Witness Name: Nicholas Grassly

Statement No. 1

Exhibits: 5

Dated: 28/03/2025

UK COVID-19 INQUIRY

MODULE 7

WITNESS STATEMENT OF NICHOLAS GRASSLY

I, NICHOLAS GRASSLY, will say as follows: -

1. I have a PhD in biological sciences from the University of Oxford (1998) and have worked at Imperial College London on infectious disease epidemiology since 2001. I became Professor of Infectious Disease and Vaccine Epidemiology in 2011. My professional expertise is in epidemiology, genomics, human immunology, vaccines and math modelling.

2. My major publication related to TTI is **Grassly NC**, Pons-Salort M, Parker EPK, White PJ, Ferguson NM, Imperial College COVID-19 Response Team et al., 2020, Comparison of molecular testing strategies for COVID-19 control: a mathematical modelling study, *Lancet Infectious Diseases*, Vol: 20, Pages: 1381-1389, ISSN: 1473-3099 [previously made available as report 16 from Imperial College] As seen in exhibit **NG/01** [INQ000561027].

3. I also contributed to a paper which considered the impact of non-pharmaceutical interventions to the reduction in the transmission of

SARS-CoV-2 during the first wave in Europe. This paper considered the impact of self-isolation based on symptoms but did not consider TTI and I refer to it here purely because it was mentioned in the Rule 9 request for information. I do not believe it provides information relevant to the outline of scope for module 7. Flaxman S, Mishra S, Gandy A, Unwin HJT, Mellan TA, Coupland H, Whittaker C, Zhu H, Berah T, Eaton JW, Monod M, Perez Guzman PN, Schmit N, Cilloni L, Ainslie K, Baguelin M, Boonyasiri A, Boyd O, Cattarino L, Cucunuba Perez Z, Cuomo-Dannenburg G, Dighe A, Djaafara A, Dorigatti I, van Elsland S, Fitzjohn R, Gaythorpe K, Geidelberg L, **Grassly N**, Green W, Hallett T, Hamlet A, Hinsley W, Jeffrey B, Knock E, Laydon D, Nedjati Gilani G, Nouvellet P, Parag K, Siveroni I, Thompson H, Verity R, Volz E, Walters C, Wang H, Watson O, Winskill P, Xi X, Walker P, Ghani AC, Donnelly CA, Riley SM, Vollmer MAC, Ferguson NM, Okell LC, Bhatt S et al., 2020, Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe, *Nature*, Vol: 584, Pages: 257-261, ISSN: 0028-0836. As seen in exhibit **NG/02** [INQ000228162]

Relevant evidence I can provide as to testing technologies

4. I can provide evidence on testing strategies that were considered or implemented during the relevant period (January 2020 through to 28 June 2022) and the role of scientific modelling in the development, implementation and evaluation of TTI systems.

Groups in which I participated in during the relevant period of January 2020 through to 28 June 2022

5. I was invited to participate in SPI-M from 20 April 2020 because of my work on testing strategies for COVID-19. I continued to contribute through to February 2021 and remained a member of SPI-M until its 'suspended

animation' in March 2022. Most of my time was spent working for WHO SAGE on COVID-19 vaccines (i.e. not UK focused).

Overview of relevant involvement in these groups

6. I was invited to participate in SPI-M in April 2020 based on my research on COVID-19 testing strategies.

7. I do not have a record of the number of SPI-M meetings I attended, but this attendance was focused on testing strategies. The SPI-M secretariat may have this information. I did not attend SAGE.

8. My research on testing strategies for COVID-19 was published (as above) and also presented by me to SPI-M. I also provided information on the likely impact of mass testing and of test and trace on SARS-CoV-2 transmission in response to ad hoc requests including a 'task and finish' group on mass screening, a request from the MoD CSA (Angela McClean) for a briefing note for Patrick Vallance on mass screening, advice to Ara Darzi on the moonshot programme, requests for advice from Boston Consulting Group on modelling test and trace for DHSC, and comments on modelling of the impact of test and trace from the Test and Trace programme (JBC).

Summary of documents to which I contributed for the purpose of advising SAGE or its related subgroups with respect to TTI.

9. My main contribution was to the Task and Finish group on Mass Screening (TFMS), whose report was submitted to SAGE on 31 August 2020. As seem in Exhibit **NG/03** [INQ000371699]. This document considered mass testing strategies to reduce SARS-CoV-2 transmission distinct from the NHS Test and Trace programme.

A summary of articles I have written, interviews and/or evidence I have given regarding the work of the above-mentioned groups with respect to TTI

10. I wrote an article on testing strategies for COVID-19 that was published as Imperial College London COVID-19 response team report 16 (23 April 2020, As seen in Exhibit NG/04 [INQ000561028] and then as a peer-reviewed paper in Lancet Infectious Diseases (18 August 2020, link as above). I did some press interviews related to this work and gave evidence to SPI-M and SAGE task and finish group as noted above.

My view on lessons that can be learned with respect to TTI and module 7's outline of scope

11. In my experience the process of generating scientific advice to the UK government was excellent. Responses to that advice were variable, but largely one could argue that the UK government response was led by the science.

12. Through my work on testing strategies, including test and trace, particularly in the spring and summer of 2020 it was apparent to me that the contact tracing component (i.e. the 'trace' part) was likely to have a very limited or indeed negligible impact on transmission of SARS-CoV-2. This is because of the inherent delays from becoming infectious to the onset of symptoms in the index case, subsequent testing of the case, and identification and quarantine of contacts, meaning that onwards transmission from contacts would already have happened prior to quarantine. The impact of contact tracing was also compromised by the coverage of TTI programmes and their ability to identify relevant contacts (especially outside of the household) and compliance with quarantine.

13. The benefits of the 'testing' part of test and trace is difficult to estimate in the context of the UK recommendations at the time to self-isolate if showing symptoms of COVID-19. Self-isolation based on symptoms can substantially reduce transmission of SARS-CoV-2 and is not reliant on testing. However, its contribution to transmission reduction was limited by non-compliance. Confirmation of infection through a positive test could increase compliance with self-isolation. However, self-reported test seeking was low among individuals with symptoms of COVID-19 (18% in nationally representative UK surveys between 2 March 2020 and 27 January 2021; As seen in Exhibit NG/05 [INQ000561025]. Given the UK recommendations to self-isolate if showing COVID-19 symptoms, it is therefore likely that testing symptomatic individuals had a limited incremental impact on SARS-CoV-2 transmission.

14. Testing may have had additional benefits unrelated to the reduction of SARS-CoV-2 transmission. These include the ability to end self-isolation and return to work after negative tests (as implemented in England from 17 January 2022).

15. The limited impact of test and trace on SARS-CoV-2 transmission was reported in our published paper in August 2020 and reported verbally to SPI-M based on updated analysis informed by the performance of NHS Test and Trace in England in subsequent months.

16. An enormous amount was spent on TTI in the UK. In England, approximately £26 billion was spent on NHS Test and Trace during the financial years 2020/21 and 2021/22. The bulk of expenditure was on the testing component. The National Audit Office report for 2020/2021 states that £10.4 billion of £13.5 billion (77%) spent in England was on testing and £0.9 billion (7%) on tracing activities.

17. It is my view, based on the modelling work reported above, that TTI could only have a very limited impact on SARS-CoV-2 transmission. This is because of the intrinsic features of the virus (the speed of transmission

and the high proportion of asymptomatic infections) and the logistic and behavioural challenges to TTI (test-seeking, identification of contacts, compliance with isolation/quarantine). Improving the performance of TTI, through costly investment in testing provision and a focus on performance statistics (timeliness and coverage) was never going to deliver a cost-effective programme for controlling the pandemic. Instead, resources spent on implementing and improving TTI could have been saved or invested elsewhere.

18. Future pandemic agents could be more or less amenable to TTI compared with COVID-19 depending on their intrinsic transmission characteristics. In the event of the next pandemic, early assessment of the potential impact of TTI for these agents based on mathematical models and emerging transmission data should be a priority.

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: Personal Data

Dated: 28/3/2025