

Witness Name: Professor Susan Michie
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COVID-19 INQUIRY – MODULE 7

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I, **PROFESSOR SUSAN MICHIE**, of the Centre for Behaviour Change at University College London, Gower Street, London, WC1 E 6BT will say as follows:

Section 1: Introduction

- 1.1. I make this statement pursuant to the UK Covid-19 Inquiry's Rule 9 request of 1 November 2024 ('**The Rule 9**'). I previously submitted a response to the Inquiry's Rule 9 Questionnaire of 2 September 2022 on 10 October 2022 [INQ000056609]. I subsequently provided a witness statement to the Inquiry on Module 1 on 14 April 2023 [INQ000148420] and a witness statement on Module 2 on 22 August 2023 [INQ000252610].
- 1.2. Matters I set out within this statement are within my own knowledge save for where I state otherwise. Where I refer to facts not within my own knowledge, I will provide the source for those facts. The contents of this statement are, to the best of my knowledge and belief, both true and correct.
- 1.3. This statement addresses my role and involvement in the approach to testing, tracing and isolation ('**TTI**') adopted during the pandemic in England, Wales, Scotland and Northern Ireland from 1 January 2020 until 28 June 2022. This statement has been prepared based on my personal recollections, and the personal views expressed are my own.

Professional background

- 1.4. I have been asked to provide an overview of my qualifications, career history and professional expertise. I currently hold the following professional qualifications:
 - a) Bachelors in Experimental Psychology from Oxford University (1976);
 - b) M.Phil in Clinical Psychology from London University (1978); and
 - c) D.Phil in Developmental Psychology from Oxford University (1982).

Career history

- 1.5. I am a Chartered Clinical Psychologist (since 1978) and Chartered Health Psychologist (1993) at the British Psychological Society. I am also a Professor of Health Psychology and Director of the Centre for Behaviour Change at University College London (since 2002).
- 1.6. I currently hold the following positions:
- 1.7. Co-Director of Behavioural Research UK since November 2023. This is a 5-year research and leadership programme to advance UK behavioural research

(2023-2028). The BR-UK protocol can be found here [SM-7/01 – INQ000553552]. As part of this, I have led a study investigating the advice provided in published reports by SPI-B and the extent to which that advice was translated to policy makers by analysing written testaments to the COVID Inquiry and individual interviews with a sample of those generating, translating and receiving advice;

- a) I am Co-Director of the not-for-profit company, Unlocking Behaviour Change, established in 2020. I receive funds for consultancy, where it is conducted outside my work at University College London, and those funds are spent on research-related activities;
- b) Chair in Health Psychology, Department of Psychology at University College London from 2005; and
- c) Director at Centre for Behaviour Change at University College London from 2013.

1.8. I have previously held the following positions:

- a) Clinical Psychologist at Guys Hospital from 1982 – 1984;
- b) Clinical Psychologist and Honorary Lecturer in Developmental Psychology at the Royal Free Hospital School of Medicine from 1984 – 1991;
- c) Clinical Psychologist and Honorary Senior Lecturer in Health Psychology at the Royal Free and University College Medical School from 1989 – 2002;
- d) Senior Research Fellow in Clinical Health Psychology (part time after 1993) at Senior the Royal Free and University College Medical School from 1989 – 2002;
- e) Research Fellow at King's College London from 1993 – 1996;
- f) Deputy Director of Psychology and Genetics Research Group at King's College London from 1993 – 2002;
- g) Senior Research Fellow at King's College London from 1996 – 2001;
- h) Reader in Health Psychology at King's College London from 2001 – 2002;
- i) Reader in Clinical Health Psychology at University College London from 2002 – 2006;
- j) Director of Health Psychology Research C & I Mental Health & Social Care Trust at Camden and Islington Primary Care Trust from 2002 – 2012;

- k) Honorary Consultant Clinical Psychologist at Camden and Islington Mental Health and Social Care Trust from 2002 - 2012;
 - l) Senior Scientist, Medical Research Centre's Health Services Research Collaboration (part time secondment) at the University of Bristol from 2006 – 2009;
 - m) Co-Director at the National Centre for Smoking Cessation and Training UK from 2009 – 2015;
 - n) Scientific Advisor at National Centre for Smoking Cessation and Training UK from 2015 – 2018; and
 - o) Co-Director of Policy Research Unit in Behavioural Science Department of Health and Social Care from 2018 – 2023.
- 1.9. In addition to these paid positions, I previously held the following unpaid, advisory roles.
- 1.10. From 2020, I was a member of the World Health Organization's ('**WHO**') Behavioural Insights and Sciences Technical Advisory Group ('**TAG**') and acted as the Chair between 2022-2024. The TAG is composed of renowned experts representing a broad range of disciplines relevant to behavioural insights and sciences, including psychology, behavioural economics, anthropology, social marketing and more. The group also brings together extensive experience in designing and implementing national health policies and programmes informed by behavioural insights and sciences; in evaluating the impact of behaviourally informed public health initiatives in low- and middle-income countries; and in setting up or running behavioural insights units in organisations. The TAG has the following functions:
- a) To advise WHO on how to adopt behavioural insights and science perspectives to support WHO's 13th General Programme of Work and how to identify priority areas for implementation within WHO and in Member States; and
 - b) To make recommendations to WHO for the development of an operational framework for the mainstreaming of behavioural insights and sciences into WHO operations, particularly in the area of providing technical advice on national health policies and programme planning; and to advise WHO on potential challenges and risks for the Organization related to the recommendations made by the TAG.

- 1.11. From 2020 to 2022, I participated in the Lancet Commission's Covid-19: Lessons for the future from the COVID-19 pandemic¹. The Commission delivered a comprehensive investigation, analysis, and response to Covid-19. The Commission delivered a number of recommendations that are divided into three main areas: first, practical steps to finally control and understand the Covid-19 pandemic; second, realistic, feasible, and necessary investments to strengthen the first line of defence against emerging infectious agents in countries by strengthening health systems and widening universal health coverage; and third, ambitious proposals to ignite a renaissance in multilateralism (the collaboration of several countries in developing and implementing policies), integrating the global response to the risk of future pandemics with actions to address the climate crisis and reversals in sustainable development. I was a co-author of its final report [SM-7/02 – INQ000228135].
- 1.12. I served as Chair of the UK Food Standard Agency's Social Sciences Advisory Committee from 2018 to 2022 and chaired the Academy of Social Science's 'Health of People' project from 2016 to 2017.
- 1.13. I retain one unpaid, advisory role as a Co-Investigator of the UK's Policy Research Unit in Behavioural and Social Sciences ('NIHR'). The aim of the NIHR Policy Research Unit is to inform government policy on health, preventing ill-health and health systems. My role in this is relatively small, contributing to some of its research.

Professional expertise

- 1.14. I am considered a global leader in behavioural science and my research focuses on behaviour change in relation to health and the environment: how to understand it theoretically and apply theory to intervention development, evaluation and implementation. My research, collaborating with other disciplines, such as information science, environmental science, computer science and medicine, covers population, organisational and individual level interventions. Examples include: The Wellcome-funded Human Behaviour Change Project and the NIHR funded: 'Advancing Prevention Research in Cancer through Ontology Tools' project ('APRICOT'). I am an investigator on several research projects and have published more than 600 journal articles and several books, including: 'The Behaviour Change

¹ "The Lancet began as an independent, international weekly general medical journal founded in 1823 by Thomas Wakley. Since its first issue (Oct 5, 1823), the journal has strived to make science widely available so that medicine can serve and transform society, and positively impact the lives of people.

Over the past two centuries, The Lancet has sought to address urgent topics in our society, initiate debate, put science into context, and influence decision makers around the world." 'About us', The Lancet, <https://www.thelancet.com/about-us>

Wheel: A Guide to Designing Interventions' (Michie S, Atkins L, West R. (2014)), London: Silverback Publishing' as mentioned below [SM-7/03 – INQ000197094].

- 1.15. My research portfolio includes acting as Co-Director of Behavioural Research UK ('BR-UK'), which is a research consortium funded by UK Research and Innovation ('UKRI') via the Economic and Social Research Council ('ESRC'). The consortium serves as a leadership hub that is part of a wider ESRC programme to build national capability for behavioural research. BR-UK has been awarded funding over five years from November 2023 to conduct and provide leadership to interdisciplinary behavioural research to address societal challenges and advance methodologies.

Major publications relevant to TTI

- 1.16. A list of my major publications can be found in Annex A. I have set out below those publications I consider directly relevant to TTI:
- 1.17. **'Adherence to the test, trace and isolate system: results from a time series of 37 nationally representative surveys in the UK'**, Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), BMJ 31 March 2021 [SM-7/04 – INQ000228154];
- 1.18. **'Do members of the public think they should use lateral flow tests or PCR tests when they have COVID-19-like symptoms? The COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study'** Public Health. Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), 28 July 2021 [SM-7/05 – INQ000196868];
- 1.19. **'Intention to adhere to test, trace, and isolate during the COVID-19 pandemic (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study)'** Smith L. E., Potts H. W. W., Amlôt R., Fear N.T., Michie S., Rubin G. J. (2021), Br J Health Psychology, 30 November 2021. [SM-7/06 – INQ000196870];
- 1.20. **'Who is engaging with lateral flow testing for COVID-19 in the UK? The COVID-19 Rapid Survey of Adherence to Interventions and Responses (CORSAIR) study.'**, BMJ Open. Smith L. E., Potts H. W. W., Amlôt R., Fear N. T., Michie S., Rubin G. J. (2022), 10 February 2022. [SM-7/07 – INQ000196876];
- 1.21. **'Do people with symptoms of an infectious illness follow advice to stay at home? Evidence from a series of cross-sectional surveys about presenteeism**

in the UK.’ BMJ Open. Rubin G. J. Smith L. E. Amlôt R., Fear N. T., Potts H. W. W., Michie S. (2022), 30 May 2022. [SM-7/08 – INQ000196878]; and

- a) ‘**Knowledge of self-isolation rules in the UK for those who have symptoms of Covid-19: a repeated cross-sectional survey study.**’ Int J Environ Res Public Health. Smith L. E., West R., Potts H. W. W., Amlôt R., Fear N. T., Rubin G. J., Michie S. (2023), 21 January 2023. [SM-7/09 – INQ000196883].

Section 2: Key groups in which I was a participant during the relevant period

- 2.1. I was a participant in three groups and/or subgroups during the relevant period:
 - a) Scientific Advisory Group for Emergencies (**‘SAGE’**)
 - b) Scientific Pandemic Insights Group on Behaviours (**‘SPI-B’**); and
 - c) Independent SAGE.
- 2.2. I participated in SPI-B between 2 March 2020 and 3 February 2022. I came to be a participant in SPI-B largely through my involvement in the COVID-19 Rapid Survey of Adherence to Interventions and Responses (**‘CORSAIR’**) study. SPI-B provides independent, expert, social and behavioural science advice to SAGE when activated.
- 2.3. I also attended SAGE meetings on three occasions as listed below in paragraph 2.14. SAGE provides scientific and technical advice to support government decision-makers during emergencies.
- 2.4. I was also a participant in the Independent SAGE, as part of the Independent SAGE Behavioural Advisory Group. Independent SAGE is a group of scientists who work together to provide scientific advice to the UK government and public on how to minimise deaths and support Britain’s recovery from the COVID-19 crisis.
- 2.5. I was a Co-Investigator in the Virus Watch Study, which was funded by Medical Research Council (**‘MRC’**). The study was run by University College London in conjunction with the NHS from 2020 until 2022. Virus Watch was a large community cohort study of COVID-19 in the UK. It followed up more than 50,000 participants across England and Wales for 12 months through online surveys. The behavioural aspect of the study aimed to describe social distancing, mask wearing, lateral flow testing, changes in adherence to personal protective behaviours after vaccination, the capability, opportunity, and motivational influences on mask wearing and social

distancing after vaccination and the views related to, and reasons for, lateral flow testing in England and Wales.

- 2.6. I was a member of the London Transition Board Covid-19 Control Strategy Group. This group helped co-ordinate London's transition from Covid-19 response to recovery, focusing on issues such as test and trace, infection control, public confidence, clarity of communication and equality, diversity and inclusion. The impact of Covid-19 and associated policies were considered in relation to disadvantaged groups in London. I was a member from its inception on 8 October 2020 until March 2021 and attended meetings and contributed to discussions, focusing on the understanding of human behaviour and how to enable its change.
- 2.7. As noted above in paragraph 2.2, I was involved in the CORSAIR study as a co-investigator. The study was commissioned by the Department of Health and Social Care ('DHSC') and informed its communications work. This was a joint team from King's College London (Louise Smith, Nicola Fear, James Rubin), University College London (Henry Potts, Susan Michie) and Public Health England (now the UK Health Security Agency; Richard Amlôt) who were awarded a grant by the National Institute of Health Research to develop set questions that could be used in the event of a future pandemic. Further information on the CORSAIR study can be found here [SM-7/10 – INQ000553553].

Section 3: Overview of involvement in those groups in respect of TTI

When and how I came to be a participant

- 3.1. I was invited to be an inaugural participant in SPI-B on 19 February 2020 [SM-7/11 – INQ000223284] and attended the first meeting on 24 February 2020.
- 3.2. I became a member of Independent SAGE in March 2020. I was invited to take part in Independent SAGE by Sir David King, the former Chief Scientific Advisor to the UK Government. He set up this group as he was concerned about the secrecy surrounding SAGE membership and reports and considered that there should be open and direct communication from scientists to the public. In addition, he considered that there was a lack of public health expertise in relation to pandemics on SAGE. I attended most meetings during its existence as a body providing public broadcasts, the last being December 2023.
- 3.3. I attended SAGE meetings on three occasions, the latter two being to present reports that I had led on to the group. I was invited to participate in SAGE due to my

expertise in behavioural science in general and in relation to pandemics, having participated in SAGE in 2009 during the H1N1 pandemic.

Number of meetings attended and my contributions to those meetings relative to TTI

- 3.4. I attended 20 to 25 meetings for SPI-B between 2 March 2020 and 3 February 2022. I contributed to discussion at most meetings I attended, reflecting my knowledge of the theory, methods, evidence and practice of behavioural interventions; my experience of having participated in SAGE in 2009 on the H1N1 pandemic and conducting research relevant to this pandemic; and my more general public health expertise having worked in the behavioural aspects of public health over 20+ years.
- 3.5. In terms of SPI-B generally, we all began working as a collective and it went on for quite a while. We had general discussions about commissions that came our way. I would say that everything that I did whilst a participant in this group was relevant, especially as behavioural scientists, where there are no real limits to what you can and can't contribute to.
- 3.6. Ultimately, however, Lord Vallance of Balham and James Rubin decided to reorganise. They divided us into different groups. I was not part of some of the groups, so I felt excluded and, at times, that the communication was poor. We didn't know what was being discussed and the reports that were being discussed at the sub-group meetings we were not invited to attend. We raised our concerns at a SPI-B meeting and were told we would be given the opportunity to contribute. Unfortunately, this did not consistently happen. In my view, the decision-making became non-inclusive and poor communication led to demoralisation and irritation among some people within the groups.
- 3.7. I attended SAGE on three occasions:
 - a) Meeting 18 on 23 March 2020 [SM-7/12 - INQ000052717];
 - b) Meeting 73 on 17 December 2020 [SM-7/13 - INQ000075736]; and
 - c) Meeting 87 on 22 April 2021 [SM-7/14 – INQ000119963].
- 3.8. Apart from the first occasion that I attended SAGE, I was only allowed to stay for the item I was speaking to. The one meeting I attended in full had a very pressured agenda with little time for in-depth discussion. For one of the other meetings, there was no time for discussion and in the other, insufficient time to discuss the SPI-B reports I was present for. I was present at all three meetings, but only for a small part

of the latter two meetings which took place on 17 December 2020 and 22 March 2021.

- 3.9. I only attended meetings where I, in my capacity as a SPI-B participant, led on a particular report. As such, I only went to three SAGE meetings. Due to this, I am listed as a SAGE participant. However, there is no distinction between individuals that attended all, or a limited number of meetings, or even one meeting as a one-off guest. In my view, this is not a transparent way of showing involvement in SAGE.
- 3.10. In SAGE meeting 18, on 23 March 2020 [SM-7/12 - INQ000052717], it was noted that NHS testing capacity in the UK was at around 5,000 a day, to be increased to 15,000 a day by mid-April. A platform in partnership with the private sector had been established to aim to increase capacity to 110,000 a day by mid-April. One of the actions arising out of that meeting was that Public Health England was to work with the NHS to set out a national priority order for testing, including UK-wide procurement and distribution of reagents to support testing capacity. Though I attended this meeting, I was not involved with this work.

My role in providing research, information and advice in respect of TTI

- 3.11. I provided advice and relevant research and information verbally during SPI-B and Independent SAGE meetings, via email, for inclusion in reports and by drafting or commenting on reports drafted by other participants. This reflected my experience and expertise in communication and public engagement.
- 3.12. For example, it became clear through Government actions, such as imposing fines for those testing positive and not self-isolating, that the Government largely assumed that non-adherence to the TTI system was a motivational issue. However, in my opinion, it was not; it was an opportunity issue. People need the capability, including knowledge that you need to test as symptomatic or in company of those who are or tested positive, to give contacts when asked and to isolate when symptomatic or testing positive. Many issues with non-compliance stemmed from misunderstanding or accidental breaking of the rules. For example, threatening to fine people large amounts of money for not complying with the TTI system was counterproductive. People who could not afford to self-isolate would likely avoid testing for fear of the consequences of non-compliance, largely through fear that they could not comply due to, for example, caring responsibilities or fear of losing wages. This raised questions such as: why would people who cannot afford to pay fines comply with the TTI system? Why would they give the names of their friends and family members

who are likely to be in similar positions? They wouldn't. It directly undermined the system, which was built on trust, collective solidarity and community.

- 3.13. SPI-B were not consulted on the consequences of issuing fines and how that would impact on adherence to TTI. This showed a lack of understanding of behavioural science and understanding of how communities were thinking and behaving in these situations and is an egregious example of the Government not consulting the scientific advisory system that it had set up. These communities lacked information about the system and sometimes didn't know how they could find this information.
- 3.14. In my view, due to the lack of consultation and engagement of communities, there was not a good understanding across Government and associated policy makers about how best to communicate and what modes, value systems and languages to use. Many of our SPI-B reports advised that communication strategies should be developed ('co-produced') with the communities that the communication was aimed at, for example, young people, people in different parts of country, those from different ethnic or religious backgrounds. We did not feel these reports were properly considered, despite there being evidence-based advice about how to deliver effective communication.
- 3.15. I instigated the formation of SPI-B in 2009, asked for the group to be incorporated into the SAGE structure, and was its chair. At that time, it was a behavioural and communications advisory group referred to as SPI-B&C. In planning SAGE for the Covid-19 pandemic, Lord Vallance took the decision to focus on the behavioural aspect, and exclude communication, because he favoured a model of there being a separation between science and application of science. In my view, he misunderstood there was a science of communication that was aligned to behavioural science and should be part of the scientific advice, as opposed to seeing it purely as an operational issue.
- 3.16. Most of my life I have worked in collaboration with policymakers, who in turn worked in collaboration with practitioners. You learn from each other and get things done. I think it was regrettable that communications were not part of SPI-B remit. I don't know what scientific expertise, if any, was advising communications, but a lot of the communications were poor. That included communication relevant to knowledge and understanding of why testing and tracing and isolating were so important in managing pandemics, and how to do these things. The information is quite

complicated, with different tests, what test results mean, what the implications are etc. I do not think this should have been left to operational teams.

- 3.17. In addressing the issue of non-compliance, I thought that the Government's strategy reflected a more general authoritarian and punitive approach, introducing measures that were not based on evidence. This is of course my personal view and there might have been other alternative explanations for this decision not to consult SPI-B.

Section 4: Testing Technologies

- 4.1. I am asked to set out my relevant evidence in relation to testing technologies deployed during the pandemic. This includes the development and comparison of assays, testing systems and strategies for the pandemic, the role of scientific modelling in TTI systems, and testing systems and strategies for future pandemics.
- 4.2. As a behavioural scientist, I did not work within a wet lab setting and I was not involved in the development and comparison of assays. However, I, along with Independent SAGE, took a broader view of the system necessary for most effectively containing and suppressing the pandemic, FTTIS [SM-7/15 – INQ000145926]. This stands for Find, Test, Trace, Isolate and Support. 'Find' refers to finding cases in the community and 'Support' refers to supporting people to isolate when necessary. Where I refer to TTI, please read as FTTIS. My contributions to the TTI system were focused on the provision of advice, information and research which may have informed how the TTI system was developed and implemented. When I refer to my work in relation to TTI, this is what I am referring to.
- 4.3. My role in SAGE, Independent SAGE and their subgroups was to provide behavioural science input into conversations, advice and reports. My role did not involve any modelling. My contributions to these subgroups may have informed scientific modelling and/or the development of aspects of the test, trace and isolate systems. However, I cannot say for certain.

Testing systems and strategies during the pandemic

- 4.4. I was involved in research, reports and advice which contributed to the development and evaluation of testing systems and strategies. On 18 March 2020, the Director General of the WHO, Dr Tedros Adhanom Ghebreyesus, made it clear in a press conference that an effective TTI system was a cornerstone of pandemic management.

- 4.5. SPI-B provided advice based on an understanding that behaviour required the appropriate opportunity as well as the capability (e.g. knowledge) and motivation. This was supported by data from the CORSAIR project, commissioned by DHSC. The CORSAIR team's weekly national data from a large representative sample were used to inform the Government communication strategy. Data shared with the DHSC in the first half of 2020 showed that less than 50% of those who were symptomatic reported isolating and also that fewer than 30% reported testing as required. These findings were based on 74,697 responses from 53,880 symptomatic people in 37 nationally representative surveys. These surveys also found that predictors of not isolating were low-income job and financial hardship, with reasons given for non-adherence including barriers of work, low income and employment insecurity, caring responsibilities outside of the home, and having to go out to get provisions [SM-7/04 – INQ000228154].
- 4.6. Informed by these data, SPI-B and SAGE advised the Government to provide financial and tangible support to those who were isolating. Whilst some financial support was offered, very few were eligible and of those applying, very few were allocated grants. The amount of money was very low, less than the minimum wage and much less than that provided by other European countries.
- 4.7. Our view was that for a TTI system to be successful, there had to be adequate financial and social support for those who would not be able to isolate without it e.g. insufficient funds, needing to look after others outside the home.
- 4.8. Following this, the CORSAIR study group published an article entitled: 'Adherence to the test, trace and isolate system: results from a time series of 21 nationally representative surveys in the UK (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study)' [SM-7/16 – INQ000196853]. This article was used as a reference for the SPI-B Report: 'Impact of financial and other targeted support on rates of self-isolation or quarantine', 16 September 2020 [SM-7/17 – INQ000422304] which made the following key points:
- a) The effectiveness of the NHS TTI system in reducing transmission of SARS-CoV-2 depends critically upon self-isolation of people who may have COVID-19 and their contacts;
 - b) Rates of full self-isolation at that time were likely very low (less than 20%) based on self-report. They were particularly low among the youngest and the poorest, thereby likely contributing to inequalities in the impact of COVID-19; and

c) Self-isolation rates would likely be improved with the addition of different forms of support. These included:

- i. Financial support – Ensuring that those required to self-isolate would not experience financial hardship in doing so; and
- ii. Tangible, non-financial support - Proactive outreach was needed to identify and resolve any practical needs that people had (e.g. access to food, care for elderly relatives).

4.9. Although some financial support was offered by the Government, eligibility criteria were narrow, it was difficult to access and the amount was insufficient to compensate for lost earnings, being less than the living wage at the time.

Role of scientific modelling in the development, implementation and evaluation of TTI systems

4.10. As stated above, my work did not involve any modelling, so I have nothing to input in terms of modelling work. The Chair of the committee, James Rubin, would be best placed to answer any questions on the crossover between SPI-B and SPI-M in terms of modelling.

4.11. However, I think it is worth noting at this point that the use of modelling in SPI-B would have been beneficial for our group. I believed this could have been achieved through increased cooperation and knowledge sharing between SPI-B and SPI-M. Unfortunately, the advisory groups were very siloed from one another.

4.12. I also think that a closer working relationship between SPI-B and SPI-M would be beneficial for both groups. Whilst we couldn't comment on the modelling specifically, we could comment on the data that they were using to model. Essentially, we could check that their models were sound in relation to behavioural aspects and not making unwarranted assumptions.

Testing systems and strategies in future pandemics

4.13. One of the reasons that Independent SAGE was created in May 2020 was the belief that there was a gap in public health expertise in relation to pandemics that needed to be filled. There had been a 'hollowing out' of the public health system in the decade before 2020 in terms of reduced resources, especially of a network of public health specialists working in communities who would have been well placed to find cases and support them to be tested, and to trace contacts through the community. There were, therefore, few teams of people on the ground working with local communities in neighbourhoods and workplaces that were at high risk of becoming

infected, such as those living in crowded multigenerational housing or working in overcrowded, under-ventilated workplaces. Accordingly, there were not many people known and trusted by communities encouraging high risk groups to test, to provide contacts and to isolate when infected. This was a big gap.

- 4.14. Because the regional and local public health organisations had been run down over the previous decade, there was a lack of networks of trained people and resources to build up an adequate TTI system at the pace required to meet the demands of the pandemic. This was true both for finding and supporting cases in the community and for developing an adequate national system for testing. This resulted in the hiring of commercial testing labs that weren't hooked into national public health systems, and under-trained and under-experienced people trying to find and trace cases: they didn't have that local knowledge, which was so important.
- 4.15. Another reflection that Independent SAGE had was the lack of learning from other countries that evidently fared better during the pandemic, which are referenced in Independent SAGE reports 5, 19 and 40 below [SM-7/18 – INQ000553561], [SM-7/15 – INQ000145926], [SM-7/19 – INQ000535912]. I understand that there was a group associated with SAGE that was looking at international comparisons, but as a member of SPI-B, I do not recall any information being passed to us, nor do I recall seeing international learning featuring majorly in SAGE reports. Independent SAGE called on the Government to look at and learn lessons from parts of the world that had experience with pandemics before, and not just influenza, especially in Southeast Asia, but the Government didn't appear to do this. There was frustration amongst Independent SAGE that scientists and policy makers weren't sufficiently learning lessons as to what had worked well in other pandemics in other countries and weren't drawing from that experience, including on SAGE. There were experts, for example in WHO, that had the knowledge and experience of pandemics that could have drawn from, but it appeared that this didn't happen in any systematic or explicit way.
- 4.16. Though I can comment generally, Professor Anthony Costello would be the best person to talk on this point, as he has good public health expertise and WHO experience. Dr Gabriel Scally, as the former Regional Director for the Southwest region, would also be someone who could speak well to these points.

Section 5: Summary of documents to which I contributed, articles I have written, interviews and/or evidence I have given for the purposes of advising SAGE and/or its related subgroups in respect of Test, Trace and Isolate

Documents

- 5.1. I have provided a summary of documents based on my own recollection and the material available to me. I contributed to many SPI-B reports and co-led three, one of which described in the next paragraph was relevant to TTI. They addressed questions posed to us by the Government.
- 5.2. I led one SPI-B report (published on 17 December 2020) that addressed the possible impact of the COVID-19 vaccination programme on adherence to rules and guidance about personal protective behaviours aimed at preventing the spread of the virus and how any adverse impacts may be mitigated [SM-7/20 – INQ000553564]. We recommended the following:
 - a) Implementing a culturally tailored communication strategy targeted and stratified by different sectors in society to ensure that people fully understand why it is vital to continue to adhere to protective behaviours, whether or not they have been vaccinated;
 - b) Using both vaccination appointments as opportunities to communicate the importance of continuing protective behaviours;
 - c) Ensuring that people realise that vaccination, however effective, leaves some risk, and ensure that communications promoting vaccination do not unintentionally undermine communications promoting adherence to protective behaviours;
 - d) Adding monitoring of vaccine status and vaccine-related beliefs and behaviours to existing monitoring of adherence to Covid-19 rules and guidance; and
 - e) Developing a system of rapid alerts to allow timely intervention if adherence starts to fail.
- 5.3. In late 2020 and early 2021 I worked with Helen Ives (Solent NHS Trust) at NHS England to produce material in 16 languages for those delivering and receiving vaccinations to be used in vaccination clinics. It included a script for providers and leaflets and an animation downloadable onto smart phones for those receiving

vaccinations. To my knowledge, despite being excellent material, this material was never implemented.

- 5.4. I contributed to several SPI-B reports. These are:
- 5.5. SPI-B: Current adherence to behavioural and social interventions in the UK, 22 March 2020 [SM-7/21 – INQ000074912];
- 5.6. SPI-B: Possible impact of the COVID-19 vaccination programme on adherence to rules and guidance about personal protective behaviours aimed at preventing spread of the virus, 17 December 2020 [SM-7/19 – INQ000535912];
- 5.7. SPI-B return on risk of public disorder, 25 February 2020 [SM-7/22 – INQ000137961];
- 5.8. SPI-B: Well-being and Household Connection: the behavioural considerations of ‘Bubbles’, 14 May 2020 [SM-7/23 – INQ000422032];
 - a) SPI-B: What are the behavioural considerations around communicating changes to the 2m social distancing guidance?, 16 June 2020 [SM-7/24 – INQ000197173];
- 5.9. SPI-B: The impact of financial and other targeted support on rates of self-isolation or quarantine, 16 September 2020 [SM-7/17 – INQ000422304].
 - a) SPI-B: The role of Community Champion networks to increase engagement in the context of COVID-19: Evidence and best practice, 22 October 2020 [SM-7/25 – INQ000197209];
 - b) SPI-B: How important is symptom recognition in leading people to seek a test for COVID-19? 30 November 2020 [SM-7/26 – INQ000197220];
 - c) SPI-B: Sustaining behaviours to reduce SARS-CoV-2 transmission, 30 April 2021 [SM-7/27 – INQ000214032];
- 5.10. SAGE commission to SPI-B: Areas of intervention (‘local lockdown’) measures to control outbreaks of COVID during the national release phase, 30 July 2020 [SM-7/28 – INQ000422163];
- 5.11. SPI-B: Public Health Messaging for Communities from Different Cultural Backgrounds, 22 July 2020 [SM-7/29 – INQ000214050].
 - a) SPI-B/SPI-M: Principles for the design of behavioural and social interventions, 21 April 2020 [SM-7/30 – INQ000196893]; and

- 5.12. SPI-B: Behavioural and social considerations when reducing restrictions, 10 February 2021 [SM-7/31 – INQ000214011].
- 5.13. I co-lead on the following SPI-B reports:
- 5.14. SPI-B: Options for increasing adherence to social distancing measures, 22 March 2020 [SM-7/32 – INQ000119485];
- 5.15. SPI-B: Possible impact of the COVID-19 vaccination programme on adherence to rules and guidance about personal protective behaviours aimed at preventing spread of the virus, 17 December 2020 [SM-7/20 – INQ000553564]; and
- 5.16. SPI-B: Sustaining behaviours to reduce SARS-CoV-2 transmission, 30 April 2021 [SM-7/27 – INQ000214032]
- 5.17. I also contributed to a paper by the Interdisciplinary Task and Finish Group titled 'Interdisciplinary Task and Finish Group on the Role of Children in Transmission', 1 May 2020 [SM-7/33 – INQ000074926];
- 5.18. I have produced a number of reports relevant to TTI during my time at Independent SAGE. I have noted these reports, along with any particularly relevant passages, below:
- 5.19. 'Ending of Free Tests Statement', 18 February 2022 [SM-7/34 – INQ000553579] In this article I note that: "... *members of Independent SAGE condemn the reported decision by the Government to stop free COVID-19 tests and payments to support self-isolation in England. Although we were initially sceptical about the utility of lateral flow tests in the absence of more financial support for isolation, widespread availability of these tests alongside existing PCR tests might have contributed to reducing peak infections both in last summer and this winter.*" (original emphasis)
- 5.20. 'The Independent SAGE Report 5: Final Integrated Find, Test, Trace, Isolate, Support (FTTIS) response to the pandemic', 17 June 2020 [SM-7/18 – INQ000553561]. We noted in this report that: "*This report highlights **three crucial ways** in which the government must strengthen its 'test and trace' system if we are to build a protective shield against further outbreaks or worse, a second wave. 1. Testing and tracing alone using a centralised system alone simply will not work. We need **local involvement and ownership** using our existing public health and primary care teams, GPs, local hospital laboratories, school nurses and environmental health officers to ensure we can respond quickly to outbreaks and to build local trust. 2. We outline a framework for an integrated and sustainable approach, based on*

well-established systems of population infection control, which we term **Find, Test, Trace, Isolate, and Support (FTTIS)** as recommended by the World Health Organisation. We need national and local campaigns to ensure people know about the **key symptoms** and how and where to respond. GPs should be involved in testing hubs and ordering of tests as quickly as possible and results returned within 24 hours for the system to work. **Rapid isolation of cases and contacts is critical. Successful countries** provide facilities available for those asked to isolate including **food and finance** for vulnerable groups, and appropriate guarantees from employers. **Clinical support** for monitoring the health of suspected cases, cases and contacts in the community is vital. 3. The system must link **data into the NHS immediately**, especially local public health general practices. We need community feedback and strong governance to protect privacy. And we suggest clear and detailed **national performance indicators** that support local decision-making". (original emphasis)

- 5.21. 'The Independent SAGE Report 4', 9 June 2020 [SM-7/35 – INQ000553580] noted: "At this critical stage of the pandemic, an effective COVID-19 Find, Test, Trace, Isolate and Support (FTTIS) programme is essential if we are to recover our economy, protect livelihoods and secure longer-term wellbeing and health provision for all. This consultation document does not address when the current lockdown restrictions should be eased, although the members of Independent SAGE join official SAGE, NHS leaders, and many others in their concerns that this is happening too quickly. Reasons include the current level of infection, evidence that the pandemic is only just under control, and is probably not yet in some parts of the country, and the continued lack of preparedness. Instead, we examine what is needed to put in place a robust FTTIS system, which the existing system is not, and what is needed to develop the trust in that system to ensure that it is accepted by the public. We therefore aim to highlight the key practical steps for the rapid implementation of an FTTIS system which is embedded, sustainable, and can provide a long-term response to future waves on infection. **We welcome views and comments on this set of proposals**, and how best to rapidly undertake a wide-ranging systems analysis, identifying all of the elements that need to be in place for the system to work and the lines of communication and accountability that connect them." (original emphasis)
- 5.22. 'The Independent SAGE Report 13: The complexities of testing for COVID-19: the why, the who and the how', 11 September 2020 [SM-7/36 – INQ000249681].

Significantly, we noted: "... there are three core purposes to testing, which are not mutually exclusive: 1) **Diagnose COVID disease** in symptomatic individuals – for clinical management (providing treatment if required) and infection control (self-isolation of newly infected people), 2) **Identify infection in close contacts of cases** – for infection control (ensuring that contacts of cases self-isolate whether symptomatic or not, while allowing non-infected contacts to be released from isolation) and possible clinical management (providing treatment if symptoms worsen). This process particularly protects those vulnerable to severe infection, and 3) **Identify infection within communities** – to instigate public health measures at community level (e.g., impose restrictions to increase social distancing and other hygiene measures if levels of infection are rising). This will also be an important way of identifying levels of infection in people without symptoms." (original emphasis)

- a) 'The Independent SAGE Report 19: A blueprint to achieve an excellent Find, Test, Trace Isolate and Support system', 16 October 2020 [SM-7/15 – INQ000145926]. The document is a short report by Independent SAGE to guide the government on how to reform case finding, testing, contact tracing, isolating and support (FTTIS) so that it works effectively and prevents the need for repeated lockdowns. It is recognised this is difficult but there is no reason why the successes of countries like Norway, Finland, Germany, South Korea, Taiwan, Vietnam, China and Singapore should not be emulated.
- 5.23. 'Statement on the Management of NHS Test and Trace', 30 October 2020 [SM-7/37 – INQ000553582]. This is an Independent SAGE report providing a statement on the management of NHS test and trace and re-emphasising the case for an integrated FTTIS system.
- 5.24. 'The Independent SAGE Report 40: An Independent SAGE position paper – Supported isolation – Why supported isolation is crucial to break community transmission', 20 March 2021 [SM-7/19 – INQ000535912]. This document sets out the case for supported isolation. The UK's Scientific Advisory Group for Emergencies and the Independent Scientific Advisory Group for Emergencies agreed that individuals needed to be adequately supported for them to isolate. This support includes a daily text or phone call, with the provision of food supplies and essential goods, and employment protection. The focus should be on community and family solidarity and togetherness. Without financial support to self-isolate, any much-needed improvements to the FTTIS system will have a marginal impact.

- 5.25. The failure to retain the FTTIS system during waves, especially in settings that are crowded, under-ventilated and/or with vulnerable people, increases the risk of more severe outbreaks with more severe consequences and further mutations in the virus. The continuing social and economic burden for individuals and for society of long Covid testifies to the need to retain and improve the FTTIS system when needed.

Articles

- 5.26. I contributed to the following articles which I consider relevant to TTI:
- 5.27. **'Adherence to the test, trace and isolate system: results from a time series of 37 nationally representative surveys in the UK'**, Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), *BMJ* 31 March 2021 [SM-7/04 – INQ000228154]. The objective of this research was to investigate rates of adherence to the UK's TTI system over the initial 11 months of the Covid-19 pandemic. The main outcome measures were: the identification of the main symptoms of Covid-19 (cough, high temperature or fever, and loss of sense of smell or taste); self-reported adherence to self-isolation, if symptoms were present, and intention to self-isolate, if symptoms were to develop; requesting a test for Covid-19 if symptoms were present and intention to request a test if symptoms were to develop; and intention to share details of close contacts. The conclusion was that levels of adherence to TTI were low, although some improvement occurred over time. Practical support and financial reimbursement were likely to improve adherence. Targeting messaging and policies to men, younger age groups, and key workers might also have been necessary [SFM/36 - INQ000249681].
- 5.28. **'Do members of the public think they should use lateral flow tests or PCR tests when they have COVID-19-like symptoms?' The COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study.** Public Health. Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), 28 July 2021 [SM-7/05 – INQ000196868]. The study aimed to investigate public use of lateral flow tests ('LFT') and polymerase chain reaction ('PCR') tests when experiencing key Covid-19 symptoms. The conclusions were that despite Government guidance stating that anyone with key Covid-19 symptoms should complete a PCR test, a significant percentage of the population use LFT tests when symptomatic. Communications should emphasise the superiority of, and need for, PCR tests in people with symptoms.

- 5.29. **'Intention to adhere to test, trace, and isolate during the COVID-19 pandemic (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study)'**. Smith L. E., Potts H. W. W., Amlôt R., Fear N.T., Michie S., Rubin G. J. (2021), Br J Health Psychol 30 November 2021 [SM-7/06 – INQ000196870]. The objective of this research was to: (a) investigate factors associated with intention to self-isolate, request a test, and share details of close contacts when required; and (b) to determine whether associations were stronger during periods when less stringent national Covid-19 restrictions were in place. The conclusions were that psychological factors were associated with intention to adhere to key components of the contact tracing system and there was no evidence for an association with increased out-of-home activity. Communications that increased people's knowledge that Covid-19 could be transmitted even if someone did not have symptoms, and that an individual's actions could contribute to the spread of the virus, may have promoted engagement with the TTI system.
- 5.30. **'Who is engaging with lateral flow testing for COVID-19 in the UK?' The COVID-19 Rapid Survey of Adherence to Interventions and Responses (CORSAIR) study.** BMJ Open. Smith L. E., Potts H. W. W., Amlôt R., Fear N. T., Michie S., Rubin G. J. (2022), 10 February 2022. [SM-7/07 – INQ000196876]. The objective of this research was to investigate uptake of LFTs, reporting of test results, and psychological, contextual and socio-demographic factors associated with testing. The conclusions were that uptake of LFT's was low. Encouraging testing through workplaces and places of study was likely to increase uptake, although care should be taken not to pressurise employees and students. Increasing knowledge that everyone was eligible for regular asymptomatic testing and addressing common misconceptions may have driven uptake.
- 5.31. **'Do people with symptoms of an infectious illness follow advice to stay at home? Evidence from a series of cross-sectional surveys about presenteeism in the UK'**. BMJ Open. Rubin G. J. Smith L. E. Amlôt R., Fear N. T., Potts H. W. W., Michie S. (2022), 30 May 2022 [SM-7/08 – INQ000196878]. The objective of this research was to assess the percentage of people in the UK with cough, fever or loss of taste or smell, who have not had a positive Covid-19 test result, who had been to work, to shops, socialised or provided care to a vulnerable person in the 10 days after developing symptoms. To investigate whether these rates differed according to the type of symptom, what the participant thought the cause of their symptoms was and whether they had taken a Covid-19 test. The conclusions were that many people

in the UK with symptoms of an infectious disease were not following government advice to stay at home if they believed they had an infectious illness. Reducing these rates may have required a shift in our national attitude to the acceptability of people attending work with infectious illnesses.

- a) **‘Knowledge of self-isolation rules in the UK for those who have symptoms of Covid-19: a repeated cross-sectional survey study’**. Int J Environ Res Public Health. **Smith L. E.**, West R., Potts H. W. W., Amlôt R., Fear N. T., Rubin G. J., Michie S. (2023), 21 January 2023 [SM-7/09 – INQ000196883]. The objective of this research was to investigate knowledge of self-isolation rules and factors associated with knowledge. The conclusions were that approximately 63% of UK adults between November 2020 and February 2022 appeared to know the main rules regarding self-isolation if symptomatic with Covid-19. Knowledge was lower in younger than older people, men than women, those living in England compared with Scotland, Wales or Northern Ireland, and those living in more deprived areas.
- b) **‘Harnessing behavioural science in public health campaigns to maintain ‘social distancing’ in response to the COVID-19 pandemic: key principles’**, Bonell C, Michie S, Reicher S, et al, 29 June 2020 [SM-7/38 – INQ000197095].

Interviews

5.32. I gave many interviews nationally and internationally, but I cannot recall who they were with. I do remember contributing to a University College London Covid podcast series titled: ‘Coronavirus: The Whole Story’. In particular, I featured on the following relevant episodes of the podcast:

- a) Episode 12 – ‘How can behavioural science help us combat the virus?’ with Professor Susan Michie and Professor Robert West; and
- b) Episode 53 – ‘What does the future look like?’ with Professor Dame Anne Johnson, Professor Deenan Pillay, Professor Susan Michie and Professor Andrew Hayward. Published on 26 July 2021.

Section 6: Lessons that can be learned and recommendations for further changes

6.1. I have been asked to set out my reflections on lessons that can be learned in respect of TTI for any future pandemics.

- 6.2. As I set out in my statement for Module 2 of the Inquiry at paragraph 4.3, in 2020 SAGE lacked public health expertise, especially the expertise of those with experience of public health during pandemics. In my view, SAGE would have benefitted from this, especially in terms of bringing expert and global knowledge of successful implementation of TTI systems.
- 6.3. I consider that the state of the UK's pandemic planning, preparedness and resilience at the time that the Covid-19 pandemic struck was inadequate. This is because recommendations made by Dame Deirdre Hine in her independent report (for example, recommendations 13 & 22 among others) had not been carried out and the public health system had been under-resourced and fragmented over many years [SM-7/39 – INQ000022705]. This meant that there was not the adequate structure and resources to oversee the crucial TTI system, the cornerstone of pandemic management. Instead of rectifying this problem in 2020, and building on the infrastructure we had, the Government chose to go down the route of finding new private contractors to implement TTI. They appeared to lack expertise and local knowledge, which were key to the success of a TTI system. This led to a vast waste of money and resources, inadequate pandemic control and a legacy of a public health system that is in no better shape to manage the ongoing Covid-19 infection spread or any new pandemics.
- 6.4. As mentioned in paragraph 11.1 of my Module 2 first witness statement, I was a co-author of the paper: 'Adherence to the test, trace and isolate system in the UK: results from 37 nationally representative surveys' [SM-7/04 – INQ000228154]. The paper found that: *"low rates for symptom recognition, testing and full self-isolation, the effectiveness of the current form of the UK's test, trace and isolate system is limited"*. The challenges of the TTI system that the UK Government chose to adopt were manifold:
- b) Compared to other countries, especially South-East Asian countries, such as South Korea, Taiwan and Singapore, the UK's TTI system was implemented more slowly and had poorer results in terms of turnaround times of testing and tracing and poor adherence to isolation. Countries, such as South Korea, Singapore and China, used technology, such as mobile apps and QR codes, effectively whereas the development and implementation of the NHS Covid-19 app was delayed, and it was variably adhered to. The decision to invest in a commercial model based on call centres, rather than in the existing public health infrastructure undermined public trust, which was already lower

than in the countries mentioned above, which had histories of higher levels of adherence to some provinces; in Canada and states in Australia, parts of the USA, such as New York City; and countries such as China, Vietnam and Cuba paid for accommodation for people to self-isolate, which did not happen in the UK (although, a small amount of funding was provided to some local authorities to help).

- c) The TTI system was not primarily based in local public health systems, so it was not delivered by local public health professionals who knew and were trusted by their communities. Most of the population were served by call centres that were remote and anonymous, rather than in settings familiar to people that they feel comfortable with. Familiarity and psychological comfort are important to encourage engagement in a new process, especially for groups of people who are uncertain or concerned about aspects of it.
- 6.5. In my Module 2 statement, I also discussed the importance of trusted sources of information and of receiving communications appropriate to one's own culture and language and these points are set out below. The call centre model meant that there was no tailoring of communications which evidence shows to be very important for effectiveness.
 - 6.6. Since the system was not based in local communities, it could not take advantage of local knowledge of the geography, social and occupational practices, and influential individuals to maximise engagement.
 - 6.7. There was little opportunity for people to ask questions or raise concerns with people they trusted, who could listen to and understand their concerns. The active involvement of key health professionals at a local level, including general practitioners, community pharmacists, health visitors, environmental health officers and school nurses enables ongoing communication networks. This helps to ensure that different groups of health professionals understand their roles and can work in a co-ordinated fashion to maximise efficiency and effectiveness.
 - 6.8. Good communication from local professionals can help the public to understand the purpose of the test and trace system, how to report symptoms, where and how to get tested, and how providing information about contacts to tracers can help them and their communities. The public can also be informed about procedures and local support for isolation, including details of how to obtain financial and social support or move to another location if isolation at home is inappropriate.

- 6.9. The Government attempted to communicate via a smartphone application which had a couple of false starts and then was not widely used, less so by more disadvantaged groups. We saw this in a Survation poll in July 2021 that found that only 46% of the participants were using the app and data from the CORSAIR study found that those least likely to download the Covid-19 app were in manual or clerical jobs, living in deprived areas and identifying as Black/Black British Age 40 – 60. It was not accessible to those without a smartphone or without sufficient knowledge of the English language, or without sufficient visual, cognitive or manual dexterity to use it [SM-7/16 –INQ000196853].

SPI-B

- 6.10. As mentioned in my Module 2 Witness Statement [INQ000252610_0023], I set out a number of issues and complications around SPI-B's generation and dissemination of advice, whether that advice was considered, and its implementation by policymakers.
- 6.11. Firstly, there was a limited scope of advice permitted. SPI-B was only allowed to provide advice on specific issues which the Government had sought advice on. This meant that questions such as those around using the concept of behavioural fatigue, changing messaging to 'stay alert' and imposing fines that could have benefitted from our advice had it been sought. However, without formal instructions, these could not be addressed by SPI-B. There was no mechanism for us to suggest areas where we thought our advice would have been helpful.
- 6.12. Had there been contact between the scientists and the policymakers that they were advising, policymakers would have had a better understanding about the range of areas we could advise on, and scientists would have had a better understanding of the policy context of their scientific advice. As it was, GO-Science Secretariat was the go-between for scientists and policymakers, which prevented direct communication between those commissioning advice and the authors.
- 6.13. On many occasions, the questions posed were not clear or did not make sense and we had to go back and forth via the Secretariat to try to establish what exactly those asking the questions wanted to know and importantly, why. We were seldom given the reasoning of request which was a limitation as this would have helped us in understanding the request and tailoring it so that our advice was more useful. We did assist in refining the commissions so that they made more sense but, having the Secretariat as the go-between was an unwieldy process. It would have been much more efficient had we been allowed to talk to the policy makers directly. Although, as

a general rule, there was no contact between SPI-B and policymakers, I believe that the SPI-B chair may have attended some of the meetings between the Secretariat and the Government policy advisors.

- 6.14. When SPI-B members expressed frustration about the lack of consultation about issues we could advise on but had not been asked, we were told (I think in late 2021/early 2022) that we could individually pass questions to the Chair of SPI-B who could feed these through to SAGE. I do not think this was widely taken up, and we did not have any commission following a suggestion from a SPI-B member.
- 6.15. Secondly in relation to the role of SPI-B in suggesting policy, we were instructed by GO-Science, on behalf of the CSA, not to 'stray into policy areas'. It was odd to me that where the purpose of our scientific advice was to inform policy, we were not allowed to provide policy examples for scientific evidence or principles. However, in my experience, I've found this to be very helpful to policymakers in understanding the scientific evidence and principles. As our job in SPI-B was to maximise policymakers' understanding of policy-relevant science, the divide between 'the science' and its policy implications was unhelpful. Policymakers are free to ignore our advice, whether or not we try to make it easier for them to engage with an understand by providing policy examples or implications.
- 6.16. For example, SPI-B could have provided evidence-based advice about the use of penalties for breaking self-isolation and social distancing rules, and the imposition of curfews. The atmosphere generated was that our role was to respond to and make the most of what was asked for, not to question or suggest what we could helpfully advise on. As such, there was a huge pressure of work and no time given to reflection.
- 6.17. Lastly, much and possibly most of SPI-B's advice did not appear to be reflected in Government policy. It seemed to be that the policies that were developed often did not appear to have any correlation to the advice which was called for by the Government from SPI-B. I do not know how behavioural science supported Government decision-making during the Covid-19 pandemic as the Government was not transparent about this, and SPI-B members did not get feedback about where their advice went in Government or with what effect. I think this is regrettable as it is not possible to learn without information.
- 6.18. The following are some examples of advice relevant to TTI provided by SPI-B but was not implemented by the Government:

- 6.19. We advised the Government to engage with and listen to communities in discussing and developing policy. This serves both to ensure that policy reflects living and working conditions of the population, and to give people the sense of being involved in the process. These would have likely increased adherence. This advice was highlighted in the SPI-B report: 'Implementation and communications: harnessing behavioural science to maintain social distancing' published in April 2020. Significantly, we stated that to make social-distancing possible that: *"Reward, incentives and enablement tend to be more effective influences on behaviour than punishment, disincentives or castigation."* [SM-7/40 – INQ000196805].
- 6.20. To increase adherence, we advised to use support as the first course of action rather than blame and punishment. We advocated using the 4E approach: Engage, Explain and Encourage adherence to Covid-19 guidelines, and use Enforcement as a last resort. This advice was noted in the SPI-B report: 'Behavioural and social considerations when reducing restrictions.' dated 10 February 2020. We specified in this report that: ***"Enforcement activities will face new challenges, heightened by differential effects of lifting restrictions [High confidence]. If the easing of restrictions does not keep pace with public perceptions of falling risk, perceptions of illegitimacy could increase, leading to resentment and lower levels of compliance. Operationally, policing is delivered via a 'persuasion first' policy (the 4 'E's – Engage, Explain, Encourage & Enforce). This approach has been highly effective, but Covid-19 enforcement has previously been more difficult at times of lifting."*** (original emphasis) [SM-7/31 – INQ000214011].
- 6.21. SPI-B and SAGE advised the Government to provide adequate practical and financial support for people to self-isolate [SM-7/17 – INQ000422304]. This was done only where SAGE had provided advice and was insufficient in amount and accessibility to have the impact it could have had. In future, as with other countries, adequate practical and financial support should be offered to those in need at the same time as people are asked to isolate and hence lose income.
- 6.22. In my view, SPI-B work was limited by a lack of feedback from SAGE and other sub-groups. We did not receive information about SAGE nor its subcommittees. While I appreciate that the information was voluminous, it would have been useful to have access to the minutes as they were agreed, and to have a precis of key advice relevant to our work. Consequently, we were working very much in silo. As time progressed, we had some representation from SPI-B on the Environmental Modelling Group ('EMG') when one SPI-B member attended each EMG meeting from its fourth

meeting on 5 May 2020. A paper presented to SAGE titled 'EMG/SPI-B: mitigating risks of SARS Cov-2 transmission associated with household social interactions, 26 November 2020' appears to have been prepared jointly by SPI-B and EMG, which illustrates that the two groups worked together [SM-7/41 – INQ000214034].

SAGE

- 6.23. Firstly, in relation to composition, I felt that SAGE lacked public health expertise, especially the expertise of those with experience of public health during pandemics. In my view, SAGE would have benefitted from this, especially in terms of bringing expert and global knowledge of successful implementation of TTI systems. It became large and my experience of the three meetings I attended was that there was a packed agenda but insufficient time to deliberate topics.
- 6.24. Although there were many disciplines represented on SAGE, the lack of opportunity for interdisciplinary interaction during and outside of meetings meant learning between disciplines were limited.
- 6.25. Secondly, SAGE and its subcommittees did not receive feedback about the dissemination and impact of specific items of its advice. Equally I felt that there was no mechanism for knowing where advice goes, whether it was understood, by whom and whether there was an attempt to implement it. SAGE advice and reports would be published and some, to the best of my knowledge, were communicated by the Civil Service and Chief Medical Officer ('**CMO**') to the Cabinet Office. The process of translating scientific advice from SAGE to policymakers had a number of limitations:
- a) Lack of broad expertise: any one person has a limited range of experience and expertise compared to the collective expertise that informed SAGE advice. For example, as the CMO or Government Chief Scientific Advisor ('**GCSA**') neither had expertise in behavioural science, some issues may have been prioritised or communicated in ways which did not do justice to some of the advice.
 - b) Lack of transparency: the fact that CSA and CMO were civil servants instead of independent scientists raised questions like how conflicts of interest were to be identified and handled. Further, given intense social pressures that likely existed in Government circles during a pandemic, it is a lot to expect two individuals to carry the responsibility of importing the entirety of SAGE advice without broader support or transparency of communication of that advice which can correct concerns or criticisms as they arise. I would like to clarify

that I felt the CS and CMO did a fantastic job during the pandemic, and my comments are intended to be a critical evaluation of the mechanism by which scientific advice was communicated to government through the CMO and/or the CSA.

- 6.26. This lack of transparency meant that it was not possible to judge or assess to what extent the above two limitations undermined the communication and impact of scientific advice they were imparting.
- 6.27. Further, there was no process to my knowledge for checking that policymakers, civil servants or ministers received or correctly understood the scientific advice provided to them.

Recommendations for changes relative to TTI

- 6.28. I also noted in my Module 1 witness statement that I consider the UK Government should have invested in the professional and expert public health infrastructure, staff and training to carry out the necessary testing, tracing and support for self-isolation that was required in pandemic planning. Instead, huge amounts of funds were diverted to untested commercial organisations without the relevant expertise and experience, local knowledge or ability to develop capacities and communication networks required for the success of test, trace and isolate. A blueprint for a TTI system was collectively produced by Independent SAGE, of which I was a member [SM-7/15 - INQ000145926]. In summary, it called for:
- a) Replacement of the failed, falsely named and private sector run 'NHS' Test and Trace with a system for England which is rooted in the regions of England and in local areas, and for a new system to be integrated throughout with the NHS and provide for the needs of people and the communities in which they live;
 - b) NHS England to be the lead national organisation and provide the infrastructure and logistics for the organisation and functioning of the system;
 - c) In each top-tier local authority the local Director of Public Health to have the leadership role and convene the necessary management structure in conjunction with the local NHS and local authority; and
 - d) The establishment of a national Covid testing consortium including all current providers under the auspices, oversight and management of NHS support for

those with symptoms, or testing positive, to self-isolate, including if needed, accommodation, domestic assistance and financial support up to £800.

- 6.29. As set out below, I felt that we could have invested more time into tailoring communication and information to be more culturally appropriate. This would have also had an impact on embedding behaviours to reduce transmissions.

Section 7: Unequal impacts

Fines

- 7.1. Whilst I consider adequate financial and practical support were not provided to enable an effective system of TTI, a fine of £10,000 for non-compliance was introduced in September 2020 [SM-7/42 - INQ000553588]. SPI-B was not consulted about the introduction of the £10,000 fine for not self-isolating when symptomatic or testing positive. SPI-B discussed the risk that the unintended consequences of such a fine would be to discourage people from testing, reporting symptoms and providing contacts. Evidence shows that those with least income were least likely to test for symptoms or to self-isolate when symptomatic (see paragraph 12.2 of my Module 2 witness statement INQ000252610). An evaluation of a pilot of free mass Covid testing in Liverpool November 2020 found test uptake was low, especially in disadvantaged groups [SM-7/43 - INQ000223452].

Culturally appropriate communication

- 7.2. SPI-B advocated using culturally appropriate communication for diverse communities of the UK population. On 22 July 2020 SPI-B produced a report entitled 'Public Health Messaging for Communities from Different Cultural Backgrounds', which set out the group's consensus and advice concerning the importance of this to address emerging evidence of disproportionate impact of Covid-19 on Black, Asian and minority ethnic communities due to increased risk of infection and excess mortality [SM-7/29– INQ000214050].
- 7.3. On multiple occasions SPI-B participants expressed frustration that the Government did not appear to be adopting its advice on communication. For example, listening as well as telling, using language and concepts familiar to the audience, using appropriate channels of communication. We agreed we would not repeat advice that appeared to be ignored, but instead refer to earlier reports like the SPI-B report produced on 20 April 2020 titled 'SPI-B: Behavioural principles for updating guidance to minimise population transmission' [SM-7/44– INQ000214051]. As time went on, my impression was that Government communication became less effective with

changes not sufficiently explained. As I recall, there was little effort to explain changes in approaches to pandemic management in terms of the evolution of scientific understanding.

Diversity and Equality

- 7.4. Diversity and equality should be addressed ensuring that evidence is grounded within the wide range of people's lived experiences so that barriers to adherence across all groups in society can be addressed. In terms of lessons learned for any future pandemics, I consider steps to achieve this should include a diversity of membership of advisory groups, appropriate training of participants to understand diversity and equality issues and ensuring that processes are in place to provide support to facilitate participation. I suggest having a small equality, diversity and inclusion group to advise and monitor this.

Tailoring information

- 7.5. As suggested in my Module 2 witness statement, tailoring information means adapting the content or form of information to specific audiences to promote comprehension, identification and adherence to advice being given or demands being made. This is important due to the wide diversity of the UK population beyond demographics and age. Other areas of diversity in the UK that should be considered are language and literacy, cultural beliefs and practices (including religious), life experiences and circumstances, ethnic group and socio-economic circumstances (like jobs, housing, neighbourhoods etc). SPI-B advised the use of tailored communication in multiple reports, especially when it came to evidence of low adherence to rules or protective measures by certain groups. For example, there was evidence of low adherence to social distancing amongst some groups of young people and a relatively low uptake of vaccination among disadvantaged groups and those with African heritage. I recall SPI-B discussions of reflecting on how little appeared to be done in tailoring information and persuasive messaging despite the evidence of indicating the superiority of tailored information when compared to 'one size fits all' communication. These points were produced in the SPI-B report: 'Public Health Messaging for Communities from Different Cultural Backgrounds' dated 22 July 2020 [SM-7/29 - INQ000214050].

Public Health and Social Measures

- 7.6. In our work, there was a big focus on what are termed by the WHO and others as Public Health and Social Measures (previously known as non-pharmaceutical

interventions ('NPIs'). We made recommendations on NPIs, such as access to food for those who are self-isolating, support for elderly relatives who would ordinarily be cared for by those self-isolating, and others who require care. I am unsure whether any of those recommendations were taken forward at the central-government level.

- 7.7. There was good work done at local levels, meaning that it was community instigated with support from local government in many cases. SPI-B considered this support and collated data on the community-based support, but I was not directly involved in that work. The lack of national provision meant that community support (often termed 'mutual aid') was essential for people to be able to isolate at home when infectious, or have tests and provisions brought to them if they were unable to get to shops.
- 7.8. A report by the Government National Risk Register, published in 2020, noted that mutual aid played a crucial role in enabling isolating individuals to perform necessary, daily tasks, that they would not have otherwise been able to do due to self-isolation. Examples of this support in practice would be walking dogs, collecting prescriptions, collecting groceries [SM-7/45 – INQ000055874]. Further, in a joint article by The Yunus Centre for Social Business and Health, and Glasgow Caledonian University, published in 2021, it was noted that mutual aid was effective in supplementing the preexisting public health provision, as well as bridging the gap between Government policy and advice and its implementation within local communities [SM-7/46 – INQ000553592]. In particular:
- a) Information signposting – at paragraph 7.2 and 7.3 above I spoke about Government's ineffective communication with local communities. Though the use of mutual aid likely would not have been sufficient to resolve this issue completely, mutual aid initiatives attempted to address this lapse in the communications between Government and communities. For example, mutual aid groups brought together formal and informal information sources and brought it to communities in a cohesive and comprehensive way.
 - b) Local knowledge – the mutual aid groups had local knowledge about buildings in their area, about prescription collection times, and were therefore attune to the needs of the people whom they were servicing.
 - c) Mental health support – some mutual aid groups set up mental health services to provide support to people experiencing grief, and/or called people who were reported to be feeling lonely during periods of isolation.

- 7.9. Professor John Drury and Professor Stephen Reicher carried out relevant research on public health and social measures and would be best placed to comment on work undertaken at the local level.

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: 30/4/2025

Annex A: Major publications

7.10. I have 661 publications, with my top 5 in terms of citations below:

- a) **Developing and evaluating complex interventions: the new Medical Research Council guidance**; P Craig, P Dieppe, S Macintyre, S Michie, I Nazareth, M Petticrew 2008 BMJ 33, 14239 citations. This paper resulted from my work with the Medical Research Council's Health Service Research Collaboration which produced guidance aimed at increasing the effectiveness of trials of complex interventions and hence, knowledge that could be used to improve population health. It was very widely taken up in proposals and protocols for research, especially in the UK.
- b) **The behaviour change wheel: a new method for characterising and designing behaviour change interventions**; S Michie, MM Van Stralen, R West 2011, Implementation science 6 (1), 1-12. [12533](#) citations. This paper reports a new, integrative framework for designing and evaluation of behavioural interventions. It was based on work that identified and synthesised 19 existing, partial and overlapping frameworks. It has had significant global impact on research investigating a wide range of behavioural interventions.
- c) **Better reporting of interventions: template for intervention description and replication ('T/DieR') checklist and guide** TC Hoffmann, PP Glasziou, I Boutron, R Milne, R Perera, D Moher, ... S Michie 2014, Bmj 348. [8467](#) citations. This paper is the result of an international, multidisciplinary collaboration aimed at improving the reporting of interventions, on the basis that poor reporting has led to slow and inefficient accumulation of knowledge across clinical and public health domains.
- d) **The behaviour change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behaviour change interventions**: S Michie, M Richardson, M Johnston, C Abraham, J Francis, W Hardeman, 2013, Annals of behavioural medicine 46 (1), 81-95. [7339](#) citations. This paper has transformed behavioural science as previously there was no systematic and shared way of specifying the active ingredients' of behavioural interventions. It has led to much improved intervention design and evaluation, evidence syntheses and implementation of effective interventions.

- e) **Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science.** EA Holmes, RC O'Connor, VH Perry, I Tracey, S Wessely, L Arseneault, 2020 *The Lancet Psychiatry* 7 (6), 547-560. [6974](#) citations. I was invited to join this group of eminent international scientists early on in the Covid-19 pandemic to provide a behavioural science lens in developing recommendations for mental health science within the pandemic context.
- 7.11. Below are articles that were written after the Relevant Period that are relevant to TTI
- a) **Knowledge of self-isolation rules in the UK for those who have symptoms of Covid-19: a repeated cross-sectional survey study.** *Int J Environ Res Public Health*. Smith L. E., West R., Potts H. W. W., Amlôt R., Fear N. T., Rubin G. J., Michie S. (2023), 21 January 2023.
- 7.12. Below are articles that were published during the Relevant Period that are relevant to TTI:
- a) **Who is engaging with lateral flow testing for COVID-19 in the UK? The COVID-19 Rapid Survey of Adherence to Interventions and Responses (CORSAIR) study.** *BMJ Open*. Smith L. E., Potts H. W. W., Amlôt R., Fear N. T., Michie S., Rubin G. J. (2022), 10 February 2022.
- b) **Lessons from countries implementing find, test, trace, isolation and support policies in the rapid response of the COVID-19 pandemic: a systematic review,** Chung S-C, Marlow S, Tobias N, Alogna A, ... Michie S, & Pillay D. (2021) *BMJ Open* 29 June 2021.
- c) **Estimating the effectiveness of routine asymptomatic PCR testing at different frequencies for the detection of SARS-CoV-2 infections,** Hellewell J, Russell TW, SAFER Investigators and Field Study Team (Michie S), et al. (2021), *BMC Medicine* 27 April 2021.
- d) **Do members of the public think they should use lateral flow tests or PCR tests when they have COVID-19-like symptoms? The COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study.** *Public Health*. Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), 28 July 2021.
- e) **Institutional and behaviour-change interventions to support COVID-19 public health measures: a review by the Lancet Commission Task Force**

on public health measures to suppress the pandemic. Int Health; Lee J-K, Bullen C, Ben Amor Y, Michie S, et al. (2021), 11 May 2021.

- f) **Adherence to the test, trace and isolate system: results from a time series of 37 nationally representative surveys in the UK.**, Smith L. E., Potts H.W.W., Amlot R., Fear N.T., Michie S., Rubin G.J. (2021), BMJ 31 March 2021.
- g) **Public understanding of COVID-19 antibody testing and test results: A qualitative study conducted in the U.K. early in the pandemic.** Lecouturier J, Kelly MP, Graham F, Meyer C, Tang MY, Goffe L, ... Michie S, & Sniehotta F. (2021) Soc Sci Med, 16 February 2021.

7.13. Below are a list of other publications I consider relevant to TTI:

- h) **Contrasting figures on adherence to self-isolation show that support is even more important than ever**, Reicher S, Drury J and Michie S. (2021) BMJ Opinion, 5 April 2021.
- i) **How can we involve communities in managing the covid-19 pandemic?** Yardley L, Amlot R, Rice C, Robin C, Michie S (2020) BMJ Opinion, 17 March 2020.

7.14. I have also delivered the following lectures, conferences and talks I delivered that I feel are relevant to TTI:

7.15. In 2023, after the Relevant period:

- a) Society for Behavioural Medicine Master Lecture, Phoenix, USA: Behavioural science into policy: Advising government in the time of Covid19.

7.16. In 2022:

- a) Shandong University of Finance & Economics, China. Inaugural conference of Healthcare, Well-being & Behavioural Science. Applying Behavioural Science to Combating Pandemics.
- b) International Association of Applied Psychologists. Online. Three Years of COVID-19: Lessons Learned from a Health Psychology Perspective
- c) 2nd Australasian Public Health conference, Sydney, Australia/virtual. How the UK response was established and what might have been done differently.

- d) Nature Medicine Understanding COVID-19 to prepare for the next pandemic. Applying Behavioural Science to Combating Pandemics.
- e) UCL Lunchtime Lecture: Applying Behavioural Science to Combating Pandemics
- f) The British Academy: Behaviour and the COVID Pandemic: Science Matters
- g) University of Oxford Psychology Department Anne Triesman lecture: Applying Behavioural Science to Combating Pandemics
- h) Society for Academic Primary Care annual conference: COVID-19: Lessons for Creating a more Resilient Society

7.17. In 2021:

- a) UCL Institute of Mental Health Annual Conference. Behavioural science contributions to managing the pandemic;
- b) Academy of Social Sciences Annual Lecture. Society, behaviour & science in the time of pandemic: Reflections on Covid-19 in the UK;
- c) Pasteur Institute, France. Covid-19: Advances and Challenges International Conference. Applying behavioural science to understanding Covid-19 protective behaviours;
- d) Department of Psychology, University of Santiago, Chile. COVID-19: Changing Behaviour to Reduce Transmission, Webinar, Chile;
- e) Local Government Association national conference 'Applying Behaviour Change Techniques to the COVID-19 response'. COVID-19: Increasing Adherence to Rules and Guidance;
- f) Behavioural data in action – the role of self-reported and other data. HDR UK Scientific Conference – Data Insights in a Pandemic. Convenor and chair; and
- g) Integrating behavioural science in government pandemic response: lessons for the future from the COVID-19 pandemic, European Health Psychology Society annual conference Roundtable presentation.

7.18. In 2020:

- a) Westminster Health Forum policy conference: Development and rollout of Test and Trace, and the future of the COVID-19 contact tracing app. Public

engagement and behaviour change – encouraging uptake, adherence to requests to isolate, and building trust.

- b) British Association of Behavioural and Cognitive Psychotherapy Annual Conference, Changing Behaviour: Key to Reducing COVID-19 Transmission
- c) UK Society of Behavioural Medicine Annual Conference, COVID-19: Behavioural science meets Policy
- d) Republic of Ireland and Northern Ireland Joint Public Health Annual Conference, COVID-19: Intervening using behavioural science
- e) UCL Microbiology Domain webinar: Reducing transmission by enabling behaviour change

Annex B: Exhibit Schedule

Please see attached.