

Imperial College

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19th September 2022

Module 2 of the UK Covid-19 Public Inquiry Request for Evidence under Rule 9 of the Inquiry Rules 2006 Reference for Request - M2/SAGE/01/NG

Dear Mr Suter,

Thank you for your letter of 2 September on behalf of Baroness Hallett, Chair of the UK Covid-19 Inquiry. Taking the questions in turn:

1. A brief overview of your qualifications, career history, professional expertise and major publications.

Qualifications: DPhil, MSc, MA

Career history: Academic at Imperial College London since March 2001 (from Research Associate, made Professor in 2011)

Professional expertise: Epidemiology, genomics, human immunology, math modelling

Major publications:

Related to this inquiry the most relevant publication is:

Grassly NC, Pons-Salort M, Parker EPK, White PJ, Ferguson NM, Imperial College COVID-19 Response Team <u>et al.</u>, 2020, <u>Comparison of molecular testing strategies for COVID-19 control: a</u> <u>mathematical modelling study</u>, *Lancet Infectious Diseases*, Vol: 20, Pages: 1381-1389, ISSN: 1473-3099 [previously made available as report 16 from Imperial College]

I also contributed to:

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 <u>et</u> al., 2020, <u>Estimating the effects of non-pharmaceutical interventions on COVID-19 in</u> <u>Europe</u>, *Nature*, Vol: 584, Pages: 257-261, ISSN: 0028-0836

Walker PGT, Whittaker C, Watson OJ, Baguelin M, Winskill P, Hamlet A, Djafaara BA, Cucunubá Z, Olivera Mesa D, Green W, Thompson H, Nayagam S, Ainslie KEC, Bhatia S, Bhatt S, Boonyasiri A, Boyd O, Brazeau NF, Cattarino L, Cuomo-Dannenburg G, Dighe A, Donnelly CA, Dorigatti I, van Elsland SL, FitzJohn R, Fu H, Gaythorpe KAM, Geidelberg L, **Grassly N**, Haw D, Hayes S, Hinsley W, Imai N, Jorgensen D, Knock E, Laydon D, Mishra S, Nedjati-Gilani G, Okell LC, Unwin HJ, Verity R, Vollmer M, Walters CE, Wang H, Wang Y, Xi X, Lalloo DG, Ferguson NM, Ghani AC et al., 2020, <u>The impact of COVID-19 and strategies for mitigation and</u> suppression in low- and middle-income countries, *Science*, Vol: 369, Pages: 413-422, ISSN: 0036-8075

2. A list of the groups (i.e. SAGE and/or any of its sub-groups) in which you have been a participant, and the relevant time periods.

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).

3. An overview of your involvement with those groups between January 2020 and February 2022, including:

a. When and how you came to be a participant

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

b. The number of meetings you attended, and your contributions to those meetings;

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.

c. Your role in providing research, information and advice.

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).

I also contributed as a member of the Imperial College London COVID-19 response team.

4. A summary of any documents to which you contributed for the purpose of advising SAGE and/or its related subgroups on the Covid-19 pandemic. Please include links to those documents where possible.

Main contribution was to the Task and Finish group on Mass Screening (TFMS), whose report was submitted to SAGE on 31 August 2020. As a member of the Imperial College London COVID-19 response team, I also indirectly contributed to some of the modelling and analysis reports on the epidemiology of COVID-19 included as formal documents considered at SAGE meetings during the pandemic and later published by the SAGE secretariat. A list of these documents is included in an appendix to this letter.

5. A summary of any articles you have written, interviews and/or evidence you have

given regarding the work of the above-mentioned groups and/or the UK's response to the Covid-19 pandemic. Please include links to those documents where possible.

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, <u>https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-16-testing/</u>) 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. I also contributed to the Flaxman et al. 2020 and Walker et al. 2020 papers listed above.

6. Your views as to whether the work of the above-mentioned groups in responding to the Covid-19 pandemic (or the UK's response more generally) succeeded in its aims. This may include, but is not limited to, your views on:

SPI-M succeeded in commissioning and gathering a huge amount of research on COVID-19 whilst being highly time and resource efficient. This was reliant on the good will of its members and the excellent leadership of its chairs and the secretariat. I believe it was unrivalled in its ability to draw together a range of infectious disease modellers able to contribute timely analysis for policy makers. The process of commissioning groups was relatively informal and open to contributions from SPI-M members with relevant research. Despite the informality, I don't believe this led to major biases or quality issues with the research that was commissioned, and enabled a rapid response to the fast-paced and changing policy landscape. Moreover, SPI-M was a large and relatively open group that included all the major modelling groups in the UK. In my experience, these groups worked well together – and the diversity of approaches facilitated robust findings and advice.

7. Your views as to any lessons that can be learned from the UK's response to the Covid-19 pandemic, in particular relating to the work of the above-mentioned groups. Please describe any changes that have already been made, and set out any recommendations for further changes that you think the Inquiry should consider making.

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

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 very limited or indeed negligible impact on transmission of SARS-CoV-2. The potential impact of contact tracing was reported in our published paper in August 2020 and analysis updated based on the performance of Test and Trace in subsequent months. This conclusion was also supported by independent modelling work from Adam Kucharski at LSHTM and by the NHS Test and Trace programme itself. Nonetheless, an enormous amount was spent on Test and Trace, including a substantial component on the tracing element (I am not aware of a reliable figure on the actual amount of Test and Trace budget spent on contact tracing). I believe this was a waste of taxpayers' money and might have implications for future responses to epidemics and pandemics.

8. A brief description of documentation relating to these matters that you hold (including soft copy material held electronically). Please retain all such material. I am not asking for you to provide us with this material at this stage, but I may request that you do so in due course.

I hold the academic papers and email exchanges related to these matters.

The questions and answers above span almost 2-years of work which was undertaken at pace. The responses are as accurate and complete as possible but if you require further details or there are inadvertent omissions, please do not hesitate to let me know.

Yours sincerely,

Personal Data

Nicholas Grassly

Appendix: Publicly available SAGE documents authored by the Imperial College London COVID-19 Response Team

- 1. Early "Modelling inputs <u>https://www.gov.uk/government/collections/scientific-evidence-supporting-the-government-response-to-coronavirus-covid-19#modelling-inputs</u>
 - Emerging Evidence "Estimates of the severity of COVID-19 disease"
 - Reports from Imperial College London 8 reports:
- 2. Age dependence in COVID-19 infection and fatality risk https://www.gov.uk/government/publications/imperial-college-london-age-dependencein-covid-19-infection-and-fatality-risk-11-february-2020
- 3. Potential effect of school closure on a UK COVID-19 epidemic: annex to SPI-M-O consensus view <u>https://www.gov.uk/government/publications/annex-to-spi-m-o-consensus-view-on-the-impact-of-mass-school-closures-20-february-2020</u>
- 4. Potential effect of non-pharmaceutical interventions on a COVID-19 epidemic https://www.gov.uk/government/publications/potential-effect-of-non-pharmaceuticalinterventions-on-a-covid-19-epidemic-25-february-2020
- 5. Sensitivity of proposed UK sentinel ICU pneumonia surveillance https://www.gov.uk/government/publications/sensitivity-of-proposed-uk-sentinel-icupneumonia-surveillance-25-february-2020
- 6. Sensitivity of proposed UK sentinel GP COVID-19 surveillance https://www.gov.uk/government/publications/sensitivity-of-proposed-uk-sentinel-gpcovid-19-surveillance-25-february-2020
- Summary indicative effects of non-pharmaceutical interventions (NPIs) to reduce COVID-19 transmission & mortality – <u>https://www.gov.uk/government/publications/summary-indicative-effects-of-non-pharmaceutical-interventions-npis-to-reduce-covid-19-transmission-mortality-2-march-2020</u>
- 8. Adoption and Impact of NPIs <u>https://www.gov.uk/government/publications/adoption-and-impact-of-non-pharmaceutical-interventions-for-covid-19-3-march-2020;</u> <u>https://www.gov.uk/government/publications/impact-of-non-pharmaceutical-interventions-npis-to-reduce-covid-19-mortality-and-healthcare-demand</u>
- Timing & local triggering of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demands – <u>https://www.gov.uk/government/publications/timing-local-triggering-of-non-pharmaceutical-interventions-npis-to-reduce-covid-19-mortality-and-healthcare-demands-5-march-2020</u>
- 10. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand <u>https://www.gov.uk/government/publications/impact-of-non-pharmaceutical-interventions-npis-to-reduce-covid-19-mortality-and-healthcare-demand-16-march-2020</u>
- 11. Modelling for "Planning assumptions for the UK reasonable worst case scenario" <u>https://www.gov.uk/government/publications/planning-assumptions-for-the-uk-</u> <u>reasonable-worst-case-scenario-draft-25-march-2020</u> and <u>https://www.gov.uk/government/publications/reasonable-worst-case-planning-scenario-</u> <u>29-march-2020</u>
- 12. Effect of relaxing current measures <u>https://www.gov.uk/government/publications/effect-of-relaxing-current-measures-2-april-2020</u>
- 13. Intervention options and testing needs for long-term suppression of COVID-19 transmission – <u>https://www.gov.uk/government/publications/imperial-college-london-intervention-options-and-testing-needs-for-long-term-suppression-of-covid-19-transmission-28-april-2020</u>
- 14. Exit strategies: <u>https://www.gov.uk/government/publications/imperial-college-london-</u> response-to-covid-19-in-south-korea-and-implications-for-uk-exit-strategies-3-may-2020

- 15. Input (with Warwick and LSHTM) into "Non-pharmaceutical interventions (NPIs) table" https://www.gov.uk/government/publications/npis-table-17-september-2020
- 16. Input into SPI-M-O: COVID-19: Preparatory analysis long term scenarios https://www.gov.uk/government/publications/spi-m-o-covid-19-preparatory-analysis-longterm-scenarios-31-october-2020
- Assessment of B.1.1.7 (Alpha) variant (collaborative with PHE) SAGE document <u>https://www.gov.uk/government/publications/phe-analysis-of-transmissibility-based-on-genomics-15-december-2020</u>. Note that most early discussions of Alpha occurred at NERVTAG, but minutes/conclusions from NERVTAG submitted to SAGE under 22 December Meeting at <u>https://www.gov.uk/government/collections/sage-meetings-</u> december-2020)
- 18. Evaluating the roadmap out of lockdown (multiple inputs into SAGE)
 - a. <u>https://www.gov.uk/government/publications/imperial-college-london-potential-profile-of-the-covid-19-epidemic-in-the-uk-under-different-vaccination-roll-out-strategies-13-january-2021</u>
 - b. <u>https://www.gov.uk/government/publications/imperial-college-london-strategies-for-gradually-lifting-npis-in-parallel-to-covid-19-vaccine-roll-out-in-the-uk-4-february-2021</u>
 - c. <u>https://www.gov.uk/government/publications/imperial-college-london-unlocking-roadmap-scenarios-for-england-5-february-2021</u>
 - d. https://www.gov.uk/government/publications/imperial-college-london-unlockingroadmap-scenarios-for-england-18-february-2021
 - e. <u>https://www.gov.uk/government/publications/imperial-college-london-evaluating-englands-roadmap-out-of-lockdown-30-march-2021</u>
 - f. <u>https://www.gov.uk/government/publications/imperial-college-london-evaluating-the-roadmap-out-of-lockdown-step-3-5-may-2021</u>
 - g. <u>https://www.gov.uk/government/publications/imperial-college-london-evaluating-</u> <u>the-roadmap-out-of-lockdown-modelling-step-4-of-the-roadmap-in-the-context-of-</u> <u>b16172-delta-9-june-2021</u>
 - h. <u>https://www.gov.uk/government/publications/imperial-college-london-evaluating-the-roadmap-out-of-lockdown-for-england-modelling-the-delayed-step-4-of-the-roadmap-in-the-context-of-the-delta-v</u>
- 19. Delta (B.1.617.2) transmission in England risk factors and transmission Imperial College London: Delta (B.1.617.2) transmission in England – risk factors and transmission advantage, 1 June 2021 - GOV.UK (www.gov.uk)
- 20. Autumn/Winter 2021/22 scenarios: <u>https://www.gov.uk/government/publications/imperial-</u> college-london-autumn-and-winter-2021-to-2022-potential-covid-19-epidemictrajectories-13-october-2021
- 21. Report 49, Growth, population distribution and immune escape of Omicron in England <u>https://www.gov.uk/government/publications/imperial-college-london-report-49-growth-population-distribution-and-immune-escape-of-omicron-in-england-15-december-2021</u>
- 22. Report 50, Hospitalisation risk for Omicron cases in England https://www.gov.uk/government/publications/imperial-college-london-report-50hospitalisation-risk-for-omicron-cases-in-england-22-december-2021
- 23. Omicron severity and vaccine effectiveness <u>https://www.gov.uk/government/publications/imperial-college-london-omicron-severity-and-vaccine-effectiveness-5-january-2022</u>