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Joint Committee on the National Security Strategy

Biosecurity and national security

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The Joint Committee on the National Security Strategy

The Joint Committee on the National Security Strategy is appointed by the House of Lords and the House of Commons to consider the National Security Strategy.

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The current staff of the Committee are Lucy Arora (Commons Committee Specialist), Carolyn Bowes (Commons Committee Operations Officer), Simon Fiander (Commons Clerk), Eva George (Lords Clerk), Breda Twomey (Lords Committee Assistant) and Joe Williams (Media & Communications Manager).

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Summary

The risk of a pandemic has ranked as a highest-priority 'tier-1' security risk for all of the last decade. The arrival of covid-19 offered the opportunity to use it as a test case to assess the strength of the UK's systems of national security oversight and governance. Regrettably, this test case exposed profound shortcomings in these systems.

At the start of 2020, the UK had extensive and well-regarded plans for a significant disease outbreak—mainly focused on a flu pandemic. The Government's response to the covid-19 pandemic built upon its prior preparations, but the pandemic was not only different than expected but also worse than the Government had foreseen, and the UK's capabilities were being "rapidly scaled up". The novel features of covid-19—for instance, its high level of infectiousness—would have caused difficulties for any government. However, we are not convinced that the nature of the disease fully explains the difficulties the Government faced.

Rather, the challenges reflect long-present gaps in the planning and preparation for biological risks. The job of responding to the covid-19 pandemic was harder because insufficient attention had been paid to important capabilities ahead of time. Most notably, despite the 2018 Biological Security Strategy's emphasis on 'Detection', the Government failed seriously to consider how it might scale up testing, isolation and contact-tracing capabilities during a serious disease outbreak. It gave little pre-consideration to detection checks at the border or the availability of national laboratory infrastructure for large-scale testing. The Government appears to have doubted that a novel disease could circulate so widely, even though its 2017 Risk Register judged it 'likely' that an emerging infectious disease would affect the UK in the next five years. The pandemic also exposed vulnerabilities in the UK's supply of personal protective equipment (PPE) and its ability to tackle false or misleading information online.

There is a striking absence of leadership of the UK's biological security as a whole. Neither the National Security Council (NSC) nor the Cabinet Office provided strategic leadership in this area. The NSC sub-committee to which Government departments with responsibilities in this field are supposed to report was not re-established in this Parliament, and the auditing of departmental preparations is weak. There was only one 'tier-1' national health crisis exercise in the last decade ('Exercise Cygnus' in 2016), and this did not test important areas that were known to be critical (including Detection capabilities).

The lessons of exercises that do take place are not fully shared: the Biological Security Strategy made no mention of Cygnus, despite being published two years later. Frontline organisations—local authorities, emergency responders and Local Resilience Forums—have sometimes lacked the intelligence information and support they need from central government to carry out their role effectively.

Future biological risks to the UK will evolve rapidly, originating within or beyond its borders. These prospects encompass another serious disease outbreak, but also the 'slow burn' risk of antimicrobial resistance and the reducing barriers to the (accidental or deliberate) spread of harmful biological substances. For disease risks originating overseas, the Government's funding for global vaccine distribution is a good start.

More needs to be done at home, however, with stronger leadership and greater accountability to Parliament and the public. To address biosecurity risks, the Government should:

- publish an action plan for the Biological Security Strategy, refreshing it periodically;
- establish a dedicated National Centre for Biosecurity, to serve as a centre of expertise on the full spectrum of biological risks facing the UK; and
- continue to lead within the global health security and environment agenda, ensuring the reduction in Official Development Assistance (overseas aid) funding does not weaken programmes to strengthen health systems abroad.

To address the weaknesses in national security management, the Government should:

- introduce annual reporting to Parliament by a responsible minister on the state of national preparedness for top-tier risks in the Risk Register. This should report on: the national stockpile of critical items; surge capacity within public services; actions as a result of exercises; and the level of training ministers have received in emergency response;
- designate a task force in the Cabinet Office with explicit responsibility for assessing Departmental capabilities and resilience, as well as providing strategic collective leadership of the UK's biological security efforts;
- ring-fence multi-year funding for Government departments to support horizon-scanning and stronger preparations for major disruptive events (including biological emergencies);
- undertake a regular and inclusive programme of exercises to test the UK capabilities for responding to all tier-1 security risks, with a fixed timetable for their results to be published;
- establish a long-term plan of investment and support for frontline organisations, particularly Local Resilience Forums;
- undertake a review of how to strengthen supply chains for dealing with future emergencies, to learn the lessons of the current pandemic; and
- re-assess whether the 'tiers' system of the National Security Risk Assessment sufficiently informs preparation for individual security risks.

1 Introduction

1. A pandemic has been categorised as a highest priority 'tier-1' risk in National Security Risk Assessments since 2010.[1] The Government's National Security Capability Review in 2018 had further identified 'diseases and natural hazards affecting the UK' as one of six principal challenges likely to drive national security priorities over the coming decade.[2] Recognising a range of biological risks to the UK's security, the Government published a *Biological Security Strategy* in 2018, which aimed to coordinate a cross-government approach to biological risks, whether materialising naturally, accidentally or deliberately.[3]

2. Against that background, our predecessor Committee, recognising the importance of pandemics and other biosecurity risks, launched an inquiry into 'Biosecurity and human health' in July 2019. It published written evidence[4] and had planned its evidence-taking sessions when the inquiry was curtailed by last December's general election. When the Committee was re-established in the current Parliament, we decided to continue where that earlier inquiry had left off, but with a different focus, using covid-19, not only as an important test case for the *Biological Security Strategy* but also for the UK's system of national security oversight and governance.

Our inquiry

3. The novel coronavirus (covid-19) outbreak is most widely agreed to have started in December 2019.[5] The first identified case of someone infected with the virus in the UK was on 31 January 2020.[6] The World Health Organisation (WHO) declared covid-19 a Public Health Emergency of International Concern on 30 January,[7] and a pandemic on 12 March.[8] The UK Government introduced the first national 'lockdown' on 23 March.

4. Many select committees have conducted covid-related inquiries since the pandemic began, and we have sought to avoid duplication of their work. Instead of addressing the pandemic's management in detail, our focus has been on how well the national security machinery and planning addressed biosecurity risks *before* the pandemic struck.

5. The meaning of biological security, and its shortened form 'biosecurity', varies.[9] In this report, we make use of the Government's own definition, in which 'biological security' covers:

> protection of the UK and UK interests from biological risks (particularly significant disease outbreaks) whether these arise naturally, or through the

1 Specifically, an influenza pandemic.
2 Her Majesty's Government, National Security Capability Review (March 2018), p 5
3 Her Majesty's Government, Biological security strategy (July 2018)
4 Joint Committee on the National Security Strategy, 'Biosecurity and human health: preparing for emerging infectious diseases and bioweapons inquiry', HC (2017–19)
5 This is also the date in use by the Government. See Her Majesty's Government, Coronavirus action plan (3 March 2020), p 4
6 Two coronavirus cases confirmed in UK, BBC News, 31 January 2020
7 World Health Organisation (WHO), 'Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)' (30 January 2020)
8 WHO, 'WHO announces COVID-19 outbreak a pandemic' (12 March 2020)
9 The meaning of biosecurity differs in the human, animal and plant health sectors. See United Nations Office at Geneva, Biosafety and Biosecurity, pp 2–3

> less likely event of an accidental release of hazardous biological material from laboratory facilities, or a deliberate biological attack. These risks could affect humans, animals or plants.[10]

Within that broad field, our inquiry focused more narrowly on biological risks to human health, while recognising that the health of animals and plants directly relates to the health of humans (see Chapter 6). Put simply, risks are biological in nature if they involve organisms (or materials derived from them) that can threaten human health, for example, viruses, bacteria, fungi and other toxins.[11] Finally, our understanding of 'resilience' is as follows:

> Resilience embeds the control of risks, and readiness for and recovery from emergencies and disruption into everything we do. National resilience involves the effective coordination of capabilities and approaches across tiers of government and the wider public and private sector.[12]

6. We received 31 written submissions, including some which updated or expanded on earlier submissions to our predecessor Committee's inquiry in 2019. We took oral evidence from ten witnesses, including representatives of Public Health England and the Department of Health and Social Care, as well as the Government Chief Scientific Adviser and the Paymaster General. We are grateful to all those who gave evidence to our inquiry and to our predecessor Committee's, and for the guidance of our specialist advisers[13] and the director of the Parliamentary Office for Science & Technology, Dr Grant Hill-Cawthorne.

7. In July, we received a briefing from the Cabinet Office on the National Security Risk Assessment and the system by which it is reviewed and updated, and we took evidence from Lord Sedwill, the then National Security Adviser. These events also contributed to our inquiry.

8. In this Report we examine

- the Government's steps ahead of 2020 to identify and prepare for significant biological risks (Chapter 2);
- how important response capabilities fared when faced with the pressures of the covid-19 pandemic (Chapter 3);

10 Her Majesty's Government, Biological security strategy (July 2018), p 9

11 Biological weapons involve the deliberate and malicious use of these substances.

12 Her Majesty's Government, National Security Capability Review (March 2018), p 28

13 Specialist advisers declared the following interests. Professor Malcolm Chalmers: Deputy Director-General, Royal United Services Institute. Professor Michael Clarke: visiting professorship at King's College London (Department of War Studies); honorary professorship at University of Exeter and Associate Director of its Strategy and Security Institute; member of the Advisory Boards for Global Security Forum, Tellus Matrix and FAROS Foundation; distinguished fellow, Royal United Services Institute; fellow, Royal College of Defence Studies; consultancy with SC Strategy Ltd, Gray's Inn. Paddy McGuinness: Director and Founder of Hudhud Associates Limited; founder of Oxford Digital Healthcare; chair of trustees, St Joseph's Hospice Hackney; member of the Oxford Board of the Oxford & Cambridge Catholic Education Board; senior advisor, Brunswick Group LLC; strategic partner, C5 Capital; advisory board, Glasswall Solutions; advisory board, KAZUAR Advanced Technologies Ltd; advisory board, Pool Reinsurance. Professor Hew Strachan: Professor of International Relations at the University of St Andrews; Comité scientifique, Laboratoire de Recherche sur la Défense, IFRI, Paris; consultant for the Global Strategic Partnership (a consortium led by RAND Europe), commissioned by the Development, Concepts and Doctrine Centre, MoD; patron, British Pugwash Group; HM Lord Lieutenant, Tweeddale.

- how 'frontline' resilience at local and regional levels was supported before and during the pandemic (Chapter 4);
- the wider national security machinery underpinning the UK's biological security work (Chapter 5); and
- the rapidly evolving landscape of biological risks of the future (Chapter 6)
- As many of the issues covered in our inquiry address wider aspects of national security, we wrote to the Prime Minister in October to identify provisional lessons from our inquiry for the Government's continuing *Integrated Security, Defence & Foreign Policy Review Integrated Review* ('Integrated Review').[14]

14 Chair of the Joint Committee on the National Security Strategy, Letter to the Prime Minister, 29 October 2020

2 Getting ready–Identifying and preparing for biological risks

Dr Patricia Lewis, Chatham House—

> The first onslaught of the 2020 covid-19 pandemic illuminated significant regional and global discrepancies in regard to the state of biosecurity readiness in areas such as testing provisions, personal protective equipment (PPE), and the speed of decision-making. […] In reality few governments were fully prepared and, in years to come, almost all governments and health systems—even those that were well prepared—will ask: 'how could we have been better prepared, what did we do wrong, and what can we learn?'[15]

9. On paper, at the start of 2020, the UK expected, and was prepared for, a biological emergency—so much so that it received one of the highest scores of any country in an international assessment of the resilience of national health systems.[16] The country scored especially highly in the categories of 'detection and reporting' and 'rapid response'. However, the Government's domestic response to the covid-19 pandemic has called that readiness into question. Many contributors to our inquiry gave damning assessments of how the UK has dealt with this biological emergency in practice.[17] For instance:

- Professor Christian Enemark of Southampton University judged that covid-19 had "severely undermined" previous, positive assessments of how prepared the country was.[18]
- Dr Filippa Lentzos and Professor Michael Goodman, King's College London, believed that covid-19 was "largely anticipated but not adequately planned for".[19]
- Helen Ramscar, at the Royal United Services Institute, believed that the UK was "inadequately prepared" for the pandemic and "appears to perform less well than similar countries".[20]
- Professor Paul Rogers from Bradford University called the UK "one of the worst performing states" during the first 8 months of the pandemic.[21]

10. This Chapter explores how the Government assessed biological risks prior to 2020, and the extent of preparation it undertook as a result. With the pandemic presenting a 'test

15 Dr Patricia Lewis (BNS0008)
16 Specifically, in 2019, the UK ranked 2nd overall out of 195 countries in the 'Global Health Security Index'. This is a comprehensive assessment and benchmarking of health security and related capabilities across the States Parties to the International Health Regulations (IHR [2005]). Global Health Security Index, 'About', accessed 11 December 2020. The UK-specific results are at: Global Health Security Index, '2019 GHS Index Country for: United Kingdom', accessed 11 December 2020.
17 In addition to these examples see: Ed Arnold (BNS0028) para 1; LSE IDEAS (BNS0004) section D; School of International Futures (BNS0022), 'Expert advice does not turn into action' section.
18 Professor Christian Enemark (BNS0026)
19 Dr Filippa Lentzos and Professor Michael Goodman (BNS0025)
20 Helen Ramscar (BNS0020) paras 2, 2.1
21 Professor Paul Rogers (BNS0024)

case' for how well the systems identify and plan for risks, it focuses on the Government's preparations for a serious outbreak of infectious disease. The dangers posed by other biological risks are considered further in Chapter 6.

Identifying the risks

11. It is impossible to predict the future, but safeguarding national security requires the Government to assess which risks are most likely to materialise and what their consequences might be, as well as to take action to reduce their impacts. This is the purpose of the National Security Risk Assessment (NSRA). The Government regards the UK as a "leader in risk assessment".[22]

12. The NSRA process is the starting point for the UK's crisis planning, led by the Civil Contingencies Secretariat in the Cabinet Office.[23] The process identifies the most significant risks to the UK's security and organises them into three 'tiers', based on an assessment of both their likelihood and impact.[24] The Cabinet Office makes these judgements based on extensive intelligence and information,[25] as well as the contributions of external experts[26] and government departments. The Assessment is updated approximately every two years.[27]

13. The Government has long recognised that biological risks to human health—the focus of our inquiry—represent some of the most serious risks to the UK's national security. In varying ways, public health crises, including pandemics, were 'tier-one' risks (highest priority) in the National Security Risk Assessments of 2010[28] and 2015.[29] In 2018, the Government identified 'diseases and natural hazards affecting the UK' as one of six principal challenges likely to drive national security priorities over the coming decade, stating that:

> One or more major hazards can be expected to materialise in the UK in every five-year period. The most serious are pandemic influenza, national blackout and severe flooding.[30]

22 Her Majesty's Government (BNS0013)
23 Her Majesty's Government (BNS0013); Sir Patrick Vallance, Q34
24 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), pp 85–87
25 For biological risks, intelligence agencies collect information on deliberate threats and a wide range of other organisations currently collect information on other risks to public, animal and plant health, including Public Health England (PHE), the Department for Environment, Food and Rural Affairs (Defra), the Animal and Plant Health Agency (APHA), the Veterinary Medicines Directorate (VMD), "equivalents within the devolved administrations" and UK researchers "across the globe". See Her Majesty's Government, Biological security strategy (July 2018), p 15
26 The Government notes "a number of internal and external experts" play a role in identifying risks. It refers to these groups in written evidence: Department of Health and Social Care's New and Emerging Respiratory Virus Threats Advisory Group and the Advisory Committee on Dangerous Pathogens. See Her Majesty's Government (BNS0013).
27 Her Majesty's Government (BNS0013)
28 An influenza pandemic is under the top-tier risk of 'Civil emergencies'. See Her Majesty's Government, Securing Britain in an Age of Uncertainty: the Strategic Defence and Security Review (October 2010), paras 4.D.1 and 4.D.2
29 In 2015, a 'Public health crisis' was one of six 'tier-one' risks, and included "disease, particularly pandemic influenza, emerging infectious diseases and growing Antimicrobial Resistance". See Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), p 86
30 Her Majesty's Government, National Security Capability Review (March 2018), p 6

The Government published a Biological Security Strategy in 2018.[31] This aimed to draw together "the wide range of activity across Government" to protect the UK from biological risks, whether these occurred naturally, accidentally or as a result of deliberate attacks. The Strategy identified four main biological risks to the UK: a major health crisis (such as pandemic influenza[32]); antimicrobial resistance;[33] a deliberate biological attack by state or non-state actors (including terrorists); and animal and plant diseases, which themselves can pose risks to human health.

14. The Strategy did not draw detailed conclusions on the *likelihood* of individual biological risks materialising, other than stating that the likelihood of many worst case scenarios was "low" overall, especially those involving accidental release of hazardous biological material or deliberate attacks.[34] It did, however, identify several drivers that may increase the chance of biological emergencies over time, including greater international travel, trade and urbanisation, climate change, human encroachment into animal habitats, and others[35] (see Chapter 6 for a fuller examination of these).

15. While regarding many worst-case biological risks to be of a low likelihood, the Strategy assessed their potential *impact* as "significant".[36] These included antimicrobial resistance leading to 10 million more deaths each year globally by 2050 if no action was taken, or a major health crisis resulting in hundreds of thousands of fatalities and costing the UK tens of billions of pounds.[37] The Government saw the possible consequences from pandemic influenza as the most far-reaching and significant of such crises.

16. A public version of the NSRA (released in 2017)[38] judged that both 'pandemic influenza' and 'emerging infectious diseases' were likely to occur in the next five years (rated 4 out of 5 for likelihood), but estimated that the potential impact of pandemic influenza would be the more severe.[39] The possible impacts of pandemic influenza were assessed to include "up to 50% of the UK population experiencing symptoms, potentially leading to between 20,000 and 750,000 fatalities and high levels of absence from work". For other emerging infectious diseases, the projected impacts involved "several thousand people experiencing symptoms, potentially leading to up to 100 fatalities".[40]

17. The Government has not always been internally consistent as to whether pandemic influenza and emerging infectious diseases were equally likely to affect the UK. Whereas the 2017 National Risk Register found them to be of the same likelihood (4 out of 5), the

31 Her Majesty's Government, Biological security strategy (July 2018)
32 Pandemic influenza comes about due to a new flu virus that is markedly different from recently circulating strains. Individuals are not expected to have immunity to this new virus, meaning it has the potential to spread quickly and lead to serious illness. See Her Majesty's Government, 'Guidance: pandemic flu' (24 November 2017).
33 Antimicrobial resistance is a natural process whereby microbes evolve to be able to resist the action of drugs, making them ineffective. Resistance arises from the selection pressure that antimicrobials put on populations of microbes; essentially selecting or allowing those microbes to survive and proliferate, typically through genetic changes. This leads to antibiotics becoming less effective over time and in many extreme cases, ultimately useless. This definition is in 'The Review on Antimicrobial Resistance, Background', accessed 14 December 2020.
34 Her Majesty's Government, Biological security strategy (July 2018), p 7
35 Biological security strategy (July 2018), pp 10–12
36 Biological security strategy (July 2018), p 7
37 Biological security strategy (July 2018), p 9
38 The publicly available version is the 'National Risk Register'.
39 The expected impact of pandemic influenza was rated at the highest possible level (5 out of 5); for emerging infectious diseases the impact was assessed as 3 (out of 5). See Cabinet Office, National Risk Register of Civil Emergencies (2017 edition), p 9
40 Cabinet Office, National Risk Register of Civil Emergencies (2017 edition), p 34

Biological Security Strategy said that the worst case scenarios of many biological risks are low. Witnesses suggested that pandemic influenza was *more likely* than emerging infectious diseases to affect the UK.[41]

18. Prior to 2020, the Government had clearly identified the security risk posed by diseases, particularly pandemic influenza.[42] The combined results of National Security Risk Assessments of the last decade, the 2018 Biological Security Strategy and other recent security reviews attest to this, although the reasoning behind the separation of the risks from pandemic influenza and other emerging infectious diseases was not fully clear. The Government did less well with the difficult task of projecting the impacts of emerging infectious diseases (such as coronaviruses). For instance, Gregory Lewis of the Future Humanity Institute (Oxford University), pointed out that the potential fatalities were "under-estimated […] by over 400-fold",[43] arguing that "the benefit of hindsight is not needed to see this was a very poor assessment of a reasonable worst case scenario".[44] A former Director of the Civil Contingencies Secretariat, Bruce Mann, also drew attention to the NSRA's under-estimation of the effects of an emerging infectious disease pandemic.[45] The Government acknowledged that the consequences of covid-19 have been worse than foreseen by its risk assessments.[46]

19. **The Government's risk assessment processes correctly identified the threat posed by biological risks and classified an influenza pandemic among the highest 'tier-1' risks to the UK's security as early as 2010. With hindsight from the covid-19 pandemic, the fatalities from emerging infectious diseases specifically were substantially under-estimated. The Government did project the significant disruptive impacts of pandemic flu. However, although this should have indicated the widespread disruption that could be caused by other infectious diseases, this connection seems to have failed to have been made.**

Planning and preparing

20. The purpose of the NSRA is not only to *identify and assess* future security risks, but also to generate *actions*.[47] Specifically, the NSRA is intended to offer evidence to central government and local authorities to "inform and prioritise contingency planning".[48]

41 Explicitly by Roger Hargreaves, Q58 and implicitly by Penny Mordaunt, Q58 who stated that preparations focused on "likely scenarios". They may have implied a large outbreak specifically.

42 Both covid-19 and flu are respiratory virus infections, but there are key differences. Influenza has a shorter median incubation period (the time from infection to appearance of symptoms) and a shorter serial interval (the time between successive cases) than covid-19 virus. The serial interval for covid-19 virus is estimated to be 5–6 days, while for influenza virus, the serial interval is 3 days. This means that influenza can spread faster than covid-19. Transmission in the first 3–5 days of illness, or potentially pre-symptomatic transmission, is a major driver of transmission for influenza whereas pre-symptom transmission does not appear to be a major driver of covid-19 transmission. The reproductive number—the number of secondary infections generated from one infected individual—is understood to be between 2 and 2.5 for covid-19, higher than for influenza. (WHO, Coronavirus disease (COVID-19): Similarities and differences with influenza (March 2020))

43 The number of fatalities is now under-estimated by 600-fold. The 2017 Risk Register foresaw up to 100 fatalities from an emerging infectious disease, whereas the number of fatalities with covid-19 is currently estimated to be over 60,000. See Her Majesty's Government, 'Coronavirus (COVID-19) in the UK', accessed 11 December 2020

44 Doctor Gregory Lewis (BNS0010) paras 2.1, 2.3. The Government Chief Scientific Adviser told us that the 'reasonable worst case scenario' encompasses "something that could happen; it is not likely to happen, but it is the worst case that you think could reasonably appear" (Q35 [Sir Patrick Vallance]).

45 Oral evidence taken before the Defence Committee on 14 July 2020, HC (2019–21) 357, Q1 [Bruce Mann]

46 Her Majesty's Government (BNS0013)

47 Her Majesty's Government, Biological security strategy (July 2018), p 15

48 Her Majesty's Government (BNS0013)

The assessment is "shared with policy makers, national and operational planners, and science and technology leads" to inform their future actions.[49] As the Director of the Civil Contingencies Secretariat, Roger Hargreaves, put it, the NSRA and the National Risk Register help to:

> tell a story to a community of emergency planners around the country, and to the public at large, about the kinds of risks we are dealing with, their relative weight and how, therefore, they should be managing their work to be prepared at every level of government, not just the centre.[50]

21. Although the NSRA tells this 'story' to planners, the exact implications of a risk receiving a 'tier-1' assessment are not clear, in terms of the resourcing and preparations that this should entail. Given that pandemic influenza was seen to be the greatest disease-based risk prior to 2020, preparations focused specifically on this risk. The UK Influenza Pandemic Preparedness Strategy, released in 2011, was intended to establish:

> a UK-wide strategic approach to planning for, and responding to, the demands of a future [reasonable worst case scenario] scale influenza pandemic within which 50% of the population become ill.[51]

It outlined in detail the required 'strategic approach', including: systems for monitoring and surveillance of virus transmission in humans and animals; increasing laboratory capacity; securing vaccine access (when available); accessing supplies of clinical countermeasures (such as PPE for frontline workers and antiviral medicines for treating flu); and the use of surge plans and mechanisms to reduce pressure on primary care services.

22. Disease planning and preparations also featured in security strategies and reviews. The 2018 Biological Security Strategy highlighted the strength of the UK's day-to-day health systems to respond to a range of biological crises. The 2017 National Risk Register cited ongoing coordination to "share plans and information" across Government departments, devolved administrations, public health agencies and devolved NHS branches (although it did not explain the type of information and plans). It envisaged the following aspects would be part of the UK's response to a serious disease outbreak:

- **Detection**: The UK's specialist epidemiology and microbiology capabilities were expected to identify, characterise and respond to infectious diseases.
- **Antivirals**: The Risk Register stated that the Government would stockpile enough antiviral medicines to help treat (rather than cure) people showing symptoms during an influenza pandemic.
- **Vaccines**: Vaccines would be developed as soon as possible once new influenza strains were identified. The Risk Register estimated that this would take at least four to six months after a pandemic began.

49 Her Majesty's Government, Biological security strategy (July 2018), p 15
50 Q66
51 Her Majesty's Government (BNS0013). See also Department of Health, DHSSPS, Welsh Government and Scottish Government, UK Influenza Pandemic Preparedness Strategy (November 2011)

- **Personal protective equipment:** The Register stated that emergency responders had PPE for severe pandemics and infectious diseases, and that there were protocols for infection control before/during an incident.[52]

Similarly, the Biological Security Strategy stated that, in the case of a significant disease outbreak in the UK, day-to-day health systems would be aided by:

> extensive cross-Government response arrangements, including detailed contingency plans, to allow effective co-ordination and leadership—reinforced through a regular programme of training and exercises.[53]

23. Reflecting on the reasons behind the earlier positive assessments of the UK's preparedness for an (influenza) pandemic, Roger Hargreaves, Director of the Civil Contingencies Secretariat, told us:

> The building blocks that caused the UK to be rated highly were our surveillance and modelling systems; the awareness across the scientific community and the emergency planning population of the criticality of preparing for pandemic flu; the preparedness of our research capabilities; our business continuity capabilities; our ability to carry out advance purchase agreements of potential vaccines.[54]

The Government mainly focused on influenza in its pandemic preparations, but it had recognised the need to prepare for, and respond to, other disease types. It referred in 2015 to having "detailed, robust and comprehensive plans" and the "necessary capacity" to respond to infectious diseases "including pandemic influenza and respiratory diseases".[55] Likewise, it stated in 2017 that contingency plans existed for "many emerging infectious diseases".[56] Its Biological Security Strategy also underlined the importance of preparing for a range of disease impacts, rather than concentrating on individual diseases:

> We will continue to ensure that we have in place proportionate, flexible and well-tested plans to cover a range of biological risks. While acknowledging the specific challenges presented by particular diseases, these will (where possible) be impact focused and not focused on the characteristics of specific diseases, in order to allow an effective response to new and emerging risks.[57]

24. **At the start of 2020, the UK had detailed strategies and plans to deal with a significant disease outbreak, but these were mainly focused on pandemic influenza—seen to be the highest-impact disease risk at that time. This was reflected in the dedicated strategy for tackling an influenza pandemic, the recurrent references to influenza in the actions of the 2017 Risk Register, and in the design of the largest biological security testing exercise that occurred over the last decade, 'Exercise Cygnus' (see Chapter 5). Nonetheless, in theory, the Government understood the need not to over-focus on a single disease in its preparations. It committed in 2018 to focusing on impacts**

52 Cabinet Office, National Risk Register of Civil Emergencies (2017 edition), p 35
53 Her Majesty's Government, Biological security strategy (July 2018), p 26
54 Q59
55 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 4.131
56 Cabinet Office, National Risk Register of Civil Emergencies (2017 edition), p 35
57 Her Majesty's Government, Biological security strategy (July 2018), p 27

rather than specific disease characteristics, to enable an effective response to new and emerging risks. It also referred to other contingency plans that it had developed to prepare for infectious diseases beyond influenza.

3 How prepared core capabilities were in the face of covid-19

25. The Government told us that its initial response to the covid-19 pandemic built upon its preparations for an influenza pandemic. It gave the examples of its emphasis on good infection prevention and control practices (via advice on hand and respiratory hygiene), and its use of a draft pandemic influenza Bill in preparing the Coronavirus Act 2020 (which, amongst other things, allowed for the return of retired healthcare workers to the frontline).[58] It also said that pandemic influenza plans assisted "surveillance and modelling" (without giving details).[59] Separately, the Government stated that similarities between influenza and the covid-19 virus allowed "certain elements" of the UK's influenza pandemic preparedness plans to be tailored or adapted as part of the covid-19 response.[60] The Director of the Civil Contingencies Secretariat told us the UK used "an awful lot" of its influenza planning work.[61]

26. The Government acknowledged, however, that the pandemic's effects were worse than foreseen, and that the UK's capabilities to respond "have been and are still being rapidly scaled up".[62] Some witnesses suggested that the unknown nature of coronavirus as a disease explains the difficulties that the UK faced in responding. Lord Sedwill told us that "like everyone else", the UK was "learning about covid as we went along" and judged:

> I would not say that we did not pre-plan, but we were dealing with a disease that had characteristics different from any other disease that we had seen before and different from the pandemic flu, which was the example for which we had prepared.[63]

And Roger Hargreaves, Director of the Civil Contingencies Secretariat, explained that:

> Covid-19 has been very different because of asymptomatic transmission, the time spent in intensive care units and the absence of an immediate vaccine. It is a more straightforward process in the context of pandemic flu. […] There are lots of things that build a picture of why we were so highly regarded, but […] we were dealing with something that no one expected.[64]

27. On the other hand, some commentators underlined that some actions could be taken to prepare the response to any infectious disease,[65] thereby undermining the significance of the difference between influenza and coronavirus. Some responses to disease are 'pathogen blind', such as supportive hospital care and non-pharmaceutical interventions (like quarantine, isolation and contact tracing), even if others are 'pathogen specific' and

58 Her Majesty's Government (BNS0013)
59 Her Majesty's Government (BNS0013)
60 Department of Health and Social Care, 'Policy paper: UK pandemic preparedness' (5 November 2020)
61 Q58 [Roger Hargreaves]
62 Her Majesty's Government (BNS0013)
63 Q6
64 Q59
65 Q10 [Dr Jennifer Cole]; Dr Gregory Lewis (BNS0010) para 1.2; Oral evidence taken before the Defence Committee on 14 July 2020, HC (2019–21) 357, Q3 [Professor David Alexander]

require customisation to an individual disease, such as vaccines and therapeutics.[66] Dr Jennifer Cole believed risk should be considered in relation to its impact on individuals and society, rather than over-focusing on the "characteristics of the risk actor".[67]

28. Furthermore, although impacts on the UK were limited, highly consequential coronavirus outbreaks themselves had occurred prior to the covid-19 pandemic: the outbreak of severe acute respiratory syndrome (SARS) in 2003 and Middle East respiratory syndrome (MERS) in 2012. These diseases were less transmissible than covid-19, but with a greater fatality rate.[68]

29. Government departments receive support from the Cabinet Office to plan and prepare for civil emergencies—specifically, to build up the "capabilities" necessary to "deal with the consequences of emergencies". The Cabinet Office's 'Resilience Capabilities Programme' aims to support a "broad and generic set of capabilities" across departments, to be "applicable across multiple risk scenarios". We discuss below the level of response capabilities in practice, examining the covid-19 pandemic in three areas—detection and containment, supplies and communications.

Detection and containment

30. Detecting a disease and containing its spread are 'the basics' of good infection control. The Biological Security Strategy committed to

> rapidly and effectively detect, characterise and report the presence and nature of harmful biological material, or pest and disease outbreaks that have the potential to represent a significant risk or threat to the UK or UK interests.[69]

'Detect' is one of the four 'Pillars' of the response outlined in the Strategy. The UK has systems for detecting new risks to public health and animal health ('disease surveillance systems'), led by individual agencies and departments.[70] Public Health England responded to over 10,000 disease outbreaks and emergencies in England in 2018–19, including meningitis, measles, *E. coli* and the UK's first case of monkeypox.[71]

31. Emergency response generally requires the 'scaling up' or speeding up of existing functions.[72] In the context of the covid-19 pandemic, the UK faced significant difficulties in scaling up its testing and contact-tracing system, as documented by other select committees.[73] A point of controversy has been Public Health England's decision-making

66 Dr Gregory Lewis (BNS0010) para 1.2
67 Q10
68 Gwendolyn Gilbert, SARS, MERS and COVID-19—new threats; old lessons (May 2020)
69 Her Majesty's Government, Biological security strategy (July 2018), p 23
70 Disease surveillance systems for zoonotic diseases and possible emerging infections are respectively led by Public Health England for public health risks and by DEFRA for animal health risks. These systems aim to detect possible outbreaks and infections early, for example using "horizon scanning and epidemic intelligence activities", diagnostic techniques and risk assessments. See Her Majesty's Government (BNS0013).
71 Public Health England, Annual Report and Accounts 2018/19 (July 2019), p 11
72 Q66 [Roger Hargreaves]
73 For instance, the Commons Science and Technology Committee identified shortcomings in the UK's testing capacity and contact-tracing capabilities during the covid-19 pandemic. Specifically, it criticised the decision to focus testing within a limited network of laboratories in the early stages and concluded that the UK's limited capacity for contact-tracing had contributed to the postponement of full contact-tracing in early March. See letter from Committee Chair to Prime Minister, 18 May 2020, pp. 8–11, 13–14.

and capacity to scale up the role of tests significantly in the early stages of the pandemic. In September, the Government highlighted that, "as with most public health agencies globally, PHE has not had the at-scale response capacity we have needed to handle a full-blown pandemic".[74] Some commentators have questioned whether the abolition of Public Health England (announced in August[75]) reflected failures on testing and contact-tracing, and if so whether PHE was responsible for that.[76] Clara Swinson of DHSC doubted that any agency would have been able to "turn on" the capacity needed to do 500,000 tests a day and believed future decisions would be needed on "how much capacity you have ready to go at any time and how much you switch on".[77]

32. Dr Jennifer Cole suggested that PHE's hospital laboratory capacity had been *scaled down* prior to the covid-19 pandemic.[78] Retired microbiologists have pointed to the abolition of the Public Health Laboratory Service (PHLS) in 2003 and the Health and Social Care Act 2012 as triggers for reductions in the number of laboratories within the non-NHS network.[79] Valerie Bevan, Chair of the British Society for Microbial Technology, has similarly written that the PHLS had a network of more than 50 laboratories, but that, from 2003, this was "dramatically reduced in favour of centralisation as a cost-saving venture", which reduced capacity for large-scale testing.[80]

33. Contributors to our inquiry have questioned whether, ahead of time, the Government had considered how it might expand these capabilities after an outbreak of serious diseases, other than flu. The 2017 National Risk Register foresaw that the UK's specialist epidemiology and microbiology capabilities would play a key role in detection, by identifying, characterising and responding to infectious diseases.[81] However, industry associations ADS and CBRN-UK (whose members have chemical, biological, radiological, and nuclear detection capabilities) suggested that the Government's engagement with industry had been "patchy", and that companies' virus contamination mapping capabilities had not been used.[82] Dr Patricia Lewis from Chatham House called it a "very big failing" that the UK did not engage in population testing early in the covid-19 pandemic,[83] and Sir Patrick Vallance spoke of "flying blind" in the absence of data.[84] The LSE IDEAS Centre argued that the Government's focus on preparing for an influenza pandemic might have caused it to overlook important capabilities for detection, warning:

> Preparations for outbreaks of flu, a disease with a brief incubation period, directed more attention to hospital capacity than the infrastructure of

74 Department of Health and Social Care, 'Policy paper: The future of public health: the National Institute for Health Protection and other public health functions' (15 September 2020)
75 Health and Social Care Secretary, The future of public health, speech (18 August 2020)
76 New Statesman, Why the government is wrong to make a scapegoat of Public Health England, 19 August 2020; Economist, Britain's government axes Public Health England: A pandemic is not necessarily a great time to scrap the body charged with managing pandemics, 22 August 2020
77 Q47
78 Q2
79 Brian Duerden, Geoff Ridgway, Rod Warren, Peter Hawkey, The Laboratory Response to the COVID-19 Pandemic, p.15
80 Letters: Why the UK lacks an adequate testing system, The Guardian, 6 April 2020
81 Cabinet Office, National Risk Register of Civil Emergencies (2017 edition), p 35
82 ADS and CBRN-UK (BNS0005) para 3.1
83 Q4
84 Q57

> laboratories for testing, effective contact tracing capabilities, and local reporting systems needed for diseases with longer incubation periods that can be contained by testing and tracing contacts.[85]

34. Some contributors suggested that the Biological Security Strategy put insufficient focus to detecting and containing disease *within* the UK. Dr Opi Outhwaite said:

> The ability of diseases to spread globally is not limited to any particular areas of the world […]. This is not an issue that can be viewed as happening in 'other' parts of the world. It is not clear that this understanding was fully internalised prior to covid-19.[86]

The LSE IDEAS Centre similarly argued that the Biological Security Strategy was over-focused on controlling diseases in other countries.[87] Professor Christian Enemark pointed out that, while vaccines and drugs are considered part of the response to a disease in the Strategy ("pharmaceutical responses"), there was limited consideration of non-pharmaceutical actions that the public might need to take, with no reference to terms such as 'social distancing', 'lockdown', 'isolation' or 'quarantine'.[88]

35. There have been no large-scale exercises to test the UK's detection and containment capabilities in the case of a disease outbreak since 2010 (see Chapter 5).

36. The Biological Security Strategy's 'Detect' pillar only mentions the role of border detection in the context of animal health and plant health.[89] Dr Outhwaite criticised the UK's demarcation between public health policies and animal health policies, which manifested in the "limited interaction" between the 2011 Pandemic Preparedness Strategy and the 2018 Biological Security Strategy.[90] She pointed out that the animal health sector has valuable expertise in pre-entry and point-of-entry detection checks, but the UK made limited use of this, with few attempts to pursue pre-entry health checks or consider a quarantine for entrants in the early stages of covid-19. This, she argued, made it harder to undertake a rapid assessment of first cases and their contacts.[91] The combination of high travel volumes, few restrictions on international arrivals and a lack of testing allowed covid-19 (SARS-CoV-2) to be introduced to the UK on at least 1,300 separate occasions by the time of the first lockdown.[92]

37. The Biological Security Strategy emphasised the importance of early disease detection efforts.[93] Professor Paul Rogers complained that the Government did not do enough to detect or contain the virus in January and February 2020, despite the WHO's warning of human-to-human transmission risks on 13 January.[94] Dr Cole also questioned whether the UK's plans were "focused more on taking the hit" than on preventing a spread in the number of cases—seeing "massive gaps in prevention planning" in terms of case identification.[95]

85 LSE IDEAS (BNS0004) para D2
86 Dr Opi Outhwaite (BNS0030)
87 LSE IDEAS (BNS0004) paras D1, D2
88 Professor Christian Enemark (BNS0026)
89 Her Majesty's Government, Biological security strategy (July 2018), p 23
90 Dr Opi Outhwaite (BNS0030)
91 Dr Opi Outhwaite (BNS0030)
92 Louis du Plessis et al, Establishment & lineage dynamics of the SARS-CoV-2 epidemic in the UK (October 2020)
93 Her Majesty's Government, Biological security strategy (July 2018), p 14
94 Professor Paul Rogers (BNS0024)
95 Dr Jennifer Cole, Qq1, 3

38. In 2015, the Government stated that it had learned lessons from biological incidents overseas, including the Ebolavirus outbreak.[96] Some witnesses believed, however, that the importance of test, trace and isolate systems—shown by previous outbreaks of SARS and Ebola—was not one of those lessons.[97] Others underlined that there were limits on the validity of such transnational comparisons.[98]

39. **We recognise the Government's significant efforts during the covid-19 pandemic to scale up the UK's detection and containment capabilities—in the form of test, trace and isolate systems. However, that task was made harder by a failure to consider how these critical capabilities might be scaled up ahead of time, including detection checks at the border and pre-assessing the availability and adequacy of national laboratory infrastructure for large-scale testing. It is regrettable that these capabilities were not covered in any large-scale testing exercises since the classification of pandemics as a 'tier-1' security risk was made in 2010.**

40. **The failure to plan for the expansion of the detection and containment capabilities may have been the result of an undue focus on an influenza pandemic, rather than diseases with a longer incubation period. It is also, we believe, because the Government continued to doubt that a novel disease could circulate so widely in the UK, despite the 2017 National Risk Register judging it 'likely' that an emerging infectious disease would affect the UK in the next five years, and the 2018 Biological Security Strategy identifying multiple drivers that would have made an outbreak more—not less—likely.**

Supply chains

41. Before the current pandemic, the UK Government made commitments to stockpile 'clinical countermeasure' items for a serious disease outbreak. Clinical countermeasures include antiviral treatments, personal protective equipment (PPE) and ventilators. Some items will be relevant to multiple diseases and are 'pathogen blind', such as hospital care (including critical care) and infection prevention and control.[99] The Biological Security Strategy stated in 2018 that the UK maintained appropriate stockpiles of clinical countermeasures for diseases of concern and worked to ensure these were as flexible as possible to provide effective coverage for a wide range of potential scenarios.[100] The Government also told our predecessor Committee in September 2019 that there was PPE in all NHS Trusts.[101] In our current inquiry, the Government said that DHSC collaborates with Public Health England, NHS England and the devolved administrations to guarantee "an appropriate UK stockpile of medicines, consumables and vaccines to deal with specific risks".[102]

42. However, according to a June 2020 report by the National Audit Office, the Government was unable to overcome shortages of PPE in the early stages of the covid-19 pandemic. The Government's steps to secure the supply of oxygen, ventilators and other breathing aids

96 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 4.131
97 Q18 [Professor Harman]; Q1 [Dr Jennifer Cole]
98 For example, Professor Colin McInnes, Q29; Penny Mordaunt, Q59; Lord Sedwill, Q5; Mr Ed Arnold (BNS0028).
99 Dr Gregory Lewis (BNS0010) para 1.2
100 Her Majesty's Government, Biological security strategy (July 2018), p 26
101 Written evidence received by Joint Committee for Biosecurity and human health inquiry, Session 2017–19, Her Majesty's Government (BHH0015) para 38
102 Her Majesty's Government (BNS0013)

allowed the NHS to meet the initial peak in demand for respiratory support in hospitals. But the NAO warned that a focus on PPE stockpiling for an influenza pandemic led to the omission of critical items such as gowns and visors.[103] Helen Ramscar told us that there were also shortages of particular medicines.[104] Several other contributors also highlighted critical gaps in the UK's supplies of PPE, exposed by the pandemic.[105]

43. The Government acknowledged the challenges it faced on PPE. It explained that, during March, there was a "huge surge" in demand for PPE globally, so that market power moved "decisively in favour of the suppliers" and that some countries banned PPE exports altogether.[106] The Paymaster General told us that the wide demand for PPE across virtually all sectors was not planned for.[107] There had been challenges in ensuring sufficient PPE for frontline workers, such as care workers[108] and police officers.[109] Some witnesses identified a lack of clear responsibility for PPE provision for health and social care staff within private sector providers.[110] Sir Lawrence Freedman described it as a "serious charge" whether the Government could have done more to build up its stocks of PPE.[111] Many contributors to our inquiry made detailed proposals for how the UK's national stockpiles of critical supplies could be improved.[112]

44. The Government is now taking steps to strengthen the resilience of its supply chains, including by rapidly expanding the domestic production of PPE. In December 2020, the Government reported to us that it was now sourcing PPE from a wide range of countries[113] (reducing reliance on any single country), and that 70% of PPE supplies needed for the period to March 2021 would be produced domestically, up from 1% before the pandemic.[114] The Minister thought the response from community organisations and private companies in changing production lines to produce materials was "incredible",[115] although the NAO more recently highlighted the uncompetitive nature of many of the procurements which went to untried suppliers.[116] There may also be questions in future over the sustainability of re-deployed production lines.

45. **Although, ahead of the covid-19 pandemic, the Government assured our predecessor Committee about PPE stockpiles, many frontline workers experienced**

103 National Audit Office. Readying the NHS and adult social care in England for COVID-19. HC 367, Session 2019–2021, Summary

104 Helen Ramscar (BNS0020) para 2.8. Specifically, she cites sedatives (propofol), opioid painkillers (fentanyl and alfentanil), muscle relaxants, and drugs for critically-low blood pressure.

105 Dr Patricia Lewis, Q2; Dr Jennifer Cole, Q2; Emergent BioSolutions (BNS0007) paras 10–13; ADS and CBRN-UK (BNS0005) para 4.3; Hamish de Bretton-Gordon (BNS0012).

106 Letter from the Government Legal Department on Claim No. CO/2144/2020, The Queen on the application of (1) The Good Law Project (2) EveryDoctor Limited v Secretary of State for Health and Social Care and Crisp Websites Limited (trading as Pestfix) (1 July 2020)

107 Qq58, 62

108 National Audit Office. Readying the NHS and adult social care in England for COVID-19, HC 367, Session 2019–2021 (12 June 2020), Summary

109 Professor Karl Roberts (BNS0002)

110 Penny Mordaunt, Q62; Dr Jennifer Cole, Qq2, 8

111 Sir Lawrence Freedman (BNS0018) para 13

112 Emergent BioSolutions (BNS0007) para 10; Dr Patricia Lewis (BNS0008); ADS and CBRN-UK (BNS0005) para 4.3; Dr Beyza Unal and Mr Ben Wakefield (BNS0009)

113 These countries were China, Malaysia, Thailand, the US, Canada, Germany, Sweden, Saudi Arabia, South Africa, and Turkey.

114 Cabinet Office (BNS0033)

115 Q62

116 National Audit Office, Investigation into government procurement during the COVID-19 pandemic (13 November 2020) paras 18–20. HC 959, Session 2019–21

shortages in the early months of the pandemic. The Government's focus was on preparing for an influenza pandemic, but perhaps more significantly it did not anticipate the scale of international competition for insufficient supplies in a global pandemic and how UK supply chains were vulnerable as a consequence.

46. ***The Government should undertake a review of how it strengthens its supply chains for dealing with future emergencies. It should seek to learn the lessons of the current pandemic, which may include more on-shoring of manufacturing capacity in PPE and other equipment, greater advance stockpiling or pre-negotiated competitive supply contracts. It should also clarify where responsibility lies for PPE provision for healthcare delivered by private sector companies.***

Communications

47. Strategic communications are integral to the UK's national security.[117] Having "accurate, clear and timely messaging" can lead to positive behavioural change and "save thousands of lives" during security crises.[118] In 2012, the Government published a detailed communications strategy, to be followed in the case of an influenza pandemic, which served as guidance for health-related communication in the run-up to a pandemic, during a pandemic and during the recovery phase.[119] Its main aims were to explain the outbreak, to establish confidence in the Government and health and social care services to prepare and manage a response, and to minimise the risk of infection. It committed to creating a full social media strategy, to reach "as wide an audience as possible". It foresaw Local Resilience Forums (which we discuss in Chapter 4) planning the delivery of communications in their areas. The Communications Strategy noted the importance of the UK Government and the devolved administrations "operating within a cooperative framework".[120]

48. The report of Exercise Cygnus—an influenza pandemic exercise in 2016 (see Chapter 5)—should also have informed the communications approach during covid-19. That report was not published until 2020, so that what it found and recommended was not open to public scrutiny until now.

49. The Cygnus report found that the public reaction to a reasonable worst case pandemic influenza scenario was not sufficiently understood and that policy decisions in the exercise (for instance on mass burials and 'population triage') did not consider the range of possible public responses to their implementation.[121] The Cygnus report recommended the development of pandemic communications plans to give "necessary reassurance" and "adequate levels of information" to the public.[122] It underlined the importance of

117 Her Majesty's Government, National Security Capability Review (March 2018), p 34
118 Her Majesty's Government (BNS0013)
119 Department of Health, DHSSPS, Welsh Government and Scottish Government, UK Pandemic Influenza Communications Strategy 2012 (December 2012)
120 Department of Health, DHSSPS, Welsh Government and Scottish Government, UK Pandemic Influenza Communications Strategy 2012 (December 2012) pp 3–8, 11, 16
121 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p8
122 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 17

coordinated messaging to the public from the (then) Department of Health, NHS England, PHE and the devolved administrations.[123] A communications focus group run as part of the Exercise offered other lessons, for instance:

> a lack of trust in projections, the requirement of messages to avoid jargon, the choice of spokespeople and the desire for information to allow the public to make decisions about how best to protect themselves.[124]

The Cygnus report praised the communications at local level, which were seen as "more attuned" to the needs of their audiences.[125]

50. It is difficult to make a complete assessment of the degree to which the Government has followed its 2012 Communications Strategy and the lessons from Exercise Cygnus during the current pandemic, and thereby to draw inferences about the Government's communications preparedness. Aspects of the 2012 Strategy do appear, however, to have been put into practice during the pandemic, for instance:

- the involvement of Chief Medical Officers and other health professionals in regular press briefings;
- the use of GOV.UK and public health sites to share guidance; and
- the use of media tracking and market research (polling, focus groups, online viewing figures) to monitor the effectiveness of Government messaging.[126]

The Government told us that it used weekly audience and behavioural insights to adjust the messaging of its communications campaign and complement policy responses, allowing it to reach 95% of the UK population on average 15 times a week. The Government also underlined the high recall of its communications, ranging from 75% to 95%, including for the 'Hands, Face, Space' campaign.[127]

51. Other aspects in the 2012 Communications Strategy are harder to assess, for instance the content of any social media strategy (if one exists) and whether the Government and the devolved administrations have been "operating within a cooperative framework" (given the differing policy responses that they have adopted at key moments; see Chapter 4).

52. Some contributors to our inquiry underlined the importance of taking into account the public behavioural aspect in communications. Dr Cole said that this is separate from communicating "how the virology, the particle physics or the hard, natural science of it works", because it involves considering the right messaging for a particular country, or even a given city, sector or age group. She acknowledged the complexity of doing this, at a time of "trying […] to give a message that is broadly acceptable to most of the population and that will lead to most of them doing the right thing".[128] Security

123 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 18
124 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 20
125 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 19
126 Her Majesty's Government (BNS0013)
127 Cabinet Office (BNS0033)
128 Q11

Lancaster[129] similarly argued that providing greater scientific information to the public may not in itself be sufficient to change their views.[130] This perhaps reflects the limits of basing a communications strategy on 'following the science' alone. A survey of covid-19 experts in April 2020 highlighted concerns over the behavioural science evidence base of the Government's communications,[131] although the Government has since told us that it employs communications professionals with a diverse range of skillsets, including those specialised in behavioural science.[132]

53. External commentators have reached mixed assessments of the success of the Government's approach to risk communication. Some have judged it "good" on information-sharing or to have hit the 'sweet spot' in their public messaging.[133] Others have been more critical. A survey of covid-19 experts in April 2020 catalogued more than 100 concerns, including unclear messages and inconsistencies between different parts of Government; uncertainties over the legal obligations of the public; potentially unequal coverage of communities (for instance less access for people with English as a second language); difficulties in adapting recommendations in light of new evidence; and sometimes inaccurate reporting in the media.[134] Our witnesses pointed to the lack of coordinated messages across the four nations of the UK.[135] Professor Colin McInnes judged this as "incredibly confusing, particularly for people who cross borders [within the UK] on a regular basis".[136] Professor Frederic Bouder, an expert in risk communication, believed that the UK had had a less coherent approach to communications than other countries, and believed it was possible to have differing constitutional arrangements and messaging, provided that there is "some clear co-operation and a fairly united front".[137] While it is reasonable for there to be disagreement amongst scientists as the evidence base evolves, the sometimes different views released by members of the Scientific Group for Emergencies (SAGE) may also not have helped produce a single communications message.

54. The Government told us that it has made use of bespoke communications for hard-to-reach audiences and its media partnerships allow for "47 BAME publications" and the translation of "core marketing materials" into 10 different languages, with a further nine languages available on request, and full accessibility formats.[138]

55. The C19 National Foresight Group at Nottingham Trent University, surveying local responders during the period to September, warned of an erosion of national integrity and trust in communications. They noted criticisms about "rhetoric, over-promising and timing (where late night national announcements created negative impacts on the

129 Security Lancaster is affiliated with Lancaster University. It researches 'socio-technical security', addressing sociological, behavioural and legal considerations alongside technical threats.
130 Security Lancaster (BNS0016)
131 This survey was held between 3 and 30 April and run by the Parliamentary Office of Science and Technology (POST). More than 1,100 experts took part. Full results and further information: POST 'Media, communications and COVID-19: What are experts concerned about?' (21 May 2020)
132 Her Majesty's Government (BNS0013)
133 Hamish de Bretton-Gordon (BNS0012); Oral evidence taken before the Defence Committee on 14 July 2020, HC (2019–21) 357, Q3 [Dr Jennifer Cole]
134 This survey was held between 3 and 30 April and run by the Parliamentary Office of Science and Technology (POST). More than 1,100 experts took part. Full results and further information: POST 'Media, communications and COVID-19: What are experts concerned about?' (21 May 2020)
135 Professor McInnes, Q23; Professor Bouder, Qq21, 23, 32; Professor Harman, Q32
136 Q26
137 Qq21, 23, 32
138 Cabinet Office (BNS0033)

relationship with the public)".[139] The local responders had advocated greater humility in communications, more straightforward language, open dialogue and a return to weekly or fortnightly briefings in England during the second wave of the disease. They also favoured clearer communication of the Government's overall strategy for managing the pandemic.[140] Professor Frederic Bouder emphasised the importance of using "channels of trust", for example trusted third parties such as specialist patient groups were more likely to be believed than government.[141]

56. The importance of social media in pandemic communications was recognised by the Government as early as 2010.[142] The 2012 Communications Strategy outlined elements of a social media strategy, such as signposting individuals to "authoritative information" on social media to avoid the spread of false or misleading information, and the establishment of external partnerships as the basis for "digital engagement work". It envisaged setting up pathways for "proactive participation in online forums, message boards and so on".[143] Professor Colin McInnes did not believe the UK Government had the necessary skill or agility to use social media effectively, based on its response to the earlier swine influenza and Ebola outbreaks. He underlined how difficult it is for governments to respond to the fast-moving world of social media narratives during emergencies. He cited the positive example of Public Health Wales, which had been considering social media strategies "as a completely different media form from traditional media strategies" and working not only to partner with influencers but also to "use geo-tagging to identify particular communities", for instance in the case of localised outbreaks.[144]

57. Our witnesses pointed to the threat of misinformation and disinformation[145] online, particularly anti-vaccination misinformation on social media. Paul Schulte warned of an 'infodemic'[146] and called these mis/disinformational problems a "serious British vulnerability", with malign actors undermining the credibility of governmental responses.[147] He praised the diagnostic and warning role played by the EU Disinformation Lab.[148] Some experts responding to a survey in April also judged that the Government could

139 C19 National Foresight Group, Communications and the Covid-19 pandemic: Rapid insights from practitioners and research (September 2020) pp 5–6

140 C19 National Foresight Group, Communications and the Covid-19 pandemic: Rapid insights from practitioners and research (September 2020) pp 6–8

141 Q23

142 Dame Deirdre Hine, The 2009 Influenza Pandemic: An independent review of the UK response to the 2009 influenza pandemic (July 2010) p 16

143 Department of Health, DHSSPS, Welsh Government and Scottish Government, UK Pandemic Influenza Communications Strategy 2012 (December 2012) pp 13, 24

144 Qq23–24

145 Security Lancaster (BNS0016); Hamish de Bretton-Gordon (BNS0012); Paul Schulte (BNS0032); School of International Futures (BNS0022). Schulte draws on the work of Claire Wardle to provide these definitions of misinformation and disinformation: 'Misinformation': unintentional mistakes such as inaccurate dates, captions, statistics, and misunderstood, yet all the more passionately espoused scientific theories, believed for sociopsychological reasons. Misinformation can also cover ostensible satire, deliberately misrepresented to avoid censorship, and sometimes weaponizing context rather than content, so that originally ironic memes become interpreted seriously. 'Disinformation': fabricated or deliberately manipulated, content, including "fake news" and "fake faces". This often relies upon intentionally created conspiracy theories or rumours, intended to be recirculated in good faith.

146 The World Health Organisation defines an infodemic as "an overabundance of information, both online and offline. It includes deliberate attempts to disseminate wrong information to undermine the public health response and advance alternative agendas of groups or individuals". WHO, 'Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation' (23 September 2020). Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC.

147 Paul Schulte (BNS0032). Further examples and research given in this submission.

148 See EU DisinfoLab (accessed 14 December 2020)

be doing more to call out misinformation and limit its spread.[149] During the pandemic, false or misleading information has circulated about several aspects of coronavirus, most commonly on social media.[150]

58. Security Lancaster warned that misinformation could affect covid-19 vaccination efforts in the long term.[151] Penny Mordaunt told us that:

> We stood up a special unit in the Cabinet Office that is focused on those malicious messages [relating to the anti-vax movement]. It is busy, very sadly, but it is about spotting where that is taking place and ensuring that it is combated and dealt with in the appropriate way. The flip side of that is to ensure that we have good communications ourselves and are retaining public confidence.[152]

Some witnesses repeatedly emphasised that the importance of public trust to tackling misinformation effectively online.[153] Professor Bouder wanted to see "Attenboroughs of vaccination" and more inclusive debate; and wanted international and national health authorities to take more seriously the staffing capacity within social media work.[154]

59. **During the covid-19 pandemic, the Government appears to have put into practice aspects of its influenza pandemic communications strategy from 2012. Other parts of that Strategy require fuller implementation, including operating within a "cooperative framework" with the devolved administrations. It is also not evident that the Government has updated its approach to biological security communications on social media since 2012.**

60. ***A clear social media plan needs to be formulated, not only to make use of such channels in a positive way, but also to counter the effects of misinformation and disinformation circulating online. Maintaining public trust in the Government's overall handling of the pandemic should be an integral part of the Government's social media strategy. The recently established unit in the Cabinet Office to tackle anti-vaccination misinformation represents a good start.***

Overall conclusions

61. **We accept that the novel features of covid-19 would have caused difficulties for any government, and we recognise the hard work and dedication shown by essential workers, civil servants and local responders in responding to the crisis. While the Government has been scaling up critical response capabilities, we are not convinced that the unique nature of covid-19 fully explains the difficulties the Government faced.**

149 This survey was held between 3 and 30 April and run by the Parliamentary Office of Science and Technology (POST). More than 1,100 experts took part. Full results and further information: POST 'Media, communications and COVID-19: What are experts concerned about?' (21 May 2020)

150 POST, 'COVID-19 misinformation' (23 April 2020)

151 Security Lancaster (BNS0016). According to the submission, relevant research is taking place via the Centre for Corpus Approaches to Social Science project, Quo VaDis and its results will feed into initiatives to fight claims/tactics that are reducing levels of vaccination.

152 Q62

153 Professor McInnes, Q24; Professor Bouder, Qq24–25

154 Q24

62. **The job of responding to the covid-19 pandemic has been made harder by insufficient attention being paid to establishing necessary capabilities ahead of time. The Cabinet Office's Resilience Capabilities Programme is supposed to encourage departments to develop a "broad and generic set of capabilities" that will be "applicable across multiple risk scenarios". However, some critical capabilities for a tier-1 security risk have either not been considered and/or focused on the needs of a specific risk scenario (an influenza pandemic). The most striking example of this is the UK's 'Detection' capabilities. Despite the Biological Security Strategy emphasising the importance of 'Detection' and learning from health emergencies elsewhere, the Government failed seriously to consider how it might scale up testing, isolation and contact-tracing capabilities during a serious disease outbreak on UK territory. It is difficult to avoid the impression that the Government simply did not believe a novel disease other than influenza could circulate widely within the UK.[155] To varying extents, the pandemic has also exposed vulnerabilities in the UK's strategic supply chains for PPE and its social media communications capabilities.**

63. ***The Government should introduce annual reporting to Parliament by a responsible minister—such as the Chancellor of the Duchy of Lancaster—on the state of national preparedness for top-tier risks in the Risk Register. This should be compiled in consultation with industry experts on supply chains. The report to Parliament should be prepared by a new task force that we recommend below, with responsibility for resilience capabilities and for leading the UK's biological security efforts (see paragraph 99). The task force should regularly report on:***

a) ***the national stockpile of critical items (including their condition, suitability for use and applicability across a range of risk scenarios) and the domestic manufacturing capacity of strategic supplies;***

b) ***surge capacity within relevant public services;***

c) ***lessons learned and actions taken as a result of drills, table-top exercises and other exercises (which we discuss in Chapter 5);***

d) ***its approach to coordination with the devolved administrations and local government, and the adequacy of arrangements in each Local Resilience Forum area (see Chapter 4);***

e) ***the level of capacity-building and training undertaken by ministers in emergency response and crisis management (see paragraph 94); and***

f) ***any other actions taken to improve preparedness and resilience.***

We expect that sensitive security information could be shared with us, and potentially also with other parliamentary committees, in confidence.

155 On problems with 'unthinkability' in Government, see Think Unthinkable Ltd (BNS0023)

4 Resilience on the 'frontlines'

> Strategic Defence & Security Review 2015—
>
> The UK's resilience depends on all of us–the emergency services, local and central government, businesses, communities and individual members of the public.[156]

64. We discussed in Chapter 3 how the covid-19 pandemic has tested central Government's systems for emergency preparedness. But it has also affected the resilience of frontline responders, at the local and regional levels. This Chapter considers how they have been supported ahead of time, and during the pandemic.

Devolved administrations

65. The responsibility for the preparations for, and response to, an emergency in Scotland, Wales or Northern Ireland depends on whether or not the emergency relates to a devolved or reserved matter.[157] In areas of reserved responsibility, the UK Government's relevant lead department will lead the response, working closely with the devolved administrations. Each devolved administration has arrangements to coordinate the response to aspects of emergencies for which it is responsible. In the case of the "most challenging emergencies"—especially those that affect the UK as a whole—there are "established arrangements for linking the UK Government's emergency coordination structures with those of the devolved administrations, to ensure that we have a coordinated response."[158] A tension arises where the UK Government's 'retained' responsibility for national security impinges on Departments' managing remits that are devolved—health, business regulation, transport, local authorities, and so on.

66. Since the covid-19 pandemic began, there have been different approaches by the different administrations to some aspects of its management, including most notably on social restrictions and lockdowns. There has been a continuing dialogue between the response bodies across the administrations, as Lord Sedwill explained to us in July.[159] There have been some tensions, nevertheless, about where the demarcations lie, with claims for example of the Scottish government not having been consulted by the UK government on decisions and a failure of some public announcements early in the crisis to make clear which applied to the UK as a whole and which only to England. There will inevitably be a continuing debate about the merits of the different approaches and the importance of maintaining national responsibilities and accountabilities—which is as much about constitutional considerations as about national security effectiveness.

Local and frontline resilience

67. The Government described local government's legal responsibility for emergency planning:

156 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 4.128

157 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 4.133

158 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), paras 4.133–4.134

159 Q8

> The Civil Contingencies Act provides a common framework for preparedness activity, putting a duty on emergency planners and responders to identify and assess the risks of emergencies affecting the area in which they operate. The National Security Risk Assessment provides the basis for the work the local tier conducts to identify potential risks and prepare plans for either preventing or mitigating their impact of incidents locally.[160]

Local/regional work to plan for emergencies is coordinated via Local Resilience Forums (LRFs) in England and Wales, Regional Resilience Partnerships in Scotland, and Emergency Preparedness Groups in Northern Ireland (we refer to 'local resilience forums' throughout). These serve as multi-agency partnerships with representatives from a range of local public services, including the emergency services, local authorities, the NHS and Environment Agency local teams. Both the Civil Contingencies Secretariat in the Cabinet Office and the Ministry of Housing, Communities and Local Government offer local partners guidance with their planning and preparations work.[161]

68. The 2015 Strategic Defence and Security Review gave particular prominence to the role of LRFs, highlighting that the response to, and recovery from, an emergency is carried out "first and foremost at the local level". It committed to better coordination between the local and national levels of response and greater support for organisations involved in response planning "to share and apply learning from exercises and real-life events".[162]

69. The report on the 2016 Exercise Cygnus in 2016 (see Chapter 5), found uneven levels of resilience and limited capacity in some areas to surge resources into excess death management, and health and social care. The report called for more national-level operational guidance to 'scale up' the local response. It also proposed that regional-level planning in key areas may support multi-agency working locally. Given what happened in the early stages of the covid-19 pandemic, the Cygnus report also presciently noted that:

> Local responders raised concerns about the expectation that the social care system would be able to provide the level of support needed if the NHS implemented its proposed reverse-triage plans, which would entail the movement of patients from hospitals into social care facilities. […] Because of the complexity and potential impact of a pandemic influenza response […], consideration should be given to developing support to the local response in the following areas: excess death planning, social care and health.[163]

70. In the 2018 National Security Capability Review, the Government again committed to improving local resilience, identifying further ways of understanding and assuring local resilience and readiness. It stated that the Cabinet Office was collaborating with LRFs to identify good practice, and would continue to develop a set of Resilience Standards to:

> set expectations, help Local Resilience Forums assess themselves, and act as a basis for assurance and continuous improvement.[164]

160 Cabinet Office (BNS0033)
161 Cabinet Office (BNS0033)
162 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), paras 4.128, 4.145–4.147
163 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 9
164 Her Majesty's Government, National Security Capability Review (March 2018), p 28

Lord Sedwill told our predecessor Committee in 2019 that the Government had set up a resilience standard for LRFs following a major flu exercise (presumably, Exercise Cygnus – see Chapter 5) and no-deal Brexit planning had served as a test of their capabilities.[165] Subsequently, in July 2020, he told us that these preparations allowed LRFs "to respond, for example reprioritising hospital beds and so on, to ensure that they had sufficient capacity to deal with covid".[166] He told us how LRFs had improved and had become more consistent:

> It would not be unfair to characterise the LRFs as having been quite uneven a few years ago. Some were well constituted. […] In other places, they barely ever met. People did not know each other and they did not have those relationships of trust and confidence, which are so important […] However, partly as a result of Cygnus and other exercises—which involved a lot of effort, including a lot of training, by the Civil Contingencies Secretariat, […]—the LRFs were already improving over several years. […] Generally, I think that they have worked pretty well but […] of course we must ask ourselves whether there are lessons that we can learn.[167]

71. The Cabinet Office minister Michael Gove told the Commons Public Administration and Constitutional Affairs Committee in April that the role of LRFs had become "even more important in dealing with this crisis" and foresaw a future need to consider the "architecture" of LRFs.[168]

72. Some of our witnesses highlighted problems arising from the protracted nature of the ongoing covid-19 pandemic. The C19 National Foresight Group at Nottingham Trent University highlighted a problem of fatigue, with local responders having had

> little respite for nearly a year. Large sections of teams have not had leave as there are limited people who can cover absences. This also means they have not had time to grieve, rest, or spend time with their families.[169]

They recommended that the Government should undertake a public sector skills audit to identify capability needs and capacity gaps, in order to "help mitigate the adverse impacts of extended working for responders and support staff and their families".[170] They warned that LRFs

> have run out of people, resources and spare capacity as they are now managing so many elongated demands. For example, the SCG Chair role, or the LRF Chair role are now discussed as being full time roles. This also relates to health, the health service is not pausing scheduled demand during

165 Oral evidence taken on 28 January 2019, HC (2017–19) 625, Q54; Written evidence, HC (2017–19) 625, (NSA0003), March 2019

166 Q11

167 Q13

168 Oral evidence taken before the Public Administration and Constitutional Affairs Committee on 29 April 2020, HC (2017–19) 118, Qq198, 206

169 C19 National Foresight Group, Nottingham Trent University Covid-19 Pandemic: Third Interim Operational Review (September 2020)

170 C19 National Foresight Group, Nottingham Trent University Covid-19 Pandemic: Third Interim Operational Review (September 2020)

> the second wave. This means that capacity of people and NHS service will be reduced as there is likely to be no reduction in demand. There is no extra capacity across the whole system to release to increase capacity.[171]

More positively, the C19 National Foresight Group's discussions with local responders in September showed an improving situation on information-sharing between the local and national levels (previously a challenge). Regional and local responders reported that interactions with the Joint Biosecurity Centre had:

> facilitated sharing of local knowledge and information at a sub-national/ regional level across the Local Authority and Local Resilience Forum structures. It was felt that the JBC had access to significantly better and relevant data and information, which was a clear advantage. The JBC was endorsed as bringing a broader perspective to discussions including aspects of wider societal response.[172]

73. Dr Jennifer Cole raised a concern about the capacity of some personnel in LRFs who when faced with a protracted crisis like covid-19 were "likely to be completely overworked and over-burdened during their day job, just at the time that their surge capacity is needed". She highlighted the model of Israel where emergency services had a cadre of volunteer staff (supplementing professional staff) who were able to provide some surge capacity.[173]

74. The LSE IDEAS Centre were concerned about the effects of "significant reductions in funding and capabilities" at local government level which could have hindered the implementation of plans.[174]

75. Some witnesses highlighted friction in the interaction of central and local structures, in part a result of unclear demarcations. The LSE IDEAS Centre highlighted "gaps between the national strategic approach and the local operational approach", due partly to a failure to consider how outcomes and priorities might differ across nations, regions and local communities. The UK response to covid-19 reflected "over-centralised and improvised decision-making".[175] They believed that some local structures (in local government, PHE and the social care system) lacked sufficient institutional capacity and decision-making authority to carry out functions linked to procurement, testing and contact-tracing, which they judged undermined the UK's resilience. They also criticised the Government for not making sufficient use of existing institutions and capabilities:

> In preference to utilising existing institutions, the UK Government set up large new organisations for testing and contact tracing, involving the hiring and training of thousands of people. The same principle was applied for technological solutions, with the Government choosing to develop its own app for contact tracing. In light of this experience, an important principle

171 C19 National Foresight Group, Nottingham Trent University, Communications and the Covid-19 Pandemic: Rapid insights from practitioners and research (September 2020)

172 C19 National Foresight Group, Nottingham Trent University Covid-19 Pandemic: Third Interim Operational Review (September 2020)

173 Oral evidence taken before the Defence Committee on 14 July 2020, HC (2019–21) 357, Q8 [Dr Cole]

174 LSE IDEAS (BNS0004) para D2

175 LSE IDEAS (BNS0004) paras D4, D9

> of resilience should be to make better use of the people, organisations and capabilities already in place–a lesson that was already apparent from the Ebola crisis.[176]

The C19 National Foresight Group recommended in September that, to provide clarity for all stakeholders, the Government should "commission an independent body to work with local decision-makers to produce 'wiring diagrams' of the local, regional and national structures, clearly showing the information and decision-making flows between key stakeholders".[177]

76. LSE IDEAS complained that the Biological Security Strategy had little detail about implementation, or the continuous follow-up required at all organisational levels, including in local government and between devolved administrations, for ensuring that strategic objectives are carried out. They urged that exercises in resilience should pay closer attention to establishing and sustaining working relations and coordination between Government departments and agencies and between national, regional and local levels.[178] Professor Sophie Harman told us that the role of local authorities did not receive enough attention in relation to biosecurity emergencies, given their responsibility for social care, food networks and provisions of supplies.[179]

77. We put these issues to our witnesses from Government. Clara Swinson, from the Department of Health and Social Care, explained that it was the responsibility of each Government department to plan against the scenarios in the National Security Risk Assessment, in terms of the tasks needed at national, regional and local levels, for those risks.[180] The Cabinet Office is responsible for notifying LRFs about the risk assessment's 'tiers' analysis, along with "any guidance about which ones to focus on". The Government highlighted, however, that the UK's resilience model is based on "subsidiarity" and the NSRA and National Risk Register "support LRFs to develop their own local understanding of risk, prioritise resources and plan effectively for critical risks".[181] Roger Hargreaves from the Civil Contingencies Secretariat explained that:

> We do not chase things down to the nth degree. Ultimately, local authorities are responsible in law for their own emergency areas. We can be certain that we have given them access to lessons from Exercise Cygnus […]. Whether they take that, and then translate it into planning for an individual care home, is a matter for them. […] We carried out surveys to understand the extent to which local authorities had absorbed these lessons. We had a group with local authorities and local resilience forums that explored, between 2018 and 2019, how they were taking the lessons on board. We are not in the business at the moment of looking for those absolute guarantees. We look to build a system that gives people access to the information, but the accountability in law and the local democratic accountability sits with them.[182]

176 LSE IDEAS (BNS0004) paras D6–9
177 C19 National Foresight Group, Nottingham Trent University Covid-19 Pandemic: Third Interim Operational Review (September 2020)
178 LSE IDEAS (BNS0004) paras A4, B1, D17, C1
179 Q27
180 Q39
181 Her Majesty's Government (BNS0013)
182 Q69

78. The Government recognised that in the current pandemic "local authorities and local resilience forum partners are under an awful lot of pressure".[183] Penny Mordaunt told us:

> We have very good feedback loops in place with local authorities and local resilience forums. We have embedded liaison officers and, particularly at moments of peak activity, we very quickly stood up liaison officers in all the LRFs, so that we had a very good picture of what the additional strains were and where we felt there were areas that might be under particular strain.[184]

The Cabinet Office explained that it had published a National Resilience Standard for LRFs in December 2019.[185] Early in the pandemic, the Government had also set up an 'LRF covid-19 Task Force' to assess LRFs' preparedness for covid-19 and to identify the support they needed.[186]

79. **Organisations at the local level—in particular local authorities, Local Resilience Forums and community organisations—form the 'frontline' of planning for, and response to, emergencies. We recognise the work done by the Government to improve consistency and good practice locally, including the 2019 National Resilience Standard. However, LRFs are under significant pressure due to the protracted nature of the covid-19 emergency (rather than the short-term emergencies that LRFs are intended to deal with). During the current pandemic, they have sometimes lacked the necessary intelligence, data and support from central government to carry out their role effectively.**

80. ***Building on the National Resilience Standard, the Government should establish a long-term plan for investment in and support for organisations in local and community resilience, particularly Local Resilience Forums. This plan should focus on:***

a) ***formalising intelligence- and data-sharing arrangements, both between central government and LRFs and between the four nations;***

b) ***incentivising regular local exercises (see paragraph 106) to test the strength of multi-agency relationships and responses, and monitoring the progress and outcomes of these exercises;***

c) ***providing adequate resources over the long term to local authorities for LRF emergency response preparation work and for undertaking exercises, through ring-fenced funding;***

d) ***working with local authorities and other emergency-response bodies, considering how to strengthen career pathways and retention of emergency managers and others in resilience; and***

e) ***exploring the scope for establishing a 'reservist' cadre of previously deployed LRF staff, along the lines of military reservists and (now under discussion) 'NHS reservists'.***

183 Q68 [Roger Hargreaves]
184 Q68
185 Cabinet Office (BNS0033)
186 Cabinet Office (BNS0033

The public health connection

81. Some witnesses underlined that domestic resilience against a range of biological risks directly relates to the strength of the UK's healthcare system and the health of its population. For instance, Dr Patricia Lewis, Director of the International Security Programme at Chatham House, told us that:

> The best defence and deterrence against [biological weapons] is a high-functioning public health system—a healthy community and a responsive, highly vaccinated and prepared public health system. Then, if you get attacked, you are able to cope with it, but mostly you will not get attacked because there will be no point. That is the huge lesson […] from the Biological Weapons Convention, and I never felt that it was fully understood in government circles as much as it could have been.[187]

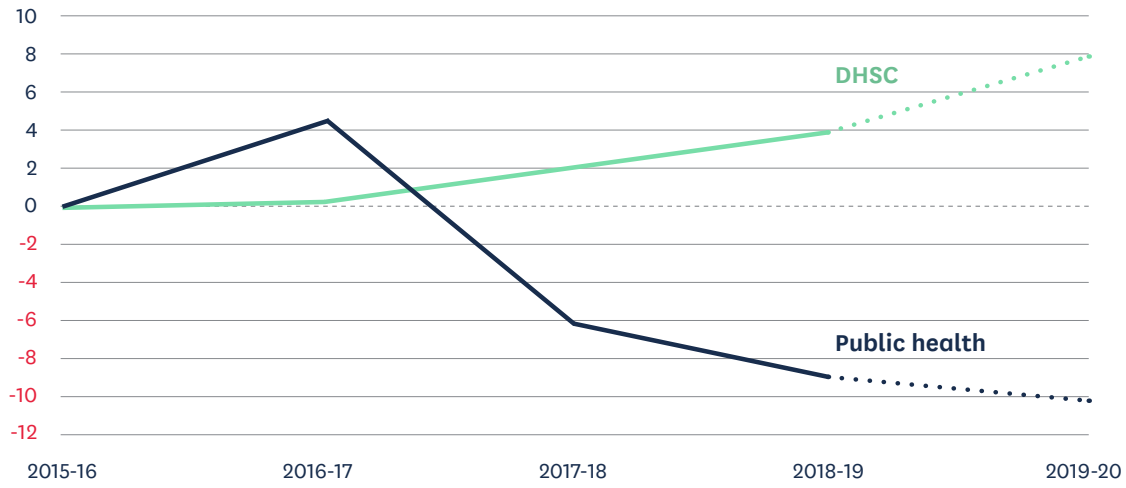
Dr Jennifer Cole made a similar point, noting that prevention is better than cure and reflecting, in the context of the covid-19 pandemic, that the people who have been hit the hardest are those with health conditions.[188] Promoting greater public health was seen generally to reduce the impact of biological risks when they materialise.

82. Most public health spending is undertaken by local authorities. Analysis undertaken by the House of Commons Scrutiny Unit shows that there have been nominal and real-terms reductions in local authority public health budgets between financial years 2015–16 and 2018–19. The Figure and Table below show the real terms changes in central government spending on Public Health (PHE and ring-fenced local authority grants) and total DHSC spending (England only). Whilst DHSC spending has been increasing, this has been primarily focused on the NHS, whilst public health spending has been squeezed; there was a £118 million reduction in spending between 2015–16 and 2018–19, driven by reductions to local authority grants (see the Table below for further information). Similarly, the House of Commons Library estimates that between 2016–17 and 2018–19 there was effectively a 9.3% reduction in public health grants per capita, contributing to a 2.3% reduction in local authority spending on public health from 2013–14 to 2017–18.[189]

187 Q7
188 Dr Jennifer Cole (BNS0021)
189 House of Commons Library Debate Pack, Opposition Day Debate: Health and local public health cuts, 13 May 2019 CDP 2019/0121

Figure: Central government spending on public health in England has fallen since 2015–16

Real terms percentage change in DHSC expenditure



Source: DHSC Annual Report and Accounts 2018–2019, HMT GDP deflators at market prices (September 2020)

Table: DHSC Annual Report and Accounts 2018–2019 core table data

£ million	2015-16 Outturn	2016-17 Outturn	2017-18 Outturn	2018-19 Outturn	2019-20 Outturn	Growth rate 2015-16 to 2018-19
Nominal						
Public Health England	859	929	893	956	1,078	11%
Local Authorities (Public Health)	3,226	3,443	3,106	3,011	2,932	-7%
Public Health Total	4,085	4,371	3,999	3,967	4,010	-3%
DHSC Total	118,362	121,587	125,888	131,220	139,522	11%
Real terms (2019-20 prices)						
Public Health England	939	991	936	979	1,078	4%
Local Authorities (Public Health)	3,526	3,672	3,255	3,085	2,932	-13%
Public Health Total	4,465	4,662	4,192	4,064	4,010	-9%
DHSC Total	129,361	129,676	131,939	134,425	139,522	4%
Public Health as proportion of DHSC	3.5%	3.6%	3.2%	3.0%	2.9%	

Source: DHSC Annual Report and Accounts 2018–2019, HMT GDP deflators at market prices (September 2020)

Note: Figure and Table show combined Resource and Capital Departmental Expenditure Limits (DEL). Resource DEL includes depreciation and therefore DHSC Total will not equal official Total DEL, which excludes depreciation. 2019–20 figures show planned expenditure only; outturn figures will be published in the DHSC Annual Report and Accounts 2019–20, but publication has been delayed due to covid-19.

83. In August 2020, the Government announced that it would abolish Public Health England, and replace it with a National Institute for Health Protection. This new body is expected to bring together national capabilities to protect individuals from a range of external health threats and bring together the operational capabilities for the response to covid-19.[190] In future, there would be new separate governance arrangements for some of the health improvement and prevention responsibilities of PHE.[191]

190 Health and Social Care Secretary, The future of public health, speech (18 August 2020)

191 Department of Health and Social Care, Policy paper: The future of public health: the National Institute for Health Protection and other public health functions (15 September 2020)

84. **Health promotion and health protection go hand in hand. Ongoing actions to improve the health of the UK population and to strengthen the national health and social care system will decrease the impact of biological risks that materialise. Safeguarding the UK's high-quality domestic systems will also enable a more confident and credible role in leading the global health security agenda.**

85. ***As the structures of the new National Institute for Health Protection are finalised in the coming months, following the abolition of Public Health England, the Government must ensure that the creation of the new body does not weaken wider health promotion activities, which themselves further biological security objectives. The Government should undertake exercises which test the NIHP's role in future potential emergencies as soon as the current pandemic has abated.***

5 Strategy leadership

The division of responsibilities

86. Although the Cabinet Office provides support to departments to prepare for biological risks and identify the necessary capabilities (see Chapter 3), the day-to-day responsibility for biological security sits across several Government departments and agencies, as well as with the devolved administrations and planners at the regional and local level (see Chapter 4). Most relevant to our inquiry, the Department of Health and Social Care (DHSC) prepares for disease outbreaks amongst the public, aiming to "understand the public health threats we face, prevent these where possible, rapidly detect any that occur, and respond effectively to disease outbreaks".[192] Additionally, other Government departments and agencies—such as the Home Office, the Department for Environment, Food & Rural Affairs and the Foreign, Commonwealth and Development Office—act to prepare for biological risks that affect their areas of responsibility.[193]

87. There can be good reasons for such a split. Having a lead Government department for a particular area can increase accountability to Parliament and the public, as well as encourage the department to take its emergency planning duties seriously.[194]

88. The 2018 Biological Security Strategy did not aim to duplicate the existing work of departments and other organisations, but rather to "ensure that a cross-Government approach to biological security is maintained".[195] To coordinate that work, the Strategy foresaw a new governance board to oversee cross-departmental commitments.[196] It stated that the board would be composed of representatives from the following departments:

- **Home Office**
- **DHSC (including Public health England representation)**
- **Defra (including Animal and Plant Health Agency representation)**
- **Agri-Food and Biosciences Institute**
- **MOD (including Dstl representation)**
- **FCDO (including the Science and Innovation Network) [now part of the Foreign, Commonwealth and Development Office]**
- **BEIS**
- **Department for International Development [now part of the Foreign, Commonwealth and Development Office]**
- **Government Office for Science**
- **Cabinet Office**
- **Health and Safety Executive**
- **Office for Life Sciences**
- **Department for International Trade**
- **The devolved administrations**

89. The Government told us that there is a two-tier governance structure for implementing the Strategy: a senior Governance board and a Working Group. It said that these enable

192 Her Majesty's Government, Biological security strategy (July 2018), p 39
193 Her Majesty's Government, Biological security strategy (July 2018), pp 39–40
194 Roger Hargreaves, Q66
195 Her Majesty's Government, Biological security strategy (July 2018), p 37
196 Her Majesty's Government, Biological security strategy (July 2018), p 7

relevant departments, agencies and devolved administrations to work together.[197] The governance board had met twice since the publication of the Strategy, and the working group "much more frequently" (approximately 12 times).[198]

90. The National Security Council (NSC) is intended to act as the "main forum for collective discussion of the Government's objectives for national security".[199] The Biological Security Strategy envisaged that its governance board would report to the Threats, Hazards, Resilience & Contingencies subcommittee of the NSC. The Government Chief Scientific Adviser, Sir Patrick Vallance, had 'direct oversight of the Strategy's outcomes',[200] although Sir Patrick himself suggested to us that this was not a highly active role.[201] That NSC sub-committee has not been re-established in this Parliament.[202] Although the NSC's new covid-19 sub-committees ('covid-19 strategy' and 'covid-19 operations') may have absorbed some of this remit, it is not clear where final accountability now lies for activities to tackle other pressing biological risks, not least pandemic flu, other emerging infectious diseases, antimicrobial resistance and the release of biological agents. We note that the Government's written submission to our current inquiry has significantly less detail on governmental activity on biological risks beyond pandemics than its submission to our predecessor Committee's earlier inquiry.[203]

91. Some contributors to our current inquiry were concerned about what they saw as insufficient leadership of the UK's overall biological security work, and ineffective cross-departmental working. Major General Jonathan Shaw—with previous experiences of the Cabinet Office Briefing Room (COBR) system—warned of an absence of direction from the centre of Government in response to cross-departmental crises. Instead of direction, he identified an "accumulation of departments", each with its own agenda and ambitions as they competed for resources. He compared Whitehall to a "polo mint", with a hole at the centre.[204] Similarly, the School of International Futures argued that, while there is good quality "expert advice and threat assessment" in the UK, preparedness "falls down in the cross-departmental responses and coordinating interventions across the local, national and international levels".[205] They warned that, despite a 2013 review which enhanced cross-government horizon scanning,[206] there was "little evidence" that this form of monitoring was "taken sufficiently seriously at a senior level to be systematically converted into policy and resourced in contingency planning other than by the Civil Contingency Secretariat."[207]

92. The LSE IDEAS Centre argued that current strategies—such as the 2015 Strategic Defence and Security Review, the 2018 National Security Capability Review and the Biological Security Strategy—had over-focused on abstract high-level coordination

197 Her Majesty's Government (BNS0013). This evidence also refers to a Pandemic influenza Readiness Board, which aims to improve cross-Government work on preparedness for a future (flu) pandemic. This Board is chaired by the Cabinet Office and the Department of Health and Social Care, and includes representatives of the Devolved Administrations.

198 Clara Swinson, Qq36–37

199 Her Majesty's Government, 'National Security Council', accessed 14 December 2020

200 Her Majesty's Government, Biological security strategy (July 2018), p 7

201 Sir Patrick told us that this role specifically involves reviewing and commenting upon an annual progress report. Sir Patrick Vallance, Q38

202 Her Majesty's Government, 'List of Cabinet Committees' (19 November 2020)

203 Compare Her Majesty's Government (BNS0013) and written evidence received by Joint Committee for Biosecurity and human health inquiry, Session 2017–19, Her Majesty's Government (BHH0015)

204 Major General Jonathan Shaw (BNS0019) para 10

205 School of International Futures (BNS0022)

206 Cabinet Office, Policy paper: Review of Cross-Government Horizon Scanning (21 January 2013)

207 School of International Futures (BNS0022)

between departments, but not enough on the operational response.[208] It proposed that future resilience exercises should pay greater attention to "developing, refining and normalising the working practices" for security and resilience, warning that "these links can atrophy or become ineffective rapidly if not regularly exercised and refreshed".[209]

93. Some witnesses warned that preparations for future crises may fall off departmental agendas, especially at times of financial pressure or when these is limited external auditing or scrutiny.[210] Individual departments are responsible for deciding how much resource to dedicate to preparations for biological (and other security) risks. As Lord Sedwill explained, individual Secretaries of State must "balance off their pure departmental responsibilities and the national risks for which they are responsible".[211]

94. Roger Hargreaves rejected the idea that departments' biological security work does not undergo scrutiny. He told us that:

> We [the Civil Contingencies Secretariat] push and prod departments all the time on their full range of risks to ensure that they have active plans in place. Ultimately, the responsibility sits with them, but we can offer quite a lot of support as well as push pretty hard. There are plenty of examples at any given time of where we are pushing departments to make sure that they have things in good shape for emerging risks.[212]

Penny Mordaunt, however, told us that the Cabinet Office could have a "more robust role in ensuring that the right things are being done". For her, one of the lessons of covid-19 was "not to allow departments to mark their own homework" but rather for the Cabinet Office to act as a "critical friend" to "ensure the robustness of plans and exercises". She also supported greater capacity-building amongst ministers and a more "methodical approach" to supporting them to respond to crises.[213]

95. Reflecting on possible problems with investment in biological security preparations, Helen Ramscar judged that:

> The UK talked a good talk about pandemic preparedness but this does not appear to have translated into deep dives across departments to anticipate far-reaching ramifications and invest. There were warnings of the sheer scale. One assessment of the impact and cost of the 2003 SARS outbreak […] put the cost to China alone at US$6.1 billion.[214]

To avoid a tendency for preparations to "fall prey to financial cuts", Dr Patricia Lewis from Chatham House recommended a requirement on Government to report annually to Parliament on the state of national preparedness, including exact levels of stocks of essential materials and the number of drills, exercises and simulations organised.[215] This

208 LSE IDEAS (BNS0004) paras B1, D17
209 LSE IDEAS (BNS0004) paras A4, C1
210 Dr Patricia Lewis (BNS0008); Dr Jennifer Cole, Q3
211 Lord Sedwill, Q9
212 Roger Hargreaves, Q69
213 Penny Mordaunt, Qq64, 70
214 Helen Ramscar (BNS0020) para 2.12
215 Dr Patricia Lewis (BNS0008)

was endorsed by Dr Filippa Lentzos and Professor Michael Goodman of King's College London.[216] The Government Chief Scientific Adviser and the Medical Director for Preparedness at PHE saw a need for greater spare capacity and contingent capabilities.[217]

96. The National Audit Office concluded in September 2020 that the civil service can improve how it undertakes contingency planning, for example having robust contingency plans for high-impact scenarios that could reasonably occur, even if some "may not be the desired outcome" (referring in this case to EU Exit preparations).[218]

97. The absence of the NSC sub-committee on Threats, Hazards, Resilience and Contingencies raises questions for the UK's wider Resilience Capabilities Programme, given that this sub-committee bears ultimate responsibility for the programme.[219] This sub-committee was intended to bring "greater senior oversight of the UK's security and resilience".[220] Ensuring robust oversight of contingency planning across the civil service is consistent with the 'Fusion Doctrine', which aims to improve the UK's "collective approach to national security".[221] Establishing clear lines of leadership may also help to overcome some contributors' suggestions that the Government has at times 'hid behind' or been a passive recipient of the work of others—such as the technical experts within the Scientific Advisory Group for Emergencies.[222]

98. **There is a striking absence of strategic leadership of the UK's biological security work as a whole. Several Government departments have an important role in preparing for biological risks to the UK's security, but the NSC sub-committee ('Threats, Hazards, Resilience and Contingencies') to which departments are supposed to report no longer exists. Neither the National Security Council nor the Cabinet Office provides sufficient collective strategic leadership of departments' work to address biological risks. This governance gap, it seems to us, may also affect other cross-departmental security challenges, beyond the biological sphere. Without stronger direction from the centre of Government, we are concerned that long-term planning activities integral to the UK's biological security and other cross-departmental challenges may drop off departmental agendas (particularly at times of financial pressure), or remain in departmental silos despite the objectives of the Fusion Doctrine. The failure to re-appoint the relevant NSC sub-committee may also undermine the Resilience Capabilities Programme, for which this sub-committee was previously responsible.**

99. ***The Government should designate a task force within the Cabinet Office with explicit responsibility for assessing departmental capabilities and resilience, as well as providing strategic collective leadership of the UK's biological security efforts. Such a task force should:***

a) ***monitor operational progress on the commitments in the Biological Security Strategy, and act as a 'critical friend' to departments. Assessing the information reported annually by the Strategy's governance board would be the starting point for its work;***

216 Dr Filippa Lentzos and Professor Michael S. Goodman (BNS0025)
217 Sir Patrick Vallance, Q57; Professor John Simpson, Q57
218 National Audit Office, Learning for government from EU Exit preparations (4 September 2020)
219 Cabinet Office, 'Guidance: Preparation and planning for emergencies' (30 May 2018)
220 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 4.129
221 Her Majesty's Government, National Security Capability Review (March 2018), p 3
222 For example, Sir Lawrence Freedman (BNS0018) para 4; Professor Bouder, Q23

b) ***identify ministers' training requirements for dealing with all types of emergencies; and***

c) ***have an explicit audit role to check that all relevant departments and agencies actually implement planned emergency response capabilities (or ensure that the National Security Council fulfils that role).***

100. ***The Government should ring-fence funding for Government departments to undertake horizon-scanning and preparedness activities to strengthen their resilience to a range of major disruptive events (including biological emergencies). Such funding should cover a multi-year period to avoid artificial incentives to undertake only smaller (annual) exercises, rather than larger/non-annual exercises. The Civil Contingencies Secretariat and Government Office for Science should continue their advisory role, working proactively with the NSC in monitoring risks. They should also review how their risk horizon-scanning work can best support the creation of SAGEs as particular emergencies materialise.***

Biological security in national security planning and exercises

101. Many contributors to our inquiry were concerned by the ways biological risks to human health are treated within wider security planning processes, relative to other areas of national security. Hamish de Bretton-Gordon, an expert on chemical and biological weapons, described biological security as the "poor relation" of other security domains, such as cyber-security.[223] The LSE IDEAS Centre argued that tier-1 health risks had been under-examined in past national security reviews.[224] Only two out of 89 commitments in the 2015 Strategic Defence & Security Review explicitly related to public health risks.[225] By way of comparison, actions to address cyber threats, another tier-1 risk, involved 12 commitments.[226] Similarly, Ed Arnold of The D Group pointing out that the Biological Security Strategy was "delivered two years behind schedule".[227] He stated that available evidence suggests "other risks and threats were prioritised" over public health risks. He speculated that the UK's "recent and direct" experience of the other five tier-1 threats in the National Security Risk Assessment might have led to a "failure of imagination" when planning for a pandemic's impacts.[228] Professor Sophie Harman highlighted how health security is separated out from wider security objectives:

> A distinct Biological Security Strategy is welcome, but exacerbates the separation between health security and wider UK security priorities. Lack of integration between 'traditional' threats—intelligence, conflict, peace—and 'new' security threats such as pandemics, runs the risk of health emergencies falling between the cracks of two governance systems or a privileging of specific threats, issues, and actors over others.[229]

223 Hamish de Bretton-Gordon (BNS0012); see also Professor Sophie Harman (BNS0011) para 5

224 LSE IDEAS (BNS0004) para D13; Dr Jennifer Cole, Q2

225 This point is made by LSE IDEAS (BNS0004) para D13. However, this contributor counts only one commitment *directly* related to health, whereas our Committee count two commitments. Those commitments related to providing response assistance abroad and producing a Biological Security Strategy. See commitments 43 and 70 in Her Majesty's Government, National Security Capability Review (March 2018), pp 46–49

226 Commitments 1, 29–37, 75, 83.

227 Ed Arnold (BNS0028) para 2. The Strategic Defence and Security Review 2015 committed to the publication of a biological security strategy in 2016.

228 Ed Arnold (BNS0028) paras 1, 8

229 Professor Sophie Harman (BNS0011) para 5.3

102. Security risks encompass a mixture of accidental and natural events (hazards), and malicious attacks (threats). In July, the then National Security Adviser, Lord Sedwill, told us that threats may have been prioritised at the expense of hazards in security planning. He explained that government typically organises itself around threats such as state-based threats or terrorist threats, even though natural hazards can have "more severe consequences than any of the classic national security threats".[230] Dr Jennifer Cole told the Defence Committee that there had been a general under-resourcing of preparedness activities for 'non-man-made threats', ever since threats and hazards began to be separated in the National Risk Register.[231]

103. We asked the House of Commons Scrutiny Unit to compare spending on the six 'tier-1' security risks identified in 2015.[232] However, it was not possible to draw definitive conclusions about the relative spend on hazards and threats. Analysing spending on these priorities is complicated, and most risk areas are open to interpretation of where the spending boundary lies.[233]

104. An important way of judging whether preparedness decisions are well-founded is through testing exercises and drills. The Government calls exercises at the national and local level an "essential element of the Government's resilience and preparedness programme".[234] It described these as a way of ensuring plans are "fit for purpose" and exercises can identify potential gaps or issues in a planned response.[235] They also fulfil a training and quality assurance function.[236]

105. The Government also has statutory responsibilities in relation to assuring 'readiness' for health emergencies, telling us that:

> The NHS England Emergency Preparedness, Resilience and Response (EPRR) Framework, sets out that providers and commissioners of NHS funded services must show they can effectively respond to major, critical and business continuity incidents whilst maintaining services to patients. NHS England has an annual statutory requirement to formally assure its own and the NHS in England's readiness to respond to emergencies. The Civil Contingencies Act 2004 and the NHS Act 2006, as amended by the Health and Social Care Act 2012, underpin EPRR within health. Both Acts place EPRR duties on NHS England and the NHS in England [but not on the devolved administrations].[237]

106. Large-scale cross-government pandemic preparedness exercises (see below) occur "at regular intervals". At the local level, it said that resilience arrangements are "routinely

230 Lord Sedwill, Q14
231 Oral evidence taken before the Defence Committee on 14 July 2020, HC (2019–21) 357, Q2 [Dr Jennifer Cole]
232 In the 2015 Strategic Defence and Security Review, these six risks were: Terrorism, International military conflict, Cyber, Public Health, Major natural hazards and Instability overseas. See Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), pp 85–86
233 For example, spending on terrorism could be considered solely through the budget of/spending by the Office for Security and Counter-Terrorism (OSCT). However, spending on the wider police is also likely to have an impact on the terrorism risk; and it may be considered that not all OSCT spending is specifically on the terrorism threat.
234 Cabinet Office (BNS0033)
235 Department of Health and Social Care, 'Policy paper: UK pandemic preparedness' (5 November 2020)
236 Roger Hargreaves, Q69
237 Cabinet Office (BNS0033)

and regularly exercised".[238] By far the largest cross-departmental biosecurity exercise in the last decade was 'Exercise Cygnus': a three-day 'command post' exercise led by Public Health England in October 2016, which tested England's ability to work at the peak of a pandemic influenza outbreak involving over 950 people. The Government gave us details of other exercises on biological security,[239] as well as non-biological emergencies.[240] Although the Government has also committed to local-level and sector-specific exercises, we do not have data on the number of such exercises that have occurred.

107. A report of the results of Exercise Cygnus has been made public (after a 4-year delay and following its leaked publication in the media earlier this year), but limited information is available on the results of the other biological security exercises shared by the Government, meaning it is not possible to assess their scope, participation levels, or results.

108. Exercise Cygnus exposed important gaps in the UK's capabilities for responding to a serious disease outbreak—a scenario in which a pandemic influenza outbreak affected 50% of the population and could cause 200,000–400,000 excess deaths. The exercise report judged that:

> The UK's preparedness and response, in terms of its plans, policies and capability, is currently not sufficient to cope with the extreme demands of a severe pandemic that will have a nation-wide impact across all sectors.[241]

It highlighted a need for a central repository of information to cover the preparedness and response of the multiple sectors involved, highlighting that "individual organisations' responses rely on a corporate memory of the 2009 H1N1 influenza response"[242] which was being lost.[243] It recommended legislative adjustments to assist with the response to any 'worst case scenario pandemic' and an improvement to the understanding of likely public reactions. It also warned that the capability and capacity to surge resources into key areas was sometimes lacking and recommended further support to build up the local response in the areas of excess death planning, social care and health.[244]

109. Exercise Cygnus was a large-scale and complex cross-sector exercise, involving national and local activity, of a kind that "usually take[s] at least a year to plan".[245] Penny Mordaunt explained to us that such large exercises are infrequent due to the "enormous

238 Her Majesty's Government (BNS0013)

239 Smaller biological security exercises relevant to human diseases were: a ministerial exercise in February 2020, directed by the CCS with PHE's support; an exercise in 2019 within the Scientific Advisory Group for Emergencies (SAGE) to test the process and advice for responding to a zoonotic animal disease outbreak (2019); and an exercise on Ebola Medevac arrangements. There was also an animal health exercise in 2018 to test an outbreak of Foot and Mouth disease. In addition, the Government also told us of two exercises prior to 2010 to test the UK's resilience to an influenza pandemic. Cabinet Office (BNS0033); Her Majesty's Government (BNS0013)

240 These included exercises to prepare for the UK's withdrawal from the European Union (2019), a national electricity supply failure (2018 and 2020), flooding, and a severe weather event (2017). SAGE has also run exercises linked to a civil nuclear accidents (2018) and malicious radiological release (2018). The Government said that this list is indicative, not comprehensive. Cabinet Office (BNS0033)

241 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 6

242 H1N1 influenza was popularly called swine flu. See NHS, 'Swine flu (H1N1)', accessed 14 December 2020.

243 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), p 7

244 PHE, Exercise Cygnus Report. Tier One Command Post Exercise: Pandemic Influenza. 18 to 20 October 2016 (2017), pp 6–9

245 Cabinet Office (BNS0033)

efforts" needed to run them.[246] Beyond tier-1 exercises, "officials regularly undertake exercises for a range of threats and hazards". The Minister explained that devolved administrations run their own exercises in areas of devolved competence, and take part in tier 1 exercises, where relevant.[247] Professor Simpson from Public Health England told us that exercises are "based on the national risk assessments and what NHS England, the DHSC and we [PHE] regard as the highest and most pertinent threats at the time".[248] Penny Mordaunt said that in recent years there have been fewer large exercises and "less opportunity for Ministers to rehearse what they might be required to be involved in".[249]

110. Cygnus was designed to cover certain stages of a pandemic response (Treatment, Escalation) and did not include others (Detection, Assessment, Recovery).[250] In other words, Cygnus did not test the rollout of personal protective equipment or ventilators, nor did it appear to exercise testing capacity or any test-and-trace detection system. Professor Simpson from Public Health England had been directly involved in Exercise Cygnus, and underlined for us the challenge of undertaking "long-term stress testing", because it was not possible to take people out of their jobs for a month to participate.[251] Clara Swinson from the Department of Health and Social Care believed that the UK is "undoubtedly in a better position" as a result of Exercise Cygnus, but added that "people have reasonable questions about […] whether [some] things should have been tested, including at a local level".[252]

111. Aspects not covered in Exercise Cygnus mean that the Detection, Assessment and Recovery stages of a pandemic response have not been tested in any large-scale exercise since at least 2010 (if ever). Accordingly, as the Minister told us, at the start of the covid-19 pandemic, the Government had not tested for "extreme pressures on global supply chains and PPE", nor had it considered how public sector systems might integrate with those of private sector providers.[253] She added that unique aspects of coronavirus were "not well planned for", for example the highly infectious nature of the disease and the broad demand on PPE across virtually all sectors. The stockpiling of clinical countermeasures and the development of surveillance and testing capabilities (discussed in Chapter 3) were "not central to the exercises that had been done".[254]

112. The process for implementing and sharing the results of exercises is not clear. The report of Exercise Cygnus was not published until 2020 (four years after the exercise), and although it was circulated to the participating departments and LRFs "quite soon" after being produced, the individual Ministers who participated "may not have been sighted on

246 Penny Mordaunt, Q69
247 Cabinet Office (BNS0033)
248 Professor Simpson, Q55
249 Penny Mordaunt, Q69
250 Five phases of pandemic response are identified in the UK Strategy for responding to an influenza pandemic. These are summarised in Department of Health and Social Care, 'Policy paper: UK pandemic preparedness' (5 November 2020). These stages are **detection** (beginning from when the WHO declares a pandemic, or sooner based on "reliable evidence"); **assessment** (beginning which the first patient in the UK with the pandemic strain of influenza is identified); **treatment** (when the disease spread has not been contained and there is a focus is on treating cases and responding to more patients); **escalation** (when service delivery arrangements are adjusted to meet pressures on services and wider society); **recovery** (when, following the peak of the pandemic, there is emphasis on returning services to normal, restoring business, and planning for, preventing and responding to a possible second 'wave").
251 Professor John Simpson, Q55
252 Clara Swinson, Q56
253 Penny Mordaunt, Q58
254 Penny Mordaunt, Q58

the report at the time" (due to individuals moving on from their posts).[255] Ed Arnold from The D Group questioned why Exercise Cygnus received no mention in the 2018 Biological Security Strategy, despite its significance.[256] Similarly, we note that a relevant exercise held in Scotland in 2018[257]—which focused on Middle East Respiratory Syndrome (MERS-CoV) and identified potential problems with PPE availability and community testing—may not have been fully taken on board by the UK Government.[258]

113. Roger Hargreaves told us that there is debate over how open the results of exercises should be. In the case of Cygnus, the Secretariat sought a balance between actively sharing results with participants and interested organisations, while keeping them closed enough to protect the "safety and the honesty that you get [from participants] in exercises" and to safeguard sensitive security information.[259] The Government told us that it did learn the lessons of Exercise Cygnus and that lessons had informed the preparation of draft legislation for future influenza pandemics (across Government and with devolved administrations); helped departments to strengthen resilience in their sectors; led to the establishment of an expert advisory group on the "moral, ethical and faith considerations" before and during a pandemic; established better health and care plans to "flex systems and resources"; and generated best practice through a new Resilience Standard for Local Resilience Forums.[260] Cygnus prompted work to develop pandemic response capabilities in acute care, community care and adult social care.[261]

114. Many contributors were supportive of the role exercises play in testing capabilities and preparing the country for biological (and other) emergencies, but also suggested that such exercises required greater priority.[262] Ed Arnold of The D Group criticised the six-year gap between the identification of the public health security risk in 2010 and the first large-scale exercise.[263] The LSE IDEAS Centre pointed out that the WHO recommends annual exercises to test biosecurity plans.[264] They advocated regional and local resilience exercises to model the impacts of diseases and other biosecurity risks across the country, led by local authorities.[265]

115. **The Government's programme of biosecurity exercises is inadequate. There has only been one 'tier 1' national biosecurity exercise in the last decade (Exercise Cygnus), and because of its size it was decided not to test several important capabilities critical for a pandemic response. Holding more exercises would, between them, allow all capabilities to be covered. We are concerned that the results and lessons of exercises are not fully shared; Exercise Cygnus was not even mentioned in a Biological Security Strategy published only two years later.**

255 Penny Mordaunt, Q69; see also Roger Hargreaves, Q69
256 Ed Arnold (BNS0028) para 6
257 'Exercise Iris' was run by the Scottish Government Health Protection Division in 2018 to test the readiness of NHS Boards in Scotland to respond to an outbreak of Middle East Respiratory Syndrome (MERS-CoV). This involved a table-top exercise over a single day between emergency responders. Scottish Government, Exercise Iris (12 March 2018).
258 For instance, see Coronavirus: Outbreak exercise showed 'clear gap' in readiness, BBC News, 5 June 2020.
259 Roger Hargreaves, Q69
260 Her Majesty's Government (BNS0013)
261 Department of Health and Social Care, 'Policy paper: UK pandemic preparedness' (5 November 2020)
262 Dr Patricia Lewis (BNS0008); School of International Futures (BNS0022); Ed Arnold (BNS0028) paras 5, 7; Dr Filippa Lentzos and Professor Michael S. Goodman (BNS0025); LSE IDEAS (BNS0004) paras A1–A6
263 Ed Arnold (BNS0028) para 5
264 LSE IDEAS (BNS0004) para A1
265 LSE IDEAS (BNS0004) para A3.

116. ***The Government should plan and undertake a regular programme of exercises to test the UK capabilities for responding to all tier-1 security risks (natural hazards as well as malicious threats), as well as exercises to test simultaneous multi-risk scenarios (paragraphs 102, 126). Within central government, table-top exercises should occur at least once a year and large-scale 'tier 1' cross-departmental exercises at least once every three years, involving enough departments to allow for an appropriately wide 'Fusion Doctrine' response to be tested. These exercises should aim (a) to strengthen emergency response capabilities applicable to a range of scenarios, without being too closely tailored to the characteristics of highly specific risks, and (b) include local-level exercises in combination with central agencies and departments in order to test local/central interfaces and data-sharing.***

117. ***The Government should also establish a fixed timetable within which the results of such exercises would be published.***

118. **The challenges the UK has faced in the covid-19 pandemic reflect longer-term gaps in the systems for planning and preparing for biological risks. While the Government has identified top-tier biological risks to the UK's national security, that assessment does not appear to have had the required practical effects in terms of exercising and mitigation. This raises questions over the impact of the risk identification and 'tiers' system of the National Security Risk Assessment in practice.**

119. ***The Government should re-assess how well the risk identification and 'tiers' system of the National Security Risk Assessment process are informing the level of preparation, resource allocation and mitigating activities dedicated to individual security risks.***

120. ***To strengthen the implementation of actions to mitigate high-priority biological risks, the Government should also publish an operational action plan for the principal commitments of the Biological Security Strategy which outlines—for each commitment—the timescale, responsible team and department, resource allocation and means for measuring its progress and impact.***

6 Planning for unexpected futures

Looking ahead to future biological risks

121. Our inquiry examined the covid-19 pandemic as a test case for wider issues of biosecurity. In that context, our conclusions and recommendations above have addressed those broader generic biosecurity issues—the risk assessment process to guide preparedness, the levels of advance planning for core capabilities, frontline resilience, and the national security machinery that should hold the whole system together. Other select committees have examined, and continue to examine, aspects of the ongoing management of the current pandemic.

122. Enduring the covid-19 pandemic does not make other biological risks any less likely to occur. Contributors to our inquiry warned against 'fighting the last battle' or focusing on pandemic preparedness while neglecting other biological risks.[266] The drivers of the risks that helped to produce covid-19 remain in place, and in many respects are increasing. In relation to naturally occurring disease outbreaks, the 2018 Biological Security Strategy identified globalisation—international trade, travel and urbanisation—as a key factor.[267] It also cited long-term climate change, interrupted global immunisation programmes for vaccine-preventable diseases, and the use of pesticides. It warned that the risk of antimicrobial resistance may increase without national and international actions to tackle it,[268] which one witness described as a "slower burn risk" that could radically transform routine healthcare.[269]

123. The Government judges that deliberate attacks involving biological weapons are a less significant risk than naturally occurring disease outbreaks,[270] and many contributors to our inquiry agreed.[271] One highlighted the difficulty of securing the knowledge and/or access to produce biological weapons.[272] However, the threshold for accessing harmful biological substances may change in future. The Biological Security Strategy highlighted the 'democratisation of scientific knowledge and technology' and an expansion of biological sciences sectors in more countries.[273] There are now more than 50 high containment ('Bio Safety Level 4') laboratories in operation or being built across Asia, Africa, Europe, Russia and the United States—dealing with the highest-risk biological substances.[274] Such facilities raise issues of laboratory safety and security.[275] Technological advances in the life sciences sector provide a means to more effectively deal with infectious diseases—indeed, some vaccines for covid-19 made use of such new knowledge—but also raise risks themselves. As acknowledged in the Biological Security Strategy, these trends increase the feasibility of non-state actors developing the expertise and materials for biological

266 Professor John Simpson, Q57; School of International Futures (BNS0022); Security Lancaster (BNS0016); Paul Schulte (BNS0032)
267 Her Majesty's Government, Biological security strategy (July 2018), p 11
268 Her Majesty's Government, Biological security strategy (July 2018), p 11
269 Clara Swinson, Q33
270 These types of attacks are a Tier-2 security risk in the 2015 National Security Risk Assessment. See Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), p 87
271 Sir Patrick Vallance, Q33; Professor Simpson, Q33
272 Dr Jennifer Cole, Qq6,9
273 Her Majesty's Government, Biological security strategy (July 2018), p 12
274 Dr Filippa Lentzos and Professor Michael S. Goodman (BNS0025)
275 Professor Colin McInnes, Q17

weapons.[276] The School of International Futures argued that "technology plays a critical role both as a risk-multiplier and resilience-builder (of diffused local responses as well as international collaboration)", warning that the "capability to deeply imagine the scale and consequences of these changes is severely limited within government as a whole".[277] Many contributors[278] warned of the importance of the threat in future posed by 'dual-use' research[279] and the possible misuse of emerging technologies[280] in the life sciences sector. There are also weaknesses in the inspection and verification regime of the Biological Weapons Convention, which might otherwise reduce these risks.[281]

124. Our witnesses and contributors largely agreed with the drivers of biological risks in the Biological Security Strategy, as well as the main biological risks themselves.[282] Some highlighted that the risk from zoonotic disease may require greater attention.[283] Particularly relevant in the context of covid-19, the Strategy recognised that urbanisation and the proximity of humans and animals provide a vector for zoonotic diseases.[284] It underlined that human health cannot be separated from the health of plants and animals, highlighting that 60% of all human diseases and 75% of all new and emerging infectious diseases are initially zoonotic in origin.[285] Sir Patrick Vallance told us that the combined risk from zoonotic diseases may be equal to that from pandemic flu;[286] Professor Simpson warned that these pose a "particular threat at the moment".[287] Dr Outhwaite believed that the control and management of zoonotic infections had not received enough attention internationally and that the UK's 'One Health'[288] approach needed to be stronger.[289] Others

276 Her Majesty's Government, Biological security strategy (July 2018), pp 11–12
277 School of International Futures (BNS0022)
278 UCL DAWES Centre for Future Crime and UCL Advanced Centre for Biochemical Engineering (BNS0003); Dr Filippa Lentzos and Professor Michael S. Goodman (BNS0025); Emergent BioSolutions (BNS0007); Hamish de Bretton-Gordon (BNS0012); Sir Patrick Vallance, Q33; Dr Beyza Unal and Mr Ben Wakefield (BNS0009); Dr Tatyana Novossiolova and Professor Malcolm Dando (BNS0029). See also written evidence received by Joint Committee for Biosecurity and human health inquiry, Session 2017–19, Dr Cassidy Nelson et al (BHH0010); Biosecurity Research Initiative at St Catharine's College (BioRISC), Cambridge (BHH0005)
279 Dual-use research covers life sciences research that, based on current understanding, can be reasonably anticipated to provide knowledge, information, products and technologies that could be directly misapplied to pose a significant threat with broad potential consequences to public health and safety, agricultural crops and other plants, animals, the environment, material or national security. Definition taken from a joint Biotechnology and Biological Sciences Research Council (BBSRC), Medical Research Council (MRC) and Wellcome Trust policy statement. See Wellcome Trust, 'Managing risks of research misuse', accessed 14 December 2020.
280 For example, gene editing and 'synthetic biology'. The latter is an area of research that seeks to create new biological components (such as enzymes) or re-engineer organisms to have new abilities.
281 Dr Patricia Lewis, Q6.
282 For example, Sir Patrick Vallance, Q33; Clara Swinson, Q33; Professor John Simpson, Q33; Professor Sophie Harman, Q17; Professor Frederic Bouder, Q17; Professor Colin McInnes, Q17; School of International Futures (BNS0022).
283 "A zoonosis is any disease or infection that is naturally transmissible from vertebrate animals to humans." WHO, 'Zoonoses', accessed 14 December 2020.
284 Her Majesty's Government, Biological security strategy (July 2018), p 10
285 Her Majesty's Government, Biological security strategy (July 2018), p 9.
286 Sir Patrick Vallance, Q33
287 Professor John Simpson, Q33
288 The WHO defines 'One Health' as "an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. The areas of work in which a One Health approach is particularly relevant include food safety, the control of zoonoses (diseases that can spread between animals and humans, such as flu, rabies and Rift Valley Fever), and combatting antibiotic resistance (when bacteria change after being exposed to antibiotics and become more difficult to treat)." WHO, 'One Health' (21 September 2017).
289 Dr Opi Outhwaite (BNS0030)

underlined the importance of preventing the emergence of these types of diseases,[290] as well as strengthening their surveillance.[291] Beyond zoonotic infections, some warned of public health risks from disrupted immunisation programmes in the UK.[292]

125. Contributors suggested that the covid-19 pandemic itself may have affected the likelihood and potential impact of biosecurity risks. Some believed that the pandemic could heighten our vulnerability to bio-terrorism, due to the "preparedness gaps exposed" in the UK during the covid-19 pandemic.[293] Both the UN Secretary-General[294] and the Council of Europe[295] argued that the pandemic may embolden terrorist organisations to undertake bioterrorism. The UCL DAWES Centre for Future Crime and UCL Advanced Centre for Biochemical Engineering argued that some state actors and criminals might use the pandemic to undertake malicious activities, for example targeting valuable health data linked to vaccine development.[296] Interpol recently stated that organised crime syndicates viewed covid-19 vaccines as "liquid gold" and would try to infiltrate supply chains and steal stocks.[297] The National Cyber Security Centre warned about cyber-criminals offering false access to coronavirus vaccines. As recently as 9 December, the European Medicines Agency reported a cyber-attack and hack of vaccine documents.[298]

126. There is a further risk that even those risks which are currently identified and articulated could materialise at the same time, perhaps a combination of threats and natural hazards. This concern is heightened due to the weaknesses in the national security oversight system we discussed in Chapter 5, and because of the continuing uncertainty about changes in this area that may result from the Government's still-incomplete Integrated Review. Penny Mordaunt well appreciated that multi-risk possibility:

> It is very rare that you are faced with a single-issue scenario. I would like our exercises to be much more complicated and to throw in issues that are perhaps entirely unrelated. What happens if we have a cyber attack and your main data systems go down? What are you going to do? There will be concurrent threats, and that is where you get into really building resilience and understanding what could happen. There are malicious actors out there who will try to take advantage when we are facing natural disasters, so we ought to be rehearsing both of those things together. Cygnus just did not do that.[299]

290 Dr Patricia Lewis, Q5; Oral evidence taken before the Lords International Relations and Defence Committee on 17 July 2020, Q14 [Professor Devi Sridhar]

291 British Society for Immunology (BNS0006); Dr Opi Outhwaite (BNS0030)

292 The Strategy focuses on disruptions to immunisation programmes, mainly considering those caused by conflict or economic collapse. It is unclear if these disruptions are considered in a domestic context too. Security Lancaster (BNS0016) and AnotherDay (BNS0027) both warn of risks caused by vaccine hesitancy. See also The UK has lost its World Health Organisation 'measles-free' status, New Scientist, 19 August 2019.

293 Emergent BioSolutions (BNS0007) para 5; Hamish de Bretton-Gordon (BNS0012)

294 COVID-19 threatening global peace and security, UN chief warns, UN News, 10 April 2020

295 The Council of Europe continues working to enhance international co-operation against terrorism, including bioterrorism, Council of Europe Newsroom, 25 May 2020

296 UCL DAWES Centre for Future Crime and UCL Advanced Centre for Biochemical Engineering (BNS0003); also Paul Schulte (BNS0032) and written evidence received by Joint Committee for Biosecurity and human health inquiry, Session 2017–19, Dr Cassidy Nelson et al (BHH0010); Biosecurity Research Initiative at St Catharine's College (BioRISC), Cambridge (BHH0005)

297 Vaccine is liquid gold for gangs, says Interpol, Times, 5 December 2020

298 Pfizer/BioNTech vaccine docs hacked from European Medicines Agency, BBC News, 9 December 2020; Dr Cassidy Nelson et al (BHH0010); Biosecurity Research Initiative at St Catharine's College (BioRISC), Cambridge (BHH0005

299 Penny Mordaunt, Q70

127. The Government foresees that the new National Institute for Health Protection will subsume the 'Joint Biosecurity Centre',[300] whose role is to analyse outbreaks of covid-19 and to advise on alert levels. The JBC will have expertise on public health and epidemiology, but not necessarily the full spectrum of biological risks to the UK's security.[301]

128. **The risks identified in the Biological Security Strategy are rapidly evolving and are not restricted to pandemics alone. New risks are emerging, and the covid-19 pandemic has exposed countries' vulnerabilities. It will be critical to ensure that the scientific expertise underpinning the National Security Risk Assessment process (paragraph 12) keeps pace with these rapid developments. There is also a need for greater transparency around the level of uncertainty surrounding estimated impacts and planning assumptions.**

129. ***The Government should establish a dedicated national centre for biosecurity, a new cross-government body to serve as a centre of expertise on the full spectrum of interlocked biological risks facing the UK. The Centre should:***

a) ***establish an evidence base for policy decisions in crucial areas, including (but not limited to): disease surveillance mechanisms, especially zoonotic infections; antimicrobial resistance; biosafety standards in the life sciences sector; inter-agency working in support of a 'One Health' approach, and educational outreach methods to overcome vaccine hesitancy;***

b) ***contribute directly to the National Security Risk Assessment process and assess the risks and opportunities of new developments, such as emerging life sciences technologies; and***

c) ***operate secondments with, for example, the new National Institute for Health Protection (see paragraph 83), relevant Government departments, veterinary associations, academia and industry.***

130. ***The Government should renew and refresh a Biological Security Strategy periodically (at least every five years) to take into account the lessons of biological emergencies (including covid-19), the results of testing exercises (see paragraph 117) and an ever-changing risk-landscape. It should consider whether further declassified information could be released on the methodologies for assessing the impact and likelihood of natural hazards, to inspire greater public confidence and debate.***

The global connection

131. The Government has long recognised the interconnectedness between domestic and international biological security, and the benefits of promoting global health.[302] In 2018, the Biological Security Strategy warned that disease outbreaks abroad can rapidly affect the UK and UK interests, both directly and indirectly "through the loss of regional stability"

300 Department of Health and Social Care, 'Policy paper: The future of public health: the National Institute for Health Protection and other public health functions' (15 September 2020)

301 Dr Opi Outhwaite (BNS0030)

302 For instance, see Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), para 5.135

in other parts of the world.[303] It noted that building health system capacity abroad via development funding "also reduces the risk of diseases and drug resistance spreading or reaching the UK by tackling these issues at source".[304]

132. In our inquiry, the Government highlighted the cross-border risks posed by the spread of infectious diseases.[305] Lord Sedwill called pandemics a "global issue with clearly very severe domestic health, economic and social consequences".[306] In the context of the covid-19 pandemic, the Government saw strengthening health systems in vulnerable countries not only as a "moral responsibility" but also a measure to protect people in the UK from a second wave of the disease.[307] In 2018, the health sector received 14% of the UK's bilateral Official Development Assistance (ODA) funding, making it the second highest funded sector.[308] The Strategic Defence & Security Review in 2015 singled out two areas of global risk which threaten stability overseas and the UK's long-term security, on which the Government claimed to be leading international work: climate change and health security.[309]

133. The Biological Security Strategy lists the international organisation with whom the UK collaborates on biosecurity issues, including the World Health Organisation. The Government expressed its support for the WHO in promoting health security at the global level.[310] In September, the Prime Minister announced up to £571 million in funding for Covax, the global vaccine-sharing initiative.[311] In the context of a now combined Foreign, Commonwealth and Development Office, the Government recently emphasised the integrated nature of its development and diplomatic work—for instance, the joining of vaccine research efforts in the UK with the Government's funding activities to promote equitable vaccine access for the most vulnerable countries.[312]

134. Some contributors to our inquiry spoke positively about the UK's actions to promote global health security, including its funding for the WHO and international vaccine development.[313] Nevertheless, the Government reduced the ODA budget (which is typically set at 0.7% of Gross National Income) for the remainder of 2020–21 in July[314] to reflect the covid-driven fall in the size of the economy, and in the November Spending Review it temporarily suspended the commitment to ODA spending of 0.7% of Gross National Income for 2021–22.

303 Her Majesty's Government, Biological security strategy (July 2018), p 10
304 Her Majesty's Government, Biological security strategy (July 2018), p 13
305 Her Majesty's Government (BNS0013)
306 Lord Sedwill, Q5
307 HL Deb, 3 September 2020, col 520
308 The top sector to receive bilateral ODA support was 'multisector'. Bilateral ODA is money spent on specific countries, regions or programmes (as opposed to contributions to multilaterals). DFID, Statistics on International Development. Final UK Aid Spend 2018 (2019), p 3
309 Her Majesty's Government, The National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom (November 2015), paras 5.130, 5.135. 'Global public health security' covers "activities required, both proactive and reactive, to minimize the danger and impact of acute public health events that endanger people's health across geographical regions and international boundaries", according to the World Health Organisation. See World Health Organisation, 'Health Security', accessed 14 December 2020.
310 Her Majesty's Government (BNS0013)
311 Prime Minister's speech to United Nations General Assembly (26 September 2020)
312 HL Deb, 3 September 2020, col 520
313 For instance, Professor Harman (BNS0011) paras 1.4–1.6; Helen Ramscar (BNS0020) para 1.1.
314 Letter from the Foreign Secretary to the Chair of the International Development Committee, 22 July 2020

135. **The Biological Security Strategy correctly recognised that biological risks are not constrained by international borders. The Government has done much to promote global health security. Actions to strengthen healthcare systems abroad have a dual benefit; not just promoting health but also contributing to effective disease control and the UK's national security. Similarly, multilateral actions on the environmental agenda make biological risks less likely to materialise, as they tackle some of the underlying drivers—such as climate change, deforestation and habitat destruction.**

136. ***The Government should continue to take a leading international role in the global health security and environmental agenda, taking advantage of the opportunities provided by the UK's presidency of the G7 and the climate change conference in Glasgow next year.***

137. ***It should also ensure that the planned reduction in ODA funding does not weaken aid programmes which work to strengthen health systems abroad. Such spending is clearly in the UK's interests, including its biosecurity interests.***

Conclusions and recommendations

Getting ready – Identifying and preparing for biological risks

1. The Government's risk assessment processes correctly identified the threat posed by biological risks and classified an influenza pandemic among the highest 'tier-1' risks to the UK's security as early as 2010. With hindsight from the covid-19 pandemic, the fatalities from emerging infectious diseases specifically were substantially under-estimated. The Government did project the significant disruptive impacts of pandemic flu. However, although this should have indicated the widespread disruption that could be caused by other infectious diseases, this connection seems to have failed to have been made. (Paragraph 19)

2. At the start of 2020, the UK had detailed strategies and plans to deal with a significant disease outbreak, but these were mainly focused on pandemic influenza—seen to be the highest-impact disease risk at that time. This was reflected in the dedicated strategy for tackling an influenza pandemic, the recurrent references to influenza in the actions of the 2017 Risk Register, and in the design of the largest biological security testing exercise that occurred over the last decade, 'Exercise Cygnus' (see Chapter 5). Nonetheless, in theory, the Government understood the need not to over-focus on a single disease in its preparations. It committed in 2018 to focusing on impacts rather than specific disease characteristics, to enable an effective response to new and emerging risks. It also referred to other contingency plans that it had developed to prepare for infectious diseases beyond influenza. (Paragraph 24)

How prepared core capabilities were in the face of covid-19

3. We recognise the Government's significant efforts during the covid-19 pandemic to scale up the UK's detection and containment capabilities—in the form of test, trace and isolate systems. However, that task was made harder by a failure to consider how these critical capabilities might be scaled up ahead of time, including detection checks at the border and pre-assessing the availability and adequacy of national laboratory infrastructure for large-scale testing. It is regrettable that these capabilities were not covered in any large-scale testing exercises since the classification of pandemics as a 'tier-1' security risk was made in 2010. (Paragraph 39)

4. The failure to plan for the expansion of the detection and containment capabilities may have been the result of an undue focus on an influenza pandemic, rather than diseases with a longer incubation period. It is also, we believe, because the Government continued to doubt that a novel disease could circulate so widely in the UK, despite the 2017 National Risk Register judging it 'likely' that an emerging infectious disease would affect the UK in the next five years, and the 2018 Biological Security Strategy identifying multiple drivers that would have made an outbreak more—not less—likely. (Paragraph 40)

5. Although, ahead of the covid-19 pandemic, the Government assured our predecessor Committee about PPE stockpiles, many frontline workers experienced shortages in the early months of the pandemic. The Government's focus was on preparing for an

influenza pandemic, but perhaps more significantly it did not anticipate the scale of international competition for insufficient supplies in a global pandemic and how UK supply chains were vulnerable as a consequence. (Paragraph 45)

6. *The Government should undertake a review of how it strengthens its supply chains for dealing with future emergencies. It should seek to learn the lessons of the current pandemic, which may include more on-shoring of manufacturing capacity in PPE and other equipment, greater advance stockpiling or pre-negotiated competitive supply contracts. It should also clarify where responsibility lies for PPE provision for healthcare delivered by private sector companies.* (Paragraph 46)

7. During the covid-19 pandemic, the Government appears to have put into practice aspects of its influenza pandemic communications strategy from 2012. Other parts of that Strategy require fuller implementation, including operating within a "cooperative framework" with the devolved administrations. It is also not evident that the Government has updated its approach to biological security communications on social media since 2012. (Paragraph 59)

8. *A clear social media plan needs to be formulated, not only to make use of such channels in a positive way, but also to counter the effects of misinformation and disinformation circulating online. Maintaining public trust in the Government's overall handling of the pandemic should be an integral part of the Government's social media strategy. The recently established unit in the Cabinet Office to tackle anti-vaccination misinformation represents a good start.* (Paragraph 60)

9. We accept that the novel features of covid-19 would have caused difficulties for any government, and we recognise the hard work and dedication shown by essential workers, civil servants and local responders in responding to the crisis. While the Government has been scaling up critical response capabilities, we are not convinced that the unique nature of covid-19 fully explains the difficulties the Government faced. (Paragraph 61)

10. The job of responding to the covid-19 pandemic has been made harder by insufficient attention being paid to establishing necessary capabilities ahead of time. The Cabinet Office's Resilience Capabilities Programme is supposed to encourage departments to develop a "broad and generic set of capabilities" that will be "applicable across multiple risk scenarios". However, some critical capabilities for a tier-1 security risk have either not been considered and/or focused on the needs of a specific risk scenario (an influenza pandemic). The most striking example of this is the UK's 'Detection' capabilities. Despite the Biological Security Strategy emphasising the importance of 'Detection' and learning from health emergencies elsewhere, the Government failed seriously to consider how it might scale up testing, isolation and contact-tracing capabilities during a serious disease outbreak on UK territory. It is difficult to avoid the impression that the Government simply did not believe a novel disease other than influenza could circulate widely within the UK. To varying extents, the pandemic has also exposed vulnerabilities in the UK's strategic supply chains for PPE and its social media communications capabilities. (Paragraph 62)

11. *The Government should introduce annual reporting to Parliament by a responsible minister—such as the Chancellor of the Duchy of Lancaster—on the state of national*

preparedness for top-tier risks in the Risk Register. This should be compiled in consultation with industry experts on supply chains. The report to Parliament should be prepared by a new task force that we recommend below, with responsibility for resilience capabilities and for leading the UK's biological security efforts (see paragraph 99). The task force should regularly report on:

a) *the national stockpile of critical items (including their condition, suitability for use and applicability across a range of risk scenarios) and the domestic manufacturing capacity of strategic supplies;*

b) *surge capacity within relevant public services;*

c) *lessons learned and actions taken as a result of drills, table-top exercises and other exercises (which we discuss in Chapter 5);*

d) *its approach to coordination with the devolved administrations and local government, and the adequacy of arrangements in each Local Resilience Forum area (see Chapter 4);*

e) *the level of capacity-building and training undertaken by ministers in emergency response and crisis management (see paragraph 94);* and

f) *any other actions taken to improve preparedness and resilience.*

We expect that sensitive security information could be shared with us, and potentially also with other parliamentary committees, in confidence. (Paragraph 63)

Resilience on the 'frontlines'

12. Organisations at the local level—in particular local authorities, Local Resilience Forums and community organisations—form the 'frontline' of planning for, and response to, emergencies. We recognise the work done by the Government to improve consistency and good practice locally, including the 2019 National Resilience Standard. However, LRFs are under significant pressure due to the protracted nature of the covid-19 emergency (rather than the short-term emergencies that LRFs are intended to deal with). During the current pandemic, they have sometimes lacked the necessary intelligence, data and support from central government to carry out their role effectively. (Paragraph 79)

13. *Building on the National Resilience Standard, the Government should establish a long-term plan for investment in and support for organisations in local and community resilience, particularly Local Resilience Forums. This plan should focus on:*

a) *formalising intelligence–and data-sharing arrangements, both between central government and LRFs and between the four nations;*

b) *incentivising regular local exercises (see paragraph 106) to test the strength of multi-agency relationships and responses, and monitoring the progress and outcomes of these exercises;*

c) *providing adequate resources over the long term to local authorities for LRF emergency response preparation work and for undertaking exercises, through ring-fenced funding;*

d) *working with local authorities and other emergency-response bodies, considering how to strengthen career pathways and retention of emergency managers and others in resilience; and*

e) *exploring the scope for establishing a 'reservist' cadre of previously deployed LRF staff, along the lines of military reservists and (now under discussion) 'NHS reservists'.* (Paragraph 80)

14. Health promotion and health protection go hand in hand. Ongoing actions to improve the health of the UK population and to strengthen the national health and social care system will decrease the impact of biological risks that materialise. Safeguarding the UK's high-quality domestic systems will also enable a more confident and credible role in leading the global health security agenda. (Paragraph 84)

15. *As the structures of the new National Institute for Health Protection are finalised in the coming months, following the abolition of Public Health England, the Government must ensure that the creation of the new body does not weaken wider health promotion activities, which themselves further biological security objectives. The Government should undertake exercises which test the NIHP's role in future potential emergencies as soon as the current pandemic has abated.* (Paragraph 85)

Strategy leadership

16. There is a striking absence of strategic leadership of the UK's biological security work as a whole. Several Government departments have an important role in preparing for biological risks to the UK's security, but the NSC sub-committee ('Threats, Hazards, Resilience and Contingencies') to which departments are supposed to report no longer exists. Neither the National Security Council nor the Cabinet Office provides sufficient collective strategic leadership of departments' work to address biological risks. This governance gap, it seems to us, may also affect other cross-departmental security challenges, beyond the biological sphere. Without stronger direction from the centre of Government, we are concerned that long-term planning activities integral to the UK's biological security and other cross-departmental challenges may drop off departmental agendas (particularly at times of financial pressure), or remain in departmental silos despite the objectives of the Fusion Doctrine. The failure to re-appoint the relevant NSC sub-committee may also undermine the Resilience Capabilities Programme, for which this sub-committee was previously responsible. (Paragraph 98)

17. *The Government should designate a task force within the Cabinet Office with explicit responsibility for assessing departmental capabilities and resilience, as well as providing strategic collective leadership of the UK's biological security efforts. Such a task force should:*

a) *monitor operational progress on the commitments in the Biological Security Strategy, and act as a 'critical friend' to departments. Assessing the information reported annually by the Strategy's governance board would be the starting point for its work;*

b) *identify ministers' training requirements for dealing with all types of emergencies; and*

c) *have an explicit audit role to check that all relevant departments and agencies actually implement planned emergency response capabilities (or ensure that the National Security Council fulfils that role).* (Paragraph 99)

18. *The Government should ring-fence funding for Government departments to undertake horizon-scanning and preparedness activities to strengthen their resilience to a range of major disruptive events (including biological emergencies). Such funding should cover a multi-year period to avoid artificial incentives to undertake only smaller (annual) exercises, rather than larger/non-annual exercises. The Civil Contingencies Secretariat and Government Office for Science should continue their advisory role, working proactively with the NSC in monitoring risks. They should also review how their risk horizon-scanning work can best support the creation of SAGEs as particular emergencies materialise.* (Paragraph 100)

19. The Government's programme of biosecurity exercises is inadequate. There has only been one 'tier 1' national biosecurity exercise in the last decade (Exercise Cygnus), and because of its size it was decided not to test several important capabilities critical for a pandemic response. Holding more exercises would, between them, allow all capabilities to be covered. We are concerned that the results and lessons of exercises are not fully shared; Exercise Cygnus was not even mentioned in a Biological Security Strategy published only two years later. (Paragraph 115)

20. *The Government should plan and undertake a regular programme of exercises to test the UK capabilities for responding to all tier-1 security risks (natural hazards as well as malicious threats), as well as exercises to test simultaneous multi-risk scenarios (paragraphs 102, 126). Within central government, table-top exercises should occur at least once a year and large-scale 'tier 1' cross-departmental exercises at least once every three years, involving enough departments to allow for an appropriately wide 'Fusion Doctrine' response to be tested. These exercises should aim (a) to strengthen emergency response capabilities applicable to a range of scenarios, without being too closely tailored to the characteristics of highly specific risks, and (b) include local-level exercises in combination with central agencies and departments in order to test local/central interfaces and data-sharing.* (Paragraph 116)

21. *The Government should also establish a fixed timetable within which the results of such exercises would be published.* (Paragraph 117)

22. The challenges the UK has faced in the covid-19 pandemic reflect longer-term gaps in the systems for planning and preparing for biological risks. While the Government has identified top-tier biological risks to the UK's national security, that assessment does not appear to have had the required practical effects in terms of exercising and mitigation. This raises questions over the impact of the risk identification and 'tiers' system of the National Security Risk Assessment in practice. (Paragraph 118)

23. *The Government should re-assess how well the risk identification and 'tiers' system of the National Security Risk Assessment process are informing the level of preparation, resource allocation and mitigating activities dedicated to individual security risks.* (Paragraph 119)

24. *To strengthen the implementation of actions to mitigate high-priority biological risks, the Government should also publish an operational action plan for the principal commitments of the Biological Security Strategy which outlines—for each commitment—the timescale, responsible team and department, resource allocation and means for measuring its progress and impact.* (Paragraph 120)

Planning for unexpected futures

25. The risks identified in the Biological Security Strategy are rapidly evolving and are not restricted to pandemics alone. New risks are emerging, and the covid-19 pandemic has exposed countries' vulnerabilities. It will be critical to ensure that the scientific expertise underpinning the National Security Risk Assessment process (paragraph 12) keeps pace with these rapid developments. There is also a need for greater transparency around the level of uncertainty surrounding estimated impacts and planning assumptions. (Paragraph 128)

26. *The Government should establish a dedicated national centre for biosecurity, a new cross-government body to serve as a centre of expertise on the full spectrum of interlocked biological risks facing the UK. The Centre should:*

    a) *establish an evidence base for policy decisions in crucial areas, including (but not limited to): disease surveillance mechanisms, especially zoonotic infections; antimicrobial resistance; biosafety standards in the life sciences sector; inter-agency working in support of a 'One Health' approach, and educational outreach methods to overcome vaccine hesitancy.*

    b) *contribute directly to the National Security Risk Assessment process and assess the risks and opportunities of new developments, such as emerging life sciences technologies; and*

    c) *operate secondments with, for example, the new National Institute for Health Protection (see paragraph 83), relevant Government departments, veterinary associations, academia and industry.* (Paragraph 129)

27. *The Government should renew and refresh a Biological Security Strategy periodically (at least every five years) to take into account the lessons of biological emergencies (including covid-19), the results of testing exercises (see paragraph 117) and an ever-changing risk-landscape. It should consider whether further declassified information could be released on the methodologies for assessing the impact and likelihood of natural hazards, to inspire greater public confidence and debate.* (Paragraph 130)

28. The Biological Security Strategy correctly recognised that biological risks are not constrained by international borders. The Government has done much to promote global health security. Actions to strengthen healthcare systems abroad have a dual benefit; not just promoting health but also contributing to effective disease control and the UK's national security. Similarly, multilateral actions on the environmental

agenda make biological risks less likely to materialise, as they tackle some of the underlying drivers—such as climate change, deforestation and habitat destruction. (Paragraph 135)

29. *The Government should continue to take a leading international role in the global health security and environmental agenda, taking advantage of the opportunities provided by the UK's presidency of the G7 and the climate change conference in Glasgow next year.* (Paragraph 136)

30. *The Government should also ensure that the planned reduction in ODA funding does not weaken aid programmes which work to strengthen health systems abroad. Such spending is clearly in the UK's interests, including its biosecurity interests.* (Paragraph 137)

Annex: Joint Committee on the National Security Strategy

The Members of the Joint Committee which conducted the inquiry were

Margaret Beckett MP (Chair)

Lord Brennan

Lord Campbell of Pittenweem

Sarah Champion MP

Yvette Cooper MP

Tobias Ellwood MP

Richard Graham MP

Lord Harris of Haringey

Baroness Healy of Primrose Hill

Baroness Henig

Baroness Hodgson of Abinger

Darren Jones MP

Alicia Kearns MP

Lord King of Bridgwater

Baroness Lane-Fox of Soho

Sir Edward Leigh MP

Angus Brendan MacNeil MP

Sir Robert Neill MP

Baroness Neville-Jones

Lord Powell of Bayswater

Bob Stewart MP

Tom Tugendhat MP

Declarations of interest (Lords)[315]

The following interests, relevant to this inquiry, were declared:

Lord Brennan

Advisory Board Member, Assured Enterprises Inc.

Lord Campbell of Pittenweem

Patron of the Defence Forum

Honorary President, European Leadership Network

Chairman, Political Committee of the NATO Parliamentary Assembly and a member of its Bureau

Member of the APPG for the Armed Forces

Chancellor of the University of St Andrews

Lord Harris of Haringey

Chair, Independent Reference Group, National Crime Agency

Chair, National Trading Standards

Chair, Fundraising Regulator

Chairman of Advisory Council, City Security and Resilience Networks

Member of Board, Cyber Security Challenge UK Ltd

Toby Harris Associates – EISC (Electric Infrastructure Security Council) was a former client

Co-chair of APPG for policing and security

Member, House of Lords Democracy and Digital Technologies Committee

Conducted review for Counter Terrorism Policing in 2017–2018 on proposals for a combined Counter Terrorism and Organised Crime Hub in London

Board Member, Resilience First

President, Institute for Strategic Risk Management

Visit to Brussels, November 2019, to participate in workshop on Strengthening Public-Private Cooperation in Hybrid Crises; travel and accommodation paid by Friends of Europe

Visit to Geneva, November 2019, to speak at Crisis 2030 conference; travel and accommodation paid by Geneva Centre for Security Policy and Institute for Strategic Risk Management

315 The declarations of interests by the Commons Members are available in the Committee's Formal Minutes 2019–21

Chair of the National Preparedness Commission

Baroness Healy of Primrose Hill

No relevant interests declared

Baroness Henig

Non-Executive Chair of SecuriGroup Ltd, Glasgow, a private security company providing security guards and events security

President of Security Institute, a membership organisation of professionals in private security and government departments

Baroness Hodgson of Abinger

Chair of advisers of Gender Action for Peace and Security (GAPS)

Co-chair of APPG for Women, Peace and Security

Member of steering board of Preventing Sexual Violence in Conflict Initiative (PSVI)

Trustee, the Chalker Foundation

Honorary Colonel of Outreach Group, 77th Brigade

Coordinator of Afghan Women's Support Forum

Visit to Bangladesh, September 2019, to participate in an All-Party Parliamentary Group on Population, Development and Reproductive Health study tour; cost of travel, accommodation and subsistence met by the APPG, supported by the European Parliamentary Forum on Sexual and Reproductive Health

Member, APPG for the Armed Forces

Lord King of Bridgwater

Patron of Defence Forum

Previously, Government Trade Envoy to Saudi Arabia

Member, All Party Parliamentary Group for the Armed Forces

Baroness Lane-Fox of Soho

Director of the Board of Twitter (paid) since May 2016

Founder and Chair of Doteveryone (unpaid)

Chancellor of Open University

Member of the Panel for the Independent Surveillance Review

Baroness Neville-Jones

Previously, adviser to Ridge Global LLC, Washington DC (cyber security consultants)

Visit to Iceland, September 2019, with All-Party Parliamentary Group for the Polar Regions; cost of travel, accommodation, food and tour fees partly met by Mamont Foundation and British Group Inter-Parliamentary Union

Visit to Moscow, May 2019, to discuss Russian-European relations; flights, accommodation and food costs paid by the Club of Three

Chairman of Advisory Board, Cyber Security Challenge

Lord Powell of Bayswater

Strategic Advisor to BAE Systems

Advisor to Rolls Royce, ceased end February 2020

Member of the Advisory Board of Thales UK

Council Member, International Institute for Strategic Studies

Chairman, Atlantic Partnership

Vice President, Great Britain China Centre

A full list of Committee Members' interests can be found in the Register of Lords' Interests: https://www.parliament.uk/mps-lords-and-offices/standards-and-financial-interests/register-of-lords-interests/ and in the House of Commons Register of Members' Financial Interests: http://www.publications.parliament.uk/pa/cm/cmregmem/contents.htm

Formal minutes

Monday 14 December 2020

Members present:

Margaret Beckett MP, in the Chair

Lord Brennan
Lord Campbell of Pittenweem
Sarah Champion MP
Richard Graham MP
Lord Harris of Haringey
Baroness Healy of Primrose Hill
Baroness Hodgson of Abinger
Lord King of Bridgwater
Baroness Lane-Fox of Soho
Sir Edward Leigh MP
Baroness Neville-Jones
Lord Powell of Bayswater
Bob Stewart MP

Draft Report, (*Biosecurity and national security*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be considered, paragraph by paragraph.

Paragraphs 1 to 137 agreed to.

Annex agreed to.

Summary agreed to.

Resolved, That the Report be the First Report of the Committee.

Resolved, That the Chair make the Report to the House of Commons and that the Report be made to the House of Lords.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of House of Commons Standing Order No. 134.

[Adjourned to 18 January at 2.00pm

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the inquiry publications page of the Committee's website.

Monday 7 September 2020

Dr Jennifer Cole, Research Fellow, Royal Holloway University of London; **Dr Patricia M. Lewis**, Director, International Security Programme, Chatham House — Q1–16

Monday 28 September 2020

Professor Frederic Bouder, Risk Management, University of Stavanger, Norway; **Professor Sophie Harman**, International Politics, Queen Mary University of London; **Professor Colin McInnes**, Pro Vice Chancellor (Research, Knowledge Exchange and Innovation), Aberystwyth University — Q17–32

Monday 19 October 2020

Sir Patrick Vallance, Government Chief Scientific Adviser, Government Office for Science; **Clara Swinson**, Director General, Global Health, Department for Health and Social Care; **Professor John Simpson**, Medical Director in Emergency Preparedness, Resilience and Response, Public Health England — Q33–57

Monday 9 November 2020

Rt Hon Penny Mordaunt MP, Paymaster General, Cabinet Office; **Roger Hargreaves**, Director, Civil Contingencies Secretariat, Cabinet Office — Q58–70

Published written evidence

The following written evidence was received and can be viewed on the inquiry publications page of the Committee's website.

BNS numbers are generated by the evidence processing system and so may not be complete.

1 ADS and CBRN-UK (BNS0005)

2 AnotherDay (BNS0027)

3 Arnold, Mr Ed (BNS0028)

4 Black, Dame Sue (Professor and Pro-Vice Chancellor for Engagement) (BNS0016)

5 British Society for Immunology (BNS0006)

6 Buscher, Professor Monika (BNS0016)

7 Cole, Dr Jennifer (BNS0021)

8 Dando, Professor Malcolm (BNS0029)

9 de Bretton-Gordon, Hamish (BNS0012)

10 Elgabry, Ms Mariam (BNS0003)

11 Emergent BioSolutions (BNS0007)

12 Enemark, Professor Christian (BNS0026)

13 Freedman, Sir Lawrence (BNS0018)

14 Goodman, Professor Michael S (King's College London) (BNS0025)

15 Harman, Professor Sophie (Professor of International Politics, Queen Mary University of London) (BNS0011)

16 Hay, Professor Alastair (GP and Professor of Primary Care, University of Bristol; Bristol Centre for Academic Primary Care Infection Research Group) (BNS0015)

17 Her Majesty's Goverment (BNS0013)

18 Jewell, Dr Christopher (Senior Lecturer in Epidemiology, Lancaster Medical School) (BNS0016)

19 Kothari, Dr Sherry (Director, Health Innovation Campus) (BNS0016)

20 Lentzos, Dr Filippa (King's College London) (BNS0025)

21 Lewis, Dr Gregory (BNS0010)

22 Lewis, Dr Patricia M (BNS0008)

23 May-Chahal, Professor Corinne (Co-Director, Security Lancaster) (BNS0016)

24 McInnes, Professor Colin (BNS0014)

25 Nottingham Trent University, and C19 National Foresight Group (BNS0017)

26 Novossiolova, Dr Tatyana (BNS0029)

27 Outhwaite, Dr Opi (Associate Professor, St Mary's University) (BNS0030)

28 Ramscar, Helen (BNS0020)

29 Roberts, Professor Karl (Consultant, World Health Organisation) (BNS0002)

30 Rogers, Professor Paul (BNS0024)

31 Sandeman, Hugh (LSE IDEAS) (BNS0004)

32 School of International Futures (SOIF) (BNS0022)

33 Schulte, Paul (BNS0032)

34 Semino, Professor Elena (Director, Centre for Corpus Approaches to Social Science) (BNS0016)

35 Sedda, Dr Luigi (Lecturer in Spatial Epidemiology, Lancaster Medical School) (BNS0016)

36 Shaw, Major General Jonathan (BNS0019)

37 Suri, Professor Neeraj (Co-Director, Security Lancaster) (BNS0016)

38 Think Unthinkable Ltd (BNS0023)

39 Unal, Dr Beyza (Royal Institute of International Affairs, Chatham House) (BNS0009)

40 Wakefield, Mr Ben (Royal Institute of International Affairs, Chatham House) (BNS0009)