

Witness Name: Professor Sir Peter Horby

Statement No: 4

Exhibits: PH4/1 - 33

Dated: 27 May 2025

UK COVID-19 INQUIRY

WITNESS STATEMENT OF PROFESSOR SIR PETER HORBY

I, Professor Sir Peter Horby, will say as follows: -

1. This statement is provided in response to a rule 9 request from the UK COVID-19 Inquiry in relation to Module 7 and is intended to cover the relevant time period identified in the Module 7 Rule 9 request from 01 January 2020 to 28 June 2022.

Overview of qualifications, career history and personal expertise

2. I am a qualified medical doctor with a background in infectious diseases and public health medicine. I have led clinical and epidemiological research on a wide range of emerging and epidemic infections over the last twenty years including SARS, avian influenza, Ebola, Lassa fever, mpox (formerly monkeypox), plague and COVID-19.
3. From 1996 to 2003 I worked for the Public Health Laboratory Service (replaced by the Health Protection Agency in 2004, Public Health England in 2013, and the UK Health Security Agency in 2021).
4. From 2003 to 2006 I was head of communicable disease surveillance and response at the World Health Organization country office in Vietnam.
5. In February 2006 I joined the University of Oxford. From 2006 to 2011 I set up and led a clinical research unit at the National Hospital for Tropical Diseases in Hanoi, Vietnam.

6. I was based in Singapore from July 2011 to July 2014, working on infectious diseases, with a special focus on epidemic-prone infectious diseases.
7. I returned to the UK in 2014 and remain employed by the University of Oxford as a clinical academic within the Nuffield Department of Medicine. I am currently the Moh Family Foundation Professor of Emerging Infectious Diseases and Global Health and Director of the Oxford University Pandemic Sciences Institute.
8. I have conducted research and published extensively on epidemic- and pandemic-prone infectious diseases including viral respiratory pathogens but I do not claim specific expertise on contact tracing and isolation or diagnostic testing methodologies.

Scientific advisory committees

9. I was Chair of the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) Committee from 21 May 2018 to 25 June 2024. There were 40 full NERVTAG committee meetings in 2020 and 16 to the end of June 2021. Meetings of the NERVTAG main committee took place on 13 and 21 January 2020, prior to the Scientific Advisory Group for Emergencies (SAGE) being convened. In addition, there were 11 NERVTAG “Bird table”* meetings in 2020. Additional, extraordinary, meetings were held to consider specific topics; novel therapeutics in February and March 2020, non-invasive ventilation (NIV)/high flow nasal oxygen (HFNO) in March 2020, contact tracing in April 2020, and four meetings on new SARS-CoV-2 variants in December 2020 and January 2021.
10. I was a member SAGE COVID-19. I attended 89 of 105 SAGE COVID-19 meetings. Although I was party to SAGE considerations of advice related to the UK COVID-19 test, trace and isolate (TTI) programme, I was not involved in decisions with respect to TTI nor its implementation or evaluation. As such, I will not summarise SAGE activities related to TTI as these are better covered by other SAGE members who were more closely involved in the TTI programme.
11. I had no involvement with other committees or entities that were set up specifically to design, implement, review or evaluate the UK COVID-19 TTI programme.

* “Bird table” meetings were more informal, free-form meetings to give an opportunity for committee members to review the general status of the pandemic and raise any issues of interest or concern not covered under the main meeting agenda items.

NERVTAG

12. NERVTAG had no direct input in to the UK COVID-19 TTI programme. However, NERVTAG did consider a number of issues that were relevant to TTI operations e.g. the characteristics of COVID-19 such as the duration of infectiousness and asymptomatic transmission, and TTI parameters such as case definitions for contact tracing and the recommended duration of isolation. I will briefly summarise the extent of NERVTAG advice that is relevant but will not describe that advice in detail unless it directly relates to TTI policies, technologies, strategies, structures, enforcement or effectiveness.

13. **Contact tracing:** At NERVTAG meeting 15 (24 April 2020) (**PH4/1 - INQ000325283**) the committee considered whether smartphone-based contact notification should be initiated upon the basis of symptoms or upon the basis of confirmed PCR testing. This issue could not be resolved at the meeting and a SPI-M-NERVTAG extraordinary meeting on contact tracing was therefore called and held on 26 April 2020 to consider questions developed by the DHSC policy team related to establishing a national contract tracing service (**PH4/2 - INQ000120452**). The minutes of this meeting were presented to SAGE 32 (01 May 2020) (**PH4/3 - INQ000120511**). These minutes stated:

“Key recommendations of the committee (at this stage of the pandemic) were;

I. Contact tracing via any route or process, and the quarantine of contacts, should be initiated based on a symptomatic case, and should not be delayed for laboratory confirmation.

II. The advice provided to contacts around quarantine should be standardised for all contacts, and not stratified by risk, other than for healthcare workers who have been protected by PPE.

III. The recommended period of quarantine for contacts is 14 days, but contacts would be immediately released if the index case’s test result is negative.

IV. For the purposes of contact tracing, cases (either self-diagnosed or laboratory confirmed) should be considered infectious for 2 days prior to the onset of symptoms.

V. Contacts of contacts should not be advised to quarantine, unless the original

contact develops symptoms.

VI. Testing of asymptomatic contacts is not routinely advised”

14. NERVTAG further considered contact tracing at main meetings 22 (10 June 2020) (PH4/4 - INQ000120427) 36 (13 November 2020) (PH4/5 - INQ000120385) and 37 (20 November 2020) (PH4/6 - INQ000120386).

15. NERVTAG provided papers to SAGE on case definitions for contact tracing:

a) ‘Case definitions for contact tracing’ (07 May 2020) (PH4/7 - INQ000563611) paper for SAGE 34 (07 May 2020) (PH4/8 - INQ000563610). SAGE minutes ‘Action: ONS to test the NERVTAG case definition through its survey; NERVTAG to provide case definition to test and trace group. SPI-B to advise on communication of this to the public.’

b) Paper ‘Community case definitions for COVID-19’ (02 Sept 2020) (PH4/9 - INQ000120557) submitted SAGE 57 (17 Sept 2020) (PH4/10 - INQ000120558).

16. **Digital contract tracing:** NERVTAG submitted a paper titled ‘Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing’ (April 2020) (PH4/11 - INQ000074920) to SAGE 30 (30 April 2020) (PH4/12 - INQ000075781).

17. **Asymptomatic or pre-symptomatic infection and infectiousness:** the proportion of infections which are asymptomatic and the level of infectiousness pre-symptom onset affect the impact that a TTI system can have on reducing transmission. On a number of occasions NERVTAG reviewed and/or summarised the state of knowledge on asymptomatic SARS-CoV-2 infection, the infectiousness of people with asymptomatic infection, and infectiousness in the pre-symptomatic phase of infection. These issues were discussed at NERVTAG COVID-19 meetings 4, 10, 12, 16, 17, 18, 19, 22, 23, 29 and 31. NERVTAG papers for SAGE on this issue:

a) Duration of infectiousness following symptom onset in COVID (13 April 2020) (PH4/13 - INQ000120389). Paper for SAGE 25 (14 April 2020) (PH4/14 - INQ000198049).

- b) Assessment of pre-symptomatic transmission of COVID-19 (14 April 2020) (**PH4/15 - INQ000120393**). Paper for SAGE 30 (30 April 2020) (PH4/12 - INQ000563609).
- c) A NERVTAG paper 'Asymptomatic SARS-CoV-2 infection' (14 May 2020) (**PH4/16 - INQ000422033**) was submitted to SAGE 36 (14 May 2020) (**PH4/17 - INQ000120519**).
- d) 'Dynamics of infectiousness and antibody responses' (10 June 2020) (**PH4/18 - INQ000120524**). Submitted SAGE 41 (11 June 2020).
- e) 'Rapid review of the asymptomatic proportion of PCR-confirmed SARS-CoV-2 infections in community settings' (09 September 2020) (**PH4/19 - INQ000203996**). Submitted to SAGE 56 (10 Sept 2020) (**PH4/20 - INQ000563614**).

18. **Immunity certification:** Paper titled 'Immunity certification' (09 December 2020) (**PH4/21 - INQ000120575**) submitted to SAGE 72 (10 December 2020) (**PH4/22 - INQ000120576**). Paper titled 'Update note on immunity certification' (03 Feb 2021) (**PH4/23 - INQ000060468**) submitted to SAGE 79 (04 Feb 2021) (**PH4/24 - INQ000092855**).

19. NERVTAG did make one direct intervention on the effectiveness of the TTI programme.

20. At bird table meeting 8 (09 October 2020) (**PH4/25 - INQ000087536**), members reviewed the PHE/JCB situational awareness report appendix dated 08 October (page 14) (**PH4/26 - INQ000563624**) and:

- a) *'Members noted that there appeared to be no 7-day contacts, outside of the household identified by TTI and that this could be mis-interpreted. PH suggested that this is put to the TTI team. JH will take forward with the appropriate person.'*
- b) *'Action BT 8.7 – JH to discuss with TTI the observation that cases appear to have identified no contacts outside the household in a 7-day period.'*

21. At Bird Table meeting 9 (23 October 2020) (**PH4/27- INQ000120462**) the PHE/JCB situational awareness report was considered. As shown on page 17 of the PHE Situational Awareness report appendix dated 22 October 2020, NHS Test and Trace data from 28 May to 21 October reported an average of zero contacts identified outside of the

household. Around this time, SPI-M-O, as can be seen from their consensus statement of 21 October 2020 (**PH4/28 - INQ000563620**), which was considered at the 63rd SAGE meeting on 22 October 2020, were estimating there were between 53,000 and 90,000 new infections per day, an infection rate far too high for test and trace to be able to play a significant role in reducing infections. The meeting minutes record as follows:

- a) *“AH noted in the contact tracing results the average number of contacts outside the household was less than 1, which seemed implausible. (Page 17 of situational awareness report appendix). This was captured by individuals reporting to T&T and has been the case all along.*
- b) *It was proposed to look at a more detailed breakdown of TTI data by showing the distribution of non-household contacts, as the median is difficult to interpret and the extent to which it is contributing to local outbreak detection.*
- c) *It was noted that SPI-M are looking at the performance of the system at the moment. There is a process ongoing to obtain data coming into T&T in order to update the model used at the time. It was proposed that a joint SPI-M/SPI-B/NERVTAG SAGE subgroup was set up.*
- d) *Action BT 9.2 – PH to propose that a joint SPI-M/SPI-B/NERVTAG SAGE subgroup is set up to review the functioning of TTI and advice about the most efficient use of the system.”*

22. Consequently, on 23 October 2020 I emailed the CMO and GCSA regarding the ‘test and trace’ system, a copy of this email is exhibited at (**PH4/29 - INQ000221956**). In this email I conveyed the view, following the NERVTAG bird table meeting on the same day, that *“it was felt that currently the test and trace system is unlikely to be having a significant impact on infection transmission and there may be value in convening a SAGE subgroup with representation from NERVTAG, SPI-M and SPI-B to explore how the impact of the test and trace system can be improved’.*

23. In response to my email of 23 October 2020 the CMO and GCSA separately responded in emails on 25 October 2020, copies of which are exhibited at (**PH4/30 - INQ000221958**) and (**PH4/31 - INQ000221957**). The CMO communicated that he thought a SAGE subgroup would be helpful. As far as I am aware such a SAGE subgroup was not convened. The test and trace system was discussed at the 64th SAGE meeting on 29

October 2020 where it was noted in the minutes of this meeting at item 21 that “*Direct and indirect mortality and morbidity from COVID-19 is likely to be low in the event of low prevalence and a controlled epidemic, where test and trace can play a larger role in containing outbreaks, and interventions are in place to successfully control surges in cases where they occur, although economic and other harms arise from interventions.*” A copy of the minutes of this SAGE meeting are exhibited at (PH4/32 - INQ000128574).

24. Feedback on Bird Table 9 action item (BT 9.2) was minuted in the Bird Table meeting 10 (06 November 2020) (PH4/33 - INQ000120145) as follows:

- a) *Action BT 9.2 – PH to propose that a joint SPI-M/SPI-B/NERVTAG SAGE subgroup is set up to review the functioning of TTI.*
- b) *COMPLETE – Discussed at SAGE on 5 November; there will be a paper going back to SAGE about the TTI system. PH will follow up with SAGE on how NERVTAG can input into that, rather than forming a separate subcommittee.*
- c) *MZ noted that there was a meeting pm on 6 November, commissioned from SAGE about the TTI group. AH noted that there is another meeting pm on 6 November about using test and trace data to understand transmission (about the case control study). MZ/WB and AH to feed back at the next meeting.*

25. Therefore, this item was considered closed and was not considered further by NERVTAG.

Lessons Learned

26. The optimal implementation of a test, trace and isolate programme requires several underpinning elements.

27. **Well-defined objectives** for TTI under different scenarios e.g.

- a) Providing sufficient situational awareness in the first few days or weeks of a pandemic to inform key early decision-making.
- b) Early containment of limited transmission using sensitive (but not necessarily specific) definitions of ‘contact’ and highly precautionary quarantine parameters.

- c) Reducing transmission whilst minimising social disruption in a more widespread pandemic using more specific definitions of 'contact' and less stringent quarantine parameters.
- d) These scenarios and operational considerations should be considered in advance of the next pandemic.

28. **High quality data and evidence inputs** to optimally design the TTI system and to calibrate what impact can be expected. Such data include the extent of asymptomatic infection and onward transmission from asymptomatic cases, pre-symptomatic infectiousness, correlation of symptoms with infectivity, and the duration and dynamics (e.g. peak) of infectivity. These parameters, and how they would be determined, should be considered in advance of the next pandemic.

29. **Diagnostic tools and resources** to quickly implement and scale TTI. Testing capacity was grossly inadequate for much of the early stages of the pandemic. There is a need to consider what can be done to put the UK in a better position for the next pandemic e.g. developing and validating prototype point-of care tests and/or high throughput diagnostic technologies for a range of pandemic threats, and considering domestic production and scale up pathways.

30. **Contact tracing tools and resources** to quickly implement and scale TTI. Digital disease control tools, such as contact tracing apps, came of age during the pandemic and, in my view, offer great promise. I believe there should be investment in the further development of these tools which should include consideration of integration with other data sources, linkage to home testing and/or home physiological monitoring using wearable devices such as smart watches, embedding research and survey capabilities, and information governance, ethical and moral implications.

Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.

Signed: **Name Redacted**

Dated: 27 May 2025_____