

The World Health Organization and the Globalization of Chronic Noncommunicable Disease

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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 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 diseases and posited that similar shifts were likely to occur as other countries developed economically. This was hardly news, so the article was largely ignored for nearly two decades. 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 rise in chronic diseases outside wealthy Western countries and the gradual transformation of this rise 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 and Olszynko-Gryn 2010).

In the pages that follow as well as in the timeline provided in Appendix Table A1, we describe how chronic disease (in international contexts called noncommunicable disease—NCD) gradually became a global issue. The World Health Organization (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 in what we now call low- and middle-income countries (LMICs) 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 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 WHO 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–1990s

Chronic disease became a social problem in the United States early in the twentieth 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 disease-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 countries, preoccupied as they were by the creation of systems of national health care or health insurance, did not immediately follow the US lead in organizing programs related to this comprehensive category (Weisz 2014). However, the European Regional Office of the WHO (EURO) outflanked national governments and became a key agent for transmitting American concepts of chronic disease. Although it was largely set up to deal with infectious diseases, EURO 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). In the 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 in 1973 focused mainly on the epidemiology of cardiovascular diseases (CVD) and cancer, respectively the leading and second leading causes of death in Europe 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 (multinational monitoring of trends and determinants in cardiovascular disease) was established to develop methods to document and study the occurrence of CVD and its risk factors. A network of 41 collaborating centers used 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, launched in 1972 in response to local pressures to confront exceptionally high CVD mortality in Finland, quickly became part of the WHO program. The project, directed by Pekka Puska, was the first major community-based project for CVD prevention. 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 the fat and salt content of foods. In 1974 WHO established the Comprehensive Cardiovascular Community Control Programmes (CCCCP), incorporating the North Karelia project and several other projects that had begun in the early 1970s.

This last initiative led directly to a broader program using CVD prevention strategies for controlling NCDs generally. In 1974 disease-specific programs in WHO's Geneva headquarters were integrated into a Non-communicable Disease Division. The division seems to have been initially an administrative umbrella for the disease-specific programs, 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 bloc, 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 lifestyle 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 LMICs could benefit more directly. By 1976 EURO 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 countries (Kaprio 1991).

The NCD Division 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 approach 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 trend was blamed on the spread of unhealthy Western lifestyles, it seemed reasonable to intervene before the problem became intractable. Third, it was meant to be "intersectoral": activities in a wide variety of domains—medical, social and regulatory—needed to be coordinated within an integrated program.

In May 1985 the World Health Assembly passed a resolution 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 12 countries (the number varied with time) equally divided between industrialized countries (Cyprus, Finland, Lithuania, Malta, Russian Federation, the US) and developing countries (Tanzania, Mauritius, Chile, China, Thailand and Sri Lanka—the latter two eventually dropping out). INTERHEALTH coordinated 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 bypassed 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), with Pekka Puska an active and influential member of the supervisory committee. For the Americas, a

demonstration project was set up by the Pan-American Health Organization (PAHO), a WHO affiliate.

Marginal though they were, these programs allowed 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 12 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 countries 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's program received particular attention, with CINDI providing active support. One of the most visible areas of intervention concerned 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 resulting from changes in dietary and physical exercise habits. These factors were in turn consequences of broader processes of urbanization, 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 twenty-first 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 WHO. While the organization's director, Halfdan Mahler, supported the programs, he rarely mentioned NCDs in his public speeches. Meetings of the INTERHEALTH supervisory committee during the early 1990s complained about inadequate financial resources (WHO 1990b, 1992). Lack of resources undoubtedly reflected the 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 priorities may also have intervened. Although the rhetoric of NCD programs was well within the WHO consensus of the 1970s, using terms like "primary health care," "community participation," "horizontal" programs, 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 CINDI 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 EURO 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 oriented toward primary health care (PHC). Nonetheless, while programmatic development of this agenda remained limited, the North Karelia project and INTERHEALTH created 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 was widespread agreement about the scope of the problem in developing countries; a WHO report stated that NCDs were responsible for 40 percent of all deaths in these countries. It was also claimed that 50 percent of all CVD and 30 percent of cancers were preventable. A variety of studies had satisfied at least some policy planners about 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, WHO was generally thought to have lost its preeminent role in international health policy to the World Bank (Brown, Cueto, and Fee 2006). It is certainly true 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 PHC approach approved at the Alma-Ata

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 identified an "adult health policy vacuum": "over 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 confront 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 the increasing prevalence of NCDs in developing countries, casting these diseases as components of a new concatenation linking poverty, risk factors, and the developmental bottlenecks caused by adult ill health.

This report used 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 conduct a large-scale study to standardize 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 what became known as the Global Burden of Disease (GBD) 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, published over several years (Murray, Lopez, and Jamison 1994; Murray and Lopez 1996a, 1997), had significant impact. Web of Science attributes 2,100 citations for one 1997 *Lancet* article and just under 2,000 for another.

The GBD was an effort to develop a scientific, econometric approach to a policy sector that had, in the authors' 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, pp. 495–96; Murray and Lopez 1996b, p. 740). The GBD introduced a new indicator, Disability-Adjusted Life Years, or 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 highly controversial and was vigorously criticized on many grounds (Anand and Hanson 1998; Arnesen and Nord 1999). Nonetheless, DALY remained a widely cited if contested measure.

The GBD and DALY provided powerful intellectual support for INTER-HEALTH'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 that NCDs and injuries amounted to 49.6 percent of the burden of disease in developing countries, according to GBD results (*ibid.*, p. 645). These widely publicized findings provided perhaps the strongest argument yet for greater 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 used by a growing NCD movement that can readily 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 as LMICs experienced the epidemiologic transition. The report also took up the theme of a "nutrition transition" (toward Western diets), with potentially deleterious effects 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 idea justified spending on health "on purely economic grounds" (*ibid.*, p. 17).

That same year, the Bank published a collective volume, *Disease Control Priorities in Developing Countries*, in which affiliated authors sought to draw the implications of "epidemiological change" for the developing world in order to reassess health-sector priorities. This volume used 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). Mass prevention campaigns and regulation of tobacco consumption and advertising 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 WHO as increasingly oriented toward disease-specific, vertical programs (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 the organization were opposed to the measure on technical and political grounds, while the department in which Alan Lopez worked actively used it. WHO's 1997 *World Health Report*, dedicated to the topic of NCDs, expressed skepticism about DALY measurements, but starting in 1999 the yearly series fully embraced DALYs and other GBD measures (WHO 1996, 1997, 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 WHO's more technical initiatives. 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. However, 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 et al. 1996, p. 268).

WHO and global noncommunicable disease

The final years of the twentieth 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 (founded in 1997), GAVI-the Vaccine Alliance (2000), and The Global Fund to Fight AIDS, Tuberculosis and Malaria (2002). These organizations 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 funds to international health. One policy report has called the first decade of the twenty-first 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 related to what had previously been called "international health." Despite these substantial changes, the energy and funds of these new institutions were directed at infectious disease control. NCD programs and policy formation were left mostly to 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 UN 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 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 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 led 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 et al. 2006). For the purposes of this article, 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 percent growth in 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 hired as director of a new Noncommunicable Disease 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. Rafael Bengoa, a specialist in health care 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). JoAnne Epping-Jordan, a clinical psychologist, became 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 Brundtland's tenure, and WHO enthusiastically reclaimed its Alma-Ata heritage, the organization's 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 Brundtland, 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, who was 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 WHO, Brundtland had 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 the 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 and Smith 2001). This critique 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 an important lesson 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 also "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."

One other aspect of the GS 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 health care guidelines to research of every sort, that was not led by WHO. The organization was clearly asserting its leadership role in this new and expanding domain of activity.

Nonetheless, WHO never had much money to spend on NCDs. Aside from constant financial shortages, it remained, either by choice or because so much of its funding 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 percent of its total budget to infectious diseases, 12 percent to non-communicable diseases, and less than 1 percent to injuries and violence (Stuckler et al. 2008). Even so, it sought to be active in a number of areas. Its modest work on NCDs during the next decade can be divided into four categories.

WHO’s work on NCDs

First, at the end of the 1990s, INTERHEALTH was gradually replaced by four new regional NCD 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 countries to increase NCD funding. By 2010 the WHO could report that 65 percent of countries who responded to a survey had integrated national policies covering two or more NCDs, a 15 percent rise from ten years earlier. However, only 43 percent 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 at least 80 percent of countries having cancer or tuberculosis “policies, plans or strategies.” Again there were wide disparities according to the wealth of countries. 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). Clearly, such programs varied widely in quality. This 2012 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 framing did not exclude either cooperation with the private sector, including pharmaceutical companies and food producers, or raising new funding through public-private partnerships.

Second, there was considerable pressure within WHO to move beyond altering individual behavior by confronting socioeconomic conditions through governmental regulation. Tobacco became the emblematic example of this strategy. Starting with WHO's Tobacco-Free Initiative in the mid-1990s, discussion took place concerning 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 as a result of WHO's efforts, was arguably the most significant policy intervention for NCDs by the international public health community. Negotiations related to the FCTC 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 "offers an important consensual basis for the development of more aggressive and significant protocols" (Brandt 2007, p. 479).

The FCTC was adopted by the World Health Assembly in 2003 and took effect in 2005, with ratification by 165 countries by 2010 (Collishaw 2010; Yach et al. 2005). The convention planned for a number of measures to be adopted by ratifying countries, including increases in tobacco sales taxes, marketing bans, and the expansion of smoke-free environments. A 2012 WHO report suggested that implementation of its provisions in national contexts remained uneven; 79 percent 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 being in full compliance with the treaty (WHO 2012a). Scattered data in reports suggested that 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 LMICs, "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, which was only partially compensated by contributions from philanthropies like the Bloomberg Foundation and the Bill and Melinda Gates Foundation.

Third, 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 (GSDPAH), 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 an adversary. In Brundtland'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 in 2009 by creating 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 has led to the creation of advocacy groups like the Conflicts of Interest Coalition based on the premise that there is a fundamental contradiction between producing foods for profit and producing them to maximize health (Stuckler and Nestle 2012; De Vos et al. 2013).

A final thrust of NCD policy was health care organization in LMICs. Mention of NCD health care was occasionally part of WHO reports in the 1980s and 1990s, and guidelines for treatment of specific NCDs appeared

among the numerous communicable-disease treatment guidelines (WHO Regional Office for Europe 1985; WHO Regional Office for the Eastern Mediterranean 1988). Things changed when Rafael Bengoa and JoAnne Epping-Jordan developed a new program, Innovative Care for Chronic Conditions (ICCC). This program had its origins in the Chronic Care Model (CCM), one of the most successful 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 emphasis on transforming the entire health care 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 health care. 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 its 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 and was eventually implemented in 40 countries (Beaglehole et al. 2008). References to ICCC disappeared completely after 2008. The most plausible explanation is that it was supported by only a handful of individuals and, when these left WHO (Bengoa left in 2006, Beaglehole and Epping-Jordan a year later), the program was left to wither. The issue of care continued to have significance, 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. Still, its leaders

insisted on a coordinating and normative role for the organization, and WHO was the major catalyst for a number of interventions that targeted tobacco consumption in a confrontational regulatory manner. This approach fit in with WHO's wider attempt to reverse its decline by claiming a central role in the emerging policy realm of "global health" (Brown, Cueto, and Fee 2006). It also left WHO 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, and efforts to apply emerging Western health care 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 beginning in the 1980s 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 (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 et al. 2004; Collin 2012). The WHO Commission 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, too, failed to 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 primary 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: an informal but active group of

experts chaired by Beaglehole, it 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) 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 last 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. Describing itself as a network of over 2,000 civil society organizations from 170 countries, it 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 exert 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 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 percent between 2001 and 2008; however, NCD programs still constituted only about 3 percent of Development Assistance for Health (DAH) funding (Nugent and Feigl 2010). As a result, most governments in low-income regions appear to have done rela-

tively 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 more than 20 percent 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 the Institute for Health Metrics and Evaluation (IHME) (which is financed by the Bill and Melinda Gates Foundation), was unequivocal in stating that NCDs were now the dominant problem everywhere but in sub-Saharan Africa (Institute for Health Metrics and Evaluation 2013, p. 44). More recent IHME data, presented in a well-publicized report by the Council on Foreign Relations, indicated that mortality from NCDs is more than three times higher for people younger than age 60 in low-income countries than in rich ones (Tavernise 2014). Taken together with data suggesting declines in infant and communicable-disease mortality, those statements raise the possibility that private philanthropies like the Gates Foundation, 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, those most affected by NCD programs 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 policymakers from 13 African health ministries. As a "complementary agenda" to WHO's program to attempt to reduce mortality among individuals aged 30–70 from the four major chronic disease groups by 25 percent by 2025, it proposed its own program to reduce premature mortality from *all* NCDs and injuries by 80 percent in individuals younger than age 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 organizations working to tackle the challenge of NCDs in the East Africa region (Kallestrup 2014). However sluggishly, things do appear to be moving.

Conclusion

Noncommunicable diseases have been successfully added to the global public health agenda. A large number of policy initiatives, organizations, and reports 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 fact 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 later a major WHO figure during Brundtland's tenure, was one of three leaders of international disease-based federations (in his case the World Heart Federation) that in 2009 called on members of the World Health Assembly to pressure their governments to place NCDs on the UN's agenda, thus leading to the High-level Meeting of 2011 (the other two federations were the International Diabetes Federation and the International Union Against Cancer 2009). Calls for regulatory approaches to multinational 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 low- and middle-income countries 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. Because 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 developing countries have noted this point and are resisting; see Carrillo-Larco, Demaio, and Miranda 2013.) Disease advocacy groups, moreover, are increasingly united in "world federations" in pursuit of international agendas that largely reflect the concerns of wealthier countries (here, too, local resistance has occurred). Political and ideological differences certainly create disagreements about strategy and policy, but conflicting groups agree on the need for greater attention to and more resources for NCDs. This need 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 and regulatory interventions, poverty alleviation, and collaborations with private enterprise.

Despite such unified calls for more resources, the NCD coalition has so far failed 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. 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, and accidents

and injuries, to name a few. More to the point, donors with far more money than WHO—agencies of the US 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 countries 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 multinational interests. It is not surprising that so many actors prefer policies that antagonize no one and that promise quick if small improvements.

Nevertheless, it appears that the tide may be turning. It is likely that NCDs are slowly becoming a major global issue that will eventually, however slow the pace, command greater resources and provoke more intense disagreements about how to deploy these resources. And there will be few quick fixes. Rich countries have been confronting chronic, noncommunicable diseases for over 60 years, and yet we regularly use terms like “crisis” and “epidemic” to describe this situation, for these countries invest predominantly in the acute interventions that affect people at the most primal levels. One may hope that something has been learned from these experiences and that these lessons can be applied in circumstances that are in many cases far less favorable.

Notes

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1 To track the development of the NCD issue in the field of international and global public health, we examined more than 550 published and archival documents from international organizations (including WHO,

PAHO, EURO, and various advocacy organizations) and scholarly articles pertaining to international NCD policy. Informal interviews provided background information but were not systematically used.

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 healthy life lost as a result of disability (YLD), calculated by taking the number of incident cases in the period studied, multiplying it by the average duration of the disease, and weighting the results through a scheme that accounted for degrees of disability severity (Lopez et al. 2006).

APPENDIX TABLE A1 The globalization of chronic noncommunicable disease: a timeline

	Period	Initiatives	Achievements	Open issues
Emergence and national efforts	1950s–1970s	<ul style="list-style-type: none"> • US national activity • EURO-sponsored meeting and program building 	<ul style="list-style-type: none"> • Definition of unitary NCD category • First risk-factor reduction programs for CVD in Western countries 	<ul style="list-style-type: none"> • Roles for hospital and ambulatory care, division of labor • Breadth and robustness of evidence, especially on impact of prevention
First WHO efforts	1972–1993	<ul style="list-style-type: none"> • North Karelia project • CCCC • WHO NCD division • INTERHEALTH • MONICA / CINDI 	<ul style="list-style-type: none"> • Expansion of WHO programs to LMICs • Gathering data on NCD epidemiology in LMICs • Preliminary formulation of prevention and health-strengthening interventions 	<ul style="list-style-type: none"> • Quality of epidemiological data • How to bring about policy transfer from WHO to developing countries
New alliances and new measurement tools	1993–1998	<ul style="list-style-type: none"> • GBD project and report • <i>Disease Control Priorities in Developing Countries</i> • <i>World Development Report 1993</i> • <i>World Health Reports</i> 	<ul style="list-style-type: none"> • Policy-level problematization of contemporary priorities for public health in LMICs • International mortality and morbidity measurement infrastructure • Consolidation of a NCD program combining health systems strengthening and prevention tools 	<ul style="list-style-type: none"> • Dealing with growth of earmarked funds at WHO • Quality of epidemiological data
WHO reform	1998–2003	<ul style="list-style-type: none"> • New global health partnerships • WHO reform • <i>Global Strategy...</i> • WHO regional networks • FCTC • World Bank tobacco reports • GSDPAH • ICC and IMAI 	<ul style="list-style-type: none"> • Increased advocacy within scholarly and policy circles • Consolidation of epidemiological evidence in LMICs • Regulatory-level intervention 	<ul style="list-style-type: none"> • Renewing awareness in the face of the MDGs and Commission of Macroeconomics and Health • Prioritizing health systems strengthening vs regulatory intervention vs prevention • Quality of epidemiological data
Advocacy era	2003–2011	<ul style="list-style-type: none"> • Lancet NCD group • NCD Alliance • UN High-Level Meeting 	<ul style="list-style-type: none"> • Stabilization of broad coalition • Direct advocacy for grassroots action in LMICs 	<ul style="list-style-type: none"> • Raising status of NCDs in public opinion and health policy • How to mobilize philanthropies and donors • WHO financial crisis

CCCCP: Comprehensive Cardiovascular Community Control Programmes; CINDI: Countrywide Integrated Noncommunicable Disease Prevention; FCTC: Framework Convention on Tobacco Control; GBD: Global Burden of Disease; GSDPAH: Global Strategy on Diet, Physical Activity and Health; ICC: Innovative Care for Chronic Conditions; IMAI: Integrated Management of Adolescent and Adult Illness; INTERHEALTH: Integrated Programme for Community Health in Noncommunicable Diseases; MONICA: WHO Multinational Monitoring of Trends and Determinants in Cardiovascular Disease Project; NCD: Noncommunicable diseases.

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