

# Commons Select Committees Joint Report

## Science and Technology / Health and Social Care Committees

### Third Report - Coronavirus: lessons learned to date

*The 38 recommendations are marked ●*

*Published October 2021*

#### Chapter 8 Conclusion

402. Pandemics like covid-19 will become more common. Throughout our inquiry, in our work as individual Committees and in this Report we have sought to learn from this episode in history. It has been a huge effort to respond to the covid-19 pandemic and all those who have contributed to that response have done so with the best of intentions despite some difficult outcomes in the UK. We express our gratitude to all those who have worked and contributed to the nation's efforts throughout this pandemic. We also express our deepest condolences and sympathies to those who have lost loved ones.

403. We must ensure that the UK learns from its experience of covid-19 and does not repeat mistakes in the future. We have therefore identified a number of consistent themes in our conclusions and recommendations in this Report, including that:

- a) the UK's response, with the notable exception of vaccine development and deployment, has for the most part been too reactive as opposed to anticipatory;
- b) there has been too little explicit learning from the international experience, as illustrated in the approach to non-pharmaceutical interventions and test and trace;
- c) the right combination needs to be struck between centralised and localised measures and in certain cases implementation of pandemic containment measures was too centralised when it ought to have been more decentralised; better engagement with relevant sectors and interest groups was needed to understand on-the-ground experience and inform decision making, particularly for social care; and
- d) the response has lacked speed in making timely decisions.

404. As we have mentioned, we do not seek to apportion blame. Our conclusions and recommendations seek to inform preparations for future threats for this Government and future Governments and improve the immediate handling of covid-19. We hope through this Report we have set out some changes that can make a real difference.

405. This Report serves as an initial assessment of the handling of the covid-19 pandemic. A public inquiry has been promised to examine the response in fuller detail and needs to be launched as soon as possible. Throughout the pandemic, both Committees have gathered evidence to ensure a contemporary record of events and the thinking behind them. We hope the evidence we have collected and this Report will be of use to the public inquiry.

# Conclusions and recommendations

## Pandemic preparedness

1. The UK has established procedures and structures to prepare for the nation's major future risks, including a National Risk Register, the Civil Contingencies Secretariat and the Scientific Advisory Group for Emergencies (SAGE). However, the anticipated future risk of pandemic disease focused too closely on influenza rather than diseases like SARS and MERS that had in recent years appeared in Asian countries. (Paragraph 58)
2. Previous exercises to test the national response capability, namely Exercises Cygnus and Winter Willow, did not squarely address a disease with the characteristics of covid-19. Nevertheless, some useful lessons were learned and applied, such as the drafting of legislative measures that might be needed. (Paragraph 59)
3. The operation of COBR was not well-suited to the modern demands of a pandemic response. It is especially concerning that its culture of confidentiality was considered by some to be so unreliable that alternative meetings were arranged that could command greater confidentiality among participants. (Paragraph 60)
4. The Civil Contingencies Secretariat did not have adequate resources to maintain a substantial standing capability to survey the development of potential threats, and it had a limited reach into the range of Government departments required to respond to a pandemic. The experience has been that this investment in resilience is at risk of being trumped by the day-to-day pressures of Government. (Paragraph 61)
5. Protocols to share data between public bodies involved in the response were too slow to establish and to become functional. This was especially true in the data flows from national to local government. (Paragraph 62)
6. The NHS responded quickly and strongly to the demands of the pandemic, but compared to other health systems it “runs hot”—with little spare capacity built in to cope with sudden and unexpected surges of demand such as in a pandemic. (Paragraph 63)
- 7. *A greater diversity of expertise and challenge—including from practitioners from other countries and a wider range of disciplines—should be included in the framing of the National Risk Register and the plans that emanate from it. Plans for the future should include a substantial and systematic method of learning from international practice during the course of an emergency.* (Paragraph 64)
- 8. *A standing capability should be established in Government, or reporting to it, to scan the horizon for future threats, with adequate resource and counting on specialists with an independence from short-term political and administrative pressures.* (Paragraph 65)
- 9. *The Government should ensure comprehensive plans are made for future risks and emergencies. The UK should aim to be a world leader in co-ordinating international resilience planning, including reform of the World Health Organisation to ensure that it is able to play a more effective role in future pandemics.* (Paragraph 66)
- 10. *The resourcing and capabilities of the Civil Contingencies Secretariat should be improved. The Civil Contingencies Secretariat should be empowered to ‘stress test’ plans and to ensure that*

*Departments are able to carry out a contingency plan if required. The details and results of these stress tests should be included in the Cabinet Office's annual report. (Paragraph 67)*

- *11. Arrangements should be established and tested to allow immediate flows of data between bodies relevant to an emergency response with a mechanism to resolve immediately and decisively any disputes. (Paragraph 68)*
- *12. The Armed Forces should have a more central and standing role in preparing for and responding to emergencies like pandemics, given the depth of capability and experience they have in planning, logistics and rapid mobilisation. The Civil Contingencies Secretariat should work with the Armed Forces to improve operational expertise in emergencies in public bodies. (Paragraph 69)*
- *13. The Government and the NHS should consider establishing a volunteer reserve database so that volunteers who have had appropriate checks can be rapidly called up and deployed in an emergency rather than needing to begin from scratch. (Paragraph 70)*
- *14. The experience of the demands placed on the NHS during the covid-19 pandemic should lead to a more explicit, and monitored, surge capacity being part of the long term organisation and funding of the NHS. (Paragraph 71)*
- *15. The NHS should develop and publish new protocols for infection prevention and control in pandemics covering staffing, bed capacity and physical infrastructure. In developing these protocols the NHS should consider the importance of maintaining access for people accompanying some patients such as advocates for people with learning disabilities and birthing partners. (Paragraph 72)*
- *16. Comprehensive analysis should be carried out to assess the safety of running the NHS with the limited latent capacity that it currently has, particularly in Intensive Care Units, critical care units and high dependency units. (Paragraph 73)*
- *17. Building on the experience of staff working more flexibly during the pandemic and to enable more flexible staffing in the NHS, NHS England and Health Education England should develop proposals to better enable NHS staff to change clinical specialty mid-career and train in sub-specialties. (Paragraph 74)*

## **Lockdowns and social distancing**

18. During the first three months of the covid pandemic, the UK followed the wrong policy in its use of non-pharmaceutical interventions. When the UK moved from the 'contain' to 'delay' stage, there was a policy of seeking to only moderate the speed of infection through the population—flattening the curve—rather than seeking to arrest its spread. The policy was pursued until 23 March because of the official scientific advice the Government received, not in spite of it. Questions remain about whether the containment phase was pursued aggressively enough—we believe it could have been pursued for longer. During this period Government policy did not deviate from the scientific advice it received in any material respect. The fact that the UK approach reflected a consensus between official scientific advisers and the Government indicates a degree of groupthink that was present at the time which meant we were not as open to approaches being taken elsewhere—such as earlier lockdowns, border controls and effective test and trace—as we should have been. (Paragraph 152)

19. The flattening the curve policy was implemented by introducing new restrictions only gradually and slowly, acting as if the spread of the virus were susceptible to calibrated control. Modelling at the time suggested that to suppress the spread of covid-19 too firmly would cause a resurgence when restrictions were lifted. This was thought likely to result in a peak in the autumn and winter when NHS pressures were already likely to be severe. In addition, it was thought that the public would only comply with severe restrictions for a limited period, and so those restrictions should not be applied before they were most needed. This approach should have been questioned at the time for a number of reasons:

- it entailed people contracting covid in large numbers with hundreds of thousands of deaths likely to result;
- other countries, in Asia and in Europe, including some with experience of SARS and MERS, had chosen to implement earlier, more comprehensive strategies of non-pharmaceutical interventions, which were having success; and
- suppressing the spread of the virus in the early period would have bought valuable time to consider what was the best way to manage the pandemic in the medium term. (Paragraph 153)

20. There are several possible explanations for what was a significant error in policy and advice early in the pandemic. These include:

- the lack of adequate data on the spread of covid-19, as a result of the inadequacy of the UK testing operation;
- overreliance on specific mathematical models when there were too many uncertainties;
- assumptions about public compliance with rules that turned out to have underestimated the willingness to conform even for long periods;
- the composition of SAGE suffered from a lack of representation from outside the United Kingdom; and
- a preference for a particular UK approach may have been favoured above advice based on emulation of what was being pursued elsewhere. (Paragraph 154)

21. Science proceeds through challenge and disputation, and new theories are tested unflinchingly against evidence. Yet Ministers and other advisers reported that they felt it difficult to challenge the views of their official scientific advisers. Those in Government have a duty to question and probe the assumptions behind any scientific advice given, particularly in a national emergency, but there is little evidence sufficient challenge took place. However, even when UK policy had changed to bring in a comprehensive national lockdown, the role of non-pharmaceutical interventions against covid-19 was complex, inconsistent and opaque for most of the rest of 2020. (Paragraph 155)

22. The second wave of covid infections, hospitalisations and deaths during the autumn and winter of 2020/21 was significantly driven by the emergence of a new variant, known as the Kent or Alpha variant. It is likely that a “circuit break” of temporary lockdown measures if introduced in September 2020, and earlier lockdown measures during the winter, could have impeded the rapid seeding and spread of the Kent variant. However, the existence of the Kent or Alpha variant was not known by the Government until 11 December 2020 so that the justification for taking earlier measures could not rely on information available at the time. (Paragraph 156)

23. Government public health communications are key to the public’s understanding of and compliance with non-pharmaceutical interventions. Initial messaging from the Government early in

the pandemic was strong, effective and undoubtedly contributed to the success of the first lockdown. After the gradual lifting of the first lockdown from May 2020, Government guidance became increasingly complex and harder to understand, with restrictions varying in different parts of the country. Government communications did not always reflect this nuance, leading to perceived inconsistency and divergent strategies across the four nations of the UK. (Paragraph 157)

●24. *In the early days of a crisis, scientific advice may be necessarily uncertain: data may be unavailable, knowledge limited and time may be required for analysis to be conducted. In these circumstances it may be appropriate to act quickly, on a precautionary basis, rather than wait for more scientific certainty.* (Paragraph 158)

●25. *In future an approach of greater questioning and challenge should characterise the development of policy. Ministers should have the confidence to follow a scientific approach themselves—being prepared to take a more robust approach to questioning and challenging the advice given. The Government and SAGE should also facilitate strong external and structured challenge to scientific advice, including from experts in countries around the world, and a wider range of disciplines.* (Paragraph 159)

●26. *In bringing together many of the UK's most accomplished scientists, SAGE became a very UK body. In future, it should include more representation and a wider range of disciplines, from other countries, especially those which have experienced, or are experiencing, the same emergency.* (Paragraph 160)

●27. *In a pandemic, the scientific advice from the SAGE co-chairs to the Government should be published within 24 hours of it being given, or the policy being decided, whichever is the later, to ensure the opportunity for rapid scientific challenge and guard against the risk of 'groupthink'. In addition, minutes and SAGE papers should be published within 48 hours of the meeting taking place.* (Paragraph 161)

●28. *The Government, via the World Health Organisation, should make the case for an international standard of reporting covid-19 deaths and a framework for reporting disease related deaths for future pandemics.* (Paragraph 162)

## **Testing and contact tracing**

29. Despite being one of the first countries in the world to develop a test for covid in January 2020, the United Kingdom failed to translate that scientific leadership into operational success in establishing an effective test and trace system during the first year of the pandemic. Public Health England showed itself to be scientifically accomplished, but poor at delivering an operational testing system at the scale and urgency required by a pandemic. (Paragraph 232)

30. Testing capacity was treated too much as a parameter rather than a variable that could be changed by the Department of Health and Social Care and scientific advisers. What was being achieved in other countries, particularly East Asia, appeared to be of little interest in the initial weeks of the pandemic. This was an inexcusable oversight. It took a personal intervention by the then Secretary of State in April 2020 to drive a major increase in testing capacity. (Paragraph 233)

31. The resulting requirement to abandon testing people in the community during the critical early period of the pandemic cost many lives for a number of reasons including because:

- a) many asymptomatic carriers were not tested and therefore identified and asked to isolate;
- b) many older people were admitted to care homes either from the community or hospitals in ignorance of their covid status or that of staff working in care homes;
- c) low levels of testing meant that the UK lost visibility of where the disease was spreading, among which groups and how quickly. For a crucial period our only insight into the spread of covid was by counting people so sick that they had to be admitted to hospital; and (Paragraph 234.c))
- d) the receipt of a positive test result would have been likely to improve compliance with an isolation request. (Paragraph 234)

32. The new Test and Trace operation eventually established in May 2020 was a step in the right direction but set up much too late. Because of that delay there was huge pressure to get results quickly which meant that it followed a centralised model initially, meaning assistance from laboratories outside PHE—particularly university laboratories—was rebuffed. The same was true for contact tracing, where the established capabilities of local Directors of Public Health and their teams were not effectively harnessed during the initial response to the pandemic, despite local approaches providing effective in places where they were pursued. It is now clear that the optimal structure for test and trace is one that is locally driven with the ability to draw on central surge capacity—but it took the best part of a year to get to that point. In short, implementation was too centralised when it ought to have been more decentralised. (Paragraph 235)

33. Vast sums of taxpayers' money were directed to Test and Trace, justified by the benefits of avoiding further lockdowns. But ultimately those lockdowns happened. Were it not for the success of the Vaccine Taskforce and the NHS vaccination programme, it is likely that further lockdown restrictions would have been needed in Summer 2021. (Paragraph 236)

34. We recognise that the effectiveness of test and trace in reducing transmission is likely to be reduced when the prevalence of the virus is high, as highlighted by Professor Whitty and others, but it is clear from the latest data and the experience of September 2020 that even at the level of operational effectiveness, NHS Test and Trace has been unable to respond to rising rates of transmission of covid-19. (Paragraph 237)

35. The Test and Trace organisation has not, despite its branding, been run by the NHS, and has seen senior executives brought in from external bodies for short term contracts which reduces the institutional learning, from what was an intense period, that has been retained. It is a major concern that the new organisation responsible for test and trace is opaque in its structure and organisation. (Paragraph 238)

36. Partly because it was set up too late, NHS Test and Trace ultimately fell short of the expectations set for it. It has failed to make a significant enough impact on the course of the pandemic to justify the level of public investment it received. It clearly failed on its own terms, given its aim in September to “avoid the need for a second lockdown” by contributing to a reduction in the ‘R’ number. While we acknowledge that test, trace and isolate activities are just one—albeit crucial—component of the measures undertaken to tackle covid-19, NHS Test and Trace (NHSTT) clearly failed to achieve this central objective. NHSTT has also consistently failed to reach the 72-hour turnaround time as identified as necessary by SAGE, including a significant failure in September 2020. Further, although the Government first described the impact of NHSTT on reducing ‘R’ in December, it took an unacceptably long two months before the evidence and

analysis behind this assertion was made public. When it was published it became clear that the analysis was outdated, invalidating claims made at the time. The use of inaccurate data and the lack of transparency impeded effective public scrutiny at a crucial time in the pandemic. (Paragraph 239)

37. The National Audit Office has stated that “to achieve value for money NHST&T must be able to demonstrate both that the interventions it delivers are effective in achieving its objective, and that the mix of interventions is the most cost-effective use of public resources.” After 18 months and many billions of pounds of taxpayers’ funds, there is hope that the UK now has a capacity for testing and tracing that is adequate. It is a bitter irony that this point may only have been reached at the point in which the vaccination programme makes testing less of a critical component than it was previously. (Paragraph 240)

● 38. *Scientific excellence is not enough in test and trace programmes: the UK must develop greater operational competence in deployment. In particular, the Government must ensure that both the new UK Health Security Agency and local authorities have the capability and funding to stand up both central surge capacity and locally-driven testing and contact tracing within seven days of a public health emergency being declared.* (Paragraph 241)

● 39. *Public Health England and its successor bodies, as well as Ministers and their scientific advisers, should be more willing to study and emulate the practice of other countries with urgency and agility, especially during a crisis. A culture must be established that looks proactively to collaborate with other organisations, rather than to reject assistance.* (Paragraph 242)

● 40. *Those responsible for future test and trace programmes should establish a culture and processes to learn rapidly from errors and to act to prevent them being repeated.* (Paragraph 243)

● 41. *The reactive, short-term horizon of test and trace for much of the pandemic must be replaced by a capacity for anticipation and preparation—even during the course of an emergency.* (Paragraph 244)

● 42. *The organisation of the bodies responsible for testing and tracing should be open and transparent both about their operations and the basis of their decisions.* (Paragraph 245)

## **Social care**

43. The covid-19 pandemic has put massive strain on a social care sector already under huge pressure, which has a particular focus on caring for elderly people who have been at the greatest risk of death from covid. (Paragraph 288)

44. Social care had a less prominent voice in Government during the early stages of the pandemic than did the NHS. (Paragraph 289)

45. The discharge of elderly people from NHS hospitals into care homes without having been tested at the beginning of the pandemic—while understandable as the NHS prepared to accept a surge of covid patients—had the unintended consequence of contributing to the spread of infection in care homes. The seeding of infections also happened as a result of staff entering care homes, and the failure to recognise this risk early is a symptom of the inadequate initial focus on social care. The lack of available testing at the time meant that the extent of spread by each route of transmission cannot be fully known and has not been conclusively determined by the report commissioned from PHE by the Government. (Paragraph 290)

46. Staff shortages, the lack of testing, difficulties in obtaining PPE and the design of care settings to enable communal living hampered isolation and infection control and the ability to keep covid at bay. Social care staff in care homes and providing domiciliary care worked under strenuous conditions, at risk to themselves, to provide care to people. (Paragraph 291)

47. Many of these pressures on the social care sector—such as funding and workforce—are longstanding and must be resolved urgently. Pressures on the social care workforce are likely to be compounded this autumn by the mandate that people working in the social care sector must be fully vaccinated to continue to provide care in residential care homes. (Paragraph 292)

● 48. *Planning for future pandemics should have a more developed and explicit consideration of the intense interaction between the NHS and social care. The prominence of social care within the Department of Health and Social Care should be enhanced and Ministers must address the relative lack of knowledge and experience of social care within the Department and senior levels of the NHS. The Department should ensure that future policy and guidance relating to the sector is well-informed and reflects the diversity of the sector. The Department must also set out how it plans to retain the expertise of the Social Care Taskforce on a more permanent basis.* (Paragraph 293)

● 49. *Long term reform of social care is overdue and should be pursued as a matter of urgency. The Government's recent announcement on the future of social care is welcome, but the long-term future of the sector remains unresolved. We endorse the Health and Social Care Committee's call for a 10 Year Plan for Social Care to accompany the 10 Year Plan for the NHS. It must ensure that there is parity between the health and care sectors so that social care is given proper priority in a future crisis.* (Paragraph 294)

● 50. *We endorse the Health and Social Care Committee's call for additional resources to be directed to social care. That Committee has made the case for an increase of £7 billion a year by 2023/4. We note that despite the Government's recent announcement the level of new investment in social care from 2023/24 remains unclear.* (Paragraph 295)

● 51. *The Government should review the provision of infection prevention and control measures, including infection prevention and control nurses, to social care and ensure that social care providers, particularly care homes, are able to conduct regular pandemic preparedness drills. The Government must ensure that care homes have isolation facilities and social care providers are able to provide safe visiting for family and friends of care home residents.* (Paragraph 296)

## **At risk communities**

52. The impact of covid-19 has been uneven across the population, with some sections of society suffering significantly higher illness and deaths than the nation as a whole. (Paragraph 330)

53. During the initial phase of the pandemic Black, Asian and minority ethnic people experienced significantly higher levels of severe illness and death from covid than was typical the population as a whole. Research conducted so far suggests that the drivers of these elevated levels of impact among Black, Asian and minority ethnic people arise from greater likelihood of jobs that come with higher exposure to covid infection; more challenging social and economic circumstances; more densely occupied housing; and comorbidities from different health conditions. These are classic features of inequality in society and in the economy. (Paragraph 331)

54. Staff from Black, Asian and minority ethnic backgrounds are crucial to the NHS and care sectors. The covid-19 pandemic has brought the experiences of these staff into sharp focus. It is telling that the first ten NHS staff to die from covid-19 were from Black, Asian and minority ethnic backgrounds, and evidence has since confirmed that the impact of covid-19 on this section of the workforce has been significant. While the NHS has made progress in recent years, the experience of people from BAME groups during the pandemic has made it clear that inequalities persist. (Paragraph 332)

55. People with learning disabilities have experienced significantly higher death rates from covid-19 than the country as a whole. Deaths have been especially high among younger adults with learning disabilities. Initial research suggests that people with learning disabilities entered the pandemic from a position of heightened vulnerability because of existing comorbidities. This was compounded by particular barriers to accessing NHS treatment during the pandemic arising from restrictions on non-covid care and limits on the ability of carers and advocates to attend hospital with people with learning disabilities. (Paragraph 333)

56. Although there was never national NHS guidance to apply “Do not attempt CPR” (DNACPR) notices to people with learning disabilities, there have been widespread concerns that there were cases in which they have been issued inappropriately during the pandemic. (Paragraph 334)

● 57. *The Government should ensure its ‘levelling up’ agenda includes specific policies to reduce health inequalities, with a particular focus on ensuring that certain groups, including people from Black, Asian and minority ethnic backgrounds, do not continue to face unequal health outcomes.* (Paragraph 335)

● 58. *It is essential that in any future crisis, NHS staff from Black, Asian and minority ethnic backgrounds are included in emergency planning and decision-making structures. NHS England should accelerate efforts to ensure that NHS leadership in every trust, foundation trust and Clinical Commissioning Group is representative of the overall Black, Asian and ethnic minority workforce.* (Paragraph 336)

● 59. *Leadership in NHS England and Improvement should also increase their engagement with Black, Asian and minority ethnic worker organisations and trade unions to ensure that Black, Asian and minority ethnic members of staff feel valued by the organisation, are involved in decision-making processes and feel able to speak up when they are not being protected.* (Paragraph 337)

● 60. *It is unacceptable that staff from Black, Asian and minority ethnic communities did not have equal levels of access to appropriate and useable personal protective equipment as their white colleagues during the pandemic. The Government must learn from the initial shortage of appropriate PPE for these staff and set out a strategy to secure a supply chain of PPE that works for all staff in the NHS and care sectors.* (Paragraph 338)

● 61. *The NHS, local authorities and the Government should ensure that health advice during the remainder of the pandemic and in any future emergencies should be available in a full range of languages, and that outreach programmes should reflect what is most effective in the cultural context of different communities.* (Paragraph 339)

● 62. *In planning for future health emergencies, the Department of Health and Social Care and the NHS should consider the specific difficulties faced by people with learning disabilities and their*

*families and recognise the barriers to understanding and communication which, if not overcome, can lead to avoidable deaths of vulnerable people. (Paragraph 340)*

● 63. *The NHS should improve the data it holds on people with learning disabilities so that this group of patients can be more appropriately considered for vaccination. (Paragraph 341)*

● 64. *The NHS should ensure the guidance on DNACPR notices is clear and properly understood by healthcare professionals and individuals, especially in circumstances where a patient's carer or advocate may not be able to be present in hospital. (Paragraph 342)*

## **Vaccines**

65. The Government presciently identified that a vaccine would be the long-term route out of the pandemic and supported the research and development of a number of covid-19 vaccines, including the successful Oxford/AstraZeneca vaccine. A significant part of the success of the Oxford/AstraZeneca vaccine was due to the Government's early investment in research and development. Investment and support through existing channels and forums such as the UK Vaccine Network have clearly paid off and illustrate the importance of looking ahead for future challenges. (Paragraph 389)

66. The UK vaccination programme—from discovery of potential vaccines against covid-19 to the vaccination of nearly 80% of the adult population by 1 September 2021—has been one of the most successful and effective initiatives in the history of UK science and public administration. Millions of lives will ultimately be saved as a result of the global vaccine effort, in which the UK has played a leading part. In the UK alone, the successful deployment of effective vaccines has allowed, as at September 2021, a resumption of much of normal life, with incalculable benefits to people's lives, livelihoods and to society. (Paragraph 390)

67. The strength of the UK's scientific base—that is to say, the institutions, people, and previous experience on which the discoveries made depended—was foundational to the success of the programme. The Government responded, from the outset, decisively and with alacrity to the need for additional funding to advance projects with a potential to develop new vaccines. (Paragraph 391)

68. The UK regulatory authorities—principally the MHRA and the JCVI—approached their crucial remit with authority and creativity. Allowing the results of clinical trials to be submitted on a rolling basis made the UK the first Western country in the world to approve a vaccine. The bold decision to extend the interval between doses allowed more people to be vaccinated more quickly and so protected the population. (Paragraph 392)

69. The establishment—following the suggestion of Sir Patrick Vallance—of the Vaccine Taskforce outside the Department of Health and Social Care, and comprising a portfolio of experienced individuals from industry, healthcare, science and Government was a masterstroke. The bold, authoritative leadership of Kate Bingham was of crucial importance. The Vaccine Taskforce carried forward the model established in the Life Sciences Industrial Strategy. That strategy also highlighted and acted upon the relative lack of UK vaccine manufacturing capacity. The Government was right to act to accelerate the delivery of institutions like the Vaccines Manufacturing Innovation Centre proposed in the Industrial Strategy, and to have invested further in manufacturing capacity. (Paragraph 393)

70. The decision to procure, at risk, and long in advance of regulatory approval, a broad portfolio of supplies of potential vaccines was bold and prescient, as was the commitment to order vaccines in quantities in excess of what was needed. (Paragraph 394)

71. The successful roll-out of vaccines to the whole of the UK population reflected a collaborative approach between many different groups, national and local, embracing GPs and the NHS locally, pharmacies and community volunteers, as well as the Armed Forces. (Paragraph 395)

72. The success of the vaccine programme has redeemed many of the persistent failings of other parts of the national response such as the test and trace system, so that the outcome is far better than would have been the case without this success. (Paragraph 396)

● 73. *It is essential that support for, and investment in, the UK science base is protected and enhanced. This should include delivering the Government commitment from Budget 2020 and the 2021 R&D roadmap to invest £22 billion per year in R&D by 2024/25. Science has saved the world from the even greater catastrophe of covid-19 without the defence of vaccines. The experience should alert us to the risk of unforeseen threats against which a world-class and experienced scientific capability is the best investment.* (Paragraph 397)

● 74. *A strategic approach should be taken to manufacturing vaccines. The Life Sciences Industrial Strategy identified vaccine manufacturing as an area in which the UK could and should be stronger and set out deliberately to act on this by creating the Vaccine Manufacturing Innovation Centre. Looking forward and comparing future opportunities and threats against current capability and acting to resolve them is a responsible approach.* (Paragraph 398)

● 75. *The Vaccine Taskforce model of forming flexible teams outside of the usual Whitehall administration, but working with it, and comprising people with outside expertise working within it, is a successful one. It should be considered for delivering other Government priorities. However, it is concerning to hear that the Vaccine Taskforce model is being eroded by incorporation into “the normal entropy process of Whitehall”, and this erosion should be arrested. The procurement model deployed by the Vaccine Taskforce of making decisions at risk, outside conventional procurement procedures, proved highly effective. Lessons from this success should be applied to other areas of Government procurement.* (Paragraph 399)

● 76. *The UK’s regulatory system responded with rigour but flexibility. It could be that the approvals process and the conduct of clinical trials could have proceeded even more quickly, for example by making use of human challenge trials. This may not be appropriate in anything but the most exceptional circumstances—i.e. a deadly pandemic—but an assessment of this should be made now before such an occasion might arise.* (Paragraph 400)

● 77. *The use of the Armed Forces—as well as civilian volunteer groups—proved effective in advancing the vaccine roll-out quickly and reliably. Protocols should be established to allow the Armed Forces quickly and at scale to participate, and the NHS should consider ways in which it can be more accommodating of volunteer support in normal times building on the experience and enthusiasm demonstrated during the pandemic.* (Paragraph 401)

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