moreover, are increasingly united in "world federations" pursuing international agendas that largely reflect the concerns of wealthier nations (here too we have seen local pushback). Political and ideological differences certainly create disagreements about strategy and policy but conflicting groups agree on one really big thing: the need for greater attention to and more resources for NCDs. This can be justified in both the health equity terms of Alma Ata and the cost-benefit language of the World Bank. The growing NCD coalition thus has room for advocates of individual behavior modification, political/regulatory interventions, attention to poverty alleviation, and collaborations with private enterprise.

That being said, the NCD coalition has failed until now to attract sufficient funding. It is tempting to blame the WHO, with its heavy bureaucracy, politicization, and agenda-setting by funders, but this would miss the point. The WHO with its small budget and a wide-range of commitments has never been able to invest much money in NCDs because the need to deal with infectious diseases and prevent global pandemics dominates its agenda. For this reason, critics argue that many other needs are not being adequately met: maternal and child health, mental health, accidents and injuries, to name a few. More to the point donors with far more money than

WHO – agencies of the American government, private philanthropies, and NGOs – have also invested overwhelmingly in efforts to control communicable diseases. And so have national governments. These diseases which are immediate and critical problems for many nations, and threaten to spread widely thanks to modern transportation, will always be more compelling and frightening than slowly evolving chronic conditions that primarily affect older adults, are difficult to deal with, and for which there is little potential for quick technical fixes. Finally, transformation of risky individual behaviors requires that healthy alternatives be easily available (Brangan 2013). Cigarettes can be highly taxed but good food and cheap drugs require major investments and lengthy confrontations with powerful multi-national interests. One need not be committed to neo-liberalism to prefer policies that antagonize no one and that promise quick if small improvements.

This being said, it appears that the tide may be turning. It is likely that NCDs are slowly becoming a major global issue that will eventually, however glacial the pace, command greater resources and provoke more intense disagreements about how to deploy these resources. And there will be few quick fixes. We in the rich nations have been confronting chronic, non-communicable diseases for over sixty years and yet we regularly use terms like “crisis” and “epidemic” to describe our situation, for we too invest predominantly in the acute interventions that affect people at the most primal levels. One hopes that something has been learned from our experiences and that these lessons can be applied in circumstances that are in many cases far less favorable than our own.

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Endnotes

[1] A corpus of more than 550 published and archival documents from international organizations (including WHO, the, PAHO, EURO, and various advocacy organizations) and scholarly articles pertaining to international NCD policy was assembled. This corpus was used to track the development of the NCD issue in the field of international/global public health. Informal interviews provided background information but were not systematically utilized.

[2] The premature mortality information it processes is years of life lost because of premature mortality (YLL). Premature mortality was calculated using the "ideal" mortality of the Japanese population as the world standard. It combined this information with years of health life lost as a result of disability (YLD), calculated by taking the number of incident cases in the period studied, multiplying it with the average duration of the disease, and weighting the results through a scheme that accounted for degrees of disability severity (Lopez, Mather, Ezzati, et al. 2006).