**Biosecurity Policy Challenges: Disease Risks and Risky Responses**

Submission to the Inquiry on Biosecurity and National Security

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# Summary

* When a government approaches infectious diseases as problems of national security (as well as public health), there is greater potential for rallying powers and resources, but there is also a risk of biosecurity measures doing more harm than good.
* According to its 2018 Biological Security Strategy, the UK government has a limited awareness of national biosecurity as a ‘two-edged sword’: it is aware of the challenge of securing laboratory research (to reduce the risks of accidental outbreaks and deliberate misuse of pathogens) without undermining potentially life-saving scientific research.
* The COVID-19 experience in the UK shows that the government’s biosecurity strategy did not adequately anticipate another ‘biosecurity dilemma’: the challenge of implementing nonpharmaceutical responses to a significant disease outbreak without causing excessive harm to society.
* A national biological security strategy should:

- guide efforts to address effectively and comprehensively the health and

security risks posed by pathogenic microorganisms; and

- anticipate, and support the management of, the potential downsides to

implementing certain kinds of biosecurity measures.

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This submission relates to the Joint Committee’s interest in:

*How, and how effectively, [biosecurity risks to human health in the UK] are monitored and assessed by the UK Government, and by whom; and whether the specific type of risk to the UK represented by Covid-19 fell within such monitoring and assessment processes …* [and]

*The extent to which the Government's planning for pandemics in the 2015 Strategic Defence & Security Review, the subsequent National Security Capability Review and the 2018 Biosecurity Strategy helped in guiding [domestic preparedness against biosecurity risks]*

For present purposes, ‘biosecurity’ means the safeguarding of populations within and among states against selected infectious disease risks.

Among the many risks to human health that exist or might emerge, sudden outbreaks of deadly infectious diseases have the greatest tendency to excite the urgent attention of policymakers concerned about national security. However, the adoption of a security-oriented approach to preventing or responding to disease outbreaks is not necessarily a good thing.

When populations within and among states confront a dreaded disease risk, governments often assume a responsibility to address the cause of that dread, but it is important for policymakers always to be sensitive to the possibility of a biosecurity practice doing more harm than good. Adopting a security-based approach to addressing infectious disease risks can garner extra resources and stronger regulatory powers for risk-reduction purposes, but such an approach can sometimes manifest in policies and practices that are ineffective, counterproductive or unjust.

This problem potentially arises in at least four overlapping areas of biosecurity policy concern:

* the threat of biological weapons proliferation and use;
* the safety and security risks of laboratory research on pathogenic microorganisms;
* the impact on societies of naturally occurring disease outbreaks; and
* the impact of disease risks (and responses to them) on international relations.

# Four challenge areas for biosecurity policy

One kind of dilemma for biosecurity policymakers could be called **‘protect or proliferate’**. This relates mainly to research conducted by states for the purpose of defending against biological attacks (biodefence), and a policy dilemma can be encountered at an international or domestic level. At the international level, some of the biodefence efforts and technologies of one state, purportedly aimed at affording protection against microorganisms that are deliberately disseminated, might be perceived by another state as having an offensive purpose. For example, experimentation with dissemination mechanisms for ‘threat assessment’ purposes could appear suspicious. And if offense-defense differentiation were extremely difficult, and the suspicions of that other state drove it to engage in the same ‘biodefence’ activities, the result could be a proliferation of biological weapons risks and an increased likelihood of attacks while each side competed for advantage.

The maintenance of a technological edge is an issue also when the ‘protect or proliferate’ dilemma is considered at the domestic level. Here, the subject of concern is the potential for an increase in biological weapons risks *within* a state (vertical proliferation) resulting from an expansion of its biodefence activities. In a large biodefence program involving many people engaged in such work, there is an increased chance of a pathogenic microorganism leaking out due to a laboratory accident or being harmfully misused by a rogue scientist.

The management of the latter risk gives rise to a second kind of biosecurity dilemma: **‘secure or stifle’**. This relates to government attempts to prevent biological attacks by regulating the conduct of pathogen research by scientists and the transfer of research-relevant materials and information. The difficulty here is that, although an individual scientist could choose to harmfully misuse his or her knowledge of and access to pathogens, the overall enterprise of scientific discovery has the potential to contribute to the saving of many lives in the event of a biological attack or a natural disease outbreak. In other words, the securing of populations against infectious disease risks can seem at once to require both the restricting and the facilitating of research efforts.

The regulation of ‘laboratory biosecurity’, involving physical and personnel-based restrictions, aims to reduce the risk of laboratory insiders causing harm. These restrictions also make pathogen research more difficult, expensive and time-consuming, so the conundrum for policymakers is: what kind of regulation is necessary to reduce the risk of biotechnology being misused, and what measures are likely instead to thwart the acquisition of knowledge applicable for health-protection purposes?

There is also the question of whether or how the fruits of laboratory-based research should be shared. Of particular concern is the sharing (through publication in scientific journals) of experimental techniques that result in the creation of a microorganism that is more dangerous to humans (i.e. more transmissible, more virulent, more resistant to antibiotics, etc). On the one hand, it might be argued, the mass communication of information on how a pathogen can be made more dangerous could encourage and enable the use of that information for a harmful purpose. On the other hand, making such findings widely available to other scientists could assist the development of new or improved measures for controlling the relevant disease.

To the extent that pathogen research facilitates the availability of more and better vaccines and drugs for preventing and treating infection, disease-control can be undertaken without resort to nonpharmaceutical measures (e.g. social distancing and border controls). However, in circumstances where such measures are all that is available to governments, a third kind of biosecurity dilemma can arise: **‘remedy or overkill’**. This relates to biosecurity practices aimed at responding to rather than preventing outbreaks. A government responding to a dreaded disease outbreak might move to approach it as a matter of national security, thus claiming a need to respond swiftly and aggressively. In doing so, a critical advantage might be obtained in the form of extraordinary powers and resources. However, there is a risk also that such a response, implemented urgently in an atmosphere of dread, would transgress normal rules in a way that is unjust and counterproductive to public health and/or the national interest.

There are both advantages and disadvantages in implementing, for the sake of national security, domestic-level ‘social distancing’ which necessarily infringes upon people’s freedoms of movement and association. For example, the population whose health is the subject of such measures could nevertheless resent and resist them. And the ‘remedy or overkill’ dilemma also potentially arises from international bordering practices, including prohibitions on travel between states, which restrict the cross-border flow of people who might be carrying a dreaded disease as well as healthcare personnel who are otherwise able to treat it.

A fourth biosecurity dilemma (**‘attention or neglect’**) concerns the institutionalization of priority status for dreaded diseases in health policy settings. In international health governance arrangements, it can sometimes seem difficult to achieve extra protection against certain kinds of disease risks (including biological attacks) without thereby neglecting other health issues over the long term. At the heart of this biosecurity dilemma is the tension between policy settings that would fulfil the greatest quantum of human need and those that would most likely be politically feasible. Whereas the framing of some infectious diseases in security terms might attract political attention that brings some health benefits, it is an arrangement that promises less benefit than one whose broader humanitarian rationale might be harder politically to support over time. The surveillance of and rapid response to some disease risks is prioritized as part of an agenda of ‘global health security’. And, although the pursuit of this agenda has the potential to protect populations in developed and developing countries alike against outbreaks with transnational reach, it arguably does less to address underlying health problems in poorer parts of the world.

# The UK Biological Security Strategy

The 2015 National Security Strategy and Strategic Defence and Security Review (SDSR 2015) included some discussion of biological weapons and bioterrorism risks, and it promised that the UK government would “publish a national bio-security strategy in 2016, addressing the threat of natural disease outbreaks, as well as the less likely threat of biological materials being used in a deliberate attack” (SDSR 2015, p. 43). The National Security Capability Review (NSCR) of March 2018 added “diseases and natural hazards affecting the UK” to the SDSR’s list of “challenges likely to drive UK security priorities for the coming decade” (NSCR 2018, p. 5), and it stated that the UK Biological Security Strategy (BSS) would “address key risks such as natural disease outbreaks” (NSCR 2018, p. 29).

The BSS itself was finally published in July 2018, and it partly addressed some of the biosecurity policy concerns outlined above. For example, the UK government committed to engage with other states, bilaterally and multilaterally, to “maintain and enhance the international legal regime prohibiting biological weapons” (BSS 2018, p. 20). And it promised that the UK government would be playing “a leading role in collaboration with international partners and initiatives … to ensure a co-ordinated and inter-sectoral approach to supporting global health security” (BSS 2018, p. 20). The Strategy did not specify how the government planned to “enhance” the 1972 Biological and Toxin Weapons Convention, although it was likely alluding to long-running diplomatic efforts to build greater confidence in member states’ compliance with that disarmament treaty. The meaning of “supporting global health security” was somewhat clearer, and the Strategy outlined the government’s plan to focus on disease surveillance and vaccine research for a narrow range of infectious disease risks with the potential to spread quickly to the UK.

The BSS was more expansive on the issue of laboratory biosecurity, recognising that “the biological sciences sector can be a source of biosecurity risk” (BSS 2018, p. 34). The Strategy explained clearly that the UK government confronted a dilemma of biosecurity policy, stating: “We will ensure that our approach to legislation and regulation of the biological sciences sector is proportionate to the risk, so as to protect and preserve biological security without imposing unnecessary burdens or deterrents to economic prosperity” (BSS 2018, p. 21). A key concern was to ensure safety and security within the UK bioscience industry while also ensuring that government regulation of scientists’ activities does not “limit our capability to respond to new [infectious disease] threats” (BSS 2018, p. 35).

For outbreak response purposes, the UK government aimed to: “Have in place the right capabilities to respond effectively to significant disease outbreaks and biological incidents within the UK … in order to lessen the impact, eradicate threats and ensure a swift return to normal” (BSS 2018, p. 26). It planned to “draw on the world-leading capabilities within the UK biological sciences sector to deliver effective responses to biosecurity crises” (BSS 2018, p. 36), and this sector is primarily a source of *pharmaceutical* responses (vaccines and drugs). Yet, the BSS was largely silent on the issue of what (if any) nonpharmaceutical biosecurity measures might be among the “right capabilities” to be implemented by the government during a significant disease outbreak in the UK. The government claimed to have “a strong public communications capability, to ensure that we are able to engage swiftly and clearly with the public about any action they might need to take to protect themselves or support an effective response” (BSS 2018, p. 26). However, the BSS did not identify or discuss any nonpharmaceutical examples of “action [the public] might need to take”. Staple terms in the COVID-19 lexicon today – ‘social distancing’, ‘lockdown’, ‘isolation’, and ‘quarantine’ – appear nowhere in the text of the 2018 Biological Security Strategy.

# COVID-19 and the surprise of social distancing

As of mid-2018 the government felt able to boast: “The UK is globally renowned for the quality of our preparedness planning, and we have world-leading capabilities to address significant biological risks” (BSS 2018, p. 13). Unfortunately, this reassurance has since been severely undermined by the experience of COVID-19 within the UK and around the world.

It is possible the government’s prior optimism was founded on high confidence that pharmaceutical resources could swiftly be acquired and deployed in response to emerging infectious disease risks. In the face of such risks, some of which might be framed as endangering national security, there is historically a strong political preference for using protective vaccines and therapeutic drugs. This is because nonpharmaceutical approaches to disease control (e.g. social distancing and border controls) are often disruptive and unpopular. The swift deployment of pharmaceutical resources, wherever they are needed to prevent or treat a deadly disease, is widely regarded as better from a governmental viewpoint.

Even so, the absence in the 2018 BSS of any detailed discussion of nonpharmaceutical responses to a significant disease outbreak in the UK was arguably an oversight that could have been seen at the time the Strategy was drafted. A problem with emphasizing pharmaceutical defenses is that governments might find that these cannot be deployed at the time and in the quantities required to mitigate and contain a disease outbreak. Experience shows that, in some circumstances, drugs and vaccines are non-existent, unaffordable or otherwise unavailable, so instead only nonpharmaceutical responses can be implemented. In the event of an influenza pandemic, for example, it is well-known that a vaccine matched to the pandemic virus would not be available until several months after the pandemic virus started to circulate. And the recent large-scale Ebola outbreak in West Africa (2014–2016) powerfully demonstrated the human and societal damage a deadly virus can cause in the absence of an effective vaccine. Nonpharmaceutical approaches to disease-control had had to be used there, and these were sometimes disruptive and damaging in themselves, but only in this way was that Ebola outbreak able eventually to be brought under control.

It is thus reasonable to criticise the 2018 BSS (and the Strategy’s “Response” pillar in particular) for not better anticipating the emergence and persistence of a deadly disease against which there is no suitable vaccine to prevent infection and few effective drugs to treat it. In its national biosecurity strategy, the UK government could have but did not make clear what a nonpharmaceutical response to a severe domestic outbreak might look like, and nor did it warn of the potential downside risks associated with implementing such a response. Consequently, in the UK, where people had long ago stopped thinking of infectious disease as a major life risk, the surprise caused by COVID-19 itself has been compounded by surprise at the immense cost of trying to stop this disease by limiting human contact.

Since early 2020, the UK government (along with other governments around the world) has had to manage, and explain publicly, the ‘remedy or overkill’ dilemma of biosecurity policy that it confronts when implementing social distancing measures. In circumstances where a deadly disease is spreading rapidly through a population, there is a public health benefit to be gained from promoting social distancing. By thus reducing the overall risk of human-to-human transmission of the SARS-CoV-2 virus, the likelihood of local healthcare systems being overwhelmed by patients is reduced too. However, it is clear also that the very implementation of disease-control measures carries risks for UK society in terms of individual human rights and collective economic prosperity.

In an atmosphere of heightened public concern about a dreaded contagion, a government needs to be especially careful in balancing a policy’s benefits and risks when deciding how best to respond. A strong appetite, fuelled by fear, for the protection afforded by certain disease-control practices should not preclude consideration of the downsides to those practices.

The complete closure of schools, for example, promises to slow the community-wide spread of the coronavirus, but it can also make unavailable any healthcare or other essential workers who must then care for their own school-age children. In the longer term, where home-schooling options are unavailable or inadequate, those children’s education and life prospects are undermined. Requiring workers to stay at home for the duration of a severe disease outbreak can likewise reduce the risk of viral infection, but in many places and professions it is often difficult or impossible to implement remote-working arrangements. Thus, those workers’ economic productivity vanishes, and the viability of their continued employment is jeopardised.

Restricting or prohibiting cross-border travel can slow the transnational progress of COVID-19 via travellers’ bodies, but it can also inhibit the in-person sharing of much-needed medical expertise with disease-affected countries. Worse still, a government’s conspicuous emphasis on international border controls carries the risk of ‘externalising’ the pandemic, leading to surges in xenophobia and the scapegoating of foreigners.

Finding the right balance of disease-control benefits and risks is inherently difficult, so failure in this quest is a realistic possibility. Thus, it makes sense to be wary of situations in which a government’s disease-control ‘cure’ ends up inflicting more societal damage than the disease itself.

Increasingly, this prospect is shaped by the way in which some governments around the world approach the problem of COVID-19 as a crisis of national security. The dread this disease inspires among national populations is attributable to more than just the amount of illness and death experienced and expected. A sense of crisis is stirred also by people’s visceral fear of involuntary exposure to an unfamiliar and invisible risk, the unavailability of effective vaccines or drug treatments, and the limited capacity of hospitals to care for the worst-affected victims. In response to their citizens’ concerns, many governments have been anxious to take the situation seriously (and be seen to be doing so). Accordingly, political speeches on the pandemic have abounded with war metaphors and comparisons to wartime conditions, and the hefty resources of militaries and other security institutions have sometimes been deployed for disease-control purposes.

However, the adoption of these security-oriented approaches to COVID-19 is not necessarily to be welcomed. On the one hand, ascribing security status to this pandemic might be a beneficial move (remedy) to garner additional resources and executive powers for protecting population health. On the other hand, disease-control practices driven by a security imperative might become so heavy-handed (overkill) as to be excessively injurious to national economies and human rights. A government on a ‘war footing’ is more prone to be over-zealous and, in the name of ‘doing something’, emergency measures could be implemented which are ineffective, counterproductive, discriminatory or otherwise unjust. Therefore, there is now also a non-disease risk to be managed: that disease-control efforts might imperil the interests of the very people they are supposed to protect. If this were to happen, a government’s response to the pandemic would become illegitimate.

Fear of contagion can immediately compromise the day-to-day human interaction which sustains society, and policymakers have a responsibility to respect and assuage that fear. Yet governments intent on restricting travel and social interactions must also remember their enduring responsibility to serve and protect a society that has earned its freedoms. Societies function and flourish largely because people have regular contact with and depend upon each other. To depart from this condition too drastically and for too long could make it harder eventually to recover from the ravages of this coronavirus crisis.

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