Public Health Then and Now

Public Health Developments in Colonial Malaya: Colonialism and the Politics of Prevention

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ABSTRACT

In both African and Asian colonies until the late 19th century, colonial medicine operated pragmatically to meet the medical needs first of colonial officers and troops, immigrant settlers, and laborers responsible for economic development, then of indigenous populations when their ill health threatened the well-being of the expatriate population. Since the turn of the century, however, the consequences of colonial expansion and development for indigenous people's health had become increasingly apparent, and disease control and public health programs were expanded in this light. These programs increased government surveillance of populations at both community and household levels. As a consequence, colonial states extended institutional oversight and induced dependency through public health measures. Drawing on my own work on colonial Malaya, I illustrate developments in public health and their links to the moral logic of colonialism and its complementarity to the political economy. (*Am J Public Health*. 1999;89:102–107)

Over recent decades, efforts to reduce severe morbidity and mortality and to control disease have been situated within debates about inequalities in health status. These debates have drawn attention both to inequalities in access to health care and medical services and to continued problems in disease prevention and control and public health. The emphasis of governments has been on the most cost-effective strategies. Primary health care, community participation, maternal and child health, immunization, water and sanitation, and the involvement of traditional healers in the delivery of care have all been promoted in this light, as articulated in the original Alma-Ata declaration and debated more recently by bodies such as the Asian Development Bank,[1] the World Bank,[2] and the World Health Organization.[3]

Historical studies of changes in population health and institutional responses to such changes provide us with a valuable means of reflecting on these more contemporary debates about public health and medicine. The argument that "history repeats itself" is somewhat jejune. Yet it is the case that issues such as the relationship of economic development and environmental change to the transmission of disease; the desirable balance of curative and preventive services; health financing, training, research, and technology; and early detection and treatment compliance have all been well rehearsed over the past century, particularly in colonial settings where inequalities have so clearly influenced infection and outcome.

At the same time, under colonialism and in present circumstances, at both ideological and institutional levels, responses to illness have both continued inequalities and maintained contemporary political-economic relations. As Fanon noted some decades ago,[4] medicine, along with education and the judiciary, was a valuable vehicle that, in differentiating truth from myth and science from belief, provided the intellectual basis and moral logic of colonialism. It is the purpose of this paper to review the changing direction of health and medicine in British Malaya and to discuss its associations with the ideologies and institutions of colonialism.

Shaping the Tropics for European Habitation

In much of the colonial world, different patterns of illness were evident in the country and the city, reflecting the processes of a rapidly expanding primary export economy and urbanization, along with changes in demography and ecology.[5–10] The structure of space and work in colonial regimes produced the conditions of ill health and the distribution of disease, and these in turn were affected by the social and political relations produced under colonialism and determined by race and gender.

Colonialism reached its height in the late 19th and early 20th centuries, as the colonizing powers of Europe took advantage of technological tools to extend their geographic and political control and to maximize profits through the expansion of plantations, extractive industries, and new markets.[11] However, as an extensive literature now demonstrates, the colonization of new territory; industrial expansion; the development of commercial, financial, and administrative centers; and attraction of capital rested on the ability of governments to

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provide appropriate infrastructure, security, and services to meet the needs of investors and personnel based in the colonies. Railways and roads, telecommunications, sanitation, potable water, and medical services were all part of the apparatus essential for development.

In this context, scholars have claimed that colonial medicine existed primarily "to make the tropics fit for the white man to inhabit."[12] Accordingly, medical services were intended, first, to preserve the health of Europeans, including colonial officials, troops, and developers; second, to limit illness among workers, who, depending on colonial economic policy, might have been either indigenous laborers or immigrant workers; and third, to prevent the spread of epidemics that would threaten individual health and social order. As a result, quarantine laws, vaccination procedures, hospitals, sanitary and scavenging services, housing regulations, and urban settlements were oriented to prevent infection, restrict outbreaks of disease, and treat illness.[13,14]

Histories of medicine in colonies in Africa, Latin America, and Asia provide strikingly similar accounts of the appointment of medical staff, the establishment of hospitals and clinics, and the provision of health and medical services. In general, 19th- and early 20th-century colonies provided urban, hospital-centered services to colonial administrators and the military first, then to the local elite and other capitalists whose participation in development was vital to the well-being of the colony, and then to those among whom epidemic disease might threaten the operation of colonial enterprises.

Specifically, hospitals were built to serve the needs of officers and troops. Non-Europeans who lived far from European settlements, whose illnesses were less likely to affect colonial economic life or the health of others, had little access to hospitals. Those who were most isolated received rudimentary medical services from missionaries. Within the hospitals, class was important in determining access to and quality of health care, as it still is, and the middle class received far better care than the poor. Wards and sometimes hospitals were divided by class and race, replicating the structure of colonial societies, with European officers receiving the best accommodation and best rations. Where hospitals were available to them at all, indigenous workers were accommodated in crude and overcrowded wards, with limited or no rations, too few latrines, and inadequate medical care.

In rural areas, "hospitals" were often simply dirt-floor sheds with stretchers or benches for patients to rest on. It was therefore not surprising that most people regarded hospitals as death houses and avoided them, unless their own death appeared inevitable. One European patient, Frederic Brine, described the Singapore General Hospital as

> very clean, and the Medical Officer in Charge also appeared most painstaking. The food also, although it might have been served up better, was passable . . . [but] the lavatory arrangements are far from a credit to the local engineer authorities; in short the Chinese servants at present throw all the slops and clean all the utensils in the lavatories. On taking my last bath, the tub, brimful of water, looked quite enticing. After a bit, I thought I must have got some one else's special tobacco bath. On my telling my next door patient, he replied, "Not at all, Sir: The Chinese wash my linseed poultices in that tub."[15]

Other reports were less generous. In 1886, government officers had already drawn attention to overcrowding, which was so severe that patients were being accommodated on verandas and in spaces between the beds.[16] Conditions were arguably worst in institutions established to isolate individuals on a continuing basis—leprosy colonies, mental asylums, and jails, for example—where overcrowding, poor hygiene, inadequate sanitation, and poor diet resulted in continual outbreaks of cholera, dysentery and diarrhea, beriberi, intestinal parasites, and malaria. In the "lunatic asylum" in Singapore, for example, the death rate in 1900 was 683 per 1000, causing the colonial medical officer to comment that while "[t]his may be partly accounted for by the bad state of persons admitted . . . if the rate continues, lunacy should soon cease to exist,"[17] and, in 1906, that it might be preferable if, "from time to time," some patients escaped, easing pressure on the institution to the advantage of the other patients.[18]

The primary recipients of medical and health services were the colonists and, to a lesser extent, the local elite, although certain interventions had a more general impact. In particular, quarantine procedures, port control, and epidemiological surveillance reduced the risk of imported infections within and between economic regions.[14] Vaccines to prevent smallpox and plague helped reduce cause-specific morbidity and mortality in a wider subject population. Most interventions, however, were dramatic and punitive exercises with symbolic rather than epidemiological value, which had little effect on the general health status of the population because of lack of investment in infrastructure and services likely to reduce infection. For instance, the bounty on rat tails, intended to reduce the transmission of plague, had a limited effect on the rat population, did not address the fundamental environmental issues, and encouraged cheating in some places, noncompliance in others.[10,19–21]

Colonial officers in British Malaya understood the association between sanitation and cholera, despite uncertainty about the means of transmission. By the early 1880s, even the popular press was emphasizing sanitary improvements to reduce cholera and other epidemics, while at the same time acknowledging the political and economic interests that worked against such investment:

> The Municipal Commissioners . . . should . . . persevere unflinchingly, turning a deaf ear to petitions and persistently riding down all opposition, until they have succeeded . . . by compelling the people to live in better and safer and cleaner houses, by establishing cleanliness in a place which for years has been disgracefully filthy and dirty, and where fevers, cholera, small-pox, and the like diseases, have had their fill of victims. A freer circulation of air, by means of broad streets and roads provided with drains, good bridges, and careful supervision over the place to prevent accumulations of filth and garbage—with a good water supply—these are first necessities, and when these reforms are carried out, it is evident that the health of the place will be improved, and the next time Singapore may be visited by an epidemic of cholera, Kampong Kapor will not contribute such a holocaust of victims as it did in 1871, and several times since then when cholera has sporadically prevailed.[22]

Poor investment in public health was no less common in other European centers of imperialism at this time, of course, but reluctance to invest in infrastructure was only one dimension of the problem. Increased population movement both locally and between regions, as a result of increased labor migration and increased shipping and trade, led to greater spread of disease, with devastating consequences for populations previously unexposed to particular pathogens. Sexually transmitted diseases and other viral infections such as measles, pertussis, and influenza contributed to high mortality among subject populations, and as early as the 1830s and 1840s there was acknowledgment of catastrophic effects on the health of indigenous populations following contact.[23,24]

The Creation of Tropical Medicine

Biomedicine was in its infancy in the 19th century, and little was known of the etiology or control of most of the "tropical" diseases that limited European expansion. Colonial interest in local healing practices was largely limited to their folkloric aspects, and physicians and surgeons posted to the colonies were supremely confident of biomedicine's advantage. By the end of the

century, major advances had been made in microbiology and parasitology, vaccine development, and the epidemiology of endemic diseases, and with Koch's work on tuberculosis, Pasteur's on rabies, and the discovery in 1880 of the role of the *Plasmodium* parasite in malaria, biomedicine gained prestige and doctors enjoyed increased professional standing and power in the delivery of medical services.[25,26] Manson's later work on *Plasmodium falciparum* and the identification of the vector, the *Anopheles* mosquito, in 1897 provided further rationale for tropical specialization and research.

The potential for scientific advancement offered by the tropics and the economic significance of the control of tropical disease led Joseph Chamberlain, secretary of state for the colonies in the United Kingdom from 1895, to support the establishment of institutes and schools of tropical medicine in the United Kingdom and in the colonies. France had established its first colonial Pasteur Institutes slightly earlier, and tropical medical research took on a particular edge in the colonies as a result of a coalition of interests of science, nation, and empire.[27–30] At the same time, the links between commerce, industry, and science were pursued; the industrial advisory committee of the Ross Institute in London, for example, was established "to keep industry in touch with science, to make the tropics healthy and to expand the markets of the world."[31]

Hence, an understanding of the political economy of science—as put forward by writers such as MacLeod and Lewis,[6] Worboys,[27] and Harrison[32,33]—was not new. Colonial officers were often very precise about the relationship between economic development and the transmission and distribution of disease and about the importance of disease control to the colonial political economy. Balfour argued in 1928, for instance, that most diseases were "not strictly diseases of the tropics," although he insisted on the alignment of geographic, economic, and cultural factors in their prevalence: "On account of their etiology, . . . their association with unhygienic conditions, the result in many cases of an uncivilised environment, they now-a-days prevail to a much greater extent in hot countries than elsewhere."[34] This account of health and illness fitted arguments in favor of expanding medical services and health care to a wider population for the general benefit of the colonial economy.

The Development of Colonial Public Health

The role of the colonial state was to create the preconditions for capitalist expansion by providing infrastructure, security, and labor while also preventing the spread of infectious diseases, where possible, and minimizing the health risks of such development. But in so doing it sometimes inadvertently created conditions for increased illness. Malaria provides one illustration of this. Nonimmune populations were moved into endemic areas for purposes of security and development, and malaria-related morbidity and mortality increased dramatically as a result; environmental changes often increased vector breeding sites (through clearing forest canopies, for example, or leaving deep ruts in tracks); and populations that were already infected introduced malaria into new areas as well.[35,36]

Concerns about the impact of colonial expansion on subject populations were raised by intellectuals in Europe but were also regularly expressed within the colonies. In Singapore in 1883, for instance, there was extensive discussion about swampy land being filled with the malodorous "sweepings of the town," and letters to the editor in the *Straits Times* called on the municipal government "to do its duty in its present boundaries, before it seeks to extend its limits, which merely means to drive the poorer classes further from the centre of employment, or from the market for their commodities."[37]

The 20th century saw the introduction of broad public health measures, although most had precedents. The East India Company had employed sanitary inspectors in India in the early 19th century, for example, although with local, untrained, and poorly supervised staff whose activities had little effect on disease transmission.[38] Later, more effective programs were introduced in British colonies that had first been introduced in the United Kingdom. These included various environmental health and sanitation programs and, from the early 20th century, home visiting and infant welfare work; the latter programs and the philosophies that informed them were developed in response to Britain's poor performance in the Boer War and the health and welfare of the urban poor in industrial England.[39,40]

By the 1900s, the prevalence of disease and poor social conditions in the colonies was an issue of increasing importance, and in many colonies persistent high adult and infant mortality rates and charges of exploitation forced changes in health care. Public health and welfare programs were introduced to improve the social and health conditions of subject populations, and there was growing appreciation of the advantages of such programs. Medical officers observed, for instance, that while "bowel complaints" were a major factor contributing to high mortality in the colonies, the incidence decreased in towns where sanitation had improved and piped water was available.[41] Government officers also noted the way that public health interventions disrupted racial stereotypes: the "laziness" of Kelantan Malays, for example, appeared to be due to chronic infections such as malaria and hookworm, and the use of quinine and thymol "makes good so many of these supposedly lazy people, [who] . . . brighten up wonderfully and become alert both mentally and physically."[42]

Public health measures also offered immediate political benefits to the state, as they both justified the extension of control—which, as noted by Fanon,[4] was embodied in doctors, judges, district officers, police, and sanitary workers—over the population and took these authoritarian figures into people's homes. These extended public health activities included inspection of residential and commercial houses, provision of water and sanitation, response to epidemics, and supervision of food safety.

In Kuala Lumpur, for instance, the Sanitary Board in 1911 included among its concerns the surfacing of roads and "laying" of dust; issuance of licenses for particular occupations (e.g., pottery); the siting of residential, commercial, and government buildings; regulation of rickshaws; surveillance and administration of markets; licensing of industries (e.g., brick kilns); drafting of bylaws, rules, and regulations; implementation of public health measures to control outbreaks of infectious diseases (e.g., disinfection of clothing and bedding during cholera and smallpox epidemics); extermination of rats and payment of bounties on rat tails; provision of domestic water supplies; whitewashing of houses; inspection of the interior condition of houses; repair of structures such as cattle sheds; and prosecution of persons who operated unregistered dairies, tampered with weights, failed to demolish cubicles (illegal subdivisions within flats), kept unlicensed laundries, maintained filthy premises, or sold unwholesome meat. Hence the municipal council took responsibility for both the built environment and work, leisure, and related activities within the environment that might affect the sanitation and health status of people in the town.[43]

Interpretation of the breadth of legitimate state activities was liberal, and bureaucratic obsessions with and incursions into private lives, tainted by racist and moral judgments, became a feature of the delivery of public health. A report on urban conditions in Singapore in 1918, for instance, drew attention to the lack of air and light and the poor sewage disposal and drainage in the inner city, where families of 5 or 6 lived in 10

× 12-ft cubicles—"regular rabbit warrens of living humanity"—with cooking facilities and drinking water side by side with drains full of excrement and other household waste.[44]

Public health and sanitary inspections thus resulted in direct surveillance of the indigenous population. At the same time, the policing of rules and the delivery of medical services and health education reinforced prevailing hierarchies of power. These included power relationships according to ethnicity, class, and gender between colonists and colonized. There was perceived value in using local men and women as a means of bringing European medicine to the people, and local staff were trained to fill subordinate roles within the colonial medical services. As a result, health services provided a mechanism for the ideological control of both the employed staff and the people they served. However, local recruitment did not accord well with the prevailing romantic notion of Britain's role in maintaining the status quo of political relations in the Malay States: a sophisticated Malay upper class and a noble peasantry ill suited to junior civil service employment, and Chinese and South Indian immigrants destined to remain coolies, tin miners, and rubber tappers. Thus, in Malaya, the medical and public health workforce was largely staffed from outside the colony, with nurses and doctors, for example, recruited from the United Kingdom and hospital assistants from India.

Western middle-class values predominated, and state authorities, through the activities of home nurses, inspectors, police, and welfare workers, insinuated these values into poor workers' homes. The extension of state intervention into people's everyday lives during the later decades of colonialism required acquiescence to a particular knowledge base and particular values, behaviors, and institutions. Acceptance of the superiority of Western medicine and the authority of Western doctors and public health workers was a common means of acquiescence.

Gender and Reproduction

Adult male mortality had far more immediate economic impact in British Malaya than the mortality of women and children. However, public health programs increasingly addressed women and children, too, as they aimed to influence individuals' domestic as well as work environments and their private lives, behaviors, and practices. The role of the sanitary officer or home visitor was to displace cultural practices with "proper" hygienic behaviors, the latter represented as culturally neutral. The ability of populations to take up such interventions, in behavioral and economic terms, was rarely questioned: the director of the medical department in the Federated Malay States, for instance, argued that "the radical improvement of conditions in overcrowded areas . . . [was] one of the most potent measures taken against some of the important communicable diseases," and hence people were advised to install their own septic tanks and to use rubber rather than wooden buckets to collect waste in their dwellings.[45] Public health programs dealt more and more not with biological pathogens or the "natural" environment, but with domestic, personal—women's—domains.

In the 19th century, women were largely excluded from colonial medical and hospital services, except where they were seen as vectors of sexually transmitted diseases. In the 20th century, this situation changed. The initial focus on women, as described elsewhere,[46–48] related to their involvement in sex work and the prevalence of sexually transmitted diseases that placed European troops and immigrant laborers at risk. This view shifted somewhat by the 1920s and 1930s, with the availability of measures to treat syphilis and the means to assess its prevalence, highlighting the pervasiveness of infection. A community-based study in Singapore, for instance, of 1705 women who had given birth from 1925 to 1935 indicated that 24% of stillbirths were to women who had positive Wasserman reactions, and an analysis of the blood of all mothers of stillborn infants in the General Hospital in Singapore from 1931 to 1934 indicated that 17.5% were Wasserman-positive and a further 17.3% were "most probably infected with syphilis."[49]

By the turn of the century, women had also become objects of state interest via attention to high infant mortality, with public health interventions in the colonies again following developments in Britain.[10,20,39,40] Concern with high infant mortality and poor maternal health related to the "discovery" of the economics of reproduction; infant mortality represented the loss of future generations of labor, and women's ill health depleted the human resources available for reproduction.[50] Infant welfare programs in Britain were designed with the reproduction of the working class in mind, and in British Malaya, maternal and child health programs had a related economic edge: to enable the reproduction of laborers to continue to meet the workforce needs of the estates and mines.

In colonial Malaya, public health provisions in women's interest were introduced early, and women were often criticized for abusing these few welfare benefits. Medical expenses incurred by dependents as well as workers were the responsibility of the various state governments. Maternal and infant health gained importance as the costs of importing labor rose and the government and estates began to look to their workforces to reproduce themselves. Even so, women received little care during pregnancy and confinement. They suffered from anemia due to malaria, hookworm, and poor nutrition, and their general health status was aggravated by frequent childbearing. Maternity allowances provided in the labor codes of the colonies from the 1920s allowed for 1 month's leave before and 1 month's leave after delivery, paid at a rate determined by the woman's earning power in the preceding 6 months. These allowances were introduced to improve women's reproductive health and pregnancy outcomes; later, they were seen as a mechanism to encourage women's migration, family formation, and the establishment of a more permanent labor force. However, since the allowances were determined on the basis of the preceding 6 months' pay, they effectively encouraged women to work long hours during pregnancy. In addition, it was claimed that women often used the money paid at the time of delivery—around $12 in the 1930s—for "anything but the care of themselves and the impending infant," raising questions as to whether benefits should be given in kind instead of cash.

Most families working on estates were dependent on the wages of both women and men. The additional financial burden of an extra child, it was argued, put pressure on women to return to work as soon as possible and so to cease breast-feeding early, thereby jeopardizing the infant's chance of survival. There was, on the other hand, constant debate about the impact of women's participation in the workforce on the health of their children. The rise in infant mortality in Selangor, Negri Sembilan, and Perak in 1933, for instance, was attributed to the Depression ("economic stress . . . manifesting itself in a lowered vitality of mothers and infants"[51]), but the following year this view was reversed and it was argued that under economically depressed circumstances infants benefited from increased "mothering" and breast-feeding, while upturns in the economy, the employment of women, and increased purchasing power resulted in bottle-feeding and the neglect of infants.[45]

Rethinking Political Economy

Preventive medicine and sanitation, rural extension programs, and maternal health services expanded concomitantly with the penetration of the colonial economy.

Their major function and rationale were instrumental: the establishment of the preconditions and maintenance of the labor force needed for economic development. Baker, for instance, noted that by the 1930s expatriate planters in Nyasaland had begun to see the economic advantages of a healthy population and in consequence medical delivery to rural areas increased, although the European population continued to receive most of the services.[52]

Continuing reports of poor health conditions in the colonies, including lack of potable water and sanitation and poor nutrition, led to growing concern regarding the relationship between colonial development policies, labor conditions, and diet. In the British colonies, the foreshadowed end of colonialism was fueled by labor troubles within the Empire. These labor troubles led to increased awareness of and lobbying for social development and public health improvements and to considerable reflection about the state's responsibility to its subjects. Depending on individual politics, it was argued that economic and social progress were linked or that there was a need for increased expenditures in the area of social welfare. Within the Colonial Office in London, for example, it was suggested that continued economic gains from colonial possessions depended on maintaining a healthy population (and one compliant to colonial rule). It was also argued, after the outbreak of World War II, that the war effort would benefit from continued production in the colonies and hence expenditures within them were justified; that there were long-term political gains to be realized by improving living conditions in the colonies; and finally, that the continuation of the Empire was itself contingent upon such improvements.

These were theoretical debates among those exercising power, but ideologies and politics resonated in state programs and projects and in the everyday experiences of sickness and health, disease and dying. Health care and medical services, sanitation measures and their enforcement, immunization programs, and public health education were developed and implemented in ways that were determined by the political economy of colonialism, although their form, delivery, and impact were influenced in turn by understandings of race, gender, health, and disease.

Conclusions

The colonies of Africa and Asia were characterized in the second half of the 19th century by rapid changes in morbidity, mortality, and demographic structure. The incidence of some epidemic diseases was reduced through simple controls, such as smallpox vaccination, but the impact of these controls varied among colonies depending on their acceptance of the procedure and the degree of resistance and noncompliance.[53,54] In the case of diseases for which the etiology was unknown or more complex, treatment was unavailable or offered varying degrees of success and control was problematic. In the face of their inability to prevent disease, colonial regimes were often punitive in their efforts to deal with outbreaks, as evidenced by the prison-style isolation of people with sleeping sickness (African trypanosomiasis) in the Belgian Congo and the house burnings and detention camps used by Americans to control cholera in the Philippines. Such harsh measures led to noncompliance, resistance, fear, and confrontation.[55,56] Population-based actions to limit cholera or plague in colonial Malaya were more benign, although epidemic control and public health campaigns against endemic diseases were conducted with militaristic zeal.[10,57]

As suggested above, the incidence of disease and patterns of morbidity in the colonies were influenced by the material circumstances of everyday life, such as changes in means of production or in food availability, and, often, by the brutality of colonial regimes and their officers. Mortality rates declined overall, but the health status of many people was equivocal, and the incidence of various endemic diseases such as diarrheal diseases, respiratory infections, and malaria fluctuated and continued to take a major toll. In general, the degree of exploitation and the lack of improvement in services were such that in many colonies there were few, if any, positive overall changes in people's health.

In colonial Malaya, statistical data indicate a decline in the incidence of and deaths from malaria, reflecting the effectiveness of various public health measures in the early 20th century. Tuberculosis and various epidemic diseases also decreased significantly, and there was a substantial decline in the infant mortality rate. Nutritional and respiratory diseases increased over the period, however, with increased hospitalization for such causes and an increase in the recorded mortality rate for nutrition-related illnesses. These increases may be explained in part by improved reporting and diagnosis of illnesses. At the same time, other diseases were better controlled than they had been in previous decades as a result of improvements in treatment and prevention. Consequently, all-cause mortality declined.

In general, any positive feelings generated by the public health measures of colonial regimes came too late to turn the political tide. In Malaya, colonial rule after World War II was short-lived. This was true in other colonies, too. The poor health of those living under colonialism was evidence of wider economic, political, and social exploitation. Yet its legacy was to remain in the form of the structures of medical and health services and the distribution and delivery of those services. As contemporary debates indicate, the political and economic inequalities of postcolonial communities and individuals are powerfully suggestive of the same debates of a century earlier. □

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Many of the arguments presented here are elaborated in *Sickness and the State*.[10]

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