

Diseases, Borderless

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The term “borderless diseases” refers to those infectious disease agents that exhibit considerable global mobility. In particular, the increased speed of travel, a greater degree of human migration, intensified urbanization, and increasing human encroachment on untouched natural habitats have all enhanced the potential for pathogens to spread internationally in very short periods of time. In common with other transboundary issues, such as environmental pollution, international terrorism, and the international trade in narcotic drugs, the management of infectious disease spread is challenging because programs and policies aimed at disease containment necessarily implicate a myriad of other issues, especially those related to the ability of sovereign states to govern autonomously, border regulation, the tension between ensuring free trade while protecting public health, and balancing the rights of the individual versus those of the collective.

Underlying the logic of most infectious disease containment efforts is the premise that pathogens are biologically stationary targets that can be geographically sequestered to a specific locality. If the boundaries of the locality are breached by the infectious disease, then a pandemic situation may arise as different parts of the world become affected. It is for this reason that, after experiences with the global spread of severe acute respiratory syndrome (SARS) and avian flu, the World Health Organization (WHO) established a six-stage pandemic alert system. The alert system assesses the level of threat associated with each stage and then makes appropriate response recommendations to the international community. The alerts are based on the nature and extent of the geographic spread of the disease and do not give any indication of the severity or lethality of the disease itself.

The potential for disease spread varies with the nature of the human–environment relationship existent at a particular time and place.

Throughout history, changes in the human–environment relationship have led to the appearance of new and emerging diseases. The advent of agriculture and the introduction of small-scale livestock production 1,000 to 2,500 years ago, for example, enabled countless novel strains of pathogens to jump from domesticated herd animals to humans, and gave rise to diseases such as smallpox, measles, tuberculosis, leprosy, influenza, the common cold, malaria, dengue, and bubonic plague. The expansion of the Roman and Mongol empires in the first few centuries CE facilitated the spread of these diseases across the Asian and European continents, while the colonialist period of the seventeenth to nineteenth centuries represented a third major shift through the transoceanic spread of disease via European ships. The contemporary period of globalization may very well represent a fourth transitional period. Since the end of the twentieth century, there have been dramatic increases in the volume and speed of human mobility (particularly by air travel), changes in food production practices (e.g., intensified livestock operations), newer medical techniques (e.g., as blood transfusions), intensified urbanization (particularly the development of megalums and global cities), and increased human encroachment on previously untouched viral and animal reservoirs. All of these have collectively increased the potential for disease spread. That is, over recent years the likelihood of a pathogen eluding local containment efforts and causing a global pandemic has increased.

Of all pathogens, flu viruses are especially adept at eluding borders. In part, the elusive nature of flu viruses may be attributed to their ability to mutate rapidly to evade the human immune system response; consequently vaccinations need to be given every year to protect against recent strains of the virus. And, because the flu virus can mutate so quickly, the vaccines that are developed are rarely fully effective. As a result of this, the virus is able to travel around the world every winter, usually infecting up to 15 percent of the world’s population. The ability of the flu virus to spread is also enhanced because the period between infection and symptom onset

in humans is usually about two days, which means an unsuspecting air traveler may carry the virus to a point on the other side of the globe without any awareness that he or she is carrying the virus, given that such journeys today are completed in a matter of hours. There are other significant disease threats that are non-viral in character, and these also exhibit the ability to evade borders. Prions are the most notable example. Prions are aberrant forms of animal protein that, upon contact, effectively deform normally functioning proteins. These newly deformed proteins then become prions themselves, thereby initiating a chain reaction of protein deformation that especially affects the neurons of the brain, resulting in diseases such as bovine spongiform encephalitis (BSE) in cows, or the human variant of Creutzfeldt–Jakob disease (CJD). The infection spreads as protein-rich meat and bonemeal containing prions are fed to cattle. If humans consume the infected animal they too will become infected. The borderless nature of the spread of BSE and CJD became evident in the mid-1990s, as the disease spread from Britain to other European countries and later to North America, despite formal bans on British meat products. It was clear from these experiences that the global trade in animal feed and beef for human consumption contributed to the borderless aspect of prion spread.

The ban on British beef products to halt the spread of BSE/CJD and later the WHO travel advisory to those areas affected by SARS highlight the historic tension between the interests of ensuring international trade (particularly the sovereignty of nations to engage in free trade) and the protection of public health. Indeed, the beginnings of international health governance can be traced to early efforts to deal with this type of tension. The imposition of a 40-day quarantine on the crew and cargo of ships arriving in the ports of fourteenth-century European city-states, for example, was seen as a way to stop bubonic plague and cholera from entering the port cities. These impositions, however, led to public outcry from the merchant class, who objected to the disruption of trade and commerce. Diplomatic dialogue ensued as it was realized that international co-operation was required to deal with the impasse. This in turn led to a series of International Sanitary Conferences that eventually led to

the establishment of the WHO in 1948. From the outset, the WHO's dual mandate was to conduct international epidemiological surveillance and disease control while at the same time ensuring that the impact of such activities on international trade was minimal.

Central to efforts to control borderless disease threats is the need to distinguish between that which is deemed to be dangerous and that which is nondangerous. Such classificatory efforts are directed not only at the international flow of foodstuffs, animals, and cargo, but also at human beings. It is with reference to the latter that we are able to see how international public health strategies, regimes, and policies aimed at infectious disease control have been informed by, and filtered through, conceptions of social control more generally, especially those involving moral censure and stigmatization, as in the cases of HIV/AIDS, tuberculosis, and Ebola (among others). In the same vein, at the larger structure level, traces of the colonial past of the global north may be seen in current international infectious disease strategies. As part of a larger colonial program, approaches to infectious disease control, whether based on the “white man's burden” of the British, the “ethical policy” of the Dutch, or the *mission civilisatrice* of the French, were very much based on the perspective of “tropical” medicine that was concerned with the problems colonizers encountered in their distant occupations. This, coupled with the nineteenth-century version of germ theory, was consistent with the logic of invasion and occupation. In line with this thinking, individuals are perceived as being from “here” or as people the colonizer might encounter “there.” This process of “othering” is still evident today in various ways, including the popular conception of tuberculosis as a disease associated with immigration from the global south to the global north; and the spread of HIV/AIDS from Africa and Haiti, SARS and avian flu from China, and the H1N1 (swine flu) virus from Mexico. Other indications of the continued relevance of the “othering” process through classificatory schemes are present in the fact that a central and explicit preoccupation with influenza preparedness plans concerns the identification of air travelers as a special group in need of careful surveillance and regulation, with thermal scanning and other disease screening measures being implemented

at international airports. More recently, the classificatory orientation is also seen in terms of the prioritization and ranking of groups with respect to who should have preference for receiving the Influenza A/H1N1 vaccine, as well as with reference to the stigmatization of those diseased (such as the racialization of SARS as a “Chinese” disease within the western context).

The social control and subsequent securitization of the flows involving individuals and pathogens are predicated on surveillance measures, which in turn are based upon classification categories that make implicit use of boundaries. This includes, for example, the demarcation of territory and social groups. With the adoption of category-based surveillance, security interests define who is or is not allowed to cross the boundary. With borderless diseases, the ability to adopt strategies of surveillance and impose restrictions on movement becomes complicated for a number of political and social reasons. First, under neoliberal policies that promote privatized free trade, allowance must be made for the unobstructed flow of goods and people, while at the same time disallowing infectious diseases that will ultimately disrupt global commerce. As a consequence, borders or barriers to flows must be differentially permeable, which is difficult to develop from a practical perspective. Second, issues related to the potential violation of legal rights to individual privacy, patient confidentiality, and free association must be considered to develop a politically palatable surveillance policy. Third, for some diseases, such as HIV/AIDS, the risk of contracting the disease does not depend on national identity or regional location as much as on the extent to which the individual belongs to a particular network of mobilities. In light of such circumstances, it no longer makes sense to think of combating infectious diseases in terms of nation-states that have fixed boundaries. If the nation-state approach to infectious disease response is retained, then economic disparities, geopolitical fragmentation, and unilateralism will continue to obstruct the co-operative partnerships required to form the global organizational basis necessary to combat borderless diseases. In light of the WHO response to the pandemics of SARS and Influenza A/H1N1, it can be noted that some progress has been made in dealing with these obstacles. Due

in large part to advanced communication and information technologies, such as those based on the Internet, in an unprecedented manner scientists from around the world were able to temporarily put aside competitive aspirations to share their surveillance, epidemiological, and clinical data in real time in order to identify and characterize the causative agents of the respective diseases within weeks, as opposed to the months it would have taken previously. Furthermore, the WHO collected data through surveillance systems that surveyed nongovernmental channels such as e-mails, Internet chat rooms, and local media outlets – unofficial sources that previously would not be accessed.

Today there exist various international programs based on public-private partnerships that attempt to extend and augment earlier WHO initiatives. Notably, these include the Global Fund to Fight AIDS, Tuberculosis and Malaria; Global Alliance for Vaccines and Immunization (Gavi); Roll Back Malaria; and the Global Health Security Agenda. Despite these efforts, new and (re-)emerging diseases persist, as illustrated for instance by the 2012 outbreak of Middle East respiratory syndrome (MERS) in Saudi Arabia; the 2013 spread of H7N9 in China; the Ebola virus in West Africa in 2014; 2015 outbreaks of measles among unvaccinated children in Disneyland in California as well as the mosquito-carried Zika virus in Latin America; and the 2016 outbreaks of the antibiotic-resistant pathogen MCR-1 in US hospitals. Part of the reason for the persistence of these diseases can be traced to contemporary political-economic developments, especially those related to unequal wealth distribution and effective infectious disease response.

The effectiveness of contemporary global health initiatives, including disease response, is contingent upon political and economic developments. In the current age of globalized neoliberalism, the quantity and quality of resources directed at infectious disease control and response have been particularly affected by the 2008 world recession and the political response to that. One important consequence of slow economic recovery from the recession has been that the pool of major donors has shrunk, leading to an increased dependency on the United States and the Bill and Melinda Gates Foundation. Previously, infectious disease

response was supported by the United States and other wealthy nations on humanitarian grounds or due to concerns about global health security. Thus, for example, in response to the 2014 Ebola outbreaks, the wealthy G7 nations created the Global Health Security Agency (GHSA). This agency was very successful in developing a surveillance and response network by training scientists and establishing laboratories and rapid outbreak response teams in the poorest nations of the world. Such types of initiatives may not be supported in the future. With the establishment of new types of political administrations in the United States and Western Europe, however, the health security agenda may be given much less priority or may even be used as a thinly veiled instrument to justify the curtailment of refugees and immigrants. Under these circumstances, it may well be that the effectiveness of future pandemic response will hang in the balance as the movement of experts and expertise that need to be mobilized to effectively respond to pandemics becomes severely constrained.

SEE ALSO: AIDS, Sociology of; Health Behavior; Health and Culture; Health and Medicine; Health and Race; Health and Social Class; Mobility, Measuring the Effects of; Mobility Systems

Further Readings

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