5 Popularization at a Global Scale
The WHO and the Postwar Health Statistics Reporting System[1]

> The great wars of history have been accompanied and followed by sweeping epidemics, usually directly related to the devastation and hardship. In the recent World War, since the destruction was more widespread than ever before, the greatest catastrophes were to be expected. Multitudes of people were being driven from place to place. Thousands were crowding into makeshift dwellings. Scarcity of food, clothing, medical care, and even of pure drinking water was almost universal. And most of the health departments that had survived the war had been completely disrupted and so largely deprived of necessary personnel and supplies that they were quite ineffectual.[2]

The quotation from Wilbur Sawyer, a former officer at the Rockefeller Foundation's International Health Division (IHD) and director of health at the United Nations Relief and Rehabilitation Administration (UNRRA), vividly illustrates the international health backdrop as Word War II was coming to an end. In the same article, Sawyer went on to analyze how the existing international health organizations, such as the Office international d'hygiène publique (OIHP) and the League of Nations Health Organization (LNHO), had been weakened and were unable to provide countries with the guidance needed to tackle latent health crises. Under these circumstances, the UNRRA established a health division with a budget of approximately $82 million, far surpassing that of its forebears, to fill gaps in international health governance and epidemic prevention.[3] The UNRRA health division took on several functions that

[1] Parts of this chapter were previously published in *Monde(s)*. I am grateful for the feedback that I received during the journal's peer-review process. See Yi-Tang Lin, "Making Standards to Quantify All Health Matters: The World Health Organization's Statistical Practices (1946–1960)," *Monde(s)*, no. 11 (2017b): 247–66.

[2] Wilbur A. Sawyer, "Achievements of UNRRA as an International Health Organization," *American Journal of Public Health and the Nations Health* 37, no. 1 (1947): 46.

[3] Ibid., 41–2.

had previously belonged to its predecessors: it provided national governments with medical facilities, oversaw the care of displaced persons, and provided training to government staff.[4] Some of these functions were taken over by the World Health Organization Interim Commission (WHOIC) in 1946 and 1947. As Sawyer aptly put it in his article, the UNRRA "bridged the war-caused gap in the evolution of international health organization."[5]

That is why this chapter, in which I focus on the statistics reporting system of the World Health Organization (WHO), begins in 1943: the year the UNRRA's health division was launched. The pressing need for relief in warzones led the UNRRA to collect vital and health statistics in order to plan its relief activities. As Jessica Reinisch has argued, the UNRRA came into existence at the crossroads of international collaboration inspired by the aftermath of World War II and the beginning of the Cold War mindset;[6] this context makes the UNRRA's health statistics reporting system an apt case study for grasping how the international epidemiological network was forged ahead of the postwar years.

This chapter covers the postwar revival of a global network for the exchange of epidemiological intelligence and cause-of-death data. Notably, the American philanthropic foundations that had been the driving force behind statistical work during the interwar years ceded center stage to the United Nations system during this period, as the extensive membership of the latter allowed for broader implementation of statistical standards.[7] The LNHO had been obliged to engage in extensive negotiations in order to become the center of a network for the exchange of epidemic statistics information and thereby establish itself as an authority in international health collaboration. The UNRRA's task, however, was less complicated, as it took over the LNHO's functions with backing from the Allied countries. This was indispensable to maintaining an epidemic reporting system, as governments would send their statistics only to an organization they felt they could trust. Under the United Nations framework, the transfer of the statistical reporting system to the WHO was largely administrative in nature and did not spark competition or

[4] Ibid., 45.
[5] Ibid., 45.
[6] Jessica Reinisch, "'Auntie UNRRA' at the Crossroads," *Past & Present* 218, suppl. 8 (2013): 71.
[7] Marcos Cueto, "International Health, the Early Cold War and Latin America," *Canadian Bulletin of Medical History* 25, no. 1 (2008), 29–30. The Rockefeller Foundation nevertheless remained influential in WHO policy-making. See, e.g.: Anne-Emanuelle Birn, "Backstage: The Relationship between the Rockefeller Foundation and the World Health Organization, Part I: 1940s–1960s," *Public Health* 128, no. 2 (2014): 129–40.

conflict. To again cite Theodore Porter's landmark thesis that statistics bolster trust in groups of experts in need of authority,[8] the history of the international epidemic reporting system demonstrates that statistical collection also hinged upon the organization's political authority. Trust in numbers and trust in organizations were symbiotic.

In this chapter, I also recount the visions and actions of WHO experts regarding statistics. When the WHO officially opened its doors in 1948, the organization positioned itself as a clearinghouse for the world's vital and health statistics. Influenced by their experiences during the interwar period and motivated by scientific developments during World War II, the WHO's founders aimed for it to do more than merely maintain an epidemiological intelligence network; it would also collect all types of health-related statistics from its member states. The goal was to erase the boundaries separating research, administration, and policy-making, in the hope that the numbers collected in one context would serve to inform the others.

As in the previous chapters, I will seek to describe how statistical practices were transferred between the North Atlantic world and China, and then implemented on the ground. Like the LNHO statistical network presented in Chapter 3, the WHO's network was multi-tiered, with statisticians from different regions occupying different positions of standard-making. Because the WHO member states had different levels of administrative capacity, WHO statisticians designed the system to be adapted to different regional and national contexts. To ensure that the network was international, they were willing to integrate local knowledge on statistical reporting into their standard-making processes.[9] The history of epidemiological intelligence during the 1940s – from the era of the UNRRA to the beginning of the WHO – includes two different epidemic statistics transfer circuits: one at the international level and one on the ground. Though attempts were made to systematize statistical reporting to the headquarters of international organizations, collection on the ground was makeshift.

The final section of this chapter focuses on the Republic of China (ROC) – which became embroiled in a civil war after 1945 and whose government was eventually exiled to Taiwan in 1949 – and its reaction to the WHO's statistical initiatives. Despite constant attempts by WHO

[8] Porter, *Trust in Numbers*, 8.

[9] It is probable that these processes eventually came to discredit local knowledge, as many quantification researchers have rightly indicated. (See, e.g.: ibid., 93; Sally Engle Merry, *The Seductions of Quantification: Measuring Human Rights, Gender Violence, and Sex Trafficking* [Chicago, IL: University of Chicago Press, 2016], 6–7.)

experts to depoliticize public health matters, the government's Cold War strategy was the principal lens through which it viewed the organization and its statistical reporting system.

Transfer of the LNHO's Epidemiological Intelligence Service to the UNRRA and the WHO

In 1943, forty-four countries, led by the World War II Allies, signed an agreement establishing the UNRRA, an organization tasked with rehabilitating territories ravaged by war and repatriating displaced people. With a total budget of $3 billion (70 percent of which came from the United States government), the UNRRA dispatched material and financial aid, as well as technical support, mostly to territories in Europe, but also to some parts of Asia and northern Africa.[10] As epidemics constituted a major menace in warzones, and with huge groups of displaced people on the move after the war, public health was one of the core missions taken up by the UNRRA.

The new organization relied on the expertise of the LNHO to design its health programs. Ludwik Rajchman, who had by that time stepped down as the LNHO's director-general, prepared a report for the UNRRA on how to control epidemics in warzones. In his report, Rajchman envisaged an organization that fully encompassed the LNHO's missions, from epidemiological intelligence to public health research, with an emphasis on the health issues of displaced people in European warzones.[11] The UNRRA's staff considered Rajchman's proposal too ambitious, given that the agency was focused on relief programs, not health administration reform. The leadership therefore accepted only one of Rajchman's suggestions: that the UNRRA should take over the LNHO's epidemiological intelligence service, as this would have the quickest and most direct effect on relief efforts.[12]

Why, then, did the LNHO agree to transfer its only remaining function, the epidemiological intelligence service, to the UNRRA? The answer speaks volumes about the international collaborative authority that the LNHO's founders sought to establish and its symbiotic relationship with

[10] David Ekbladh, *The Great American Mission: Modernization and the Construction of an American World Order* (Princeton, NJ: Princeton University Press, 2011), 87. The UNRRA shipped five times more goods to Europe than to the rest of the world taken together. (Reinisch, "'Auntie UNRRA' at the Crossroads," 73.)

[11] Ludwik Rajchman, "Report on UNRRA Health Functions," March 29, 1944, S-1533-0000-0015, United Nations Archives.

[12] Harold E. Caustin, "Memo on the Report on UNRRA Functions by Dr. Rajchman," December 30, 1946, S-1533-0000-0015, United Nations Archives.

statistical collection. The wartime hostilities among the LNHO's member states had called its authority into question. Without that authority, the statistical reporting system had run into difficulties. Countries on both sides of the conflict, including the United States, stopped sending their epidemiological reports to the LNHO, as such information was considered an important stake in military strategy.[13] Transferring the epidemiological intelligence service to the UNRRA was a last-ditch effort to save the system. The UNRRA, thanks to its close relationship to the Allied countries, had stronger authority to implement the International Sanitary Convention and collect epidemiological reports from various territories.[14]

What remained of LNHO's staff were well aware that the UNRRA's authority was crucial to the survival of its epidemiological intelligence service. Tellingly, Raymond Gautier, the director-general of the LNHO, did not seek to retain the service, only to keep it in Geneva, and sent two LNHO statisticians to work at the UNRRA's Washington, DC, office as epidemiological researchers.[15] For Gautier, it was important to keep the service in Geneva as Switzerland's neutral status facilitated the acquisition of epidemiological reports from countries in different geopolitical spheres. He also stressed that the LNHO statisticians' analytical techniques for processing raw epidemic numbers were "necessary for planning, or appreciating anti-epidemic campaigns projected by national services."[16]

The UNRRA visibly had the upper hand in negotiations with the LNHO, and Gautier's appeal was only partly successful. In 1944, the UNRRA created its own Epidemiological Information Bureau in Washington, DC, to take over administration of the International Sanitary Convention, which had been transferred from the OIHP and absorbed into the LNHO epidemiological intelligence service.[17] In line with Gautier's proposal, the UNRRA did, however, hire Knud Stowman to act as the Bureau's chief.[18] Stowman was a former LNHO statistician

[13] Iris Borowy, "Maneuvering for Space: International Health Work of the League of Nations during World War II," in *Shifting Boundaries of Public Health: Europe in the Twentieth Century*, 87–113.

[14] Rajchman, "Report on UNRRA Health Functions," 22.

[15] Raymond Gautier, "On Medical, Epidemiological and Public Health Intelligence and the Collaboration with the League of Nation's Health Organization," March 1, 1944, 3, S-1533-0000-0015, United Nations Archives.

[16] Ibid., 3.

[17] Andrija Štampar, "Suggestions Relating to the Constitution of an International Health Organization," in *Minutes of the Technical Preparatory Committee for the International Health Conference*, WHO Official Records 1 (Geneva: United Nations World Health Organization Interim Commission, 1947), 54–61.

[18] Stowman changed the spelling of his name from Stouman when he immigrated to the United States.

who had been charged by Jacques Bertillon with continuing to revise the classification of causes of death after Bertillon's death. At the UNRRA, Stowman was responsible for compiling data sent in by governments and analyzing the epidemiological situation in each beneficiary country.

Ultimately, the UNRRA's epidemiological intelligence service functioned for less than three years. In the October 1946, the newly established WHOIC began the process of taking over the service and bringing it back to Geneva.[19] WHOIC officials conferred several times with counterparts at the UNRRA to arrange the transfer of functions. Again, in discussions on which functions should be transferred, the epidemiological intelligence service was not even a subject of debate. From the beginning, it seems, the WHOIC and the UNRRA agreed that the service should be transferred to the WHO. Wilbur Sawyer, director of the UNRRA's medical mission, put forward a proposal recommending that the WHOIC also take on fellowship training, a mission in Ethiopia, tuberculosis and malaria control, and expert missions in fourteen countries.[20] Knowing that the UNRRA did not have a separate budget line for public health activities, Sawyer conservatively budgeted $2,025,000 for those five functions.[21] To Sawyer's disappointment, the WHOIC did not accept his proposal, considering the budget to be too limited, and granted the WHOIC only partial access to the UNRRA's responsibilities and financial resources.[22] The WHOIC, after all, wanted to distinguish itself – and the future WHO – from the UNRRA. Because it had chosen to focus on health, not relief, the WHOIC refused to take over responsibility for distributing medical supplies, even when put under pressure

[19] The establishment of the WHO was not a historical inevitability but rather the work of a cohort of public health experts. Unlike the UNRRA, which recognized the central importance of public health from the beginning, it was not immediately clear that the United Nations would create a health organization. In 1945, delegates from fifty countries gathered in San Francisco to discuss forms of international alliance after World War II, during which they endorsed a Chinese–Brazilian resolution to establish a health organization within the United Nations framework, leading to the creation of the WHO. Support for creating a United Nations health organization was deeply rooted in the public health programs of the interwar years. Tellingly, Brazil and China, the two sponsors of the resolution, were the two major beneficiaries of public health programs financed by the Rockefeller Foundation during the interwar years. (For more on this episode, see, e.g.: Szeming Sze, "The Birth of WHO: Interview [with] Dr Szeming Sze," *World Health*, May 1989, http://apps.who.int//iris/handle/10665/45224; Cueto, Brown, and Fee, *The World Health Organization*, 37–9.)

[20] W. A. Sawyer, "Functions to be Transferred to the Interim Commission of the World Health Organisation," October 7, 1946, S-1536-0000-0631, United Nations Archives.

[21] "Minutes of the Meeting of the Joint UNRRA Interim Commission of the WHO Subcommittee," October 16, 1946, 3, S-1536-0000-0631, United Nations Archives.

[22] "Authority of UNRRA and World Health Organisation in Relation to Transfer of Functions," 1946, S-1536-0000-0631, United Nations Archives.

by the UNRRA's staff.[23] After much heated debate, the transfer of the International Sanitary Convention from the UNRRA to the WHOIC was dropped from the discussion. The minutes of the WHOIC–UN–UNRRA meetings do not mention the International Sanitary Convention once, and yet its transfer, along with the affiliated epidemiological intelligence service, appears in the final decision of the second session of the WHOIC.[24]

That final decision, made during the WHOIC's second session in November 1946, did not differ much from Sawyer's original proposal, only with a 25 percent smaller budget. The WHO would take on epidemiological intelligence, medical fellowships, the health training program in Ethiopia, technical assistance in tuberculosis and malaria control, and expert missions with special relation to China.[25] In the end, the UNRRA provided only funding to cover certain field workers' salaries, fellowships, and office materials for these functions.[26]

Once the transfer of the epidemiological intelligence service was decided, the question became: where was the ideal place to host such a service? It was already certain that the United Nations would have its headquarters in New York; the question was therefore whether the epidemiological intelligence service should be transferred to New York as well. That idea was rejected by the UNRRA's staff. Dr. N. M. Goodman, the director of health at the UNRRA's European regional office, pointed out that a transfer to New York, which had never hosted any epidemiological information mechanism, would cause a "deplorable gap."[27] The UNRRA and the WHOIC were to move the International Sanitary Convention and its reporting system to Geneva, where the former LNHO's epidemiological intelligence service had been located. In late November 1946, the UNRRA prepared to send statisticians to Geneva, while the UNRRA regional offices requested governments to send their information to Geneva instead of Washington, DC.[28] The WHOIC officially took control in January 1947.

Compared to its predecessors (the OIHP and the LNHO), the WHOIC faced less political interference regarding statistical reporting and quarantine measures. The outbreak of a cholera epidemic in Egypt

[23] Glen E. Edgerton, "Note to Colonel F.D. Harris," January 3, 1947, S-0528-0008-0008, United Nations Archives.
[24] Neville M. Goodman, "Report on Second Session of the Interim Commission of the World Health Organization," November 1946, S-1536-0000-0631, United Nations Archives.
[25] Ibid., 1.
[26] Ibid.
[27] Ibid.
[28] Ibid.

in 1947 also helped the WHOIC to convince the authorities there and in neighboring countries to adhere to the International Sanitary Convention.[29] In Geneva, the Convention and its reporting system were no longer a major political battlefield. It is illuminating that the United States and the Netherlands originally turned down seats on the WHO Committee on Epidemiology and Quarantine. Representatives of the two countries stated that their governments would be willing to provide expertise but were more interested in sitting on other WHOIC committees.[30] At the insistence of Brazilian and Chinese representatives, who argued that a wider geographical basis would make it easier to establish an effective reporting system, the committee in question was eventually composed of representatives from nine countries, including the major postwar powers: the United States, the United Kingdom, the Soviet Union, China, and France, as well as countries where quarantine measures were essential, such as Egypt and India.[31] With this carefully selected membership, the WHO aimed to ensure that its decisions regarding quarantine measures were implemented across a broad geographical area.

Although public health experts eventually secured the structure for a global epidemiological intelligence network based on both sides of Atlantic, the level of implementation of that network remained doubtful, as it faced administrative failures and national authorities' strategic positioning vis-à-vis international health organizations. I will return to these issues of implementation later in the chapter. First, let us consider the WHO's strategy regarding vital and health statistics collection.

The WHO Centralizes All Categories of Statistical Practices

> The microbe was no longer the main enemy: science was sufficiently advanced to be able to cope with it admirably, if it were not for such barriers as superstition, ignorance, religious intolerance, misery and poverty.[32]

[29] Chiffoleau, *Genèse de la santé publique internationale*.

[30] WHOIC, *Minutes of the Technical Preparatory Committee for the International Health Conference*, WHO Official Records 1 (Geneva: World Health Organization Interim Commission, 1947). WHO, "Committee Structure of Interim Commission World Health Organization," November 1946, S-1536-0000-0631, United Nations Archives.

[31] Nine countries were represented in total: Brazil, China, Egypt, France, India, the Netherlands, the United Kingdom, the United States, and the Soviet Union (WHO, "Committee Structure of Interim Commission World Health Organization").

[32] WHO Interim Commission, *Minutes of the Technical Preparatory Committee for the International Health Conference*, 13.

The quotation from Brock Chisholm, the Canadian representative to the WHOIC at the time and soon to become the WHO's first director-general, effectively captures the WHO founders' optimistic faith in science. As many historians have observed from various perspectives, during the organization's formative years its staff were committed believers in technological advancement and its potential for improving health conditions across the world.[33] Statistics, with their supposed objectivity, were used by WHO staff not only for epidemiological intelligence – the function inherited from forerunner organizations – but also as a central element in planning epidemic control campaigns, administrating fieldwork, and conducting research on public health measures.

The decision to devise an all-encompassing statistical system within the WHO was made by participants in the technical preparatory committee (March–April, 1946), the International Health Conference (June–July, 1946), and the WHOIC (November 1946–April 1948). During these meetings, veterans of the LNHO, the UNRRA, and the OIHP, as well as officers of the Pan American Sanitary Bureau and health officials sent by national governments,[34] agreed that the future WHO should collect all types of statistics, including those related to epidemic control campaigns, epidemiological patterns of various diseases, and the health expenditure of WHO member states. Statistical practices played an essential role at the WHO from day one. When the organization officially opened its doors in 1948, it included a statistics division with sections for morbidity statistics, statistical studies, and revisions to the International List of Causes of Death (ICD).[35] The WHO's statistics division went beyond the collection of raw data on epidemics and deaths; the plan was to compile and analyze statistics of all sorts.

[33] Niels Brimnes, "BCG Vaccination and WHO's Global Strategy for Tuberculosis Control 1948–1983," *Social Science & Medicine* 67, no. 5 (2008): 863–73; Bhattacharya, "International Health and the Limits of its Global Influence"; Birn, "Backstage: The Relationship between the Rockefeller Foundation and the World Health Organization, Part I: 1940s–1960s."

[34] The minutes of the technical preparatory committee lists observers from the LNHO, the UNRRA, the Pan American Health Organization (PAHO), and the OIHP, as well as representatives from sixteen countries: Argentina, Belgium, Brazil, Canada, China, Czechoslovakia, Egypt, France, Greece, India, Norway, Mexico, Poland, the United Kingdom, the United States, and Yugoslavia. As for the WHOIC, its eighteen members came from the following countries and territories: Australia, Brazil, Canada, China, Egypt, France, India, Liberia, Mexico, the Netherlands, Norway, Peru, the United Kingdom, Ukrainian Soviet Socialist Republic, the United States, the Soviet Union, Venezuela, and Yugoslavia (WHO, "Minutes of the First Session of the Interim Commission," July 1946, Official Record 03, WHO Library).

[35] WHO, "The Organizational Structure of the World Health Organization (1948–1974) Vol. II," 1974, 26, WHO Library.

There were two forces underpinning trust in statistics and the central role they were to play within the WHO: a continued faith in transnational health cooperation carried over from the interwar period, and a general scientific optimism inspired by World War II.[36] Having either sat on committees at the LNHO or the OIHP, or been associated with the Rockefeller Foundation's public health programs, the experts who participated in the technical preparatory committee and the WHOIC had inherited the visions of those organizations. Like Ludwik Rajchman (see Chapter 3), these experts were advocates – and sometimes enactors – of "health internationalism": the idea that health crises could best be solved through the pooling of resources and transnational cooperation.[37] Moreover, these experts were persuaded that scientific advancements could improve health conditions throughout the world, having witnessed the revolutionary disease control technologies developed during World War II. A quotation from Gregorio Bermann, a former professor at the University of Córdoba in Argentina, sums up what took place in the committee. Bermann begins by observing that discussions revolved around the question of the new organization's scope, and goes on to express his faith in the scientific advancements achieved during World War II, which to his mind justified the new organization taking on broader responsibilities than its predecessors:

> The world was in a period of medical reform, and the Organization should face new needs and even anticipate events. … No better occasion for the success of an international health organization could be envisaged; for the war had shown to everyone the important role played by science.[38]

The WHO planners embraced the idea that health science should be introduced all over the world.[39] Statistics were the ideal medium for implementing health-related research worldwide for, as historians and sociologists have demonstrated, numbers were easily transferable, which allowed for instantaneous comparison across territories.[40] Moreover, the expansion

[36] The WHO's uptake of the spirit of interwar health internationalism is covered in a wealth of historical accounts. See, e.g.: Birn, Pillay, and Holtz, *Textbook of Global Health*; Cueto, Brown, and Fee, *The World Health Organization*.

[37] Here I use the definition from: Akira Iriye, *Global Community: The Role of International Organizations in the Making of the Contemporary World* (Berkeley, CA: University of California Press, 2004), 9–10.

[38] WHO Interim Commission, *Minutes of the Technical Preparatory Committee for the International Health Conference*, 12.

[39] Sunil Amrith, *Decolonizing International Health: India and Southeast Asia, 1930–65* (New York: Palgrave Macmillan, 2006), 2.

[40] See, e.g.: Kevin Davis, Agelina Fisher, Benedict Kingsbury, and Sally Engle Merry, eds., *Governance by Indicators: Global Power through Quantification and Rankings* (Oxford: Oxford University Press, 2012); Merry, *The Seductions of Quantification*.

of mathematical statistics into different domains had led statistics to be considered an objective means of subjecting local conditions to scientific scrutiny.[41] This objective quality persuaded committee members to endorse an all-encompassing statistical system within the new health organization.

Notably, United States government support was also decisive for this new system. It was first proposed in a draft submitted to the technical preparatory committee on behalf of the United States by Thomas Parran, then surgeon general of the United States Public Health Service (USPHS). Among the four drafts submitted (by the United Kingdom, France, Yugoslavia, and the United States), Parran's was the only proposal to include a more comprehensive function for the WHO when it came to statistics. He suggested that the WHO should "[e]stablish and maintain an epidemiological and statistical service for the collection, analysis, interpretation and dissemination of information pertaining to health, medicine, and related subjects."[42] The three other drafts, in contrast, envisioned the new health organization merely as a clearinghouse for vital and health statistics, much like its predecessors.

The American draft was in line with wartime public health efforts in the United States; the government had relied heavily on statistics to plan health programs and research during the war, and a bill had been passed requiring comprehensive nationwide health surveys aimed at collecting statistics in order to better organize public health matters at the national level.[43] The USPHS also collaborated with the biostatistics department at the Johns Hopkins School of Public Health (JHSPH) to devise random-sampled trials for penicillin (used to treat syphilis) and streptomycin (for tuberculosis control).[44] Such work was not limited to the United States, as the government also exported its programs on syphilis, polio, and malaria control to warzones in other parts of the world.[45]

Because the American proposal resonated with the prevailing spirit of health internationalism and scientific optimism, and given that the United States government had contributed the lion's share of the WHO's funding, the experts involved in establishing the new organization had no reason to go against it. Yves Biraud – a former LNHO statistician educated at the JHSPH – was also on the committee, doubtless contributing

[41] Porter, *The Rise of Statistical Thinking*; *Trust in Numbers*.
[42] Thomas Parran, "Proposals for the Establishment of An International Health Organization," in *Minutes of the Technical Preparatory Committee for the International Health Conference*, WHO Official Records 1 (Geneva: United Nations World Health Organization Interim Commission, 1947), 46.
[43] Thomas, *Health and Humanity*, 71.
[44] Ibid., 44.
[45] Ibid., 27.

to the WHOIC's adoption of the American draft and, with it, the principle that statistics were the ideal medium for informing public health programs. As stipulated in the proposal, the WHO's statistical practices from 1948 to 1960 were all-encompassing and included: consolidating data, developing member states' national health statistics services, surveying statistical collection in member states so as to provide long-term assistance, securing a sound statistical method, processing statistical data, and revising the ICD.[46]

This vision of the organization as a center for all-encompassing health-related statistical practices was undermined from the beginning, however. The seemingly objective action of collecting statistics ended up touching a political nerve. In 1948, the WHO outsourced the collection of vital statistics to the United Nations Statistical Office; the WHO's director-general, Brock Chisholm, had realized that vital statistics might become problematic for the WHO owing to their uncomfortable association with eugenics and birth control. In a letter to his assistant director-general, Chisholm wrote that all demographic statistics should be handled by the UN so that the WHO's director consultant on health statistics could "be protected from any of the criticism which might attend his close collaboration with the [UN] Population Division or the Population Commission and which might seriously impede his work in stimulating governments in the development and improvement of their health statistics."[47] Even though vital and health statistics were often collected together, the WHO and the UN processed them separately.

Accounting for Local Variation: Revisions to the ICD

The ICD revisions are illustrative of the WHO's strategy when it came to devising a global health statistical network and endeavoring to extend its reach. In contrast to the LNHO, which had focused on creating a single standard through consistent exchange with specialists from its member states, the WHO opted for a different strategy, offering different standards to countries with different levels of administrative capacity in order to extend the coverage of its statistical system within the ever-expanding UN membership.

In 1947, when the WHO had yet to be officially founded, the WHOIC took over revisions to the ICD from the United States government, which had been put in charge of the process while World War II made it

[46] Gear, Biraud, and Swaroop, *International Work in Health Statistics, 1948–1958*.
[47] Brock Chisholm, "To Assistant Director-General," December 18, 1952, VH2, World Health Organization Archives.

impossible for the LNHO to prepare the sixth revision. In 1948, the year of the WHO's founding, the French government (in association with the WHO), convened the Sixth Revision Conference; representatives from twenty-nine countries participated. The conference endorsed the inclusion of approximately 800 new rubrics (which included injuries and morbidities, in addition to causes of death), which were to be integrated into the previous version of the ICD.

A few months later, the First World Health Assembly adopted the ICD-6, giving the ICD binding legal status in all WHO member states. Member states that had not made an explicit objection were automatically obligated to apply the death certificate form promulgated by the ICD-6 as their official form for recording causes of death.[48] The legally binding nature of the ICD-6 did not lead to its full implementation, however. As with the International Sanitary Convention, it was always local administrative capacity (political considerations aside) that determined whether statistical practices would actually be used. For instance, a letter from the ROC's Ministry of Foreign Affairs simply stated: "The current situation in China does not allow for implementing the ICD-6."[49]

The WHO statisticians were aware of these difficulties. Yves Biraud, the WHO's founding statistician, rolled out several measures to promote implementation. After the ICD-6 passed in 1948, Biraud and his fellow statisticians at the WHO invited chief medical statisticians, mostly from Western countries, to participate in the Expert Committee on Health Statistics and define a variety of vital situations.[50] This measure was very similar to Sydenstricker's work in the 1920s, which brought statisticians from Western Europe and North America into extensive discussions of the LNHO's statistical measures. From the first (1949) to the sixth (1958) sessions of the Expert Committee, most of the discussion was dedicated to defining concepts such as stillbirth, abortion, cancer, and morbidity, along with their registration methods.[51]

Biraud and his colleagues also standardized statistical practices in a such a way that they could be adopted by member countries with

[48] Gear, Biraud, and Swaroop, *International Work in Health Statistics, 1948–1958*, 18.

[49] Waijiao bu [Minister of Foreign Affairs], "Neizheng bu gongjian [To the Ministry of the Interior]," April 25, 1950, 02800000221a, Academia Historica.

[50] With exception of the Venezuelan statistician Darío Curiel, the first two sessions of the Expert Committee included only statisticians from France, the United Kingdom, and the United States (WHO, "Expert Committee on Health Statistics: Report on the First Session," Geneva: WHO, 1950; "Expert Committee on Health Statistics: Report on the Second Session," Geneva: WHO, 1950).

[51] WHO, "Expert Committee on Health Statistics: Report on the First Session."

different levels of administrative capacity. Unlike Sydenstricker, who worked mainly with European countries, the WHO statistics staff had to deal with a larger and more diverse membership: at the end of 1949, fifty countries on five continents were members of the UN; in a decade, the number of member states would grow to eighty-six. Biraud and his colleagues adopted strategies to make statistical practices more accessible for countries with no or little health administration, systematically encouraging countries with varying levels of administrative capacity to implement the ICD. Methods of ICD registration in less developed regions were repeatedly discussed in sessions of the Expert Committee on Health Statistics. During the first session, the Expert Committee suggested that the WHO conduct research on available methods for measuring the state of health in less developed territories.[52] At the third session, the Expert Committee took the important step of categorizing member states according to their existing public health services and proposing specific suggestions on the collection of morbidity statistics for each category.[53] They also provided suggestions on which morbidity statistics to collect, which populations to survey, and how to use the statistics collected for each category.[54]

The WHO's strategy in promoting the ICD was thus to take local differences into account. By allowing countries with limited administrative capacity to collect some types of statistics only in a sample area, Biraud and his colleagues tailored the standard for countries with less capable health administrations to adopt the ICD-6. They believed that statistics could be easily converted into comparable numbers so long as the survey methods were well documented. This emphasis on documenting survey methods recalled the LNHO's efforts to compile a statistical manual for its member countries. Nevertheless, unlike the LNHO, which published a handbook only for selected "significant" countries (see Chapter 3), the WHO tailored its statistical standards to take all member states into account. Moreover, in order to systematically account for the local variation that was undermining its implementation, the WHO established the WHO Centre of ICD within the United Kingdom General Register Office in London to provide guidance to national statisticians on ICD-related challenges and to collect feedback from member states.[55]

In 1955, the strategy of making the ICD accessible in as many territories as possible – regardless of their level of administrative capacity – was

[52] Ibid.
[53] WHO, "Expert Committee on Health Statistics Third Report," 1952.
[54] Ibid., 6–8.
[55] Gear, Biraud, and Swaroop, *International Work in Health Statistics, 1948–1958*, 20.

made official with the ICD-7, which allowed non-professionals to record causes of death. In defense of this strategy, Biraud argued that causes of death in a given region were often recurrent, especially in less developed countries, where over half of deaths were from early childhood diseases. In such cases, the child's mother, for example, would be qualified to distinguish the cause of death.[56] The decision to adopt the ICD-7 was evidence of the WHO's increasing emphasis on local conditions when devising how statistical data should be collected. For instance, when two statistical advisers from the Eastern Mediterranean Regional Office and the Regional Office for the Americas attended the fifth session of the Expert Committee on Health Statistics in 1956, committee members were impressed by their contributions and recommended that every WHO regional office should employ a statistical adviser, arguing it was "only through the knowledge of local conditions prevailing in different areas of the world that the most constructive statistical advice can be given."[57] The WHO thus added two additional ICD centers to cater to regional needs: one for Latin America, in Caracas (1955); and one for South-East Asia, in New Delhi (1958).[58]

The sixth and seventh revisions of the ICD proved to be of historical significance. The sixth was the first to gain legally binding status, making the ICD applicable worldwide for the very first time. However, the inclusion of so many countries proved problematic: it required health administration structures and qualified medical workers that were absent in most places. To remedy this problem, WHO statisticians adopted several strategies for making statistical collection possible in most countries: the Expert Committee on Health Statistics tailored its suggestions to take local variation into account; among other measures, ICD centers were equipped to serve as helpdesks for national statisticians. As opposed to the LNHO, which had revised the ICD without tailoring implementation guidelines to countries with less organized health administrations, the WHO's statistical standardization efforts were not about creating and imposing a single standard, but rather about adapting standards to local conditions. In 1955, the ICD-7 included the compromise of granting non-professionals the right to register causes of death, in the hope of encouraging more countries to implement the ICD. Along with this significant amendment, the Expert Committee placed increasing value

[56] Moriyama et al., *History of the Statistical Classification of Diseases and Causes of Death*, 35.
[57] WHO, "Expert Committee on Health Statistics Fifth Report," 1957, 11.
[58] Gear, Biraud, and Swaroop, *International Work in Health Statistics, 1948–1958* 22–23.

on statistical practices in territories without advanced health administrations, and invited statisticians who practiced statistics in such countries to participate in the creation of statistical standards.

A Tiered Network of Statisticians for Spreading WHO Statistical Standards

The WHO's ICD strategy of accounting for local variation also translated into a three-tiered network of statisticians tasked with sharing standardized statistical practices among member states. The choice of a tiered network resembled Sydenstricker's strategy at the LNHO. However, the WHO had a group of JHSPH-trained staff who acted directly as the top tier and engaged in standard-making. The middle tier was made up of a network of statisticians at the WHO regional offices, who organized training sessions and participated in expert committees. Their role was not only to pass down standards created at headquarters to the regions, but also to integrate local variation into policy-making in Geneva.[59] The bottom tier included vital and health statisticians working in member states, who mostly received and implemented statistical standards from headquarters. In the following paragraphs, I will discuss each tier in turn (see Table 5.1).

The top tier was made up of statisticians who had been trained at the JHSPH. These statisticians shared a faith in numbers and statistical practices. Yves Biraud, who had previously worked at the LNHO and the WHOIC, played a significant role in shaping the WHO's statistical programs. He was the director of the WHOIC Division of Epidemiology and Health Statistics. As Biraud was fully in charge of the WHOIC's statistical work, it is probable that Marie Cakrtova, Satya Swaroop, and Marcelino Pascua – all graduates of the JHSPH biostatistics department – were hired at his recommendation. All four belonged to a group of health statisticians who were educated during the interwar years and who directed different sections of the health statistics division. Biraud, Cakrtova, and Pascua had studied at the JHSPH biostatistics department on Rockefeller Foundation fellowships, while Swaroop had worked at the All India Institute, another Rockefeller-funded public

[59] The WHO's regional tier was made more official thanks to the existence of the regional offices. The establishment of these offices was the result of lengthy negotiations and regional political struggles. Historians have shown that the design and structure of the regional offices was inspired by the integration of the PAHO into the WHO. For more on the WHO's regional offices, see, e.g.: Marcos Cueto, *The Value of Health: A History of the Pan American Health Organization* (Rochester, NY: University of Rochester Press, 2007); Pearson, *The Colonial Politics of Global Health*.

Table 5.1 *WHO tiered network of statistical standard-setting*

	First tier	Second tier	Third tier
Composition	• WHO statisticians	• WHO regional office statisticians	• Member state statisticians
Contribution to WHO activities	• Drafted standards • Organized expert committees on health statistics	• Supervised statistical production and monitored WHO-supported projects • Participated in expert committees • Organized regional statistical training centers • Granted fellowships to national statisticians for short-term training	• Carried out fellowships and short-term training • Worked with the second tier to improve statistics

health institution, and joined the biostatistics department after World War II.[60] All were directly associated with the Rockefeller Foundation's public health programs, and had been supervised by Lowell J. Reed, a mathematician and the director of the biostatistics department until the 1950s (see Chapter 2).

The middle tier comprised statisticians at the WHO's six regional offices. In line with the suggestion of the Fifth Expert Committee on Health Statistics, in which two regional statisticians participated, the WHO created the position of regional statistician in every regional office. Regional statisticians were put in charge of supervising the production of statistics within all WHO-supported public health projects in their regions. They were also responsible for organizing regional statistical training centers and offering fellowships to member states' health statisticians.[61] On some occasions, they acted as evaluators of other WHO programs.[62] Notably, this regional tier of the WHO network partly overlapped with the network of JHSPH alumni. For example, Ruth Rice Puffer, a JHSPH biostatistics graduate, directed the statistics department at the PAHO from 1953

[60] See: "Fellowship Card: Yves Biraud"; "Fellowship Card: Marie Cakrtova"; "Fellowship Card: Marcelino Pascua"; "Fellowship Card: Satya Swaroop."

[61] Apart from these common tasks, responsibilities differed depending on the regional office. Details as to the activities of each regional office's statistician can be found in the WHO archives under the series number S5/418/3.

[62] One example was statistician S. K. Quo's evaluation of WHO fellowships, in which he was credited as "Programme Evaluator" (S. K. Quo, "Analysis of WHO Fellowships Awarded during the Period 1957–1963 and Evaluation of Those Awarded during the Period 1955–1961," May 25, 1964, S5/418/3, World Health Organization Archives).

to 1970 and was also in charge of scaling up ICD implementation in Brazil.[63] A second example is Guo Songgen (Quo Sung-Ken, commonly known as S. K. Quo), another JHSPH biostatistics graduate who served as the statistician of the WHO Western Pacific Regional Office. During his service, Guo traveled from country to country to work with officials on various aspects of implementing the ICD (e.g. death certificate design and legislation regarding death and birth certificates), fieldwork statistics, and hospital records. Guo was also in charge of briefing field workers before they reported for duty in the region.[64]

The third and bottom tier consisted of national statisticians, who were generally excluded from standard-making procedures but had various opportunities to become familiar with statistical standards. The WHO provided fellowships for short-term training, either in regional training centers or at institutions that were known for their statistical practices. From 1946 to 1958, the WHO awarded 365 health statistics fellowships throughout its six regions and organized seven regional training centers and seminars on health statistics.[65] The fellowships and regional training centers taught bottom-tier statisticians how to register and analyze statistics on births, deaths, and medical conditions. In addition, member states could also file requests to consult with regional statisticians.

The WHO's use of exchanges, fellowships, and expert committees was very similar to Sydenstricker's at the LNHO. This was no coincidence, as Biraud had worked for the LNHO since the mid-1920s and was familiar with its statistical initiatives. Nevertheless, Biraud and his colleagues at the WHO had a larger and more diverse group of countries to deal with than Sydenstricker had. In order for the WHO's network to cover a larger area and more diverse statistical practices, regional statisticians served as intermediaries between WHO headquarters and member states. Though the WHO engaged actively with local knowledge, the statistical reporting system remained highly susceptible to geopolitics and administrative failures, as will become clear in the following sections.

Separate Circuits of Epidemiological Information

The epidemiological intelligence services of the UNRRA and the WHO faced failures on the ground that were similar, if not identical, to those

[63] Thomas, *Health and Humanity*, 33.

[64] Sung-Ken Quo, "Activity Reports by the WPRO Regional Adviser on Health Statistics," 1962, S5/418/3, World Health Organization Archives.

[65] Specifically: the Interamerican Seminar (1950) and the International Training Centers for South-East Asia (1951, 1958), the Eastern Mediterranean (1951, 1954), the Western Pacific (1952), and Africa (1956) (ibid., 26–7).

of their interwar counterparts. That is, the limited administrative capacity of their member states made it impossible to report epidemic cases in time. This eventually became emblematic of the two organizations' weak governance. Indeed, the archives contain two very different visions of the epidemiological situation around the world during this period. Reports published in Washington, DC, or Geneva and distributed to governments gave the impression that the international organizations were overseeing the epidemiological situation in their member states.[66] Public health workers on the ground, however, based their daily decisions on their first-hand observation of patients admitted to nearby hospitals and health stations; they did not use the organizations' reports to plan their day-to-day work. The situation in China is a case in point.

At the end of World War II, the Chinese government had very limited capacity to collect epidemic statistics through its National Health Administration (NHA). For example, in 1945, Leland E. Powers, the chief medical officer of the UNRRA's China Office, complained to the Washington, DC, office that epidemiological intelligence reports from China had stopped being delivered because the Chinese epidemiology expert had left the country for the United States.[67] The expert in question was Rong Qirong (historically known as Winston Yung), a port health specialist trained by the LNHO who later became a statistician at the NHA. Powers' complaint shows how the China's epidemic reporting system depended on a single individual, and the absence of one expert could easily cause the breakdown of the entire system. Powers eventually learned about an ongoing epidemic in Chongqing from Jin Baoshan, the head of the NHA. Jin's information was based only on vague impressions, however. According to Powers, Jin admitted in a personal letter to him that his account of the "epidemiological situation" was based purely on the number of patients admitted to hospitals each day.[68] In spite of the malfunctions mentioned above, the NHA routinely sent its statistics to the China Office and the Epidemiological Information Bureau in Washington, DC, for further analysis.[69] Moreover, there is nothing in the archives to suggest that the NHA made use of the UNRRA's epidemiological reports when planning relief actions.

[66] Jessica Reinisch, "Introduction: Relief in the Aftermath of War," *Journal of Contemporary History* 43, no. 3 (2008): 375–8.

[67] Leland E. Powers, "To Dr. Szeming Sze," July 26, 1945, S-1303-0000-2157, United Nations Archives.

[68] Ibid.

[69] Szeming Sze, "Letter to Dr. Powers," March 28, 1945, S-1303-0000-2156, United Nations Archives. Leland E. Powers, "Weekly Report for Week Ending May 26, 1945," May 1945, 3, S-1303-0000-2157, United Nations Archives; Leland E. Powers, "Suggested Organisation and Plans for the Medical Division of the China Area Office," May 29, 1945, S-1303-0000-2157, United Nations Archives.

This episode is illustrative of how a weak link at the national level cut the circulation of statistics into two separate circuits of information: first, there was an UNRRA–NHA circuit, through which the two organizations shared epidemiological information among themselves; second, there was a local circuit, through which the number of patients admitted to local health services was communicated among staff who made day-to-day decisions but never reported to the UNRRA. The local circuit and the UNRRA–NHA circuit rarely communicated with each other. Local aid workers did not always report their statistics to the NHA, and they did not use the statistical analysis provided by the UNRRA to plan their public health relief on the ground. In a report summarizing the UNRRA's medical mission in China, for example, the author mentions only one of Knud Stowman's reports and refers to its categorization of two cholera epidemics in China according to different mortality rates, without referencing any of the UNRRA's other epidemiological publications.[70]

UNRRA officers stationed in China did, however, use statistics as a rhetorical device in the reports they presented to other international organizations. A telling episode took place at an UNRRA meeting on public health work in China in 1946. Dr. Berislav Borčić, a founding staff member of the Central Field Health Station and the medical director of the UNRRA's China Office, rejected the validity of the available statistics but nonetheless held them up as evidence of China's generally poor health situation:

> Health statistics are extremely poor and unreliable. China, however, is known to have all types of diseases except yellow fever. The death rate of 30 per thousand a year is very high as compared with other countries. Smallpox represents 500–700,000 cases per year, typhus 500–700,000 cases per year; typhoid 500–700,000 cases per year; 2 million have Kala-Azar; 6–10 million have dysentery; some 10 million have hook-worm.[71]

For these statistics, all of which Borčić described as rough estimates, no trace can be found in the archives as to how they were collected and the basic assumptions underlying them. Borčić's way of citing statistics demonstrates their forceful persuasive power at the time. Though transparent as to their lack of reliability, Borčić nonetheless relied on statistics to draw a general picture of the Chinese public health situation for his colleagues at the UNRRA.

[70] W. S. Fu, "The UNRRA Medical Mission in China," N/A, 6, S-1547-0000-0033, United Nations Archives.

[71] UNRRA, "Health Program. Chairman: Dr. Borcic," September 3, 1946, 1, S-1121-0000-0136, United Nations Archives.

In the end, the UNRRA Epidemiological Information Bureau never had time to resolve the difficulties it faced in China. Starting in 1946, a mere two years after its founding, it was transferred to the newly established WHOIC, where the implementation of epidemiological intelligence at regional and national levels would be just as crude. The Eastern Bureau provides a case in point. From 1946 (when the WHO Committee on Epidemiology and Quarantine took over the Eastern Bureau) until December 1947, Lucius Nicholls of the British military in South-East Asia was in charge of administering the Bureau part-time. Nicholls proudly described to Yves Biraud, who oversaw epidemiological intelligence at the WHOIC, how he had reduced telegram fees from £2,000 per month to £1,000 by decreasing the number of words used and ignoring telegrams that were too out of date upon arrival.[72] The anecdote is telling: the reporting system immediately after the war was not aimed at sharing precise and reliable statistics, but rather at promptly announcing the outbreak of epidemics.

At the national level, too, the WHO faced a situation similar to that of its interwar predecessors, with local administrative failures nullifying the effects of the international epidemiological framework. When the UNRRA ended its missions in China in April 1947, the WHOIC took over its remaining fellowship programs, foreign consultants, and the China Office along with its director, Borčić.[73] The partnership between the WHO and the ROC got off to a rough start: when the WHOIC took over the UNRRA's office in Shanghai, the Chinese mainland was being wracked by armed clashes between the ROC and Communist forces. The validity of the entire framework was doubtful, as national health authorities were too poorly organized to report precise epidemic statistics to the WHO promptly. Monthly reports by the Eastern Bureau noted that some Chinese ports sent their reports up to three months late, some sent in reports at irregular intervals, and some had never sent anything to the Bureau.[74] P. H. Deng, a port officer in Hong Kong, also recorded the complete failure of quarantine measures and epidemic information collection in southeast China. Returning from a visit to the ports there, Deng wrote a report to the WHO enumerating the malfunctions he had observed: officials had boarded an arriving ship before the medical inspectors (these being mostly local sages with little medical

[72] Lucius Nicholls, "To Dr. Biraud," March 31, 1947, 452-6-1, WHO Archives.
[73] W. S. Fu, "The UNRRA Medical Mission in China," 19–20. For more on Borčić's work before and during his stay in China, see Chapter 2.
[74] "Epidemiological Information: Singapore Epidemiological Intelligence Station, Reports on Activities," 1948, 452-6-13, World Health Organization Archives.

training); tourism agencies were willing to issue false immunization certificates to facilitate their customers' travel; doctors were reluctant to report cholera cases, knowing it would disrupt maritime commerce; and a lack of refrigeration had damaged smallpox vaccine stocks.[75]

Epidemiological intelligence under the ROC regime did not improve after the regime lost the civil war against the Communists and retreated to Taiwan. The ROC government continued to represent China within the WHO and considered Taiwan to be a temporary military base for reconquering the mainland. National planning – including for health – was not a priority. Against this backdrop, the implementation of the visions and practices of WHO statisticians was very limited in Taiwan.

Caught Up in the Cold War: The ROC's Strategies and the WHO's Statistical Reporting System

To comprehend how the WHO reporting systems came to be implemented after the ROC government settled in Taiwan in 1949, it is first necessary to discuss the relationship between the WHO and the ROC. The ROC's reaction to WHO statistical initiatives was, after all, largely conditioned by the general relationship between them. The ROC played various different roles over the course of the relationship. First, as an important member of the World War II Allies, the ROC government was a major player in the United Nations Conference on International Organization (also known as the San Francisco Conference) that led to the establishment of the WHO.[76] But at the domestic level, the ROC's struggling health administration (which was further undermined by the Second Sino-Japanese War and the Chinese Civil War) made it a passive partner in the WHO's reporting systems for epidemics and deaths. Lastly, the failures of the ROC health administration ironically made it the source of much-needed manpower for the newly established WHO, as several ROC statisticians, including Guo Songgen, Rong Qirong, and Yuan Yijin, all eventually left Taiwan to work for the WHO until their retirement.

The latter two roles – those of passive implementer and source of WHO statisticians – were closely related to the failures of the WHO's reporting systems in Taiwan. These failures were due to three separate but interrelated causes: the ROC government's Cold War mindset; an inadequate

[75] P. H. Teng, "A Short Visit to the Ports of Swatow, Amoy and Poochow," April 28, 1947, 452-6-6, World Health Organization Archives.

[76] Mitter, "Imperialism, Transnationalism, and the Reconstruction of Post-War China."

national health administration; and the brain drain of ROC statisticians. These three dynamics created a vicious circle, with each impacting the others. I will elaborate on all three over the following paragraphs.

The first cause of failure was the general mindset in the ROC government during the Cold War. Not only was the government's reasoning affected by this mentality, but WHO policy was also impacted by the Cold War rivalry, despite the fact that its staff constantly insisted on the organization's purely technical nature.[77] From its founding in 1948, WHO staff found themselves trapped in the oppressive atmosphere of the conflict. Yves Biraud, the WHO's founding statistician, who had been responsible for epidemic statistics since the WHOIC years, complained in a letter to the chief of the Eastern Bureau, P. M. Kual, about the withdrawal of the Soviet Union from the WHO:

> Morally, this withdrawal is a blow to WHO which had tended towards, and claimed, world-wide membership. Materially and technically, however, it has no significance, since the Soviets had never contributed a single expert to our committees, a single specialist to our staff, nor a single figure or piece of information to our epidemiological, legal or other services.[78]

As the quotation indicates, WHO staff members were resentful of the Soviet Union's boycott. Moreover, the WHO inevitably sided with the Western bloc because of the United States government's generous financial support. That support was based on the Truman Doctrine, under which the United States government made a strong commitment to assist other countries with science and technology. Expecting to benefit from this political promise and budgetary engagement, Biraud, in the same letter to Kual, explained that the WHO had even organized its budget so as to follow the Truman Doctrine: the regular budget was to remain "comparatively stable and small," as specified by the United States Congress when it ratified the WHO's Constitution, while the expenditure envisaged in the supplemental budget was to be borne by

[77] For more on the Cold War's impact on specific instances of WHO policy-making, see: John Farley, *Brock Chisholm, the World Health Organization, and the Cold War* (Vancouver: University of British Columbia Press, 2009); Erez Manela, "A Pox on Your Narrative: Writing Disease Control into Cold War History," *Diplomatic History* 34, no. 2 (2010): 299–323; Anne-Emanuelle Birn and Nikolai Krementsov, "'Socialising' Primary Care? The Soviet Union, WHO and the 1978 Alma-Ata Conference," *BMJ Global Health* 3, suppl. 3 (2018): 1–15.

[78] Biraud also complained that the main difficulty during the first World Health Assembly was that member state representatives were reluctant to approve the WHO's budget (Yves Biraud, "To Dr. P. M. Kual," March 11, 1949, 452-6-3, World Health Organization Archives).

voluntary contributions from governments, of which the United States government was naturally expected to provide a "fair share."[79] With the United States as the WHO's main financial backer, the organization tended to focus on the Western bloc's preoccupations when devising public health programs. The focus on malaria control during the 1950s and 1960s was one result of the WHO's close ties to the West,[80] ties that led the socialist countries to withdraw from the WHO in the 1950s.[81]

The Cold War backdrop, compounded by budgetary deficits, catalyzed the ROC's exit from the WHO. The ROC had defaulted on its mandatory contributions to the WHO for the years 1948 and 1949; its defeat in the Chinese Civil War in 1949 – and its expectation that it would one day reconquer the mainland – led to constant increases in its military expenditure. In this context, membership in various international organizations was seen as an unnecessary financial burden. The ROC Ministry of Foreign Affairs prepared a list with a specific strategy for every international organization, in which it noted that as the ROC had already defaulted on two years of dues to the WHO, its rights as a member had already been suspended. Re-entering the WHO would therefore be costly.[82] The ROC therefore left the WHO in 1950. The ROC was far from alone in balking at the cost of WHO membership, however: it was a common issue at the WHO during its early years. Many member state representatives were troubled by the high cost of membership and were unsure if their governments would provide budget authorization.[83]

Another illuminating anecdote can be found in the reaction of the ROC minister of foreign affairs to the WHO's invitation to rejoin, which again demonstrates the Cold War mindset that reigned at the time. The minister examined the invitation in terms of the Soviet bloc's relations with the WHO. In a letter to the minister of interior, he described the invitation as merely a routine encouragement to join the organization, given that the WHO had also sent such an invitation to the Soviets. Moreover, he stated that since Communist China had not received an

[79] Yves Biraud, "To Dr. P. M. Kual," March 11, 1949.

[80] See, e.g.: Packard, *The Making of a Tropical Disease*.

[81] There is an emerging group of literature covering the socialist countries' varying attitudes towards the WHO. See, e.g.: Xun Zhou, "From China's 'Barefoot Doctor' to Alma Ata: The Primary Health Care Movement in the Long 1970s," in *China, Hong Kong, and the Long 1970s: Global Perspectives*, eds. Priscilla Roberts and Odd Arne Westad (New York: Palgrave Macmillan, 2017), 135–57; Vargha, *Polio Across the Iron Curtain*; Birn and Krementsov, "'Socialising' Primary Care?"

[82] Waijiao bu [Minister of Foreign Affairs], "Guanyu woguo yingfou jiaru shijie weisheng zuzhi shi [On Whether Our Country Should Join the World Health Organization]," July 11, 1950, 028000002213A, Academia Historica.

[83] Yves Biraud, "To Dr. P. M. Kual," March 11, 1949.

invitation, the ROC did not have to reactivate its membership to ensure the Communists' exclusion.[84] Interestingly, as I will explore in more detail in Chapter 7, the People's Republic of China (PRC) also resisted joining the WHO based on concerns about American dominance of the organization and the expectation that the PRC would have to contribute financially to the WHO. Though the WHO's founding members had stressed that the organization would be purely technical in nature, neither the ROC nor the PRC had ever seen their relations with the organization as a form of purely technical collaboration on health matters, but always considered them within the context of the Cold War. The ROC, which still officially represented China within the United Nations system, clearly saw the WHO in political terms during the 1940s and 1950s. The WHO courted the ROC as part of its efforts to gain more members and live up to its name as a "world" health organization. After negotiating with Liu Ruiheng (historically known as J. Heng Liu), a New York-based adviser to the ROC's NHA, the WHO agreed to give the ROC preferential treatment to encourage its re-entry. Under the agreement, the ROC government had to contribute only a symbolic membership fee of $10,000.[85] The ROC rejoined the WHO in 1953 and represented all of China until 1971.

Although he successfully negotiated the ROC's re-entry, Liu was unable to remedy the disconnect between the WHO and the ROC regarding the core role played by the organization. The ROC continued to consider the WHO in terms of Cold War rivalries, and therefore remained passive in response to the WHO's suggestion that it remedy the administrative failures of its vital and health statistics collection. As the WHO proposed only short-term training, fellowships, and expert consultancy to improve epidemic- and death-reporting systems, the ROC government's involvement was limited to accepting consultants and sending statisticians to undertake fellowships and participate in WHO training.

In the end, the ROC health organizations did not undertake any concrete reforms of its vital and health statistics collection. A report by Cai Fu (Tsai Fu), the chief of the Taiwan provincial health administration's statistical office, offers an account of how the WHO's statistical network was failing at the national level. Cai received a WHO fellowship in 1952 for statistical training at the Japanese Public Health Institute. In his 30-page fellowship report, he recorded in detail his training in a variety of Japanese statistical and health administrations. In the last section of

[84] Waijiao bu, "Guanyu woguo yingfou jiaru shijie weisheng zuzhi shi," July 11, 1950.
[85] Liu Ruiheng, "Neizhengbu weishengsi [To Department of Health, Ministry of the Interior]," October 21, 1954, 028000002240A, Academia Historica.

his report, entitled "Suggestions," he mentioned the importance of combining household registration and demographic statistics collection.[86] It is unlikely that Cai's suggestions were implemented, however. He would not have been able to organize his office as he wished, since the Taiwan provincial health administration had a very small budget, and the statistical office was a low priority for the government. Without financial and political commitment from the ROC government, the WHO's efforts to train statistical officers did not make much difference in the implementation of statistical methods, as the officers did not have the authority or resources to reorganize statistical collection within the ROC health administration.

The limited impact of Cai's fellowship on the ROC's vital and health statistical system was partly due to limited administrative capacity, the second driver of the WHO reporting system's failure in Taiwan. Three years after Cai returned from Japan, the United Nations sent out three sets of questionnaires – on population statistics, vital statistics, and cause-of-death statistics – to the Taiwan provincial government. This troubled the ROC administration. By that time, the ROC was collecting vital statistics using two parallel systems. The Taiwan provincial civil administration was in charge of compiling birth and death numbers, while causes of death were to be reported by caregivers to the provincial health administration. These two branches were not informed of each other's responsibilities regarding vital and health statistics. In order to fill out the forms sent by the United Nations, the ROC government had to convene a meeting to determine which branch was qualified to do so. Participants in the meeting proposed giving the responsibility for filling out United Nations forms to the civil administration, while the statistical office of the health administration would be in charge of re-examining the completed forms.[87] This is illustrative of the disorganized nature of vital and health statistics collection within the ROC. In the 1950s, the government lacked not only reliable vital and health statistics, but also coordination between its civil and health administrations. Although the ROC government was perfectly willing to fill out United Nations statistical forms, it did not actually attempt to improve the quality of its statistics.

[86] Cai Fu, "Fu Riben jinxiu weisheng tongji baogaoshu [Report on Health Statistics Training in Japan]," August 1952, 028000002830A, Academia Historica.

[87] Neizheng bu [Ministry of the Interior], "Tigong lianheguo renkou shengming ji siyin tongji ziliao zuotanhui jilu [Minutes of the Meeting on Providing the United Nations with Vital and Cause-of-Death Statistics]," May 31, 1955, 028000002832A, Academia Historica.

Similar difficulties were encountered when attempting to implement the ICD in the ROC, not only because of the government's administrative failures, but also because the ROC did not place any importance on the collection of vital and health statistics. In 1955, the ROC government sent Guo Songgen, then the director of the public health school at the National Taiwan University, to participate in the seventh revision of the ICD. On his return, Guo drew up a report on his experience and listed the conclusions of the conference.[88] Although considerable efforts had been made to ensure the ICD-7 was applied in member states, Guo – despite taking part in the conference – did not recommend that his government use the updated list. Four years later, when the United States aid agency in Taiwan launched a program to improve the vital statistical system, researchers found that many local administrations were still using the death certificate form from the 1929 version of the ICD.[89]

Despite facing setbacks within the ROC administration, the WHO's statistical initiatives were not completely useless. For one thing, they raised ROC officials' awareness about integrating statistical practices into health administrations. In 1955, the WHO proposed sending consultants to improve statistical collection in the ROC. The Executive Yuan, the executive branch of the ROC government, convened a meeting of all statistical officials to discuss this proposal. The debate was heated, with participants taking turns to complain about the difficulties they encountered when collecting statistics. For instance, due to a lack of training and awareness about the importance of statistics, collection on the ground had limited oversight; there were no trained staff to verify death certificates filled out by civilians; and a lack of doctors paralyzed the process of designating causes of death.[90] The director of the provincial statistical bureau concluded that "our statistics [for the whole ROC] were merely decorative."[91] As a result, participants unanimously agreed to accept a visit from WHO consultants, and suggested that the Ministry of the Interior set up a committee for vital statistics and survey design.

[88] Quo Songgen, "Fengpai daibiao woguo canjia lianheguo shijie weisheng zuzhi diqici guoji jibing mingcheng ji siwang yuanyin huiyi baogaoshu [Report on the 7th Revision of the International List of Diseases and Causes of Death]," February 1955, 028000002300A, Academia Historica.

[89] JCRR Rural Health Department, "Minutes of the Discussion Meeting on Vital Statistics," June 26, 1959, 286/150/38/08.09/06.07.01/8, National Archives and Records Administration, College Park.

[90] Neizheng bu [Ministry of the Interior], "Neizheng bu guanyu shengming tongji an huiyi jilu [Minutes of Meeting of the Ministry of the Interior on Matters of Vital Statistics]," August 19, 1955, 028000002832A, Academia Historica.

[91] Ibid.

Limited central health administration capacity gave rise to the third driver of the WHO reporting system's failure in Taiwan. As public health affairs remained marginal and underfunded within the ROC central government and the Taiwan provincial government, vital and health statisticians began to leave Taiwan for more promising careers with the WHO. Tellingly, although the ROC's own vital and health statistics were poorly organized, Guo, an ROC national, was the regional statistician for the WHO Western Pacific Regional Office from 1957 and traveled between countries to give suggestions on the use of statistics.[92] Guo was a Taiwanese physician who had worked in Manchuria during the Second Sino-Japanese War. He had also worked with the UNRRA to organize the return of Taiwanese people from Manchuria. In 1950, he received biostatistics training at the JHSPH through a fellowship paid for by the American Bureau for Medical Aid to China.[93] Upon his return to Taiwan, he served as the director of the NHA and a professor at the National Taiwan University School of Public Health, before joining the WHO as a regional statistician. Although there are no sources that directly indicate the precise reason why Guo left Taiwan, according to his former colleague at the National Taiwan University, Chen Jingsheng (Ch'en Ching-Sheng), Guo was sidelined within the school of public health after returning from his position at the NHA – a position that did not have much budget or power by that time[94] – and it was this slight that made him decide to work for the WHO.[95] Another example was that of Rong Qirong, a port health specialist who had acted as the director of the China Epidemic Prevention Bureau in the interwar years and then as an NHA statistician during the Second Sino-Japanese War. When the ROC government retreated to Taiwan in 1949, political instability probably drove Yung to leave and accept the WHO's invitation to work for the Eastern Bureau in Singapore.[96] Neither Guo nor Yung ever returned to work for the ROC, except when sent by the WHO as short-term consultants on

[92] Quo, "Activity Reports by the WPRO Regional Adviser on Health Statistics."
[93] ABMAC, "1950 US Fellows," 1955, 63/Fellowship 1946–1955 information, American Bureau for Medical Aid to China Records, Columbia University Libraries.
[94] From 1949 to 1971, the ROC's budget for public health was mostly limited to the Taiwan provincial government and two special municipalities: the cities of Taipei and Kaohsiung. The NHA performed only limited functions since it did not receive much funding from the central government.
[95] Chen Jinsheng, "Taiwan weisheng xingzheng he yixue jiaoyu yibainian shi [One Hundred Years of Public Health Administration and Medical Education in Taiwan]" (2006), 111, 410.3 7582, National Taiwan University Library.
[96] Winston Yung, "Report of the Singapore Epidemiological Intelligence Station for the Month of May, 1949," June 10, 1949, 452-6-13, World Health Organization Archives.

WHO salaries.[97] Notably, Yuan Yijin, the first Johns Hopkins-trained public health statistician in China (see Chapter 2), also worked on tuberculosis statistics at the WHO at times. Yuan, however, was affiliated with Academia Sinica, the ROC's highest research institution.

When we juxtapose the ROC's rustic statistical system with the career paths of its health statisticians, the limits of the WHO's network for transferring statistical standards becomes apparent. Although the WHO expected ROC statisticians to integrate statistical knowledge into the administration, the statisticians found themselves at an impasse, as the ROC government did not prioritize reform of its vital and health statistical systems. Due to lack of funding, and despite several statisticians receiving training at the WHO, health statistics collection and civil registration remained siloed within the ROC's administration, and the reliability of its vital and health statistics remained questionable.

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This chapter has outlined how the international health statistics reporting system was revived and implemented from Geneva to Washington, DC, to China and Taiwan. Compared to the LNHO's patchwork authority, the UNRRA and the WHO's takeover of the system was much more straightforward. The WHO aspired to centralize all types of statistics collected in administration, research, and policy-making. WHO statisticians aimed to take local variation into account in their policy-making, while creating a regional tier of statisticians to mediate knowledge and practices between international, regional, and national statistical administrations. Despite these innovations, the WHO's statistical policies came up against a challenging geopolitical context and local administrative failures, the same faced by its predecessors, the UNRRA and the WHOIC. The epidemiological intelligence system during the UNRRA and WHOIC years consisted of two separate circuits of transfer: the UNRRA and the NHA shared epidemiological information with each other, whereas field staff based their day-to-day decisions on the number of patients admitted to local health services, which they communicated among themselves but never reported to the UNRRA. The WHO's limited success in implementing its reporting system in Taiwan highlights the decisive role of the Cold War rivalry as well as the considerable administrative constraints in place.

[97] Chen Jinsheng, "Taiwan weisheng xingzheng he yixue jiaoyu yibainian shi," 118.

Not all of the WHO's statistical initiatives failed. Statistics were integrated into WHO-sponsored disease control programs and were collected and analyzed in both Geneva and Taipei. In the next chapter, I will discuss the strategies used by public health experts to collect and report statistics related to such programs, and the extent to which those experts' statistical practices influenced global health policy-making.