Tuberculosis – The Singapore Experience, 1867-2018: Disease, Society and State. Kah Seng Loh and Li Yang Hsu. Abingdon and New York: Routledge, 2020. 180 pages. ISBN: 9780429331442.

The COVID-19 pandemic has spurred interest in previous pandemics, and how those affected responded. In a loose sense of the word "pandemic," tuberculosis (TB) would qualify too as a global scourge and one which has persisted through the centuries like a brushfire that subsides, and then flares up again.

The dreaded disease, according to the World Health Organization, infected 1.7 billion people in 2018, while "claiming 1.5 million lives each year" (CDC). Yet, the disease has practically been eliminated in many countries, mainly the developed ones, with only a handful of cases annually. Singapore is interesting in that it is now on the verge of being classified as a developed country, but still reported 1370 cases in 2020 (Leo 2021). This is the lowest number in years but is still considered to be a cause for alarm because TB resurgence can happen in large numbers.

Kah Seng Loh and Li Yang Hsu, through extensive archival research, offer insights on TB prevention, control and possibly even elimination. Although the book is about Singapore's experience, the lessons are important for public health in any country, going beyond TB and even with relevance for COVID-19.

The biomedical aspects of TB recede to the background in Kah and Li's book, highlighting instead how the disease needs social and political solutions, which was the case in developed countries, where a combination of housing and nutrition practically eliminated TB even before anti-TB antibiotics became available (Ortblad et al. 2015). Yet, after effective anti-

TB medicines became available, the elimination of TB still depended on other non-pharmaceutical interventions (NPI, a term becoming popular in the COVID-19 pandemic), such as contact tracing and immunizations.

In the case of Singapore, although under British colonial rule until 1963 (first as part of the Federation of Malaysia, and then as a separate Republic of Singapore in 1965), the rapid gains made against TB in the United Kingdom were not replicated as quickly in the tiny city-state. Kah and Li describe how researchers and health administrators in Singapore did recognize, as early as 1906 in an investigative report, that TB's spread was tied to congested living and working conditions. Reforms in housing were, however, delayed for decades for various reasons, including Singaporean residents' unwillingness to have more taxes for infrastructure, as well as racism from both westerners and Chinese Singaporeans themselves, who practically transformed TB into some kind of innate condition. For instance, medical researchers like J. M. Winchester argued that urbanization had killed off the "weakly immune," so housing reforms would be useless. A Chinese physician, Lim Boon Keng, argued TB was hereditary, even proposing diagnostic facial characteristics among the Chinese. Other public health administrators said TB was a chronic condition anyway, and would never come under control.

Singapore's initial emphasis with TB was to isolate patients in sanitaria, following models in the US and Europe. Such sanitaria helped, with open wards and windows bringing in fresh air and sunlight, but better housing, which could provide similar healthier environments, continued to be resisted until after the Second World War, amid further deterioration of housing and the emergence of urban *kampong*, settlements with informal settlers.

Kah and Li describe how reforms in TB control policies reflect a "reflexist-modernist approach to social governance," one which became even more important when Singapore declared independence, led by Lee Kuan Yew and the People's Action Party. A healthy citizenry was considered to be a hallmark of a successful nation, as were social benefits and infrastructure like housing.

Subsidized housing, universal education, and a strong government public health system helped to reduce TB transmission, the backbone needed for the success of specific interventions such as anti-TB medication, case finding, immunization, and public health education (with Singapore's famous anti-spitting measures).

Perhaps most importantly, TB control became part of Singapore as a "laboratory of citizenship," with anti-TB efforts coordinated and mobilized by the government and the private sector. Rotary Clubs set up clinics, and provided X-rays for diagnosis, and implemented the short-lived but important home visit programs. A Singapore Anti-Tuberculosis Association (SATA) was also organized right after the Second World War by former interns in Japanese concentration camps, who witnessed TB's deadly spread through the camps. SATA focused on immunization, a TB insurance scheme, and public education.

Singapore did tap into medical advances, but recognized these still depended on social solidarity for its benefits to be felt. Kah and Li observe that even today, with the availability of measures that can finally eliminate TB, the disease remains in Singapore, albeit in small numbers and still treated with stigma and prejudice, which interestingly, are amplified by X-ray detection in earlier years. Patients complain that positive results could jeopardize their employment prospects.

Many countries stand to learn from Singapore's experiences with TB, in particular its emphasis on citizenship and governance, but it is a race against time. Singapore bewails their continuing TB problem with an infection rate of 35 per 100,000 people in 2007 (NCID n.d.) while in the Philippines, it is 554 per 100,000 (World Bank n.d.).

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