

# Tuberculosis Control and Institutional Change in Shanghai, 1911–2011

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# Introduction

A public health (PH) poster from China depicts some of the steps for sanitizing the room where an infectious respiratory disease sufferer has stayed before another patient can occupy the same space. The image shows three members of a housekeeping crew. The crew members are not in hazmat suits, but they do wear personal protective equipment: full-length white coats, hair coverings, and white face masks. The windows are open to let in fresh air and sunlight in an attempt to kill or disperse microorganisms. The worker closest to the window stands in a sunbeam as they wipe down the surface of a table. In the foreground, one worker mops the floor while another sprays disinfectant from a tank on their back. While these sanitation workers may make contemporary viewers think of efforts to control COVID-19, or the severe acute respiratory syndrome (SARS) in 2002–2003, they actually attempted to control another airborne microorganism: the tuberculosis (TB) bacillus. The poster is one of a series of 30 public health posters created for a 1953–1954 exhibit by the Shanghai Anti-Tuberculosis Association (SATA, 上海防痨协会).

Like recent global pandemics, pulmonary tuberculosis is a respiratory disease, transmitted through microscopic droplets. These droplets are released into the atmosphere when a person with active disease coughs, and infection occurs by inhaling the droplets. Like COVID-19, tuberculosis outbreaks expose social inequities and trends. For instance, like COVID-19, TB disproportionately affects the poor, who often live in crowded conditions and may face malnutrition. Poor people, including migrants, might be unable to take time off work, either because their jobs are deemed “essential” to the food, health, or transportation system, or because they simply cannot afford to miss a paycheck. Like COVID-19, TB disproportionately affects vulnerable populations—prisoners, persons with preexisting conditions (such as diabetes), immunocompromised individuals, and the elderly. Like COVID-19, TB can be stigmatizing, making affected individuals or the geographical region where they reside the source of ridicule or blame. Likewise, some of the same public health protocols enacted to control TB’s spread—for example, widespread case identification and physical isolation—can also be used to control COVID-19.

Unlike emerging infectious diseases, humanity has been concerned with tuberculosis for centuries. In 1882, Robert Koch's discovery of the TB bacillus catalyzed a decades-long struggle to interrupt transmission until effective antibiotics were discovered in the 1940s and 1950s. Interruption of transmission took place largely by isolating persons with active disease, either in sanatoria or at home. By the 1950s, discovery of antibiotics quelled the need for isolation; however, as the rollout of the COVID-19 vaccine in many parts of the world has illustrated, an effective distribution system is key to a society's ability to take advantage of biomedical advances. Despite the existence of effective antibiotics for 70 years, TB remained the world's leading cause of death from respiratory disease through 2019, with more than 1 million people dying each year (WHO 2019).<sup>1</sup> Alarming, the past four decades have seen tuberculosis resurgence, including in global cities, where shiny exteriors mask the unequal conditions many essential workers face.

TB has also been the leading infectious disease in China, both historically and today. This book investigates how tuberculosis was managed effectively starting in the 1950s and why it became a major health concern, again, precisely during the time that China's economic might was growing, in the 1990s and early 2000s. The decline of TB in China coincided with the creation and maintenance of the work-unit (单位) system (WUS), and the recent TB control challenges have coincided with the dismantling of this system. This is more than a coincidence. This book demonstrates the critical role the work-unit system played in making medical advances available and that its dismantling was an important factor in TB control challenges between 1992 and 2010. Under the work-unit system, created during the 1950s, the vast majority of urban residents had guaranteed employment, with a host of benefits tied to their workplace, and there was little mobility. This system gave urban residents access to food, housing, and health care through their workplace. While the term "work-unit system" is often used to denote only the urban system, in this book, I also investigate rural production brigades created under collectivization in Shanghai's surrounding counties because they performed similar functions. Work units played a key role in China's TB control because they were the delivery point for medical and public health services. In the 1980s, the rural cooperative medical system was dismantled in much of China. The urban work-unit-based health-access system was dismantled in the 1990s. In the 1980s and 1990s, the rise of temporary and casual employment gave rise to a huge population of migrant workers, who had few rights in their receiving areas, including limited access to health care. The decline of the work-unit system was a critical factor that has led to the TB control challenges China faced in recent decades.

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1. Since 2020, COVID-19 has outstripped TB as the deadliest infectious disease worldwide.

## **Institutional Change, Public Health, and Modernization in China**

A host of recent scholarship has demonstrated that health was a central concern of each successive Chinese government as part of twentieth-century modernization (Yip 1995; Rogaski 2004; Andrews 2014; Lei 2014; Bu 2017; Baum 2018; N. E. Barnes 2018; Brazelton 2019b). In the past century, each Chinese government has adopted some of the health and infection control protocols enacted by the previous government(s), as well as some of its own. Many of these health and infection protocols have also been informed by China's international alliances, which differed dramatically depending on the party in power. This book is organized around three periods corresponding with different government orientations: before 1949, 1950–1992, and after 1992. The importance of 1949 as a temporal dividing line will be obvious to those familiar with Chinese history: in 1949, the Chinese Communist Party (CCP) founded the People's Republic of China (PRC). The choice of 1992 as a critical juncture may be less obvious. Some readers will, no doubt, wonder why 1992 was chosen, instead of 1978, when the era of economic reform began. Certainly, some institutional change occurred as initial market reforms were introduced starting in 1978, particularly in rural areas; however, prior to 1992, Chinese leaders hotly debated the direction of future reforms (Shirk 1993). Only with Deng Xiaoping's Southern Tour to the special economic zones (SEZs) of Shenzhen and Zhuhai, as well as Shanghai in 1992, was the future direction of China's economic development set: China would fully embrace more capitalist-style market reforms.

Prior to 1949, state and other actors made some attempts at health-care provision and TB control, and both 1911 and 1928 were key moments. The 1910–1911 Manchurian plague catalyzed the modern Chinese state to create some public health infrastructure and protocols, such as the isolation of respiratory disease sufferers. Starting in 1928, the Guomindang (GMD, 国民党) believed the state should provide health and welfare services, thereby strengthening citizenship and the nation (M. L. Bian 2005; Dillon 2015). After the GMD came to power, political power in China remained highly decentralized, and one way the GMD aimed to unify the nation was by promoting the National Health Reconstruction program, informed by nineteenth-century health movements in Europe and the United States, which were largely concerned with sanitation and identifying the organisms responsible for spreading disease (Rosen 1993).<sup>2</sup>

The GMD started to implement its vision during the 1928–1937 Nanjing Decade; however, from 1937 to 1945, the War of Resistance against the Japanese

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2. Rosen notes a shift from the sanitation era—which was largely concerned with creating infrastructure for water and waste—to the bacteriological era in the late nineteenth century. Discovery of the microorganisms that caused diseases such as diphtheria and tuberculosis ushered in the second era and the predominance of the germ theory of disease.



compromised the state's ability to deliver on parts of this vision, such as health promotion. While the post-1949 Communist government aimed to distance itself from the previous administration including with respect to its approach to health, recent scholarship has rooted the Communist ability to implement widescale health advances after 1949 to efforts during the war (Barnes and Watt 2014; N. E. Barnes 2018; Brazelton 2019b; Soon 2020). As Nicole Barnes (2022) has demonstrated, the dictum “Serve the People” (为人服务)—a hallmark of the Mao era—can be used to describe the actions of female doctors, nurses, and midwives between 1937 and 1945. Before 1949, the first steps were taken to create health institutions, such as TB hospitals, but many facilities were run by nonprofits, rather than the state. Indeed, institutional commitment to providing care to the wider population was slower to develop; change would come with other political and economic transformation.

After the CCP came to power in 1949, its socialist modernization program included several components: the state was to plan the economy, employ everybody, and take responsibility for everyone's welfare, including their health. Under this paradigm, every locale was reorganized according to the work-unit system, which tied individuals to production units, provided services via these units, and immobilized the population. In urban areas, most formal-sector places of employment—factories, schools, hospitals and other healthcare institutions, commercial and cultural enterprises, banks, transportation infrastructure such as train stations and bus depots, and so on—were reorganized as work units. By 1957, almost all urban Chinese adults were expected to be employed in one of these units, but this ideal was never fully achieved. Indeed, most urban youth subsequently entered the work-unit system through a standard path: upon graduation from middle school or college, they were assigned to a unit. Ideally, they remained for the duration of their working years, until they retired. In reality, full employment in urban areas was never universal, but provision of social welfare benefits was premised on inclusion in the system.

Creation of the work-unit system did two important things with respect to health. First, it established a system of workplace-based entitlements that became known as the “iron rice bowl.” Chinese workers depended more on work units socially and economically than most Westerners ever depended on their workplaces. Work units approved or disapproved marriages and provided civil, educational, and health services formerly carried out by the family. In addition to salaries, urban work units distributed food coupons, subsidized cafeterias and housing, and provided family planning, daycare, education and vocational training for workers, and schooling for workers' children. By providing food and housing, work units mitigated some of the underlying factors associated with the development of disease. Because employees of work units often lived and worked together, spending considerable time in these relatively isolated cellular units,

work units might be considered “total institutions.”<sup>3</sup> Most pertinent to this book, work units provided medical insurance and primary health care and served as the workers’ principal access point to the medical and public health systems (Henderson and Cohen 1984). Larger work units even had attached hospitals or clinics.

In rural areas, a similar process of agricultural collectivization and provision of social services occurred, starting in the early 1950s. As in urban areas, rural production brigades eventually provided their members with medical insurance and primary health care and served as workers’ principal access point to the medical and public health systems; however, the cooperative medical system (CMS) was not created until about a decade after the health system was established in urban areas. While some rural areas developed health infrastructure earlier, the CMS arose in response to the health crisis of the 1958–1961 Great Leap Forward (Zhou 2020). Starting in the 1960s, most brigades also had a health clinic staffed by one or more health paraprofessionals, who became known as “barefoot doctors.” In the 1970s, a wave of scholarly publications examined China’s rural health system; some even argued it could become a low-cost model for infectious disease control in other countries (Horn 1971; Pickowicz 1971; V. W. Sidel and R. Sidel 1974; V. H. Li 1975; New and New 1975; R. Sidel and V. W. Sidel 1977; Rifkin 1978). This system was a huge improvement because it brought some medical care and public health education to rural areas, but it had a host of problems, such as poorly trained health workers who were overreliant on Western medicine. There was also wide variation among what rural communes themselves could provide, the system was inferior to the urban system, and there were great disparities between what was provided between coastal and interior provinces.

From a disease control standpoint, a major change after 1949 was ensuring that medical and public health advances, such as case-finding efforts and effective antibiotics, reached the masses. Along with schistosomiasis, sexually transmitted infections, and cholera, TB was one of the targeted infectious diseases that helped to shape public health policy in the early Mao era (Gross 2016; Fang 2021). Despite China’s exclusion from many organizations, including the World Health Organization, during the Mao era, the nation’s control model emphasized the same prevention and case-finding methods used elsewhere in the world, along with an improved TB control network and more effective TB drugs. Work units facilitated public health education and TB case finding and paid the cost of TB treatment. Workplace doctors, in both urban and rural areas, supervised treatment, monitoring compliance with treatment regimens. Thus, because the

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3. Sociologist Erving Goffman defined total institutions as places in which similarly situated individuals live, largely cut off from wider society (1961).

work-unit system was intrusive, premised on social control, it could effectively squelch infectious disease outbreaks.

Starting in the 1980s, rural production brigades were dismantled, which affected the CMS, but rural industrial enterprises owned by villages and townships expanded rapidly and still provided support for some rural health-care provision, especially in the areas of coastal China, where they were most widespread. In cities, the work-unit and residence permit (户口) systems remained in place, with public ownership and permanent employment, as well as work-unit-based provision of welfare and health care. Because of this, there was little room for migrant labor until the 1990s.

After 1990, the CCP's new capitalist-style market reform program, based on market integration and profit-oriented enterprises, dismantled the work-unit system, cut the ties between the enterprise and individuals, spurred mobility, and dismantled the basic-level health-care and public health system that had been based in these units. This took place gradually, as the Chinese government restructured state-owned enterprises (SOEs) and collective enterprises. Most SOE and collective enterprises were privatized, and those remaining were reorganized.<sup>4</sup> In an attempt to increase the competitiveness of SOEs and collectives, restructuring required enterprises to shed their employment guarantees and welfare functions. Many work-unit clinics and hospitals were privatized or eliminated. As permanent employment ended, temporary and casual employment became common.

The decline of the work-unit system led to a crisis of public health, health insurance, and provision of care from the 1980s to 2010s. The amount of coverage provided through the workplace declined, and urban and rural residents were expected to pay for care at the time services were rendered (Wong, Lo, and Tang 2006). Municipal governments in China began to replace lost health insurance in the early 2000s, but coverage remained limited until around 2010. Starting in 2006, the state also began to rebuild a new cooperative medical system (NCMS), but coverage was not as complete as under the original CMS. In 2011, the Chinese minister of health, a former barefoot doctor, reported that out-of-pocket expenses for rural residents who had joined the NCMS had fallen from 73.4 percent to 49.5 percent in three years (Watts 2008; Z. Chen 2011), which still proved burdensome to many rural residents.

Work-unit dismantling in the 1990s also led to declining access to tuberculosis control interventions. On paper, access to tuberculosis treatment should have been widespread, given that the World Health Organization began to widely

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4. A few types of work units, such as government agencies and enterprises in the energy sector, have retained important elements of the work-unit system, but these make up a relatively small portion of the labor force.

promote a free, six-month course of medication following the declaration of TB as a global health emergency in 1993. However, in China, health educational programs and case finding were done less frequently in workplaces than they were under the work-unit system. Patients no longer received TB treatment in a workplace-based clinic under the supervision of workplace doctors. This study demonstrates how these changes led to TB control challenges. The lessons from several decades of institutional change in China are also important to controlling other infectious diseases. In recent times, resurgence and emergence of new pathogens has demonstrated that continued vigilance toward infectious diseases is necessary. As the first pandemic of the new millennium, SARS attracted attention to China's health system, which had become fragmented in the 1980s and 1990s. Scholars have argued that SARS served as a wake-up call, which led to the reprioritization of public health in China in the contemporary era (S. Wang 2004; Mason 2016).

### **The Fall and Return of Tuberculosis in the Twentieth Century**

Tuberculosis is one of the key diseases for illustrating the importance of social factors in disease control. Globally, both the decline of tuberculosis in the twentieth century and TB control challenges in recent decades came about because of a number of variables. The goal of TB control, both historically and in the present day, is to lower the number of cases and deaths by interrupting disease transmission and progression, which may take place at any stage of disease development, from infection to death (Table 0.1). Interventions designed to prevent the body from being infected by the TB bacillus include social distancing, education about transmission and symptoms, as well as the widespread use of the bacillus Calmette-Guérin (BCG) vaccine.<sup>5</sup> Interventions to prevent the body's breakdown into active disease aim to keep the immune system strong. Only a small percent of individuals infected by the TB bacillus ever develop active disease. Those who do often have compromised immune systems—either caused by malnutrition or the human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS). In contemporary times, isoniazid preventive therapy (IPT) can also be employed to prevent active disease from ever developing.<sup>6</sup> During

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5. Prepared from a weakened strain of bovine TB, BCG came into extended use worldwide in the years following World War II. Compared to other childhood vaccines, such as the MMR vaccine against measles, mumps, and rubella, which offers more than 90 percent effectiveness, BCG's effectiveness is not as robust. It is most effective in providing resistance against disseminated TB—a condition where TB spreads throughout the body—among children, than against pulmonary TB in adults (Davenne and McShane 2016).

6. IPT entails taking one of the most effective TB drug for a course of six months, which prevents latent TB from ever becoming active.

**Table 0.1:** Stages in tuberculosis development

	Infection risk	Breakdown risk	Death risk
Direct causes	Breathing in the TB bacillus	Immunosuppressive event	Lack of appropriate treatment
Proximate causes	Coughing without covering the mouth	Inadequate nutrition	Diagnosis delays
	Poorly ventilated environments	Nonadherence to IPT	Treatment nonadherence
	Lack of exposure to sunlight	Unsafe sexual behavior	
	Failure to get the BCG vaccine		
Underlying causes	Overcrowding	Lack of money for a nutritious diet Lack of health education Lack of AIDS knowledge	Lack of access to health care

Adapted from Jaramillo (1999).

the final stage of disease development, interventions are made to find and treat persons with active disease to prevent death, by identifying cases and managing active TB through rest and drug therapy.

The TB development stages outlined in Table 0.1 also distinguish among the direct, proximate, and underlying causes of disease. The direct causes are all bio-medical factors; however, these factors cannot be separated from the proximate and underlying factors. The proximate causes of disease include many behavioral factors, such as failure to get or adhere to (preventive) treatment(s). Behavioral factors often interrelate with more distal-level factors, or underlying causes—what sociologists refer to as the social determinants, or fundamental causes, of disease (Link and Phelan 1995; Marmott 2004; Navarro 2007). In the United States and the UK, race is among the most important of the social determinants of health, but this monograph primarily investigates variables other than race.<sup>7</sup> Specifically, socioeconomic class and structural divisions associated with inclusion in and exclusion from the work-unit system are the primary variables of importance. Economic standing enables or limits individual compliance with public health and medical recommendations. For instance, poor people are more

7. As Chapters 1 and 2 will discuss, race was a factor that played into policies by colonial governments and nonprofits prior to 1942.

decline. Through these interviews, I was able to analyze both what institutions intended to provide and what they were actually able to provide.

In addition to providers of care, I interviewed care recipients. I especially targeted TB patients and members of their families. Forty-six of my 53 care recipients had experience as TB sufferers. These individuals were recruited through a respondent-driven method. I asked a few key informants who worked in the health system to give a card with my contact information to persons who have had family experience with TB. This card asked potential respondents to contact me if they would like to participate in the study. The questions I asked of care recipients were designed to historically compare TB control and the extent to which providers were successful in reaching the populace. As with the care providers, semi-structured interviews with recipients included themes prompting discussion of health education campaigns, case finding, and access to treatment and care both during the work-unit system and since its decline. The interview protocol included probes to seek information about how access issues affected health and illness behavior both during the work-unit system and since its transformation. Given that my sample was respondent driven, a number of younger TB patients also contacted me to discuss their illness experience. Their experiences provide a fuller picture of the spectrum of health-care coverage that is available in contemporary China.

## Structure of the Book

This book is divided chronologically into seven chapters and three parts. Part I examines disease control in Shanghai before 1949. Chapter 1 investigates the colonial state's tardiness in addressing TB between 1911 and 1927, both because other diseases were more acute and because controlling TB would have entailed improving social conditions for the local population. The chapter examines the difficult trade-off leaders have to make when considering whether to prioritize disease control or economic growth. Chapter 2 turns to 1928–1949, when the GMD state became committed to strengthening the nation. Despite best intentions and some cooperation between governmental and nongovernmental actors, TB prevention, in particular, was not targeted to members of the population who lived and worked under conditions that made them particularly susceptible. War interrupted some TB prevention efforts, but nonprofit actors attempted to make beds more widely available, even during the 1937–1945 Japanese Occupation. Efforts became even more widespread in the postwar years. The section concludes that the foundation upon which the Communists would build public health work was set before 1949.

Part II examines Shanghai between 1950 and 1992. Chapter 3 focuses on the 1950–1957 creation of the work-unit system; Chapter 4 focuses on urban disease

control at the 1958–1992 height of the urban work-unit system; and Chapter 5 focuses on disease control in Shanghai’s rural counties. Chapter 3 introduces the model of the new health image the state aimed to create. In the 1950s, the workplace-based TB control program was developed and began to be scaled up to make scientific and public health advances available to the masses. While the model was never fully realized, Shanghai still saw dramatic declines in TB mortality and morbidity.

Chapter 4 covers 1958 to 1992, a period during which maturation of the work-unit system, the urban health system, and the urban TB control network occurred. The types of care individuals received in different types of enterprises varied; however, almost all urban residents had basic health coverage. During these decades, personnel from district prevention and treatment clinics worked closely with workplace doctors to identify TB sufferers and monitor their care. Particularly during the 1980s, the municipal government also relied on cooperation between residents’ committees and public health nurses to reach members of the population who might not have been served in their work units. Coverage was never complete, but the chapter demonstrates that these collective efforts contributed to declining TB.

Chapter 5 turns to the case of Shanghai’s rural counties to examine how the workplace-based cooperative medical system developed and facilitated TB control. This system was particularly effective in delivering low-cost preventive health care and controlling costs from the 1960s to the 1980s. The chapter argues that the rural health system remained largely intact in rural Shanghai throughout the 1980s, due in large part to financial support from township and village enterprises, but this finding is unlikely to be generalizable to the rest of China, because the number of township and village enterprise (TVEs) in Shanghai exceeded that of other areas.

Part III examines the initial deleterious effects of China’s turn toward the market on the medical and public health systems after 1992. Chapter 6 investigates the major demographic and economic changes dominated the 1990s: privatization, the shedding of welfare responsibilities by employers, a shift to less permanent employment and the rise of migration. The 1990s also saw a restructuring of the health and TB control systems—leading to the variation in coverage that has contributed to new challenges in TB control. Indeed, while China made an incomplete leap forward in health in the middle part of the twentieth century, this work concludes that maintenance of health-care and public health infrastructure is crucial to making medical advances available, both for controlling TB as well as emerging diseases, such as COVID-19.

## An Unrealized Vision of Health and Tuberculosis Control, 1928–1949

On June 6, 1941, Chinese workers entered the Shanghai Anti-Tuberculosis Association's Shanghai Hospital and seized the operating table, stretchers, X-ray equipment, microscopes, and other furniture and equipment, such as beds. The commissioner of health of the Chinese administration, a representative of the local, collaborationist government, headed this operation to recover this loaned equipment, which was needed for another medical facility in Shanghai. During the seizure, SATA's hospital supervisor, Dr. Lee S. Huizenga, looked on helplessly (SMA U1-16-2660; U1-16-2664; and U38-1-191).<sup>1</sup> Following the incident, Huizenga promptly sent letters to the editors of local papers, urgently appealing to private citizens for help in replacing the lost equipment. A day later, local papers reported that this "tragedy" had turned into a "boon": locals flooded the organization with gifts of equipment and furniture, including the beds needed to ensure patients would not have to sleep on the floor (SMA U1-16-2660). Consequently, the hospital could continue its work, despite wartime equipment shortages.

This vignette illustrates several of the challenges in TB control during the twenty years leading up to the Communist victory in 1949. The two decades addressed in this chapter are often broken into three (or four) periods: the 1928–1937 "Nanjing Decade," the 1937–1945 war years, and the 1946–1949 postwar period. During the Nanjing Decade, the Guomindang government, which was based in Nanjing, wanted to implement a modern state, based on a Western model, with a genuine desire to unite and strengthen China. This state

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1. Huizenga was a Dutch American medical missionary from Grand Rapids, MI, who served in China from 1920 until his death in a Japanese camp in Zhabei District in July 1945. After serving at the Shanghai Leprosarium, he became active with SATA at its founding. He served as superintendent of SATA's Tuberculosis Hospital, and as superintendent of hospitals after the superintendent of the Shanghai Hospital, Dr. Henry Chu, died in February 1941. Huizenga chaired SATA's publicity committee when it was founded in 1940 and served as general secretary of the organization.



emphasized development and modernization, but implementation of this vision varied based on resources and institutional capacity at locations throughout China. Growing conflict with the Japanese and public demonstrations against foreigners also punctuated the Nanjing Decade, including in Shanghai. As an example, in September 1931, the Japanese seized control of Manchuria without resistance, which prompted indignation and mass mobilization among students, merchants, and workers in Shanghai. Methods of resistance included demonstrations, marches, and boycotts, and some of the aggrieved parties even went to Nanjing to protest. In Shanghai, Japanese troops also attacked Zhabei for five weeks in late January to early March 1932, prompting mobilization in all sectors of society (Bergère 2009). The GMD government was divided on the approach to the Japanese, which complicated struggles over health-related resources. This chapter situates TB control with respect to various elements of the National Health Reconstruction program, which the Nanjing government sought to implement.

On paper, implementing a TB control plan dovetailed nicely with the GMD vision for health; however, there were many challenges with respect to implementation, including macro- and micro-level factors, as well as medical factors. At the macro level, its tenuous geopolitical hold on some areas compromised the GMD government's efforts to implement health interventions. Recent scholarship has demonstrated that some health interventions, such as vaccination, became widespread during the 1928–1937 Nanjing Decade in various Chinese locales and continued during the war (N. E. Barnes 2018; Nakajima 2018; Brazelton 2019b). In particular, cholera vaccination efforts continued in Shanghai and were a rare area of cooperation between Chinese and foreigners, including the Japanese occupiers. But the situation in occupied Shanghai was complex. As Nakajima (2018) writes, Chinese elites who wanted to improve the health of Chinese citizens had an ambiguous relationship with both Western colonialists and the Japanese. Many Chinese elites admired biomedicine and believed it could transform society. Likewise, the Japanese had largely adopted Western models of bacteriology and sought to implement health campaigns in areas of China. This raised ethical questions for local Chinese when it came to cooperating with Japanese health campaigns, such as cholera vaccination in 1938 (Nakajima 2018). Many in Shanghai accommodated the Japanese, perhaps because survival was their more immediate aim (Brook 2005).

Part of the chapter focuses on health interventions between August 1937 and August 1945. In China, the conflict taking place during this period is called the War of Resistance against the Japanese (抗日战争). In English, it is sometimes called the Second Sino-Japanese War to distinguish it from the First Sino-Japanese War, of 1894–1895. In this chapter, I refer to the period as the Japanese Occupation, because of the Japanese hold on Chinese parts of Shanghai

(and parts of the International Settlement north of Suzhou Creek), starting with intense fighting between August and November 1937, known as the Battle of Shanghai. With the outbreak of war in 1937, the GMD government relocated from Nanjing to Chongqing. Many scholars further subdivide the war years in two: before the Japanese bombing of Pearl Harbor (1937–1941) and after the United States entered the war (1942–1945). Indeed, the struggle over resources in parts of Shanghai looked very different between 1938–1941 and 1942–1945. The early war years (1938–1941) are often called the “lonely island” (孤岛) period, a time of relative prosperity when some industry relocated from the Japanese-held areas in Zhabei, Hongkou, and Yangpu to the foreign concessions. By contrast, in the late war years (1942–1945), Japan also controlled the foreign concessions. After 1942, some Westerners, including Lee S. Huizenga, were held in camps, and others, such as SMC health commissioner J. H. Jordan, departed Shanghai. Archival records from 1942 to 1945 are not as complete as those from before 1941, but the records that do exist suggest that there was not a dramatic shift in implementation of TB control measures in 1942. As the opening vignette illustrates, the Japanese Occupation complicated but did not arrest the vibrant efforts in TB control that non-profit and private actors carried out, with some government support in 1937–1941. Moreover, as the chapter will illustrate, in 1942–1943 SATA proudly reported that all funding was being raised locally, when foreign funds were tied up supporting war efforts elsewhere around the globe.

The equipment seizure at SATA’s Shanghai Hospital occurred five months prior to Pearl Harbor, and it illustrates several challenges in TB control before 1949. As highlighted in the previous chapter, before the discovery of effective antibiotics, isolation of sufferers was a commonly used disease control mechanism, including at the Shanghai Hospital, which had 60 beds, including 20 for paying patients, who helped to subsidize the costs of the less fortunate. Despite having been envisioned as a self-sufficient facility, during its 3.5-year affiliation with SATA, it always struggled for resources (Core 2019). In Shanghai, TB control involved cooperation between public and private entities, neither of whom had the resources or the mandate to fully implement TB control throughout a divided city. Certainly, this vignette illustrates the antagonistic relationship between collaborationist Chinese and a largely foreign-led organization. At first glance, it appears that the primary actors were SATA and the Chinese government, but SATA itself attempted to bring together multiple entities, not always successfully. SATA received support from both the Chinese national government as well as the local governments of Shanghai. Its funding came, in part, from grants-in-aid from both the French administration and the Shanghai Municipal Council, and it had a number of foreign doctors and donors among its leadership.

Additionally, the organization had close ties to other organizations involved in the tuberculosis movements internationally, as well as to business leaders, both locally and internationally. SATA actively sought to include Chinese nationals among its leadership and in its decision making, but as this example illustrates, Chinese loyalties were divided. At the time of the equipment seizure, the local Chinese government in Shanghai largely collaborated with the Japanese. During the equipment seizure, French police and the director of the Public Health Service of the French Municipal Council (FMC) were present because the hospital was in the French Concession. Perhaps the multiple actors could have united around the common cause of controlling the most widespread and deadly infectious disease, but resources, such as equipment and the space needed for disease control, were extremely limited. Consequently, conflict often ensued.

This chapter adds to the growing body of scholarship demonstrating that some health and welfare interventions, which would become hallmarks of the Mao era, originated under GMD rule (M. L. Bian 2005; Dillon 2015; N. E. Barnes 2018; Nakajima 2018; Tillman 2018; Brazelton 2019b; Soon 2020). Specifically, the chapter demonstrates that collection and use of disease statistics, hygiene campaigns, and expansion of health facilities and personnel for TB control originated before 1949. Health campaigns became relatively standard in Shanghai during the 1930s; however, my findings on TB prevention programming echo previous critiques that during the Nanjing Decade, TB control was pitched largely to the middle class, rather than those who needed it most (Lei 2010). Relatedly, TB control during this era did not pay enough attention to how interventions might be targeted to improve standards of living. While direct interventions were not made to raise the standard of living of the poor, benevolent actors did emphasize development of hospital and outpatient facilities to support poor TB patients. Nakajima (2018) and Tillman (2018) have both examined the expansion of nonprofits in Shanghai in the provision of health and welfare services before 1949. Likewise, N. E. Barnes (2018) has examined the expansion in the ranks of low-paid medical workers in developing medical services during the War of Resistance in free China. In occupied Shanghai, the state relied on private and voluntary organizations to provide many TB control services, both before and during the war.

Advances in science and technology prompted a dramatic shift in postwar disease control in 1946–1949. As the penultimate section of this chapter illustrates, during the postwar period, government, nonprofits, and other leaders cooperated to make medical advances more widely available. Specifically, the BCG vaccine, mass radiography, and effective antibiotics came into widespread usage as technologies that would revolutionize TB control. The postwar period was a prequel to systematic efforts to make medical advances widely available after 1949. Thus, this chapter echoes previous scholarship emphasizing continuity

before and after 1949, as the state began to prioritize state medicine and build a national social welfare program (M. L. Bian 2005, Dillon 2015, Tillman 2018).

### **A National Vision for Health, 1928–1937**

In 1928, the GMD was determined to unite and strengthen China by battling widespread disease. To this end, the GMD government developed a National Health Administration and worked closely with international organizations, such as the Rockefeller Foundation and League of Nations Health Organization, particularly in rural areas. The GMD also developed a national health reconstruction program, which had several elements upon which TB control efforts would build, including improved statistical monitoring, emphasis on preventive health, and modern scientific treatment. The GMD government also began to develop health infrastructure to implement its vision of health. This section provides an overview of each element of this vision.

National health reconstruction stressed monitoring of health statistics with creation of infrastructure to support this national program. During the 1930s and 1940s, the Chinese state made strides in compiling and monitoring statistics, including those associated with the human body. Scholars have argued that the collection of statistics was a crucial undertaking for creating citizenship and governing nations throughout the globe (Porter 1999; Foucault 2004; Lam 2011; DiMoia 2013). China's first concerted efforts to create and monitor health statistics based on infectious disease notification at the national level occurred during the Nanjing Decade. According to a 1928 Ministry of Health directive, doctors were required to report diagnoses of several prevalent infectious diseases to authorities within twelve hours, for example, typhoid, dysentery, cholera, smallpox, plague, diphtheria, meningitis, and scarlet fever (Yip 1995; Bu 2017). Thus, the program aimed to scale the sort of reporting that was done under the SMC Health Department to the national level. Despite its prevalence in the urban population, TB was not among the infectious diseases requiring notification in the initial 1928 directive; however, in Shanghai, a push was made to get a clearer picture of TB rates.

Likewise, national health reconstruction advocated for preventive health through environmental and personal hygiene. The GMD government was concerned about changing China's image as the "sick man of Asia" and viewed health education as one of the keys to making this a reality. In particular, in 1934, Chiang Kai-shek launched the New Life Movement, which encouraged individuals to become modern citizens by adopting hygienic habits and Confucian morality. This movement was premised on social control, as it encouraged transformation of health behaviors and state regulation of individual bodies. Several sites throughout the nation, including factories and schools, piloted health education

## Building and Maintaining the Tuberculosis Control Network in Shanghai's Rural Counties, 1950s–1990s

The previous chapters have argued that despite its imperfections, urban Shanghai's TB control network, which made medical advances available through work units, was a model for other Chinese provinces and municipalities to emulate. The health system in Shanghai's rural counties was a likewise imperfect model. In fact, in the 1970s, foreign delegates who came to Shanghai on “carefully choreographed” visits even upheld China's rural health system as a model for other countries to emulate (V. W. Sidel and R. Sidel 1974, 1982; Wei, Wilkes, and Bloom 1997; Brazelton 2019b; Zhou 2020: 264). The barefoot doctor program, in particular, was a low-cost intervention that could be scaled up very quickly to allow rural residents to receive basic first aid and preventive health services. Barefoot doctors worked in clinics supported by rural production brigades, which, like urban work units, helped to reach the population at the grassroots level. However, as in urban areas, health-care provision among Shanghai's rural counties was uneven. This chapter examines the creation and evolution of the health-care system in Shanghai's rural areas and the ways this system was used for TB control.

Because tuberculosis was largely a disease of crowded urban environments, it has not received much attention in the historical literature examining health improvements in rural areas. In the 1950s, TB in Shanghai's rural counties was not as prevalent as in urban districts, but it still was a serious problem, and in some counties it received attention from rural medical professionals. When the first epidemiological study of TB in Shanghai's rural counties was done in 1957, prevalence was estimated to be 45 percent lower than in urban areas.<sup>1</sup> From the 1950s through the 1970s, TB prevalence fell dramatically in both urban and rural areas of Shanghai. In 1979, it was estimated to be 350 per 100,000 in both areas.

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1. In 1957, prevalence was 4,200 per 100,000 in urban Shanghai and 2,340 in the rural counties (CMA 1997).

In the 1980s, TB prevalence in rural areas began to exceed the rates in urban areas. Indeed, prevalence in Shanghai's rural areas continued to decline; however, the decline was not as pronounced in urban areas. By 1985, TB prevalence in Shanghai's urban districts was more than 20 percent lower than in the rural counties. The gap between rural and urban Shanghai would continue to widen: by 1990, prevalence in Shanghai's rural areas was 89 per 100,000, nearly double the 45 per 100,000 in urban areas (CMA 1997). The trend of rural areas outpacing urban areas was not just a trend in Shanghai. In fact, TB prevalence in rural areas, where the healthcare system is not well developed, has been driving some nationwide trends in recent decades, particularly as rural residents have migrated to urban areas (Shen et al. 2012).

The trend of rural counties driving tuberculosis nationwide has been exacerbated by disinvestment in the rural health-care system. In the 1980s, in many Chinese counties, the rural health-care system largely collapsed when the communes that financed it were dismantled (Blumenthal and Hsiao 2005). In many places former brigade-level clinics closed, but in a few other places the rural health-care system transformed. For instance, Xiaoping Fang demonstrates that in Zhejiang the number of barefoot doctors declined, but the remaining rural health practitioners were better credentialed. According to Fang, the number of village clinics in Zhejiang, especially near Hangzhou, remained anomalously high: the percentage of villages with a clinic nationally fell below 10 percent in 1983, but in Zhejiang it remained above 70 percent in 1984–1988, and near 90 percent in Hangzhou's rural areas (2012: 171–75). Likewise, this chapter examines continued investment in the health-care system and infrastructure in several of Shanghai's rural counties, which have always had an advantage over most of rural China, because of their close proximity to the economic hub. Starting in the late 1970s, Shanghai's rural counties became the site of rapid industrial development. This chapter demonstrates that when industry took off in the rural districts of Shanghai, along with other rural districts in China's coastal regions in the 1980s and 1990s, Shanghai's advantages with respect to rural healthcare became more pronounced. I focus largely on Shanghai (now Minhang) and Songjiang Counties but will also introduce data from Shanghai's other rural counties, including Fengxian, Jiading, and Jinshan. By 2000, all but one of Shanghai's former rural counties were incorporated as urban districts and were covered by the same municipal insurance as the urban districts.

### **Fundamental Institutional Change: Rural Collectivization and Its Implications for Health**

Collectivization of agriculture began at the same time that urban industries were collectivized between 1950 and 1957. The earliest steps toward land reform

came in the year immediately following the Communist victory. A land reform law adopted in June 1950 called for the redistribution of five major properties: draft animals, farm implements, houses, furniture, and land (Huang 1990). During this process, peasants were assigned to categories based on their property holdings and whether they hired labor or were hired as laborers. Landlord was the worst category; their property was seized and given to the poor peasants. Collectivization then came about through three additional steps during the 1950s, which Philip Huang describes in his work on Huayangqiao Village in Songjiang County. In 1952, mutual aid teams were set up to oversee resource pooling. Starting in 1954 with “early-stage” collectivization, production was done in a group, and yield was distributed according to household land and labor contributions. In 1956 Shanghai’s rural counties achieved a “higher-stage” of collectivization, and distribution became based upon household labor contribution. During the 1958–1961 Great Leap Forward, collectivization reached completion; at the time, agricultural areas were organized into communes. The size of Shanghai’s communes varied considerably, but generally communes had 10,000 to 30,000 persons.<sup>2</sup> Communes, in turn, were divided into production brigades. Brigades also varied in size, but generally one administrative village of 2,000 to 5,000 persons comprised a production brigade (New and New 1975).

Along with these new institutions came norms regarding what they were expected to provide for their members. After the production brigades were created, they became the key, systemic locale for reaching the population in health programming, much as work units served as grassroots implementation points in urban areas. Rural counties throughout China developed a three-tiered health-care system. The most advanced tier was the county level. County-level facilities often had a number of specialized departments responsible for tasks such as infectious disease control (including TB prevention and treatment clinics), family planning, and mental health, as well as a central general hospital. Counties were the administrative equivalent of urban districts, and the rural health system had two administrative layers below the county. One step below were the commune hospitals. In the 1980s, the communes became townships, and the former commune hospitals became township (镇 or 乡) hospitals. At the grassroots (村) level of the three-tiered structure were very simple production brigade clinics.

China made an initial foray into developing health clinics in people’s communes during the Great Leap Forward. For example, in the communes around what are now Chedun Town and Sheshan Town in Songjiang District, village health clinics were built in 1957 (Zhao 2011a; Liu and Yu 2012). Similarly, in

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2. Pickowicz (1971) estimates that Shanghai’s communes had an average population between 25,000 and 30,000.



the communes in what are now Xinqiao Town and Xiaokushan Town, village health stations were set up in 1958 (Q. Liu 2011; Zhao 2011b). The existence of a few clinics in the 1950s does not signal a developed rural health-care system. Rather, it suggests that some areas with means invested in ad hoc clinics that early. In fact, Songjiang's GLF "boom" was very short lived. The county's GVIO increased from 67 million RMB in 1959, to 95 million in 1960 and 100 million in 1961, only to drop to 60 million in 1962 (Whiting 2001: 43). With economic retrenchment following the GLF, efforts to build and staff brigade clinics faltered in many areas of China (Fang 2012).

The GLF deeply affected China's rural residents and caused the state to reevaluate its approach to rural health. The great famine led to widespread malnutrition and tens of millions of deaths in the Chinese countryside. In the mid-1960s, with the recovery from the post-GLF collapse, Mao again realigned the nation's attention toward health improvements in rural areas. On June 26, 1965, he gave a speech that became known as the "June 26th Directive." Mao's words, "Put emphasis of health work on the countryside," became a guiding principle for the next several years (*China Anti-Tuberculosis Journal* editor 1965). Development of the three-tiered cooperative medical system arose from this new emphasis on rural health provision.

The CMS had a number of advantages, including cost efficiency. Because the brigade financed it, cost control was a goal. Peasants were required to pay a small portion of their income before they could receive benefits through the CMS. This fee was often equivalent to about 1 percent of a peasant's annual income, and this amount was matched by a contribution from the production brigade (V. H. Li 1975). Costs were kept down primarily through the type of medical services that were provided and the referral path. At the brigade level, medical services were limited to mostly preventive medicine, which is more cost effective than curative therapies. When curative therapies were needed and brigade clinics were unable to treat a given ailment, they would refer the case up to a commune or county hospital. Higher-level health facilities also provided regular technical assistance and supervision to brigade clinics. Thus, with respect to the referral path and technical assistance from above, the brigade clinic resembled the work-unit clinics in urban areas, which received help from district clinics.

Brigade clinics were staffed by the famous barefoot doctors (BFDs), peasant paraprofessionals who worked part time as doctors and continued to labor part time in the fields. The term "barefoot doctor" was not coined until 1968, but wealthy rural counties, such as many in Shanghai, already had health workers years before the term came into use (Pickowicz 1971; Fang 2012). Because Shanghai was China's largest and most industrialized city, it was in a much better position than most Chinese cities to provide medical training and equipment to its rural perimeter. Even before the CMS was formally established, by June 1960,



there were 3,900 medical paraprofessionals in the 2,500 production brigades surrounding Shanghai. In 1968, *Red Flag* reported that its surrounding counties had 4,500 barefoot doctors. By the end of 1969, the Xinhua News Agency reported that the number of barefoot doctors in Shanghai's rural counties was 6,000, or 2.4 per production brigade (Pickowicz 1971). It is likely that some of these statistics were inflated to make the Communist health project look good during the Cultural Revolution; however, Shanghai's rural counties came to expect to have some medical personnel in the late 1960s.

The number of barefoot doctors and the brigade clinics they served continued to expand throughout the 1970s. According to a report by the Shanghai Health Bureau's revolutionary committee on June 26, 1974, Shanghai's rural counties had 2,780 brigades and 8,666 barefoot doctors (SMA B123-8-1055-22). In 1976, the same committee reported that Shanghai's rural counties had 9,634 barefoot doctors and 100 percent of its 2890 rural production brigades had implemented the CMS (Table 5.1). These figures were almost certainly inflated. Even if almost all of Shanghai's brigades made some sort of health provision, variation certainly existed between personnel training and what clinics were able to provide. In fact, as will be described below, my respondents who were sent to the countryside to provide care to rural areas acknowledged that this unevenness helped to determine where they went (Provider 20).

Not all of the approximately 70,000 people's communes throughout China had comparable health personnel and services; however, another advantage of the CMS was how quickly it could be scaled up. Between 1965 and 1980, China

**Table 5.1:** Grassroots brigade implementation of the Cooperative Medical System, 1976

County	Number of clinics	Number of BFDs
Shanghai	243	821
Jiading	260	794
Baoshan	204	707
Chuansha	332	1,062
Nanhui	350	1,220
Fengxian	291	1,023
Songjiang	245	820
Jinshan	211	890
Qingpu	326	940
Chongming	428	1,357
<b>Total</b>	<b>2,890</b>	<b>9,634</b>

Source: SMA B242-3-754-132.

# Conclusion

China is critically important to global health. The 2002–2003 SARS epidemic set off alarm bells for needed change. With the 2004 Revised Law on the Prevention and Control of Infectious Diseases, China began to reprioritize disease control. Most of the data for this book were collected after this law had been in place for only a few years, when health access inequalities were particularly stark. In the 2010s, equity concerns became more central to health reforms. Thus, China has been working to overcome some of the variation in access to TB control around 2010 that this research uncovered. With respect to controlling faster-acting and deadlier respiratory diseases, such as COVID-19, China's commitment remains strong. China was one of the only nations to continue to maintain a zero-COVID policy until December 2022.

Although China's critical role in global health today cannot be denied, scholarship of the past two decades has elevated the importance of the most populous nation in our understanding of colonial health in the early twentieth century, international health and development in the postwar era, and global health since the 1980s. This book has woven an important yarn into the conversation by examining tuberculosis, which was consistently the world's most widespread and deadliest infectious disease, until the onset of COVID-19. In closing, we return to some of the past's most important lessons for the present.

## **Situating Shanghai's TB Control within International Health, Development, and Global Health**

Disease remains a potential threat to the nation and national reputation on the international stage. This is as true today, with the rise of COVID-19, as it was in the first half of the twentieth century, when nation after nation began to grapple with tuberculosis. Throughout the twentieth century, disease tied closely to economic modernization, with those living in poorer conditions and without access to modern sanitation, nutrition, or health care most susceptible. This was true in the colonial era, the era of socialist modernization, and the era of market

socialism. This book has illustrated that even though the term “global health” did not come into vogue until the 1980s, public health officials in China were influenced by public health movements happening on an international and global scale, even in the early twentieth century when TB was a global concern.

Given the social disruption that accompanied regime change in the first decades of the twentieth century, the Chinese state was late to begin anti-TB and other public health work, and it did so only in a limited capacity, even in its largest and most economically advanced city. International health was closely tied to colonial enterprises, including in China. This is particularly evident looking at the Shanghai Municipal Council Health Department’s approach to health. As illustrated in Chapter 1, the Municipal Health Department was originally only concerned with the health of Chinese citizens only insofar as it affected the health of foreign citizens. As the years progressed, the short sightedness of this vision became clear, and the SMC began to take a more pressing interest in Chinese residents. War slowed down these changes in 1915–1919, and the SMC never went so far as to address underlying social conditions. Yet with changes to leadership in both the SMC Health Department and the Chinese GMD government, state actors began to pay more attention to more distal causes of disease.

The social determinants of health came into focus in the interwar years, and with this focus came a belief that medicine should be a social endeavor. Organizations dedicated to promoting social medicine on a global stage, such as the Rockefeller Foundation and the League of Nations Health Organization, entered China with gusto for the work to be done (Birn 2009; Borowy 2009; Brazelton 2020, 2021; Zhou 2020). Under the GMD government, China was motivated to control disease, to overcome the label of the “sick man of Asia” and strengthen the nation. As the leading infectious disease in China, TB was part of this focus; however, as was the case in 1915–1919, war interrupted some of these efforts and contributed to increased TB, particularly in overcrowded cities. The Shanghai Anti-Tuberculosis Association arose to combat this challenge, and TB control work of the final GMD years and Mao era built upon the foundation laid during the war.

After the Second World War, international health improvements became tied closely to the international development project. States were important actors attempting to demonstrate the superiority of their economic model and its accompanying institutions through widespread gains in health. Starting in the 1950s, the Chinese state developed a way to bring new scientific advances to its citizens, thus demonstrating the strength of socialist modernization. Scientization was central to these plans, and a growing body of work has demonstrated how science became a tool for consolidating social control and creating a new reality during the Mao era (Gross 2016; Schmalzer 2016; Ghosh 2020). Chinese officials were quick to construct a narrative that improving quality of life and life

expectancy demonstrated the superiority of the socialist model. As Chapters 3–4 illustrate, through the ubiquitous work-unit system, China succeeded in delivering housing, food, health insurance, and other social welfare benefits. Thus, quality of life and life expectancy improved for many urban workers in Shanghai. However, the health gains were not evenly felt, either within Shanghai or beyond.

The gradations and unevenness felt during the Mao era were exacerbated in by post-1980s neoliberalism and globalization. In 1978, China had already begun to turn away from the socialist economic model. In urban areas, the work-unit system remained largely in place until the 1990s; however, as the new economic model found its way into the Chinese countryside, the commune and its associated health system underwent dramatic transformation. Chapter 5 demonstrated that Shanghai's rural counties saw improvements to the credentialing of village doctors and expansion of infrastructure, but Shanghai was an anomalous case. Generally, China's turn away from primary health care in rural areas paralleled that of the world. Worldwide, the new era of "global health" actually prioritized economic interests over health. This was the same time frame during which China was normalizing relations with much of the world, leading to an exponential expansion in global interactions, including trade.

In a new era of globalization and interconnection, which emerged in the 1980s, newly emerging and reemerging diseases, like SARS, bird flu, COVID-19, and MDR-TB, have capitalized on persistent inequality. Both the Chinese government and international scholars have linked emerging epidemics to capitalist excess. For example, Gewirtz points out that China calls AIDS "loving capitalism disease," stemming from a belief that "AIDS represented the underside of globalized, capitalistic modernity," which could be avoided by embracing virtuous socialist living and avoiding "decadent" lifestyles (Gewirtz 2020: 253). This logic might be seen as a continuation of the culture of disease control established in the 1950s that has continued to be employed to control recent global pandemics. While Gerwitz's argument focuses on state attention to individual behaviors, other scholars have warned against many other negative externalities of capitalism. As Mike Davis cautions in his recently updated volume on bird flu, "Multinational capital has been the driver of disease evolution through the burning or logging out of tropical forest, the proliferation of factory farming, the explosive growth of slums and concomitantly of 'informal employment,' and the failure of the pharmaceutical industry to find profit in mass producing lifeline antivirals, new-generation antibiotics, and universal vaccines" (Davis 2022: 17). Likewise, Li Zhang (2021) identifies global capitalism as the driving force behind COVID-19. Indeed, institutions matter for preventing disease from exploiting systemic inequalities.

## Continuity and Change in Welfare Provision and Inequality

As models of international health shifted in the mid-twentieth century, China often saw only minor shifts with respect to state attention and commitment to health and welfare provisions, organizational forms, and the persistence of inequality. As the leader of the first Chinese state in the “modern era,” the GMD envisioned improving citizens’ health but faced challenges to doing so. The New Life Movement focused on creating healthier citizens, yet the movement was largely driven by the upper classes and often excluded and stigmatized the lower classes. During the National Health Reconstruction there was some follow-through with respect to welfare provision. For example, privileged heavy industries, such as munitions, already saw state commitment to social protections. Thus, there was some continuity in the state’s desire to provide necessities under different governments—GMD, Maoist, and Reform—but the follow-through mechanism changed substantially.

What was lacking under the GMD government was a grassroots mechanism of reaching, motivating, and controlling individual members of the population. This volume has demonstrated that the work unit became the institution for inculcating, enculturating, and cajoling the masses with respect to health. This pervasive urban organizational form persisted into the 1990s, when dramatic institutional change occurred. Yet the effects of such a pervasive system were still felt with respect to who had access to care and the type of care they received well into the twenty-first century.

Even in the Mao era, inequality persisted in several ways. The biggest persistent inequality this book identified is unequal access to quality health care among Shanghai’s residents based upon their place of employment and residential status. Workers in privileged industries had access to the best hospitals, while those in less privileged industries had less access. The work-unit system solidified these inequalities for many years, as the system held everyone in place. Moreover, those in rural areas were at a disadvantage, as the residence-permit system provided a barrier to entering urban areas.

Starting in the 1980s, economic reform amplified differential access to medical care. As Chapter 6 demonstrates, a decade into the twenty-first century, the type of care one was able to get depended upon one’s workplace. Those with means were able to access high-quality care, while levels of medical debt grew for those whose workplaces did not grant generous welfare contributions. Medical protests increased as the realization of the right to health care became compromised. The public health system saw some recovery after the 2003 SARS epidemic, and the state paid greater attention to providing more equitable care for citizens in the 2010s. While the national government has focused on remedies to health inequalities, this book has not endeavored to examine regional

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