MAT Medicine Anthropology Theory

REVIEWS

Epidemic States

Reading China's Mao-era Public Health after Zero-COVID

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Received: 25 April 2022; Accepted: 6 January 2023; Published: 26 April 2023

Abstract

This Review essay discusses three recent historical works about Mao-era public health, dealing with mass vaccination, anti-parisitic disease campaigns, and cholera epidemic response. The review identifies two key themes that cross-cut these works: the importance of pharmaceutical technology within the Mao-era, despite common assumptions that science and technology were repressed or declined during this period; and how new administrative reforms that reordered Chinese society after the Communist Revolution intersected with public health governance. Tracing how Maoist forms of state governance emerged in and through the response to epidemic disease, the review essay suggests that we can also examine China's COVID-19 response as a crucible for implementing new forms of governing.

Keywords

China, Public health, Vaccines, Epidemics, *Hukou*.

Medicine Anthropology Theory 10 (1): 1–11; ISSN 2405-691X; https://doi.org/10.17157/mat.10.1.7123.

Introduction

China's public health system is in the global spotlight. After the emergence of the novel coronavirus at the end of 2019, China's intensive public health interventions—ranging from citywide lockdowns to vaccines and tracking apps—initially limited the transmission of the SARS-CoV-2 virus and kept death rates associated with COVID-19 low, particularly in comparison with European and American countries. In some global health circles, China's COVID-19 response was described as a 'model' for epidemic emergencies (Ning et al. 2020; cf. Burki et al. 2020). At the same time, others denounced China for its 'zero-COVID' approach, blaming it for economic downturns, supply chain disruptions, and violations of human rights that would be 'repugnant and unacceptable in any democratic society' (Myers et al. 2021). In November 2022, China began lifting COVID restrictions and an immediate spike in cases and hospitalisations soon followed. With limited data made public and the epidemic still underway as I write, the long-term epidemiological success of 'zero-COVID'—not to mention its social and political consequences—are very much in question. There is no doubt, however, that for nearly three years China implemented a unique pandemic response system that kept death and disease to a minimum. In global preparation for future pandemics, the question of whether, or to what extent, to follow China's approach to pandemic response is unavoidable.

In fact, this is not the first time that China's public health system has been identified as a controversial model for global health. During the 1960s and 1970s, China's Cultural Revolution swept across the country, sometimes spiralling into chaos and violence. At times, as part of the Cultural Revolution movement he launched, Mao Zedong focused attacks on the Ministry of Health and medical experts, criticising inadequate provision of service to rural areas and denouncing intellectual elites. During this period, several sympathetic international visitors suggested that significant transformations in public health practice, and even dramatic breakthroughs, were taking place. In his memoir *Away with all Pests!,* English socialist and physician Joshua S. Horn (1971) enthusiastically described mass clean-up campaigns and barebones but effective immunisation programmes. Victor and Ruth Sidel (2013) wrote glowing reports of China's 'barefoot doctor' programme as an 'innovation' in which 'peasants [are] trained for relatively brief periods to perform health and medical care services on a part-time basis' (idem, 123). And when the World Health Organization (WHO) held an international conference on primary health care at Alma Ata (in the Kazakh Soviet Socialist Republic) in 1978, China's rural medical system was said to be the inspiration for WHO's new focus on simple, accessible primary health care in rural areas (Cui 2008).

Three recently published works—*Farewell to the God of Plague*, by Miriam Gross (2016); *Mass Vaccination*, by Mary Augusta Brazelton (2019); and *China and the Cholera Pandemic* (2021), by Xiaoping Fang, provide a much-needed re-examination of the science and politics of Mao-era public health. Drawing on official documents from provincial and local archives, as well as oral history interviews, these works explore some of the same episodes identified above – rural medicine, pest eradication, and immunisation—but provide entirely different explanations for how and why China's public health system managed to control major infectious diseases such as schistosomiasis, smallpox, and cholera. In what follows, I focus on two contributions cross-cutting all the works that change our understanding of Mao-era public health and provide insights for future anthropological inquiry into the contemporary.

Maoist Pharmaceuticals

Until recently, many observers described the 1960s and 1970s in China as a kind of scientific black hole. During the Great Proletarian Cultural Revolution, experts were harassed and even killed, cleaners and surgeons exchanged roles, and politics seemed to trump facts at every turn. Meanwhile, even positive appraisals of the Mao era tended to de-emphasise the role of science and technology in the apparent success of public health programmes. Without ignoring the violence experienced by academics and scientists during the period, the works reviewed in this Review essay complicate this narrative by bringing to light the importance of pharmaceutical technologies in the Maoist public health programme.

In *Farewell to the God of Plague*, Miriam Gross (2014) describes China's campaigns to control schistosomiasis between the 1950s and the 1980s. Schistosomiasis, a parasitic disease often known as 'big belly disease', first causes acute illness and later chronic suffering, eventually leading to crippling disability, a visibly distended abdomen and even death. The parasite's life cycle begins with infected humans excreting the parasitic eggs in their faeces. Infected excrement can reach freshwater river and lakes inhabited by snails which act as the parasite's intermediate host, before it reinfects humans through the skin in water. Before 1949, the disease was widespread in rural China, infecting more than half of all people in some areas.

In the 1950s, programmes to control schistosomiasis focused on large-scale snail eradication campaigns. Village-level Communist Party cadres and officials organised rural villagers into military-like brigades to search for snails and cull them through burial techniques. Snail eradication campaigns exemplify Maoist political movements—relying on the labour of the masses to overcome seemingly insurmountable obstacles—and are widely believed to have successfully

eliminated the disease in China. However, as Gross (2014) shows, despite some localised and short-term successes in snail eradication, the snails soon returned, and the parasitic disease reappeared.

But by the end of the 1970s, schistosomiasis *was* under control, if not eliminated. Challenging the popular narrative of success, Gross argues that 'the campaign succeeded because of its treatment activities rather than its prevention efforts' (2014, 21). The treatment programme had two arms: testing and anti-parasitic medications. Gross shows that during the 1950s, both testing and medication were intensely resisted by rural residents. Testing required the provision of stool samples, which people predictably found inconvenient. 'Without any food how can I produce any shit?', one villager complained in an archival document cited by Gross (2014, 139). Treatment, more surprisingly, was also resisted. The main reason was cost, calculated both in terms of the direct payments required for medications as well as the indirect time lost from work during the enforced treatment stay at a medical station.

During the 'peak' of the campaign amidst the Cultural Revolution (1966–1976), however, the treatment campaign expanded rapidly and successfully controlled the disease cycle. Firstly, resistance declined as campaign participation became a way to demonstrate revolutionary zeal. As Gross puts it, 'It no longer mattered whether the campaign was logical or even whether it worked; it was now a matter of faith, or if faith was lacking, a mechanism for a public demonstration of devotion' (idem, 159). Probably more importantly, a new policy introduced at the beginning of the Cultural Revolution made treatment with anti-parasitic medicines free of charge. Meanwhile, new pharmaceutical technologies including a short course treatment that could be taken at home also improved access, particularly for women. Rather than the drama of mass campaigns for killing snails, the much quieter process of universal (free) treatment with novel pharmaceutical technologies, as Gross shows, made the real difference in bringing snail fever under control.

In addition to schistosomiasis, once-common infectious diseases including smallpox, polio, typhoid, and diphtheria were all brought under control to very low rates of infection by the end of the Mao era. As Mary Augusta Brazelton (2019) elaborates, the key to these control programmes was Maoist China's unique integration of immunological laboratory research and intensive state healthcare outreach—an integration she aptly captures with the title of her book: *Mass Vaccination*. Brazelton traces the origins of China's vaccination system to its roots in the Republic of China (1912–1949), and particularly focuses on the unexpectedly fruitful period of scientific development during the Second Sino-Japanese War (1937–1945) and subsequent civil war between Nationalists

(Guomindang) and Communists. Benefitting from new global ‘circulations’ of knowledge and materials during the war, as Brazelton convincingly shows, China’s wartime immunological laboratories adapted vaccine technologies to local conditions and consolidated the research and technical experience for producing high-quality, cutting-edge vaccines.

Although vaccine research and production had begun to develop locally, the implementation of inoculation was mostly restricted to small (urban) areas and select populations (such as soldiers). Only after the establishment of the Communist-led People’s Republic of China in 1949 did vaccine technologies achieve a large enough scale of distribution in the population to make significant impacts on infectious diseases. The establishment of disease prevention stations associated with local public security bureaus brought general hygiene (think: street sweeping), epidemic response, and vaccination to local levels. The results were impressive. Taking records from Kunming as an example, vaccination rates for smallpox increased from less than 5% before the late 1940s to at least 90% by 1953 (Brazelton 2019, 131).

If vaccination for routine infections expanded in the early Mao era, vaccines also played an important role in emergency response to epidemics. Xiaoping Fang’s *China and the Cholera Pandemic: Restructuring Society Under Mao* (2021) examines China’s response to a cholera outbreak that took place between 1962 and 1965.[1] Drawing on archival materials from Zhejiang Province, Fang shows how China’s government developed new methods for tracking, classifying, and managing populations during the outbreak. Pharmaceutical technology—in this case, inoculation for cholera—once again played a pivotal role in the campaign. Ironically, the cholera vaccine is now known to be only moderately effective, and Fang does not argue that inoculation led to the eventual control of the disease. Instead, he argues that inoculation drove new mechanisms of data collection and accounting that indirectly transformed public health governance in China. Health officials recognised that ‘for the programme to be effective, it was crucial for it to have access to detailed, accurate biostatistical data on prospective inoculation subjects’ (Fang 2021, 150). The new ‘inoculation registers’ enabled an unprecedented integration of ‘social, production, and epidemiological data’ (Idem, 169), extending the reach of the emerging socialist administration system into rural bodies. Here, the epidemic response intersected with ongoing changes in the governmental administration of China’s society.

1 Fang previously published a comprehensive, revisionist account of the barefoot doctor programme in Zhejiang (2015), which is outside the remit of this essay.

The Epidemiological State

After establishing the People's Republic of China in 1949, China's Communist government initiated a series of administrative measures that reorganised China's social structure. Most significantly, the household registration or *hukou* system assigned every individual and household to a particular residential location. *Hukou* registrations differentiated the population into two broad classes depending on whether one had an urban or rural residence. In effect, this created two grades of citizenship because the state provided certain services (such as housing, waste removal, retirement benefits and healthcare) only to urban residents, while those with rural *hukou* relied on different services organised at the level of the collective or village (Cheng and Selden 1994, 645).

Second, most urban residents were attached to an institution known as the work-unit [*danwei*], which in addition to employment provided a range of services including housing, medical care and insurance, and education or training. Commonly, people who worked together (for instance, at the same factory) would also live together in the same block of apartments. Rural residents, by contrast, were attached to People's Communes, an administrative and production unit that focused primarily on the agricultural sector.

Finally, the replacement of food markets with a system of centralised procurement and supply [*tonggou tongxiao*], and the provision of food coupons through residential units such as work-unit and Commune, made movement difficult because food coupons could only be obtained in one's residential area. Through these measures, an 'immobile society' (Fang 2021, 114) was born that greatly reduced movement and exchange, particularly across the urban/rural divide.

Scholars have previously suggested that the *hukou* system led to dramatically different health outcomes for urban and rural residents. With rural residents typically unable to live in urban areas for extended periods and unable to access state medical insurance, most top-level medical care and hospitals were inaccessible to them (Cheng and Selden 1994; Mason 2012).[2] However, in their new books, Brazelton and Fang show that the *hukou* not only divided the population into stratified degrees of citizenship, but also made the population governable in new ways that facilitated public health interventions such as vaccination drives or the quarantine of individuals and groups.

China's new administrative systems facilitated public health governance in several ways. Brazelton points to both the work-unit and the *hukou* as mechanisms that

2 The situation was exacerbated after the 1980s when many rural residents migrated to urban areas for work. These rural migrants [*nongmingong*] lived in urban areas but could not access any of the urban services (such as education or healthcare) due to their rural hukou (Solinger 1999; Mason 2012).

enabled China to implement ‘mass vaccination’. Vaccinators were recruited from work-units, given short training courses, and sent back to ‘the work units under their jurisdiction to distribute vaccines’ (Brazelton 2019, 133), conveniently and effectively achieving widespread coverage. The *hukou* system also offered a useful platform for the organisation and accounting of mass immunisation drives. For example, smallpox vaccinations were recorded in household register books and carried out through door-to-door surveys in a programme called ‘smallpox vaccination household registration’ (idem, 134). As Brazelton points out, the social control made possible by the *hukou* system made it easier to track who was vaccinated and who was not, allowing health administrators to ‘identity and target people who had previously escaped the reach of inoculators’ (ibid.).

During epidemics, as Fang Xiaoping (2021) shows, the same administrative units could be used to facilitate quarantine and isolation measures. During the cholera outbreak, Zhejiang province and Wenzhou Prefecture established a series of ‘quarantine rings’ that partitioned the province into a series of zones centred on the most cholera-affected area. Province and local governments set up observation and quarantine stations at crucial transport points, such as railway stations, as well as along roadways at administrative boundaries. These quarantine stations were controlled by mass militias, which were hierarchically organised in line with the rural administrative system of the communes, production brigades, and production teams. Created after 1949 and expanded in the early 1960s after relations with the Soviet Union deteriorated, the militias enrolled every male and female citizen between 16 and 50 years of age, except for ‘bad elements’ such as landlords or anti-revolutionaries (Fang 2021, 119). Fang argues that quarantine measures effectively reduced movement because they were ‘interwoven’ with the administrative borders and the militia organisation (Ibid.).

Public health interventions did not only benefit from the *hukou, danwei* or militia systems, however: vaccination campaigns themselves played important roles in consolidating these new administrative systems, helping transform China into what Fang calls an ‘emergency disciplinary state’. Indeed, many of these institutions were still in formation at the time of the cholera epidemic. For example, although the rural militia pre-existed the cholera outbreak, the role of the militia in enforcing quarantines and regulating travel strengthened the institutional position of the militia in everyday life. As Fang (2021) concludes, ‘the interventionist scheme to control the pandemic not only harnessed opportunities provided by the broader social restructuring initiatives but also directly contributed to these efforts and significantly facilitated the rise of the emergency disciplinary state’ (idem, 113).

Brazelton draws on Michel Foucault’s (2007) concept of biopower to show how mass vaccination programmes extended and consolidated governmental power.

‘Immunization’, she writes, ‘directly contributed to the construction of urban biopower’ (2019, 133). The collection of statistics, the division of populations into vaccinated and unvaccinated, and the implementation of injections extended the state’s power over life and death into the body of nearly every citizen. Both Fang and Brazelton’s works are important contributions to understanding the distinctive character of socialist biopolitics in China. Brazelton concludes that vaccination ‘reinforced the legitimacy of the state (because it) claimed responsibility for each immunization’ (2019, 142).

Gross’s (2014) history of China’s schistosomiasis campaigns shows that public health interventions led to new forms of state legitimacy and power in China. Just as Mao was attacking bureaucracy and the Ministry of Health, he was also advocating the improvement of technical skills and basic scientific knowledge in rural cadres and grassroots barefoot doctors. But as cadres became more capable of using scientific tools for data collection and campaign planning, they effectively became more easily governable. Gross’s account of ‘scientific consolidation’ uncovers something like a Maoist audit culture, in which the requirement to collect data in specific authorised ways, and to base campaign management on this data, disciplined cadres into actions that supported the Party and state.

New scientific tools provided to cadres included statistics, scientific management procedures, and small-scale experiments, and Gross finds they served as an effective method for ensuring ‘local compliance’ (2014, 208). As she points out, ‘specific benchmarks garnered from scientific tools allowed units higher in the government hierarchy to ensure compliance from afar’, thereby ‘making it harder to hide inadequate campaign work’ (Idem, 211). Although Mao denounced and dismantled central bureaucracies such as the Ministry of Health during the Cultural Revolution, at the same time public health campaigns such as the anti-schistosomiasis campaign constructed a new form of technical governance at the grassroots level. Gross (2014) sees the implications stretching far beyond the campaign itself to become a general model of how the Party was able to ‘maintain control in a system of fragmented authoritarianism’ (idem, 212). As all three authors maintain, China’s response to Mao-era infectious diseases remade the governance of bodies and lives: creating what could be called an ‘epidemic state’.

After ‘Zero-COVID’

Over the past four decades, the Maoist public health system described in these historical works has been largely dismantled, and public health governance remade as a ‘professionalized, biomedicalized, and globalized technological machine’ (Mason 2016, 3). And yet, there is something hauntingly similar about the way that China’s public health system once again attracted hyperbolic attention

from both proponents and critics for its initial ‘Zero-COVID’ strategy: heralded as ‘model’ by some, while derided as ‘authoritarian’ by others.

Although the specific historical continuities between the Mao era and present-day policies are best left for historians to uncover, medical anthropologists have much to learn from the new histories of China’s public health too. In the 1960s and 1970s, China’s response to infectious disease epidemics remade its governance in an ‘emergency disciplinary’ mode (Fang 2020). In addition, these histories remind us that governance of public health operates across what Foucault (2007) described as the two ‘poles’ of biopower: the body and the population. On the one hand, biotechnological interventions such as vaccines remake the conditions of bodies as living beings; while on the other hand, social reorganisations such as the *hukou* system transform population characteristics from demographics to mobility. At the same time, the deployment of rural quarantines and movements of ‘mass science’ discussed above make clear that China’s biopolitics in the 20th century differed in important ways from European, North American, and even Soviet cases (cf. Farquhar and Zhang 2005; Greenhalgh and Winckler 2005; Greenhalgh 2008).

With the lifting of COVID restrictions across China in late 2022, the three-year experiment with Zero-COVID—including ‘grid’ governance (see Biao 2020), zoned lockdowns, and health tracking apps—is ending. But what lasting impact will these novel interventions have on China’s governance of bodies and populations? Have they remade the state in the image of a new epidemic? And to what extent should China’s COVID response be taken as a model for pandemic preparedness? As early anthropological accounts of China’s COVID-19 response are published (e.g., Biao 2020; Courtney 2020; Zhang 2021; Cai and Mason 2022), we can now begin to consider what new relationships between life, population, and social order are taking shape in China’s contemporary epidemic state.

Authorship statement

This essay is authored solely by Lyle Fearnley.

Acknowledgements

I would like to thank section editor Marlee Tichenor, MAT staff Cristina Moreno Lozano and Catherine Marshall for editorial support. I would also like to thank an anonymous reviewer for helpful suggestions that greatly improved the essay.

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