

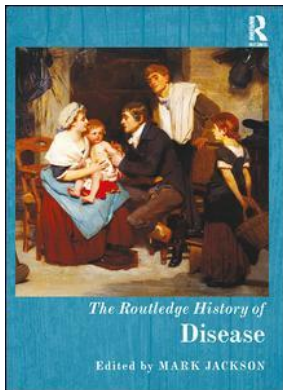
This article was downloaded by: 10.3.98.104

On: 19 Apr 2021

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



The Routledge History of Disease

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Pandemics

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315543420.ch8>

Mark Harrison

Published online on: 15 Aug 2016

How to cite :- Mark Harrison. 15 Aug 2016, *Pandemics from: The Routledge History of Disease* Routledge

Accessed on: 19 Apr 2021

<https://www.routledgehandbooks.com/doi/10.4324/9781315543420.ch8>

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Part II

PATTERNS

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PANDEMICS

Mark Harrison

The last few decades have seen numerous scares over the spread of disease – not only ‘classic’ pandemic diseases such as influenza but many previously unknown ones such as MERS (Middle Eastern Respiratory Syndrome), SARS (Severe Acute Respiratory Syndrome) and Ebola. Respected figures in public health have warned that we are entering a new ‘Age of Pandemics’ in which globalization, environmental degradation and climate change will combine to produce a maelstrom of infection.¹ But while there is widespread agreement about the potential for pandemics to develop in our globalized world, the response to these threats has been far from consistent. In some cases, it has been tardy; in others, heavy-handed. The competitive pressures generated by globalization have even induced some states to turn pandemics to their advantage, using them to justify measures that evade international law or compromise civil liberties.² Pandemics have thus become powerful tools in national and international politics, susceptible to being manipulated for political, economic and professional gain.

In these respects, our present ‘Age of Pandemics’ bears some resemblance to earlier times. The most obvious analogy is with the nineteenth century, when diseases such as cholera and plague began to circulate rapidly in a world newly connected by railways and steam-navigation. Imperial powers initially responded to this threat by trying to contain these infections, creating a sanitary barrier against places and peoples deemed generative of disease. The situation today is rather different. Certain regions such as tropical Africa retain their stigma but it is evident that pandemics may arise anywhere. The recent ‘pandemic’ of H1N1 ‘Swine Flu’ had its origins in North America, while BSE (Bovine Spongiform Encephalopathy) and its human equivalent, variant CJD (Creutzfeldt-Jakob Disease) originated in the United Kingdom. Another crucial difference from the imperial era lies in our attitudes to infectious disease. From the late nineteenth century, confidence in the ability of governments to combat infectious diseases mounted and, by the middle of the twentieth century, it seemed that they might even be eradicated. But with the exception of a handful of diseases such as polio or leprosy, such ambitions are now more rhetorical than real. Rather, pandemic diseases tend to be conceived of as risks to be mitigated, accepting the near impossibility of their elimination.

Risks are relative truths, which are, in turn, responses to uncertainty. They are products of knowledge and cannot be overcome by greater knowledge. In a public health context, the implication is that we cannot fully control the factors that contribute to disease. Risk analyses aim to determine the probability of diseases occurring

in certain circumstances and their likely impact if risks are not mitigated. They differ from earlier attempts to describe disease statistically because their intention is to anticipate or, in effect, to manufacture future catastrophes.³ These imagined events can acquire a life of their own, generating research, policy and commercial opportunities. But the influence of risk upon public health – and of the uncertainties it is supposed to reduce – is poorly understood. In this chapter, I shall examine the culture of risk in relation to what are rather loosely termed ‘pandemics’, as well as the idea of security with which both are intertwined.

Pandemics in a world before risk

Until the last century, the present usage of the term ‘pandemic’ was rare. Although the word has an ancient lineage, it was generally used to refer to social *mores*, particularly so-called vulgar forms of love (‘pandemic love’). Nor, on the rare occasions when it did pertain to disease, did the term ‘pandemic’ refer only to maladies considered contagious, as it does now. Such was the case with yellow fever in the eighteenth century. Although some people did regard this malady as contagious, most insisted that it resulted from accelerated putrefaction in hot climates.⁴ In this sense, usage of the term pandemic followed those ancient authors who ascribed such outbreaks to excesses of heat or humidity.⁵ As yellow fever was confined largely to West Africa and the Caribbean, it could easily be considered a climatic disease. But yellow fever was known occasionally to move out of its normal abodes, doing so spectacularly in the 1790s, when outbreaks in the Caribbean were followed by epidemics along the Eastern seaboard of North America.⁶ By 1800, the disease had also reached the Mediterranean shores of Europe, probably for the first time.⁷ In view of this expansion, more people came to regard yellow fever as a contagious disease. But it was an opinion that remained controversial and the term ‘pandemic’ was still seldom applied.

Although many contemporaries viewed these outbreaks as random events, the 1790s marked the beginning of a great epidemiological upheaval – the most important since the sixteenth century. The coming decades saw the transformation of cholera into an epidemic disease and the resurgence of many others, including plague and animal diseases such as rinderpest.⁸ All circulated the globe with a rapidity that was previously unimaginable. But unlike earlier periods of turmoil – the First Plague Pandemic of the sixth to eighth centuries,⁹ the Black Death of the fourteenth century,¹⁰ and the Columbian Exchange of the sixteenth century¹¹ – there is no label that one can readily attach to the collective horrors of the 1800s. Indeed, the epidemiological significance of the nineteenth century has been generally overlooked.¹² One reason for this is that the impact of epidemic disease was generally less catastrophic in demographic terms. Whereas the Black Death removed between a third and a half of the population of Europe in the fourteenth century, no country experienced such a drastic decline in the nineteenth. Mortality could often be high but it tended to be localized and of little long-term consequence compared with endemic diseases such as malaria.¹³ Historians of this period have also tended to concentrate on single epidemics or countries, their interest being chiefly to analyse social tensions which surfaced at periods of crisis.¹⁴ While some scholars have considered infectious diseases on a larger canvas,¹⁵ we still have little sense of the relationships between the century’s numerous pulses of pandemic and panzootic disease.

The Victorian 'Age of Pandemics' was unprecedented in that it was the first to affect all inhabited continents. Similarly, diseases did not spread in any particular direction, as they had done in the past. Previously, plague had travelled predominantly from East to West, while most other diseases spread from the Old World to the New – syphilis being the sole, probable exception. In the 1800s, however, plant and animal diseases originated in the Americas as well as in Europe and Asia. New diseases – like cholera – appeared and spread simultaneously in many directions. Many contemporaries also believed that there was a close relationship between these disparate events: some attributing them to divine intervention, others to new and expanding networks of trade. Despite growing awareness of the scale of this epidemiological upheaval, the term 'pandemic' was rarely used during the 1800s and the term 'panzootic' was wholly unknown. Nor, on the rare occasions when a 'pandemic' was referred to, did it imply that the disease was contagious. In the 1860s, for instance, the British Army doctor Robert Lawson used historical data to show the influence of what he termed 'pandemic waves' – mysterious geomagnetic forces which were said to account for global fluctuations in a range of epidemic diseases. According to this theory, the wave would interact with local conditions – social, hygienic and meteorological – to produce a variety of ailments.¹⁶

This theory attracted attention for a while but its adherents had largely disappeared by the 1870s.¹⁷ By that time, the waterborne theory of cholera had taken root and the notion of pandemic waves seemed, to many, to be wilfully obscure. However, the wave theory was a product of several decades in which medical statistics had been collected in numerous locations around the world. Colonial, military and maritime practitioners played an important part in this and were a major force in the new science of epidemiology; a discipline that enabled disease outbreaks to be understood statistically, and their course to be plotted and depicted graphically. As Robert Peckham points out in this volume, this endeavour was often frustrated by microbial movements that appeared random and inexplicable. Nevertheless, epidemiological studies allowed the scale, and to some extent the movement, of pandemics to be comprehended by both the medical profession and the lay public. British newspapers such as *The Times* reported the annual lectures of the presidents of the Epidemiological Society of London, for example.¹⁸ Yet some people – including medical professionals – continued to regard cholera, plague and yellow fever as purely local phenomena: as products of particular places or climates. In this respect, there was a close analogy between war and epidemics. Both were viewed as likely to emanate from places ('seats') which were inherently unstable or dangerous.¹⁹ For commercial and geopolitical reasons, the British were more inclined towards this localized view of disease. At the other end of the spectrum were the French, who tended to stress the communicability of diseases such as cholera – and the need for quarantine – partly in order to disrupt British interests.²⁰

By the early 1900s, there was more agreement about the role of human transmission in cholera and yellow fever – diseases which had preoccupied the imperial powers. This became possible, in part, because of the identification of the bacterium causing cholera in 1884 and confirmation of the mosquito vector theory of yellow fever in 1900. Although there was still some dispute about both diseases, there was increasing agreement on the need to regulate the movement of human carriers and animal vectors.²¹ Emerging states, such as Meiji Japan, strove to implement

quarantine systems of their own, while cholera and yellow fever sometimes provided a pretext for intervention by imperial powers.²² Some of these initiatives disrupted commercial and other forms of traffic but increasingly accurate epidemiological data (the result of more reliable and timely reporting) enabled preventative measures to be targeted more precisely. Inspection of suspect cases and fumigation of ships began to replace quarantine, thereby reducing damage to trade. Economic imperatives likewise encouraged many states to seek the standardization of protective measures.²³ This culminated in binding international regulations and the foundation of the first international health organizations at the beginning of the twentieth century.²⁴

Improvements in international arrangements were accompanied or, more precisely, enabled by sanitary reforms. Many attributed the diminished frequency of epidemics in Western nations not to quarantine but to environmental improvements. Having plagued many nations in the middle years of the century, cholera was increasingly confined to poorer parts of the world, which possessed little or no sanitary infrastructure.²⁵ It was much the same with yellow fever. Following the terrible epidemic in the USA in 1878 (the worst in the nation's history), there was a concerted effort to improve the sanitary state of port cities and to centralize control measures. Outbreaks became less severe and more easily contained.²⁶ Yellow fever thus came to be seen as a disease of less developed nations, many of which accepted the assistance of new philanthropic bodies such as the Rockefeller Foundation.²⁷

The decreasing threat from cholera and yellow fever meant that these diseases played relatively little part in the genesis of the modern concept of the pandemic. That dubious honour goes to two other infections. The first of these was the so-called Russian Flu of 1889–91 – a disease which claimed victims from all social classes. In this sense, it was very different from cholera, which affected the lower orders predominantly. Its dissemination was also harder to predict, unlike cholera and yellow fever, which normally followed established pathways of commerce and pilgrimage.²⁸ The second of these diseases was plague. Spreading from southern China in the 1890s, the re-emergence of this ancient malady – long confined to endemic areas in China and the Middle East – shocked many because of its associations with the medieval past.²⁹ Ironically, plague had been released from its Asian captivity by the forces of modernity; by new trade routes (especially those established by the British) and new technologies such as the steamship and the railway. The pandemic was experienced primarily within the world's great sea-ports, the major exceptions being India and Manchuria, where the disease caused enormous mortality and disturbance inland. In the latter cases, its movement was closely associated with transportation by rail.³⁰

More than ever before, the rampages of disease were discussed in popular media, which meant that *fin de siècle* pandemics were very much social phenomena – the products of an increasingly global public sphere. For much of the nineteenth century, the literate elites of Europe and the Americas had read about the spread of disease but some time had generally elapsed between disease outbreaks and reports in newspapers, especially those far distant from events. Pandemics were experienced as disjointed outbreaks and information about them was not always widely or systematically disseminated. One reason for this was that the vast majority of people continued to receive information about epidemics by word of mouth, often in the form of rumour. This was still largely true at the end of the century but information was becoming easier to obtain. Many countries – including some of the European

colonies – had seen a rise in literacy due to initiatives in elementary education and there was a corresponding increase in popular news media. Access to newspapers was no longer confined to the elite. Many of the publications aimed at the masses contained regular reports on outbreaks of disease and the apparent course taken by what were increasingly termed ‘pandemics’. These reports were sometimes accompanied by photographs depicting the peoples and places affected by plague and the often drastic measures used to contain it, such as mass quarantine and destruction of property. This probably heightened the sense of dread that many readers would have felt but also enabled an idea of the pandemic to crystallize in the public imagination. Pandemics thus became more definite entities, with presumed points of origin, sequential development and termination. But as well as existing in particular locations, pandemics inhabited a new kind of space: a relational space or *space of flows* constituted by new technologies of communication and transportation.³¹

The increasing immediacy of news coverage was enabled by the expansion of the electrical telegraph. Telegraphic intelligence was also invaluable for port-health officials and others who were charged with monitoring the spread of disease and taking pre-emptive action. But the media rarely subjected reports of disease to critical scrutiny. Information normally came in bite-sized chunks, with little or no analysis. Thus, for the general public, the principal effect of telegraphic reporting was to convey a sense of rapid movement and imminent threat. The result was often panic and, more insidiously, a generalized anxiety which may have been a precondition for the culture of risk which would emerge over the coming century.³² It may, at any rate, help to explain the large spike in the modern usage of the term ‘pandemic’, a word which conveyed the magnitude of global catastrophes – real and imagined. Database tools such as Google Books Ngrams Viewer, *The Times* Digital Archive, 1785–2009 and ProQuest’s *The Times of India* Online (1861–) reveal very few references to ‘pandemics’ before the mid-nineteenth century. Usage of the term rose at the end of the century subsequent to the Russian influenza and plague but it was not until a much more deadly pandemic occurred in the form of the 1918–19 influenza that the term became commonplace, even in medical circles.³³ It was in the aftermath of this cataclysmic event (which claimed around 50 million lives) that virologists, epidemiologists and others began to digest mortality data and detect patterns which some turned into models. The idea that pandemics (at any rate, those of influenza) followed predictable courses took hold and became an important element of pandemic prevention and disaster planning.³⁴

Security and uncertainty

Later in this chapter, I will show how the concept of the pandemic became steadily more important in national and international public health. Before that, we need to consider the history of two other concepts with which it would become entangled – security and risk. Let us begin with the former. According to some scholars (chiefly in the field of international relations) security is a foundational and enduring principle in public health.³⁵ But the principle of security is more elusive than one might expect, for there is little agreement about what it actually means. For some, security amounts to no more than the protection of nation states and their citizens from clearly identifiable enemies – external and internal. At the other extreme, there are rather vague

formulations of ‘human’ and ‘global’ security, which refer to protection from what might be termed ‘global risks’ such as climate change. Security is also recognized by some political theorists as having a subjective or inter-subjective element and is therefore conceived differently in different states as well as over time, as is the balance between considerations of security and those of liberty.³⁶ For these reasons it is difficult to identify a principle of security operating persistently and unambiguously in the field of public health. Health security has several dimensions, too. Firstly, there is ‘biosecurity’ within state borders. This attempts to neutralize the hazards that may arise from activities such as farming, food processing and retailing, as well as those arising from the environment more generally.³⁷ Secondly, there is security at the border: the sanitary policing of immigration, trade and so forth. Thirdly, there is the principle of intervention in other states in order to protect the health or interests of the intervening nation. While the first two notions of security have been evident in varying forms for centuries, the latter is a more recent idea and distinguishes some recent attempts at pandemic prevention from earlier ones.

But security, however one chooses to define it, is rarely the sole determinant of public health. From its origins in the Renaissance, public health has been animated to varying degrees by the idea of the ‘common good’ and continues to embody notions of social justice and collective responsibility.³⁸ Even when it comes to secular action designed to defend the integrity and stability of nation states, the modern principle of security fails to encompass the numerous ways in which public health has been used in statecraft. Arrangements made for quarantine, for example, were intended not merely to keep disease at bay but for social control. Sanitary arrangements also came to figure strongly in diplomacy and one of the most important factors governing the use of quarantine over the last three or four centuries has been the need to meet the expectations of *foreign* governments – not considerations of domestic security.³⁹ Sanitary measures have also evolved from an exclusive focus on nation states to the policing of international networks – a process in which global and regional bodies have assumed increasing importance.⁴⁰

If security cannot be regarded as a transcendent principle in public health, what of that other characteristic feature of contemporary pandemic prevention – risk? Again, there are substantial differences between modern attitudes and those of barely a century ago. What we would now refer to as ‘risk assessments’ did play some part in determining the safety of medical procedures or in actuarial work, but they did not feature prominently in other areas of public health. The dangers presented by pandemic or epidemic disease were referred to in less precise terms; for example, as ‘threats’, ‘dangers’ or ‘menaces’.⁴¹ After World War I, risk analysis became more common as a result of publications like Frank H. Knight’s *Risk, Uncertainty and Profit* (1921). Knight argued that uncertainty could never be eradicated from any walk of life but that it could be reduced, in so far as this was compatible with other political objectives.⁴² By the middle of the twentieth century, the idea that uncertainty could be managed through the calculation of probabilities became widespread and integral to some aspects of medicine, for example in determining the safety of new drugs or inoculations like BCG against tuberculosis.⁴³ But it was not yet implicated in the evolving notion of the pandemic, even though the management of uncertainty was becoming a feature of international health.

There are intimations of this in the work of bodies such as the League of Nations (founded in 1919), whose Health Organization gathered epidemiological intelligence

and orchestrated action to prevent pandemics. Pandemic prevention was the principal objective of the League's Health Organization and also the chief reason for its refugee relief activities in Eastern Europe and the Balkans/Middle East after the end of World War I.⁴⁴ One can discern in the work of the League and its partners an attempt to anticipate the catastrophe of 'pandemic' disease and to do so with an alliance of actors – state and non-state – which is familiar to us today. The international sanitary conferences of the preceding decades resulted in the standardization of national sanitary laws and established offices that collected epidemiological data. The League's Health Organization augmented these initiatives but its anti-epidemic activities were different because they were cooperative interventions, often conducted in association with voluntary bodies such as the Red Cross and Save the Children.⁴⁵ Although they were designed to serve humanitarian ends, the main purpose of these interventions was to protect the interests of member states. In both senses they may be considered an important precursor to recent ventures in the name of 'global health'. But while conditions in some countries were said to pose a threat to other nations, the language of risk was rarely used. Some distance therefore separates assessments of pandemic threats over the last few decades and those of earlier times.

Remaking pandemics as risk phenomena

The relationship between pandemics, security and risk became more explicit during World War II, with the development of what came to be known as 'medical intelligence'. When the US Army prepared to enter the war, a Medical Intelligence section was created within the Office of the Surgeon General of the US Army and such intelligence became an integral part of operational planning.⁴⁶ Similar arrangements were made in the armies of other combatant nations. Although the main concern of such investigations was the potential impact of local diseases on military populations, the military and civil authorities were also concerned about the potential for wartime and post-war conditions to bring about a major pandemic, as in 1918–19. In Germany, Japan and other occupied territories, as well as in newly liberated countries like Korea, information about disease was collected systematically in detailed reports. The intelligence and medical communities began to work more closely together and their reports considered the risk factors existing in different locations with a view to determining and mitigating the threats posed by disease to Allied troops and social stability.⁴⁷ These concerns reflected the need to maintain order in the ideological (and sometimes literal) front-line between communism and capitalism.

Pandemic disease threatened homeland security, too. Even before the war had ended, the USA had begun to consider the implications of another pandemic on the scale of 1918–19. To assist this process, the US Army established a Commission on Influenza in 1941, while work began on the development of a vaccine. The Commission survived the war and, in 1957, it attempted a risk assessment to determine the likelihood of an influenza pandemic emerging from the Far East. A similar enterprise was conducted in 1968 but had no discernible impact on policy. At this time, such assessments were rare in the epidemiology of epidemic diseases, although they were already familiar in the epidemiology of chronic diseases, where the notion of the 'risk factor' was generally accepted.⁴⁸ As far as influenza was concerned, the epidemiological data suggested that influenza A virus pandemics occurred on

average every 10–11 years and the assumption that this would be repeated led to an unprecedented mobilization of resources following an outbreak of H1N1 at Fort Dix, New Jersey, in 1976. This outbreak spurred a rapid risk assessment and a decision was made to purchase large quantities of influenza vaccine. A national vaccination programme was implemented (championed by President Ford) and 40 million people were immunized before the US public health authorities were forced to acknowledge that the predicted pandemic had failed to materialize. The Ford administration was heavily criticized for this decision, which, apart from wasting resources, produced serious side-effects (such as Guillain-Barré Syndrome) in some of those vaccinated.⁴⁹

Unsurprisingly, these events were not followed by a rash of similar examples. But risk analysis began to figure more prominently in pandemic control after the emergence of HIV/AIDS in the early 1980s. As Allan Brandt has argued, AIDS produced important changes in what was formerly termed international health, giving birth to a new field – global health. According to Brandt, this was distinguished by a union between clinical and preventive medicine and a greater emphasis on human rights.⁵⁰ But while this slow-burning pandemic brought a new sense of global solidarity in matters of health, risk was becoming more prominent in the analysis of infectious disease, with the emergence of new concepts such as ‘risk groups’ and ‘risk behaviour’ in relation to HIV. In Western countries, this sometimes translated into coercive action but generally found expression in public health campaigns based on education and self-regulation.⁵¹ In the latter sense, the response to AIDS was in accord with what some branded the ‘New Public Health’.⁵² However, risk assessments also formed the basis of a new vision of international health, in which risk was more closely aligned with national security agendas.

Pandemics had long been regarded as threats to the stability and wealth of states but for some years they had not featured prominently as a security concern. The advocates of ‘securitization’ now sought to extricate public health from the liberal, internationalist paradigm that they believed to have been dominant since the foundation of the WHO in 1948.⁵³ This shift in thinking can be seen in the US National Intelligence Council briefing of 2001, which listed HIV/AIDS and other diseases as direct threats to the interests of US citizens, especially in countries in which the US had important economic and strategic interests.⁵⁴ But there was nothing uniquely American about this new doctrine, for it originated in the work of the British intelligence services. Nor was it simply a consequence of AIDS. Although AIDS was by far and away the most serious medical threat to the stability of countries in sub-Saharan Africa, it was one among many diseases which were appearing or reappearing as significant threats to humanity. Publication databases show a massive increase in references to ‘pandemics’ at this time. Paramount in most people’s minds was the heightened risk posed by globalization and the advent of cheap mass air travel. Closely allied to these fears was climate change, which allowed many pathogens and vectors to expand their range. Following the fall of the Soviet Union, there were also concerns that that nation’s expertise or its stockpile of biological weapons would fall into the hands of terrorists or states that were likely to use them.

These complex and interrelated threats were increasingly described in the language of risk, which reflected growing uncertainty about science as well as the future of the planet. Ever since fatalistic attitudes to disease began to give way to a belief in the capacity of human intervention, many had speculated about its mastery. By the

middle of the twentieth century these dreams seemed to be becoming reality, as a battery of new inoculations eradicated diseases from the developed world and then, in the case of smallpox, from the world as a whole. This coincided with the advent of many powerful antibiotics and new insecticides like DDT, capable of killing the vectors of diseases such as malaria.⁵⁵ The prospect of victory over many infectious diseases seemed imminent. But soon after the creation of the first antibiotics, drug-resistance began to be noted and continued to spread thereafter.⁵⁶ The destruction of disease vectors with DDT also proved more difficult than expected because of insecticide resistance and heavy expenditure. At the same time, many began to criticize its harmful effects on wildlife.⁵⁷ Concern was also expressed over antibiotic residues in food and diseases arising from over-medication.⁵⁸ The confidence that many had previously placed in science was evidently evaporating, even before AIDS demonstrated the remarkable persistence and vitality of humanity's microbial foes.

Probability rather than certainty reflected the new and potentially frightening possibilities of a world in which science no longer ruled the roost. New concepts such as 'emerging' and 'reemerging' infections encapsulated these fearful possibilities and subtly encoded many assumptions about the risks presented to the developed world by marginal populations and failed or poorly developed states.⁵⁹ Films such as *Outbreak* (1995) and best-selling books such as Richard Preston's *Hot Zone* (1994) reflected and contributed to public disquiet. In these and similar works, pandemic disease came to express other concerns, among them climate change, environmental degradation and globalization – not to mention terrorism.⁶⁰ But these disparate anxieties became so entangled as to become indistinguishable and with this entanglement came a narrowing of focus. Thorny and complex problems of poverty and climate change were compressed or sidelined and pandemics came to be seen primarily as problems of circulation, amenable to control by technological intervention at key strategic points.

This was the essence of most of the calls for surveillance and health 'securitization' in the 1990s and 2000s. Superficially, these demands resembled the impulses of Victorian times, when imperial powers attempted to create a sanitary buffer between themselves and localities they regarded as pathogenic.⁶¹ But the analogy between the globalized world and the Victorian era fails to capture the complexity of our times. Power is more widely dispersed today than it was in the nineteenth or early twentieth centuries and the precautionary attitudes exhibited by the USA or European countries may now be found equally in China, Indonesia or Singapore – perhaps more so. The movement of pandemic disease is also less predictable than at the height of the imperial era, when it moved from country to country, predominantly by railway or ship. While the distribution of disease by air can easily be modelled, the multiplicity of possible transmission routes and the difficulties of detection are infinitely greater.

Pandemics and globalization

If contemporary pandemic control is different from old style sanitary imperialism, what can we say about it? The obvious place to start is with the SARS pandemic of 2003, which set the agenda for pandemic control in the coming decade. Although it killed relatively few people by contrast with most other pandemic diseases (8,422 recorded cases and 916 deaths), the uncertainty surrounding SARS caused great alarm and threatened for a time to destabilize the global economy. Coming in the

wake of the terrorist attacks of September 2001, the response to SARS was infused with the rhetoric of the War on Terror. Nations that failed to observe the new protocols of ‘germ governance’ (the requirement of governments to determine and mitigate risks) were seen as little better than the ‘pariah states’ which sponsored terrorism.⁶² There was a sense that the world had become a more dangerous place, in which nations would struggle to protect their sovereignty and their borders.

The response to SARS invariably took the form of quarantine and isolation; violation of which, in some countries, was severely punished. While there was general acceptance that strict measures were desirable, some governments were criticized for unnecessary harshness. In Taipei, for example, the city’s homeless population was rounded up because of fears they were likely to spread the disease.⁶³ There, and in several other countries, healthy people were placed in quarantine alongside the infected.⁶⁴ These reactions were driven by fear – not simply fear of infection or social disorder but of a failure to meet international expectations: states which appeared weak or negligent faced censure and the loss of business and investment.⁶⁵ Governments and commentators took stock of the potential losses from a more severe pandemic and began to issue dire warnings about imagined future catastrophes. Most continued to emphasize the need for ‘early intervention and risk assessment’.⁶⁶

The new mood was encapsulated in the World Health Organization’s International Health Regulations (IHR), formulated in 2005, coming into force in 2007. The IHR require WHO’s 194 member countries to notify the WHO of any public health emergency that may constitute a matter of international concern. States also have an obligation to maintain health surveillance at their borders. Having received information from member states, the WHO decides whether or not to declare an international public health emergency.⁶⁷ The main aim of these regulations is to control, but not disrupt, the global flow of people, animals and commodities. Pandemic protection is thus in one sense extra-territorial but national systems of surveillance, particularly quarantine and screening at airports, are also vital to the functioning of the global network which has been assembled to govern the circulation of people and commodities.

This ordering of public health conceives of disease primarily as a problem of mobility within a global system. As the sociologist Sven Orpitz has argued, it is a ‘thoroughly post-humanist affair’, in which the social person reverts to an organic entity – like plants or cattle – to be screened for infection.⁶⁸ Pandemics, similarly, have been extricated from the social, industrial and environmental contexts in which they arise. One beneficial aspect of this ‘de-socialization’ is that disease controls should, in theory, be free from racial or other forms of prejudice. In practice, this is not always the case. The recent Ebola epidemics produced several instances of disengagement from African countries (for example, by airlines), discouragement of travel from West Africa, and in the North Korean case, a complete ban on non-business or diplomatic travel.⁶⁹ Nor have the IHR – which are advisory rather than legally binding – been able to prevent serious economic disruption. During the H1N1 ‘pandemic’ in 2009, for example, many countries imposed a ban on pork from North America despite a declaration from the WHO that such produce was safe. This prompted allegations of sanitary protectionism – a refrain that has become increasingly familiar since the dismantling of formal tariff barriers and the creation of the World Trade Organization in 1995.⁷⁰

The WHO's declaration of a pandemic in 2009 revealed the term's remarkable elasticity. Although the WHO lacked a precise definition of what a pandemic was, it had formulated what it later referred to as a 'definition-description', the essential features of which were that the term should be applied only to infectious diseases that had spread over two or more continents. In 2009, however, one of the previous criteria was omitted. A 'pandemic' disease no longer needed to be 'especially destructive of human life' in order to merit that description – this proved to be the case with Swine Flu. After it became apparent that H1N1 was no deadlier than ordinary 'seasonal' influenza, the credibility of the WHO and national public health agencies (which often made exaggerated predictions of mortality) was called into question. There were concerns, too, over links between WHO advisors and pharmaceutical industries, and widespread criticism of a response that many regarded as disproportionately aggressive.⁷¹

The 2009 Swine Flu 'pandemic' illustrates not only the plasticity but also the potency of the term. As Charles Rosenberg once observed, the simple act of naming an 'epidemic' elicits primordial fears of death and chaos.⁷² The 'emotional urgency' generated by such a designation is magnified many times in the case of pandemics – a word that has become synonymous with global catastrophe. But rather than bringing states together to face a global threat, the announcement of a pandemic seems as likely to divide them. In 2009 many states used the laxity of the IHR – and escape clauses in international trade law – to gain competitive advantage over others, imposing import restrictions much stricter than those that would normally be permitted. The only way of avoiding the commercial chaos that can so easily arise from such emergencies is to seek agreements similar to that reached by the Asia Pacific Economic Cooperation (APEC) prior to the outbreak of SARS.⁷³ Anticipating such an eventuality, APEC determined that member states would not use disease as a pretext for gaining advantages in investment or trade. Without such agreements, risk assessments are incapable of providing a platform for united action in the face of a public health crisis. Science has never been, and is never likely to become, a neutral arbiter.

Nevertheless, the value of risk assessments in pandemic prevention remains largely unquestioned. Virtually all countries now possess 'risk registers' in which pandemics figure prominently. The private sector is also heavily involved. For example, the UK-based company Maplecroft provides an Influenza Pandemic Risk Index, which 'enables governments, intergovernmental organizations and business to identify potential risks to populations and supply chains'. Countries are ranked and classified according to different risk levels along three indices: the risk of the emergence of new strains, the risk of their spread, and the capacity of states to contain an epidemic. This entails the analysis of cultural factors influencing behaviour, environmental factors, and the perceived adequacy of regulations.⁷⁴ Agencies responsible for domestic and global health have also responded to the pervasive culture of risk by making its analysis central to their attempts to control pandemic disease. The US Centers for Disease Control (CDC), for example, have recently developed an Influenza Risk Assessment Tool (IRAT) to evaluate the human pandemic potential of emergent strains of influenza A virus in animal populations. IRAT uses 10 criteria grouped around three themes: the properties of the virus; attributes of the risk population; and the ecology and epidemiology of the virus. This analysis takes account of both the risk of a new strain emerging and of its potential impact on human health. However, the CDC

explains that IRAT is not a predictive tool and that the risks it identifies are not precisely quantified.⁷⁵ The WHO, similarly, has placed risk analysis at the centre of its recently published guidance on pandemic influenza. The aim behind this approach is to enable countries to respond more flexibly than in 2009, when governments were unsure how to deal with a disease less severe than anticipated.⁷⁶

Risk assessments are generally valued because they appear to provide an objective and flexible basis for intervention in public health but some critics insist that risks are merely social constructions that enable interests to be advanced beneath a veil of objectivity. Despite some degree of convergence between these contrasting viewpoints, a synthesis remains elusive.⁷⁷ If or until this is achieved, the most important questions are: Who is to conduct risk assessments? Who should decide on which risks should be mitigated? And in what ways should they be mitigated? Technocratic and participatory models of risk assessment each have their advocates, in which experts are either free to make such assessments or are subject to some degree of deliberation.⁷⁸ Equally, if oversight is regarded as necessary, it is far from clear who should exercise it.

Presently, it would seem that both the assessment of risk and its mitigation are skewed in particular directions. There is a distinct preference for surveillance and containment, with calls for ‘early-warning systems’ that will detect and track the emergence of new strains of disease, the aim being to create a kind of ‘global immune system’.⁷⁹ Another (unintended) consequence of imagining pandemics as risk phenomena is that it normalizes them, leading us to accept such events as rare but inevitable by-products of modern life. Recent discussions about pandemic disease – particularly influenza – have been characterized by a ‘not if but when’ attitude, although the ‘when’ seems never to be determined. Despite the existence of an industry of pandemic prophecy, the virus, as Carlo Carduff has noted, is always one step ahead. Indeed, prophecy seems to thrive on uncertainty. Experts of varying stripes ask the public to accept on faith the ‘inevitability’ of the next viral cataclysm despite never knowing when or even whether that event will occur.⁸⁰ And, if rational calculation can never master the microbe, it would seem that all that can be done is to prepare for the consequences; hence the current orientation towards disaster management.

In these respects, pandemic prevention stands in marked contrast from other areas of public health, especially those for which a new approach or ‘Fifth Wave’ is being openly advocated. Focusing largely on chronic disease, advocates of the Fifth Wave recommend a more holistic approach in which health is closely related to issues such as social inequality and environmental sustainability.⁸¹ This new thinking has made little headway in the dryly securitized world of pandemic prevention but there are some intimations of change. In a 2012 article in *PLOSMedicine*, Bogick *et al.* propose that pandemic prevention be seen as an aspect of international development, with attention directed to health-care infrastructure and the alteration of pathogen dynamics between humans and their environments, particularly their relationships with other animals.⁸² The recent epidemic of Ebola shows the necessity of such an approach but it shows, too, that it has yet to be taken seriously. Of the factors which enabled the disease to spread widely in West Africa, the absence of health-care infrastructure was paramount. Similarly, this and previous outbreaks had their origin in high-risk practices – the consumption of bushmeat – which have become entrenched through ignorance and poverty.

Conclusion

In this chapter I have argued that ‘the pandemic’ is a relatively recent idea and that it covers an enormous range of possibilities, from potentially cataclysmic mortality on the scale of 1918–19 to a disease like SARS, which claimed fewer than a thousand lives. This imprecision represents a weakness in some respects but it is also tactically useful. Labelling a disease ‘pandemic’ endows it with a potency lacked by others, even those considered to be epidemic. When a pandemic is announced – and particularly, as in the case of Swine Flu, when this is accompanied by intense media speculation – it generates fear and with fear comes a craving for security, or a particular idea of security at least. There is also an expectation that states – as well as other public and private bodies – should take robust measures to avoid liability. This creates numerous opportunities, including the power to garner resources.⁸³ Over the last few years, these have flowed chiefly in the direction of medical and pharmaceutical research, border security, and epidemiological surveillance. These are all clearly important but the commercial, social and environmental causes of pandemics – particularly the factors driving disease emergence – are receiving far less attention.

These biases emerge at the level of risk assessment and, in a more obvious way, when it comes to mitigation. Presently, the processes by which these decisions are taken are opaque. What is clear, however, is that risk, security and pandemics are bound together in a powerful nexus. Just as pandemics tend to evoke a very particular kind of security response, risk assessments have become increasingly selective, conditioned by dominant conceptions of security. There is a circularity and exclusivity in these relationships, which appear to be animated not by ideals of human welfare but by the interests of powerful corporations and nation-states. Thus, responses to international public health emergencies have been either robust or inadequate depending on the extent to which these interests appear to be threatened. In the case of SARS – which affected relatively few people but posed a serious threat to international commerce – the response of most countries was decisive. In the case of the recent Ebola epidemics, which had a catastrophic effect on the afflicted countries, there was a strong desire on the part of many people and businesses to disengage from infected regions, while national governments and global bodies were initially reluctant to intervene. Eventually, nascent ideas of global responsibility – articulated most forcefully outside the governmental sector – and probably a belated awareness of the security and economic implications of state failure prompted a change of policy. But the response to Ebola – like that of some nation states to the last pandemic of Swine Flu – shows a worrying lack of coordination and, in the latter case, a tendency to exploit public health emergencies for commercial gain. The culture of risk arguably contributes to this fragmentation by encouraging an ethics of liability as opposed to one of collective responsibility. If so, this is particularly problematic for those involved in global health because it rubs abrasively against the core ideals of the movement – equality and human rights.

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