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Editor's notes

Transformations in health in the Asia-Pacific: Two centuries of change

The Asia-Pacific region has witnessed astonishing growth since the 1990s, as many countries have reaped the rewards of globalization. As with other rapid transitions throughout history, this has had, and continues to have a substantial effect upon the region's health. These effects have been largely positive and, as in other parts of the world, the region now experiences far fewer cases of infectious disease as well as increasing longevity. Revenue from globalization is also beginning to be invested in healthcare and public health. The government of Narendra Modhi in India, for example, has recently announced a scheme providing free universal healthcare for half a billion of its citizens (Withnall 2018). But within this general picture of improvement lie gross disparities, which map onto differentials in income and life chances. Whereas life expectancy at birth in China is 84 years of age, for example, it is only 62.9 in Papua New Guinea (OECD 2016, 15).

Health outcomes also vary enormously within countries in accordance with social status and gender, among other things. Although these disparities are of long standing, some inequalities have widened in recent years. Wage rises for skilled workers in many Asian countries have been accompanied by reduced income for many low or semi-skilled workers and this trend is disproportionately felt by women who are often forced into lower-paying jobs than their male counterparts (J. Lee and H. Lee 2018). Indeed, women's wages across Asia are between 70 and 90 per cent of men's (Rhodes et al. 2016; Yang and Greaney 2016). Poor women have less or no power to decide whether, when, and how often to become pregnant and this often has a detrimental effect on their health, being linked to depression and complications during and after birth such as

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bleeding and infection. The effects of poverty and gender discrimination are compounded by early marriage (WHO 2007). In South Asia, which has the highest rates of child marriage in the world, one in two girls marry before the age of 18; Bangladesh having the highest rate at 52 per cent, followed by India at 47 per cent, Nepal at 37 per cent, and Afghanistan at 33 per cent (UNICEF 2014).

Another significant trend in the Asia-Pacific region is the rapid growth of cities, which has had a profound impact on health. Until recently, the population of the Asia-Pacific region was predominantly rural; in 2018, it became mainly urban. Between 1980 and 2010, the region's cities grew by more than 1 billion; and it currently has 2.1 billion urban residents, or 60 per cent of the world's urban population. By 2050, it is projected that two-thirds of the region's population will live in cities (UN 2017, 2). There is no historical precedent for such a rapid transition and its effects are different from previous periods of economic growth. Urbanization in Europe from the late eighteenth to early twentieth century initially raised rates of infectious disease (enteric diseases and tuberculosis, for example); but these died down as immunity increased and as sanitation, nutrition and hygienic education improved (CDC 1999). Urban growth in parts of Asia over recent decades has produced some increase in infectious diseases (e.g. in vector-borne diseases, such as dengue, and waterborne infections among the very poor); but the most striking features have been the growth of respiratory ailments related to pollution and what used to be thought of as diseases of affluence, such as cardiovascular diseases and diabetes. As in the West, the latter are closely related to changing diets, ageing populations, and lack of physical exercise due to sedentary working practices (*The Lancet* 2017).

Respiratory diseases attributable to increasing levels of air pollution are particularly high in the Asia-Pacific region, which has nearly 70 of the world's 100 most polluted cities. The effects of air pollution are also aggravated by high rates of tobacco smoking, which are also to some extent a result of urbanization and the easy availability of tobacco products. Approximately 60 per cent of the world's current smokers from 2010 to 2012 lived in three Asian countries: China (317 million), India (122 million), and Indonesia (115 million). The current smoking prevalence of men was 67 per cent in Indonesia and 53 per cent in China by comparison with 16.7 per cent of men in the United States, for example. However, a few of the richer Asia-Pacific countries, with high levels of public health education, such as Singapore and Japan, have halved the numbers of people who smoke (Islami et al. 2015) In these countries, as in many Western nations, health education is reinforced by taxation which makes tobacco products expensive.

An often-ignored aspect of health in the Asia-Pacific is migration. International migration in the region affects all countries; and almost 102 million people from the Asia-Pacific were living outside their countries of birth in 2017.

The region has over 62 million persons classified as migrants, representing an increase of more than 20 per cent since 1990. Over half of all migrants from countries in the Asia-Pacific go to developing countries in search of work, either within the region or to neighboring regions such as the Middle East (UN 2018). Migrants, including internal migrants, often find it difficult to access or afford health care. They are prone to a range of ailments, from infectious diseases to those related to smoking and pollution. They are also highly vulnerable to industrial and other accidents (M. Amrith and S. Amrith 2016). Mass migration also occurs as a result of ethnic conflict. Refugee camps, such as those for Rohingya on the Bangladesh-Myanmar border, struggle to cope with the spread of infectious disease (Cousins 2018). Population movement of whatever kind also brings with it the possibility of the spread of disease; and the interconnectedness of the region has been dramatically highlighted on a number of occasions, such as during the SARS outbreaks from 2003 to 2004 (Peckham 2016). Such outbreaks have come to symbolise the risks associated with globalization, particularly the vulnerability of the region's economy to disease or even disease scares; something which has been taken very seriously by national leaders and regional forums such as the Asia Pacific Economic Cooperation (Harrison 2012, 257–64).

The impact of economic development on the Asia-Pacific region is also evident in the changing relationships between human beings and other animals. The growth of cities has made billions dependent on intensive agriculture; changing tastes, particularly the rise in consumption of cheap meat products, have accelerated this trend. Intensive pig and poultry farming has brought with it an increased risk of disease mutation and the appearance of new strains of disease among animals that have some prospect of transmission to humans. This has been dramatically illustrated by outbreaks of H5N1 influenza on farms throughout the region although, as yet, the disease has not mutated to allow its transmission directly between humans. That, however, remains a real possibility as poultry and pig farms are often close together. In 2005, half of Indonesia's pigs were infected with the avian influenza virus without showing symptoms (CIDRAP 2005). On account of their genetic similarity to humans, pigs are often regarded as "mixing vessels" for the influenza virus, in which avian strains may acquire the genetic material to enable them to spread among humans. Intensive farming is also one of the sources of antibiotic resistance because resistance to drugs used routinely in animal feed (to prevent infection and to boost growth) has spread out from farms into the surrounding environment. Indeed, drug-resistant bacteria often travel long distances as a result of the movement of animals and meat products (Founou et al. 2016). The growth of cities, combined with new economic and leisure activities, has also brought more humans into

contact with strains of disease normally confined to other animals. A good example of this is the growing incidence and distribution of the type of malaria caused by the *Plasmodium knowlesi* parasite, which was formerly largely confined to macaque monkeys. This disease is now a major cause of malaria in humans in northern Borneo and other places in Southeast Asia because towns and plantations have encroached into wild areas. Malaria-bearing mosquitoes that have fed on monkeys can then infect humans (Antinori et al. 2012).

Malaria is one of many diseases showing resistance to the drugs used to treat it. In the 1960s, Southeast Asia saw the emergence of resistance to chloroquinine (the drug used to treat the most serious kind of malaria caused by the *Plasmodium falciparum* parasite); and it is once again the source of resistance to a new generation of antimalarial drugs that use preparations of the herb artemisin in combination with other pharmaceuticals to treat falciparum malaria. If artemisin-resistant malaria were to spread outside of the Greater Mekong Subregion, as in the case of chloroquinine in the 1960s and 1970s, it would inevitably cause many deaths in India and Africa. Likely routes of transmission include labor migration, refugee movements and peace-keeping forces from Southeast or South Asian countries. The spread of drug-resistant falciparum malaria is now a major concern, although experts differ over the immediacy of the threat (Arie 2017). Resistance to medications emerges as a result of natural selection; but it is accelerated by the misuse of existing drugs, or of counterfeit drugs, often manufactured in China, which are to be found in most countries that have malaria, including in Africa. Drugs are available without prescription in many countries; and this compounds the problem, as it is easier for counterfeit medicines to circulate. Self-treatment is also more likely to lead to misuse of drugs. Unfortunately, this is unlikely to change owing to deeply entrenched patterns of use, i.e. people have become very accustomed to self-medication (Ganguly 2011). Self-medication has become the norm in countries such as India because of the scarcity of medical assistance and medical institutions. This is a particular problem in the case of diseases such as tuberculosis because effective treatment requires prolonged use of drugs. (Bhatia and Narain 2010; WHO 2017).

Some of the problems facing the Asia-Pacific region today have deep historical roots; and history may therefore provide some insight into this complex and unstable situation. The essays collected in this special edition of *SSD* offer diverse perspectives on health, disease and medicine over the last 200 years; these essays examine, among other things, the issues of global or regional integration, mobility, and economic development. One theme running through a number of the contributions is the relationship of healthcare to the needs of the state or what British historian John Pickstone referred to as "productivist medicine" (Pickstone 2000). Pickstone's essay examined the tendency of modern states to

intervene in the lives of their subjects in order to improve national productivity and efficiency. Their concerns ranged from the need of the military for healthy recruits to the health of the industrial labor force. States therefore became involved in the care of women and children in order to produce healthy babies and people were generally seen as a resource for the state. However, in some Western countries this was accompanied by the idea that citizens had a right to healthcare in return for serving their country in some capacity (Harris 1991; Porter 1917).

In the Asia-Pacific region it is possible to see elements of such policies in what were formerly British Dominions, such as New Zealand and Australia, particularly relating to nutrition and the health of children (Bryder 2003). Sayaka Mihara's essay in this volume examines this theme in relation to the care of children in Japan; while Mark Harrison's briefly touches on emerging concerns over venereal disease and national efficiency in Japan in the 1870s. Other essays, particularly Jeong-Ran Kim's chapter on malaria, show that the medical care of laborers was prioritised in some circumstances (e.g., wartime), although generally neglected if a sufficient supply of labor was available. Indeed, in most colonies, attention to the health of labor forces was an on-off affair. Factory work forces were often entirely neglected by employers and the state; whereas labor on plantations and mines could sometimes receive considerable attention, especially if labor or certain materials were scarce, or if plantations became sites of scientific research, as in the case of anti-malaria work for example (Bhattacharya 2012).

Imperialism brought dramatic changes to the environment of the Asia-Pacific region, much as globalization is doing today. Disease ecology was transformed by the introduction of new parasites and disease vectors, by the rapid and extensive movement of people (e.g. labor migration) and by the commercialization of agriculture and industrialization (Harrison 2015). As a result, many countries in the region suffered the effects of epidemic diseases such as cholera, the spread of animal diseases such as rinderpest, and the spread and intensification of diseases that were formerly localized or endemic, such as malaria and tuberculosis (Peckham 2016). These changes are reflected in different ways in several of the articles published in this edition of *SSD*. Harrison shows how Japan was drawn into a regional web of disease, with cholera defining the contours of imperial navigation throughout much of the Asia-Pacific region. As Kim also shows in her work on Manchuria, malaria was carried over long distances with migrant laborers but also generated locally as a result of the conditions created by colonial agriculture and industry.

Imperial connections transformed the disease ecology and health of many parts of the Asia-Pacific region but the response to these problems differed enormously. Some colonial administrations, such as the British, were deliberately

lax in their enforcement of measures such as quarantine, for example; while the Japanese were stricter in this regard (Kim 2013). As Josephine Robertson shows in her article, the Australians also took a tough stance on the mobility of infection and this mirrored and reinforced other concerns over the ethnic purity of Australia. Fears of the spread of leprosy, along with other diseases such as plague and smallpox, were at various times used to stigmatise potential migrants to Australia (Bashford 2004). While disease is no longer a prominent issue in Australian migration, Robertson argues that radical Islam has taken its place as a signifier of the danger posed by migrants. The importance of disease control in issues relating to sovereignty and national identity is also the main theme of Harrison's paper, which shows how the British sought to weaken Japan's desire to control its sanitary destiny through the use of quarantine. Once Japan was able to form its own sanitary policies without foreign hindrance (from the 1890s on) it made extensive use of quarantine in an attempt to curb the spread of infectious diseases into the country. This was not always successful; but it may help to explain why Japan had the lowest death rate of Asian countries (4.5 per 1,000) during the great influenza pandemic of 1918–1919 (Rice 2003). However, as Kenichi Ohmi and Akihito Suzuki argue in this issue, another reason may have been that Japan had lower levels of poverty than those in other Asian countries.

Another theme running through some of the essays in this edition is the expansion of "Western" medicine, public health, disease categories, and drugs. Western medicine was not a clearly defined entity in the late nineteenth century and local healing practices continued to influence the ways in which people thought about certain diseases and how they named them. Even amid powerful universalizing currents such as those set in train by imperialism and globalization, local identities can be retained, albeit often in modified form. For many of the poorest inhabitants of the Asia-Pacific region, these hybrid medicines, blending a variety of local healing and spiritual practices with elements of "biomedicine" and science, are the norm (Hardiman and Mukharji 2012). Nevertheless, Western medicine is usually the medicine of choice for those who can afford it. It occupies a hegemonic position among other medicines; and even well-established forms of medical practice, such as Ayurveda and Traditional Chinese Medicine, have chosen to emulate certain of its features and to submit to evaluations based on scientific methods, such as randomized control trials (Mukharji 2016; Taylor 2004; Na 2012). In doing so, many so-called traditional practitioners have moved away from their former emphasis upon treatments suited to the constitutions of particular individuals. These developments have become particularly noticeable over the last decade but are part of an ongoing process of adaptation that dates back to the late nineteenth century.

It seems appropriate to end this introduction by looking briefly at the future of health in the Asia-Pacific region and whether it can be informed by a study of the past. History does not teach "lessons" but policy made in ignorance of history tends to fail, sometimes spectacularly (Webb 2014). Among the areas that require attention on the basis of previous experience are: coordinated (regional and global) strategies to minimize the disruption caused by epidemic diseases and make such measures more effective (Harrison 2012); the need to incorporate planning for health in the planning for cities and economic development (rural and urban) rather than to treat it as an afterthought (Datta 2012); and, making health care more responsive to the people who most need it. The history of the Asia-Pacific region is replete with examples of the unnecessary alienation of populations by authoritarian interventions. As the examples of the plague epidemics in the Asia-Pacific region show, such interventions could often be counterproductive, resulting in the spread of the disease (Arnold 1993).

Megha Amrith and Sunil Amrith (2016) have also highlighted the importance of migration in the health of the Asia-Pacific region using a wide range of historical and contemporary examples; a similar point has been made by historian Robert Peckham (2016). Too often, the health of migrants of various types has been ignored in regional and national health policies; for migrants are central to understanding pathways of disease transmission and, therefore, to prevention. By the same token, it is evident that the health of migrants has often been neglected due to the tendency to focus on them as a threat (Bauman 1998; Appadurai 2006). Above all, this means addressing the health conditions and needs of migrants in the places in which they live and work

The need to look at the health of migrants in the round alerts us to another general problem in the Asia-Pacific region, although by no means unique to it. The gains achieved in life expectancy in most developing countries over the last few decades have happened for various reasons; but they have often come about as a result of specific technological interventions, such as pharmaceuticals, bed-nets for malaria, and other commodities. These measures are attractive to national governments and funding agencies because they can be easily measured and the data used to demonstrate their largess and benevolence. They also usually bring fairly rapid results, and have been successful in reducing mortality from diseases such as malaria. However, these gains may not prove to be enduring (Baird 2017). Furthermore, it is only in the richer countries of the Asia-Pacific regions that such gains have been accompanied by improvements in infrastructure for health, education, and so forth. As Thomas J. Bollyky, Director of the Global Health Progam of the US Council on Foreign Relations has recently observed, rapid progress against infectious diseases has allowed populations to expand without the support and opportunities they require to prosper and to cope with the

growing problem of chronic diseases caused by smoking and changing lifestyles. What is needed, he argues, is more investment in the infrastructure of cities, in primary health care, and education for all (2018). Richer nations have an obligation to help countries tackle these complex problems and to be responsive to local needs, rather than focus solely on a top-down, commodity-driven approach, as is too often the case in the field of global health (Packard 2016).

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