Witness Name: Professor Susan Michie
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COVID-19 INQUIRY – MODULE 2

First Witness Statement of Professor Susan Michie

I, **PROFESSOR SUSAN MICHIE** of the Centre for Behaviour Change at University College London, Gower Street, London, WC1E 6BT will say as follows:

1: Introduction

1.1. I make this statement pursuant to the Covid-19 Inquiry's Rule 9 request of 21 December 2022 (**'The Rule 9'**).

1.2. The 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 true to the best of my knowledge and belief.

1.3. I previously submitted a response to the Inquiry's Rule 9 Questionnaire of 2 September 2022 on 10 October 2022 (**'The Rule 9 Questionnaire Response'**).

Professional background

1.4. My research focuses on behaviour change in relation to health and the environment; how to understand it theoretically and to apply theory to intervention development, evaluation, and implementation. I am considered a global leader in the field.

1.5. My current role is Professor of Health Psychology and Director of the Centre for Behaviour Change (**'CBC'**) at University College London (**'UCL'**).

1.6. A detailed summary of my qualifications, expertise and employment history can be found in the Rule 9 Questionnaire Response at 1.1 and 1.2.

1.7. I have been employed at UCL in my current position since 2002.

a) **The Centre for Behaviour Change ('CBC')**

1.8. I joined UCL in 2002 and in 2014 founded the CBC, supported by a Provost's Strategic Award. I am its Director.

1.9. The CBC sits within UCL's Faculty of Brain Sciences and has 9.2 whole time equivalent scientific and administrative staff. As Director, I am accountable to the Head of the Division of Psychological and Language Sciences, Professor Peter Fonagy. It does not have a membership. The expertise of the scientific staff is in behavioural science. Its two overarching research themes are health and environmental sustainability.

1.10. The CBC has an Advisory Board which comprises Faculty Deans and other senior staff across UCL to provide strategic advice and support. Additionally, there is a Behaviour Change Consortium which was set up in 2021 and comprises behavioural scientists across UCL who wish to work together to develop collaborative research, teaching and dissemination activities around behavioural science. Its work will be guided by UCL's 2023 strategic plan. It grew out of CBC's Executive Committee that provided advice and support on operational manners as the CBC was establishing itself.

1.11. There are also three CBC Hubs: Behaviour and the Environment, Digital Health and the Australasian Hub. Their role is to link people in cross-disciplinary dialogue and practice about behaviour change.

1.12. The CBC has a large number of research collaborations as indicated by its list of current grants. It has no current official partnerships. CBC staff provide a variety of advisory roles to Government, third sector and commercial organisations. For example, three CBC staff are part of the National Institute for Health and Care Research (**'NIHR'**) Policy Research Unit, which advises the UK Government's Department of Health and Social Care. I also provide behavioural science advice to the World Health Organisation (**'WHO'**) in my role as Chair of WHO's Technical Advisory Group on Behavioural Insights and Sciences for Health. Recent outreach work to communities includes speaking at public events and schools.

1.13. The CBC is guided by UCL's ethical principles, and its General Code of Ethical Principles which appear on the CBC page of the UCL Website. This is exhibited to this statement as **[SFM/01- INQ000214027]**.

1.14. The CBC as a body was not directly engaged to respond to the Covid-19 pandemic. The CBC team was, however, involved in three major relevant research projects. I was involved in all three of these. The CBC's research lead, Dr Fabiana Lorencatto, and three research staff she managed, were involved in two of these. Dr Paul Chadwick gave a small amount of advice to Hertfordshire County Council and was a member of the British Psychological Society's (**'BPS'**) Covid-19 Behavioural Science & Disease Prevention taskforce.

1.15. The three research projects that the CBC team was involved in are: The Covid-19 Rapid Survey of Adherence to Interventions and Responses (**'CORSAIR'**) study, the SAFER-Plus study and Virus Watch.

The CORSAIR Study

1.16. I was a Co-Investigator in this study which was one of NIHR's 'sleeping' projects to assist with preparedness in the event of a pandemic outbreak in the UK. I discuss this project in detail later at paragraph 3.1.

SAFER-plus

1.17. I was a Co-Investigator in the 'SARS-CoV-2 Acquisition in Frontline Health Care Workers- Evaluation to Inform Response' Study ('the SAFER study'). It was funded by the Medical Research Council ('**MRC**') for 2020-2022. The study evaluated whether 200 health care workers at UCL Hospitals, followed for 12 weeks during the first wave of COVID-19, were at risk of catching SARS-CoV-2 at work. The behavioural part of this study explored: staff experience of working during the outbreak, including challenges faced and perceptions of risk, the extent to which staff engage in personal protective behaviours (e.g., use of PPE, hand washing, social distancing) and the factors influencing these behaviours. Data were collected by interviews and surveys.

Virus Watch

1.18. I was a Co-Investigator in the Virus Watch Study, which was funded by MRC. The study ran from 2020-2022. 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.

Independent Scientific Advisory Group for Emergencies (Independent SAGE)

1.19. Independent SAGE is a group of scientists who work together to provide independent scientific advice to UK government and other organisations, the press and the public on how to minimise deaths and harm from Covid-19 and support Britain's recovery from the pandemic.

1.20. In March 2020, I was invited to take part in Independent SAGE by Sir David King, the former Chief Scientific Advisor (**'CSA'**) to the UK Government, and I have taken part in its activities from then until the time of writing this statement. Our current funding for our broadcasts means it will continue till the end of 2023. When Sir David King stepped down as Chair to focus on his climate work and Professor Deenan Pillay replaced him, I agreed to serve as Deputy Chair. I have contributed to all of its key activities: reports published on the website, weekly broadcasts and internal weekly meetings to plan and inform them. I also participate in the behavioural advisory group which discusses specific behavioural and social issues which inform the discussion of the wider group and has led on some of the published reports.

The WHO's Behavioural Insights and Sciences Technical and Advisory Group

1.21. The group provides expert advice to: support the systematic inclusion of behavioural sciences in WHO's work across the three levels of the Organization (headquarters, country and regional), and the development of in-house capacity to provide technical assistance on incorporating behavioural sciences into national health policies and programmes. I have been a member for two years and am currently the Chair. This involves chairing and contributing to meetings and contributing to written documents.

The BESSI Collaboration

1.22. The BESSI collaboration is an informal ad hoc group of scientists from several countries aiming to provide information about planned and completed research into reducing COVID-19 transmission, and facilitate research into behavioural, environmental, social and systems aspects of pandemics. I was a founder member of the BESSI Collaboration which began in mid-2020 and have remained involved although it has had a low level of activity since mid-2022. Its main activity was to host webinars bringing together researchers, research users and research funders. It has

also advised WHO's Public Health and Social Measures unit. I have contributed to all of its activities.

The Lancet Commission on Covid-19 Task Force on Public Health Measures to Suppress the Pandemic

1.23. The Lancet Commission on lessons for the future from the COVID-19 pandemic was a global collaboration of scientists and aimed to provide a comprehensive investigation, analysis, and response to COVID-19, and make recommendations for policy and practice. The Commission was made up of a number of task forces; I was a member of its public health measures task force which began its work on 8 October 2020. I was one of the authors of the final report, published in the Lancet, a leading scientific journal, on 14 September 2022. I contributed to the Task Force's meetings and written reports and publications.

London's Transition Board Covid-19 Outbreak Control Strategy Group

1.24. 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. I was a member from its inception on 8 October 2020 until March 2021 and attended meetings, contributing to discussions.

Covid-19 Vaccine Health Equity and Engagement Task and Finish Group.

1.25. This group was established to support equitable COVID-19 vaccine deployment and uptake in London, which included understanding and responding to vaccine hesitancy and barriers to access. I was a member and attended meetings from August 2020 to February 2021, contributing to discussions.

2: Overview of the discipline of Behavioural Science

2.1. Behavioural science is a scientific discipline whose topic of study is individual human behaviour, group behaviour, population behaviour and the factors that influence those behaviours. As a scientific discipline it involves using systematic methods to gather data, develop models and theories, and apply them to predict the behaviour of individuals, groups and populations under defined conditions. Its applications include developing and evaluating behaviour change interventions and predicting the outcomes of naturally occurring events and human activities on behaviour.

2.2. The scientific disciplines of psychology, sociology, anthropology, neuroscience, economics, communications science, marketing science, and many others contribute to behavioural science. Its data collection methods include direct and indirect observation, questioning, and physical measurement. Its study designs include laboratory experiments, field experiments, quasi-experimental studies, cross-sectional and longitudinal surveys and participant observation studies. Data are analysed using statistical and qualitative methods.

2.3. Behavioural science is used to analyse the nature of public health problems in behavioural terms. It analyses behaviour in its context by specifying in detail the behaviour of interest, its social and material context and the likely influences on that behaviour. In relation to interventions, it specifies what needs to change in order for the behaviour to change and who needs to do what, when and where to improve public health. It asks, for each behaviour: what needs to change to enable the behaviour to change in terms of capability, motivational or opportunity issues? Having established this (what might be termed as a "behavioural diagnosis"), the next step is to use this to identify interventions most likely to be effective given the diagnosis.

2.4. Frameworks are often used to guide this process. A framework that I and colleagues have developed and is frequently used for both intervention development and evaluation, is the Behaviour Change Wheel. Behavioural science also draws on theories of behaviour and behaviour change to inform the development, evaluation and implementation of behavioural interventions aimed at improving public health.

2.5. Evaluation is seen as key to accumulating knowledge about the effectiveness of interventions. Each intervention should be evaluated in terms of how effective the intervention is in general (i.e. synthesising the results of many studies) and how long any change is likely to last. It should also be evaluated in terms of how effects vary according to the population the intervention is aimed at and the setting within which the intervention is conducted. Other questions are the extent to which the intervention is likely to change as the nature of the behaviour changes, and how the intervention has its effect, that is, what are the processes by which change occurs. Implementation depends on human behaviour, that is to say, the behaviour of planners, managers, practitioners and the like. Behavioural science is therefore an important part of understanding and enabling change in the processes of implementing interventions found in research studies to be effective in the real-world.

2.6. I advocated that behavioural science should be "at the heart of the public health response". The reason for this is that COVID-19 transmission depends on human behaviour. Therefore, containing the pandemic also depends on human behaviour.

2.7. The main limitation of behavioural science has been its reliance on reported rather than actual behaviour, as direct observation of behaviour has often not been possible. However, this is changing rapidly with new technology such as mobile phones, wearables, physiological markers and environmental sensors, which are enabling real-time, more ecologically valid measures of behaviour and its influences than questionnaire data.

Scientific methods applied to understand, predict, and influence behaviour

2.8. To understand behaviour, it is necessary to have a good specification of what it involves and how it varies across contexts. This requires having good measures of both the behaviour and of the behavioural, social and environmental influences on it.

2.9. To *predict* behaviour, it is necessary to understand how it is influenced by the behavioural, social and environmental systems within which it sits. Such systems are complex in that they may involve feedback loops, threshold effects and interactions between variables (synergistic and antagonistic). From these data, a model can be constructed to predict behaviour. Models that have been tested may become theories that generalise to some extent across contexts, which are very useful in predicting likely outcomes of behaviour, with or without the effects of interventions. All of this is predicated on identifying the variables likely to influence behaviour and having good measures of those variables (as is the case in weather forecasting).

2.10. To *influence* behaviour, it is necessary to understand what influences a behaviour or group/system of behaviours of particular populations, communities, groups or individuals in particular settings. One must then translate that understanding into interventions tailored to people and settings in terms of the techniques they comprise and how they are delivered (such as modality, source, and/or schedule). For example, interventions are more likely to be effective if they are trusted by, use language that is accessible and familiar to people, and make connections in terms of what motivates people. People also need to have the means, or opportunity, to change, and this depends on material and social circumstances.

Models and theories

2.11. Models and theories are developed by testing associations between variables in particular contexts (for example, the effect of attitudes and emotions on behaviours). When similar findings are identified across studies and contexts, the level of confidence in the assumption that these associations are generally applicable principles is increased. As understanding increases, these assumptions can be brought together into models which summarise a particular area of knowledge and theories which explain how change occurs (mechanisms of action) and the likely variation of effects across contexts such as population, context and behaviour. With the development of computational analyses and the ability to collect large amounts of real-time data about behaviour and its influences, the possibility of developing more sophisticated and accurate models and theories is increasing.

Development and implementation of behavioural interventions

2.12. Behavioural interventions should be developed and implemented, informed by the best available evidence, theory, and local knowledge. Intervention development should be informed by the implementation context, by which I mean the people and setting, including factors such as 'culture', geography, level of deprivation, housing etc. At every stage in the development and implementation process, it is important to check with those with lived experience of the context of what is being proposed or delivered, and how the intervention fits in with others. Using a systematic method such as the APEASE criteria, is likely to make the intervention and implementation more effective. I describe the APEASE criteria below.

APEASE Criteria and its use in evaluating behaviour change interventions

2.13. When evaluating the likely or actual effect of an intervention, it is useful to do this in a structured way using a set of criteria. One such set of criteria is APEASE, an acronym for:

a) Acceptability - How far is it acceptable to all stakeholders?

b) Practicability - Can it be implemented as designed within the intended context, material and human resources?

c) Effectiveness - How effective and cost-effective is it in achieving desired objectives in the target population?

d) Affordability - How far can it be afforded when delivered at the scale intended?

e) Side-effects - How far does it lead to unintended adverse beneficial outcomes? and

f) Equity - How far does it increase or decrease differences between advantaged and disadvantaged sectors of society?

2.14. The APEASE criteria were used by SPI-B when considering options for putting in place public health and social measures. For example, in the SAGE paper titled: 'Options for increasing adherence to social distancing measures, 22 March 2020', exhibited to this statement as **[SFM/02- INQ000214028]** , the APEASE criteria were used to consider the advantages and disadvantages of 10 interventions identified as having the potential to be effective in increasing adherence to social distancing. Each intervention was evaluated against each of the six APEASE criteria by expert judgement with labels such as 'High', 'Uncertain', 'Variable', and 'Could be negative'.

COM-B Model of Behaviour, Behaviour Change Wheel and the PRIME Theory of Motivation

2.15. The COM-B model of behaviour is widely used to identify what needs to change in order for a behaviour change intervention to be effective. It identifies three factors that need to be present for any behaviour to occur: capability, opportunity, and motivation. Capability is both psychological (for example, knowledge, skills) and physical, opportunity is both physical and social and motivation is both reflective (for example, conscious decisions and choices) and automatic (for example, emotions and habits).

2.16. I was involved in the development of COM-B and the Behaviour Change Wheel but not in the development of the PRIME Theory of Motivation. This was developed by Professor Robert West.

2.17. These factors interact over time so that behaviour can be seen as part of a dynamic system with positive and negative feedback loops. Motivation is a core part of the model, and the PRIME Theory of motivation provides a framework for understanding how reflective thought processes (planning and evaluation processes) and emotional and habitual processes (motive and impulse/inhibition processes) interact at every moment leading to behaviour (responses).

2.18. COM-B forms the hub of the Behaviour Change Wheel, which is based on an integration of 19 frameworks of behaviour change, identified by a systematic literature review. It comprises nine general types of intervention and seven policy options. There are nine broad ways of achieving behaviour change: education, persuasion, incentivisation, coercion, enablement, training, restriction, environmental restructuring, and modelling. There are seven policy options: guidelines, environmental and social

planning, communication and marketing, legislation, service provision, regulation, and fiscal measures.

Utilising the models to facilitate effective and long-standing behaviour change

2.19. COM-B is a model of behaviour used to understand behaviours in their contexts and conduct a behavioural analysis of what needs to change in order to modify behaviour. This analysis leads to a 'behavioural diagnosis' which indicates which interventions and policies are likely to be effective. The PRIME theory of motivation enables a more elaborated analysis of the motivational aspect of this system. The Behaviour Change Wheel is a framework that guides intervention development, evaluation, implementation and synthesis by linking the model of behaviour to the types of intervention and policy options likely to be most effective for that behaviour in its context.

2.20. In terms of long-standing behaviour change, this would require evaluation of interventions and policies over time. I am not aware of such evaluations being systematically conducted or commissioned by the Government.

Directive and Facilitative approaches in behavioural Science

2.21. I contributed to a paper entitled 'Facilitating adherence to social distance measures during the Covid-19 Pandemic' [**SFM/03-** **INQ000137690** The paper was written by Professor Stephen Reicher, with co-authors acknowledged for contributing to the work it draws on. I do not know with whom the paper was shared nor how it was used to inform political decision-making.

2.22. In considering how behavioural science could be drawn upon to facilitate public adherence to social distancing, Professor Reicher's papers describes two distinct approaches, a 'directive approach' and a 'facilitative approach', in both conceptual and practical terms. I set out below an overview of the two concepts.

2.23. A 'directive' approach is where authorities use sanctions (e.g., monetary fines) to increase motivation to adhere. A 'facilitative' approach is where authorities enable adherence through increasing people's opportunities (e.g., financial or practical support) or their capability (e.g., knowledge and skills). SPI-B in many of its reports advised that the preferable approach was a facilitative one (also referred to as 'enabling'). This was for the following reasons:

a) Research showed that the majority of people were motivated to adhere to rules but lacked the opportunity (e.g. financial and practical support to self-isolate when symptomatic or testing positive) or capability (e.g. knowledge about the rules at the time of varying regional restrictions)

b) A facilitative approach is more respectful of people, giving the message that they are wanting to do the right thing but needing help to do so.

c) For a facilitative approach to be effective in increasing adherence to a policy, it needs to be perceived as clear, legitimate, and equitable.

d) A directive approach that includes punishment or blame sets up an 'us vs them' approach and may engender oppositional sentiments, which may alienate people from the authority and undermine adherence.

e) When stakes are high and a facilitative approach is shown to be insufficient, a directive approach may be necessary (e.g. fines for traffic violations).

3: Pre-Covid 19 Research: The CORSAIR Study

3.1. From 2012 to 2022 I was a Co-Investigator the CORSAIR study. This research was commissioned by the Government in 2012 and funded by NIHR as part of its 'sleeping' research programmes. These programmes were commissioned following the research delays encountered during the 2009 H1N1 pandemic. CORSAIR was conducted by a team of seven researchers, six from universities and one from Public Health England (**'PHE'**); all the researchers involved were members of SPI-B.

3.2. Amongst other aims, the NIHR funding allowed us to conduct preparatory work to develop questions for a telephone survey and then 'hibernate' the study until a pandemic occurred. Thereafter, CORSAIR would assist the English Department of Health and Social Care ('**DHSC**') in launching, modifying, and analysing their surveys.

3.3. The result of the preparatory work was a tool which we named FluTEST (the Flu Telephone Survey Template) and had been developed and tested by collecting data from about 2,000 people per week in a nationally representative survey. FluTEST was a set of survey questions developed by the CORSAIR study to inform the UK Government, especially its DHSC, in communications and pandemic management in the event of a future pandemic. A large set of piloted questions about relevant behaviours and influences on them were repeated weekly in a telephone survey. FluTEST, and the information gathered using the tool, was intended to help academics and policy makers understand how the public were responding to the pandemic in

terms of their behaviours, factors influencing those behaviours, and what impact official communications and policies were having.

3.4. In February 2020, the COVID-19 pandemic spread to the UK. The DHSC had begun a series of surveys to explore public responses in late January. The project was activated by NIHR shortly after these surveys began and our team started work analysing the data obtained and making recommendations to DHSC, SAGE and others. The project became known by the acronym CORSAIR.

3.5. There have been 16 articles published to date reporting the findings of the CORSAIR study. Although, these articles have now been published, we were not permitted by DHSC to publish our data or share our findings as the various pieces of work were completed.

3.6. We felt strongly about the exigency of timely publication for three reasons:

a) NIHR is publicly funded, and we felt a responsibility to share the findings with organisations and individuals across the UK who could benefit in their Covid-19 policies and practices by being informed of them.

b) Time is of the essence in pandemic management given the need to act quickly on evidence as it emerges. Since the evidence we were accumulating about pandemic-related behaviours and their influences were very relevant to inform Covid-19 management (policy and practice) and communication, we considered that these findings should have full disclosure so that organisations and agencies beyond DHSC could benefit from them. These included HM Government and the devolved administrations, local government, civil society organisations (e.g. charities), businesses and workplaces, and educational and recreational facilities. Given the benefits we thought our findings could have, it seemed to the team to be irresponsible to delay publication of most of our findings for more than a year.

c) Five out of six of the investigators were University-employed scientists. The role of a research scientist is to disseminate the findings of our research as quickly and effectively as possible. For example, my own institution, UCL, has a policy commitment to 'open science' which includes the 'FAIR' principles for making outputs of research: with F standing for Findable – making research outputs discoverable by the wider academic community and the public.

3.7. Following discussions amongst the CORSAIR team, of which I was part, we asked James Rubin, the Principal Investigator on the project, to seek approval for us to publish our findings as they emerged. We discussed on several occasions the arguments in favour of the importance of timely publication. Thereafter, he communicated with several people in DHSC at different levels of seniority over many months and, making no progress, eventually sought the support of the CSA. Based on the reports from Professor Rubin to the study team, my understanding is that the CSA felt that it was not his role to intervene in Government departmental decisions. This process of discussion and seeking permission took considerable time. Eventually in July 2021, we were given permission by DHSC (via NR to publish the CORSAIR findings in academic papers. As we did not keep minutes of our study meetings, I am unable to provide the dates over which this occurred nor the names of the individuals that James consulted on this matter, but he would, I am sure, be able to supply all or most of this information.

4: Membership and participation in groups during Covid-19 pandemic

4.1. During the Covid-19 pandemic, I was a participant at, or member of three scientific committees/groups aiming to provide scientific advice to Government. I will set out below details of my involvement and participation in SAGE, SPI-B, and Independent SAGE.

SAGE

4.2. During the Covid-19 pandemic I only attended SAGE on three occasions, specifically SAGE meetings 18 (23 March 2020), 73 (17 December 2020), and 87 (22 April 2021). I do have previous experience of the group having participated in SAGE during the 2009 H1N1 pandemic. Apart from the first occasion that I attended SAGE during the Covid-19 pandemic, I was only allowed to stay for the item I was speaking to.

Composition of SAGE

4.3. SAGE in 2020 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 Test, Trace and Isolate systems. It became very large and my experience of the three meetings I went to was that there was a very packed agenda, but insufficient time available to deliberate on topics. This was in contrast to when I was a member of SAGE in 2009 and, to my recollection, there were fewer than

20 scientists in attendance and there was time to discuss topics in depth when needed. By way of illustration, when I attended in December 2020, according to the minutes there were 83 people present (of whom 41 attended as scientific experts). With such a large number of people present, it was not possible to follow who was speaking or to easily follow the agenda.

4.4. Although there were many disciplines represented on SAGE, the lack of opportunity for interdisciplinary interaction during and outside of meetings, meant that learnings between disciplines were inevitably limited. Such interdisciplinary interactions and enhanced learnings were apparent during both SAGE 2009-2010, SPI-B 2020-2021 and within Independent SAGE, a group of about 14 scientists.

Process of advising government

4.5. In order to provide scientific advice to government, participants of SAGE and its sub-groups would discuss scientific matters and aim to reach a consensus on their advice. Advice from sub-groups, in the form of reports, would be considered by SAGE and sometimes amendments were suggested. All SAGE advice and reports would be published, and, to the best of my knowledge, some were communicated directly to the Cabinet Office by the CSA and the Chief Medical Officer ('**CMO**'), however, I cannot be sure of this. I expect that GO-Science would hold this information. As far as I know, SAGE (and its subcommittees) do not receive feedback about the dissemination and impact of specific items of its advice; that was certainly my experience in 2020-2021. Equally, there appears to be no mechanism for knowing where advice goes, whether it was understood, by whom and whether there was an attempt to implement it. This process of translating scientific advice from SAGE (including all its sub-committees) to policymakers has a number of limitations:

a) Lack of broad expertise: Any one person inevitably has a limited range of experience and expertise compared to the breadth of collective expertise which informed SAGE advice. For example, neither the CSA nor CMO have expertise in behavioural science. Inevitably, therefore, some issues may be prioritised or communicated in ways that may not have done justice to some of the advice.

b) Lack of transparency: The fact that the CSA and CMO are civil servants and thus accountable to the Government rather than being independent scientists on SAGE raises questions such as: if conflicts of interest arise, how these are identified and handled? Further, given intense social pressures that are likely to exist in Government circles during a pandemic, it is a lot to expect that two

individuals carry the responsibility of imparting the entirety of SAGE's advice without broader support or transparency of the communication of that advice which can correct any concerns or criticisms as they arise.

c) This lack of transparency means that, it is not possible to judge whether, or to what extent, either of the above two limitations undermined the communication and impact of the scientific advice they were imparting.

d) Associated with that, there is no process, to my knowledge, for checking that policymakers, civil servants or ministers have received or correctly understood the scientific advice provided to them.

4.6. To be clear, I think that the CSA and CMO did an amazing job during the pandemic, and my comments in the paragraph above are intended to be a critical evaluation of the mechanism by which scientific advice is communicated to government through the CMO and/or the CSA. I would not like this to be construed as a criticism of the individuals concerned.

4.7. SAGE's advice was academic and expert, however the extent to which it was free from external influence is arguable. In 2009, as I recall, there were policy and implementation people from government, as well as members of the Secretariat, who sat in on SPI-B and SAGE meetings alongside Scientists. I recall that the relationship between Scientists and those involved in policy and implementation at these meetings was helpful and their presence did not shape our discussions, nor our reports, unlike the Covid-19 SAGE of 2020-2022, where there was much more active management of discussions and reports by the GO-Science Secretariat in particular. As SAGE minutes show, during the Covid-19 pandemic, there were tens of people who were either part of, or associated with, Government (for example, political advisors, Public Health England staff) sitting in at meetings and, I presume, reporting to Government directly. I was concerned that, for example, Dominic Cummings and other political advisers whose names I cannot recall, were likely to be reporting their take on meetings to the Prime Minister ('**PM**') or others and thus able to shape policy decisions before the CSA and CMO reported to the PM and other ministers. In addition, their presence may have inhibited discussion amongst scientists, whether or not they participated in them. I say this because the presence of government-associated colleagues has the potential to influence discussion as people are aware they are being observed. What they say may be reported to others which may have a bearing on subsequent actions, positive or negative, in relation to them.

4.8. Later in this statement, I refer to the desirability of more partnership between scientists and policymakers. My view is that there should be meetings for scientists where they can discuss and analyse issues without concern about who it might be reported back to. Thereafter, scientists could meet with policy makers in order to relay the options and implications of scientific advice for the purposes of devising policy.

Attendance at SAGE

4.9. As I stated above, I only attended one early meeting of SAGE and two subsequent ones, but for the two latter ones, I was only allowed to stay for the item I was speaking to. I do not know, therefore, the extent to which non-scientist participants contributed to those discussions. Because meetings were remote, it was not possible to identify individuals in the room and we were not sent paperwork which identified the participants. The one meeting I attended in full had a very pressured agenda with little time for in-depth discussion. For one of the other two meetings, there was no time for discussion and in the other, insufficient time to discuss the SPI-B reports I was presenting. In such situations, it is likely that the CSA, who I understand carefully read all documents (which we were told sometimes caused delays in publishing reports), would have had considerable influence over the feedback and communication of advisory reports.

SPI-B

4.10. On 19 February 2020 I was invited to participate in the SAGE subgroup, the 'Independent Scientific Pandemic Insights Group on Behaviours', known as 'SPI-B'. I exhibit the email inviting me to join SPI-B to this statement as **[SFM/0**4 - INQ000223284**]** SPI-B's terms of reference, which is exhibited to this statement as **[SFM/05 - INQ000214031],** defined the group's scope as providing "independent, academic and expert advice to assist policy decisions relating to the Covid-19 epidemic". I participated in SPI-B between 2 March 2020 and 3 February 2022. This included meetings of the whole group and also of sub-groups working on specific reports.

Composition of SPI-B

4.11. SPI-B participants were of excellent quality, drawn from a range and diversity of expertise. The wide range of disciplines represented on SPI-B included health psychology, social psychology, clinical psychology, education psychology, sociology, anthropology, public health, epidemiology, statistics, history, criminology, social justice. Furthermore, over the period that SPI-B was active, new scientists were

brought into SPI-B work as needed, either by being co-opted onto SPI-B or into other groups working alongside us. I, therefore, do not agree with the assertion that SPI-B consisted primarily of social psychologists and not other disciplines such as those who "considered behaviour in context and focused on inequalities and stratification such as demography, geography, economics and sociology." I have already addressed the wide range of disciplines represented on SPI-B and inequality was considered in all pieces of work with which I was involved. Economics was not part of the remit of SPI-B nor SAGE more generally.

4.12. Although I consider that there was a diversity of disciplines represented on SPI-B, I do, however, think that both SPI-B and SAGE lacked international perspectives. I did raise this in relation to SPI-B in 2021 and was told that there was another committee that dealt with the international dimension, although, I do not recall their work informing ours. I think SAGE and SPI-B would have benefited from learning more about what was happening in other countries, beyond published reports, and incorporating international perspectives, especially those countries in Southeast Asia, who had had more experience than us of managing pandemics, for example, Singapore, South Korea, Hong Kong, Taiwan, and mainland China.

4.13. There was certainly an under-representation of ethnic minority groups on SPI-B compared with the general population. However, my estimate is that there was not an under-representation compared to the representation of ethnic minorities working in behavioural sciences in the UK. I do not recall a discussion about lack of diversity on SPI-B and I am not aware of what steps were taken to increase diversity; those responsible for selecting participants would presumably be able to provide further information on this point.

Relationship between SPI-B and SAGE

4.14. As set out above, SPI-B was a subgroup of SAGE. Consequently, one or more of SPI-B's chairs attended SAGE meetings along with other members who attended in order to present specific pieces of work or reports. As I understand it, all our work was reviewed by the CSA, and it had to be formally agreed by SAGE before being published. There were often delays in the process and we (SPI-B) were told that this was because the CSA liked to review everything himself which held up the process of it going to SAGE. On the three occasions that I had attended SAGE and briefly presented papers (on options for increasing adherence to social distancing, possible effects of rolling out vaccination programmes on other protective behaviours and

maintaining behaviours long-term) there was no time to discuss the issues arising from them. I was told they would be referred to appropriate committees, but I do not know which ones. I did not contribute beyond briefly presenting the specific report.

4.15. There was no mechanism or process for SPI-B members to know what was discussed at SAGE or any of the other sub-groups. Similarly, there was no formal mechanism for the provision of feedback arising from our reports, nor about to what use they were put and their impact. Occasionally, a SPI-B chair would mention something that had been said or referred to during SAGE meetings, but this was rare. I felt, and some SPI-B members expressed, frustration that we were working in an information vacuum when it came to the science advice being given in other parts of the advisory system.

SPI-B ethical considerations

4.16. Other than signing conflict of interest declarations, I was not aware of an explicit ethical framework for SPI-B, although, the issues of impact of policy on inequalities was a prominent consideration in our work. I, and presumably most other participants, operated within the ethical frameworks of the professional and scientific organisations of which we were members: for me it is the BPS. I do not recall involvement of the Moral and Ethical Advisory Group ("**MEAG**") with the work of SPI-B.

4.17. I am aware that there has been a suggestion that SPI-B was SAGE's "nudge unit" and was responsible for "driving a culture of fear". I presume that this is a reference to advising on so-called "nudge theory".

4.18. The term "nudge theory" is an approach to behaviour change but is not, strictly speaking, a theory. It is a term that has been adopted from Richard H. Thaler & Cass R. Sunstein's book "Nudge". It refers to a selection of interventions that influence what people consider to be 'free' choices using subtle approaches such as the positioning of objects in the environment or the wording in written communications. Examples are: the placement of food items in a supermarket, the size of wine glasses, requiring opting out, and framing possible decision outcomes in terms of avoiding losses rather than making gains. Intervention approaches that are not considered as 'nudges' are the use of rewards and punishments, establishing powerful social norms, overtly persuasive arguments, education, and training to improve knowledge and skills, or use of physical barriers.

4.19. Proponents of "nudge", state that these strategies enable people to change their behaviour without mandating or coercing them to do so. It has been criticised for

professing that freedom of choice is maintained whilst subtly manipulating that choice. Using change strategies that people are unaware of, may disempower people as it does not increase their knowledge and skills to set their own goals and choose their own strategies to achieve those goals. It has also been criticised for excluding strategies that are highly effective and which decrease health inequalities.

4.20. One of the dangers of using the term "nudge", in relation to behaviour change interventions, is that it has been used inappropriately to refer to behaviour change interventions in general, rather than to a very small subset of available options for enabling behaviour change. This may lead to effective interventions being overlooked.

4.21. I do not recall "nudge theory" being used by SPI-B in its work or reports. I do not know if it was used by those charged with considering behavioural issues within the Cabinet Office or other parts of Government, as SPI-B was not informed about their work.

4.22. I also do not agree with the assertion that SPI-B was responsible for driving a culture of fear and do not believe that SPI-B ever used the phrase "culture of fear" in its work. Scrutiny of the published reports of SPI-B's work and advice should make it clear that any accusations that SPI-B promoted unethical psychological techniques to encourage behavioural change are unfounded. SPI-B was certainly not undertaking a psychological experiment on the British population, as has been suggested.

4.23. Inducing a feeling of concern about a genuine threat is used in some public health messaging, jointly with the actions that people can take to avoid the feared consequences of behaviour. For example, using vivid imagery on cigarette packets to reduce smoking or screening film clips of tragic accidents following drink-driving. Surveys (e.g., Corsair) showed that negative emotions, such as worry (related to fear), increased in accordance with the rise of Covid-19 waves and reduced over time after March 2020 and markedly after the roll-out of the vaccine.

4.24. SPI-B did not advocate using 'fear'. In March 2020, before vaccines and treatments were available, SPI-B was asked to consider options for strategies to increase social distancing. We put forward 10 options, one of which was persuasion which included increasing the perceived threat of the disease alongside providing information about what actions people could take to reduce the perceived threat of the disease. Thus, our advice was to empower people to act, not to scare them.

4.25. On 23 March 2020, I attended a meeting of SAGE where SPI-B's paper 'Options for increasing adherence to social distancing measures' was discussed. In the paper,

SPI-B stated that "a substantial number of people still do not feel sufficiently personally threatened; it could be that they are reassured by the low death rate in their demographic group… the perceived level of personal threat needs to be increased among those who are complacent, using hard-hitting emotional messaging."

4.26. I do not recall any contributions I may have made to this meeting, but would not consider this advice to be unwise or unethical as:

a) In March 2020, there was evidence of large numbers of people in other countries dying from Covid-19, alongside evidence that a substantial number of people were overly complacent about the dangers of Covid-19 and not taking steps to avoid becoming infected or transmitting infection. SPI-B considered that one reason for this is that they did not feel sufficiently personally threatened. In this case, one option would be to use the persuasive method of increasing the perceived threat in association with empowering people by making clear the actions they can take to reduce the threat. This is often used in public health messaging, for example, in relation to smoking or drink-driving as referred to above; in all these cases, changing behaviour can lead to considerable reduction in loss of life. The second part of the technique, drawing attention to actions to reduce the threat, is key to its effectiveness, as the SPI-B report made clear. It makes obvious sense to promote an appropriate level of concern about the risks from Covid-19 as we do from smoking, excessive alcohol consumption and dangerous driving.

b) Given the evidence of the effectiveness of this persuasive message and the Covid-19 fatality rates at that time, I consider that it would have been unethical not to have included it as one of the 10 options to consider in response to the Government's request for evidence-based options for increasing adherence to social distancing measures. Again, it would be like failing to warn people of the dangers of other forms of risk.

4.27. The technique of increasing perceived threat is a form of persuasion, and only one of 10 types of intervention put forward for consideration, others included education, incentivisation, coercion or enablement.

4.28. I have seen no evidence that the population as a whole was overly fearful of Covid-19, let alone that this was because of government communications exaggerating the risks. At the start of the pandemic the Westminster government was arguably overly complacent, reassuring the public that Covid-19 was mild for most people. It was only

when it became clear that the NHS would be overwhelmed if action was not taken to control the spread of Covid-19 that the government belatedly took these protective measures – explaining to people what would happen if those measures were not taken. The behavioural science advice to government was always about ensuring that people had a realistic appreciation of the risks and actions that needed to be taken to mitigate them and ensuring that people were provided with the required resources to do so.

4.29. The Government made it clear on many occasions that, there was a large variation in Covid-19 risk across the population, in terms of the elderly and those with underlying conditions, being significantly more vulnerable than others. However, there was little messaging, as far as I recall, about the variation in risk as a result of differential exposure to the virus as a result of working and living conditions (e.g., public-facing jobs and crowded housing respectively).

Independent SAGE

4.30. In March 2020, I was invited to take part in Independent SAGE by Sir David King (a former CSA). Independent SAGE is an unofficial body of scientists and set up following the Covid-19 outbreak for the scientific community to share scientific evidence and advice about how to minimise Covid19 transmission and deaths, and communicate directly with the public, press, local and national governments and civic organisations. I was invited as a leading behavioural scientist in the UK, and one who had prior experience of advising on pandemic management (during the 2009/10 H1N1 pandemic). I have taken part in its activities from then until the time of writing, currently serving as Deputy Chair.

a) First, I accepted the invitation to join as I was the only behavioural scientist invited to participate in Independent SAGE at that point. I considered that it was important to have a behavioural science perspective in the multidisciplinary considerations of pandemic management. This is because, the reduction of viral transmission depends on keeping infected people away from those not yet infected, which means people behaving very differently to their normal practices. Behavioural science has a wealth of empirical evidence and understanding of human behaviour, including how to support change to improve health and safety.

b) Secondly, I believe in open and transparent communication from scientific advisors to their various audiences. For the first few meetings of SAGE, their membership, reports and minutes were not published.

c) Thirdly, I am encouraged by UCL in its efforts to engage the public in understanding science. I am also personally motivated to do so as I consider scientific literacy amongst the general population to be important for societal, community and individual wellbeing. I believed this to be especially important during a pandemic when many felt confused and were seeking trustworthy sources of information, and when misinformation and disinformation were recognised as undermining the pandemic management effort.

d) Finally, I brought to it experience and expertise gained from participating in SAGE and conducting research relevant to the 2009 H1N1 pandemic outbreak and its management.

4.31. The key external activities of Independent SAGE were weekly broadcasts on YouTube of data updates (e.g. trends in infections, hospitalisations, and deaths) and presentations on specific topics, often with guest speakers. Independent SAGE has also published a large number of reports to communicate scientific advice about many aspects of pandemic management on its website. We hold internal weekly meetings to keep abreast of scientific and societal developments, to develop cross-disciplinary perspectives and to plan and inform its activities. The Chair was responsible for chairing internal meetings and was the point of contact for outside communications. The behavioural advisory group discussed specific behavioural and social issues which informed the discussion of the wider group and has led on some of the published reports.

4.32. One of the reasons for the establishment of Independent SAGE was the importance attributed by Sir David King to speaking directly to the public. Its weekly public broadcasts, as well as providing up to date data about the current situation concerning pandemic management, includes questions from the public that they ask directly during the session. It also invites guest experts to address issues that the public are concerned or confused about. As of the beginning of 2023, viewing figures at its weekly broadcasts are still around 8-10,000, having risen to 20,000 in 2022. Since its inception, it has published more than 100 reports to communicate scientific advice and policy implications addressing a wide variety of topical questions related to pandemic management.

4.33. As the name suggests, Independent SAGE did not have any engagement or collaboration with SAGE, although, several of the members of Independent SAGE also

participated in SAGE and there was a high degree of concordance between their scientific advice.

4.34. The main reason for Independent SAGE being formed was the initial secrecy surrounding SAGE's membership, minutes, and reports. The second reason was the lack of public health expertise, and specifically pandemic public health on SAGE. Independent SAGE sought to be complementary to SAGE. As well as being transparent, its small size and agility of working style meant that it could respond quickly to provide scientific advice relevant to public concerns or strategic questions as they arose. It was public facing and took questions at its weekly broadcast directly from the public, press and politicians, and was also open to discussing policy implications of scientific knowledge about particular issues.

5: SPI-B - Communication, scope, and implementation of SPI-B advice

5.1. In this section of my witness statement, I set out a number of issues and complications surrounding SPI-B's generation and dissemination of advice, how and whether that advice was considered, and also concerning its implementation by policymakers.

Limited scope of advice permitted

5.2. SPI-B was only allowed to provide advice on specific issues which the Government had sought advice on. This meant that there were questions, such as around using the concept of behavioural fatigue, changing messaging to 'stay alert' and imposing fines, that could have benefited from our advice had it been sought. However, without being instructed, issues such as these could not be addressed by SPI-B. There was no mechanism for us to suggest areas in which we thought our advice would have been helpful.

5.3. Had there been contact between the scientists and the policymakers that they were advising, the 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, the GO-Science Secretariat was the go-between for scientists and policymakers, which prevented direct communication between those commissioning and the authors of the advice.

5.4. 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 'why' of the 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.

5.5. Overall, this process wasted time and effort which I think led to less good questions and therefore, less useful advice than if there had been discussions between policy makers and scientists as part of ongoing working relationships. In my experience, the effort put into such discussions is well worth it and the mutual knowledge and trust that develops in such a process makes the process more effective.

5.6. 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 later 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 facility was widely taken up and, to my knowledge, we did not have any commission following a suggestion from a SPI-B member.

Role of SPI-B in suggesting policy

5.7. Many of us have worked with Government policy makers for years or decades and know that for policy makers to engage with scientific advice, it is important to talk in terms that they can easily understand, and that often means giving concrete examples to illustrate our advice. That might include highlighting policy implications of the advice, or the impact of a particular policy.

5.8. However, we were verbally instructed by GO-Science, on behalf of the CSA, not to 'stray into policy areas'. UK University-based scientists are trained to consider the policy and practical implications of their research and often required to spell these out in research reports or in grant applications. Through the mechanism by which Universities are awarded funding, the evidence of policy impact from research generated by their staff brings considerable remuneration. It was, therefore, very odd to then be in a situation where the purpose of our scientific advice was to inform policy, but where we were not allowed to provide policy examples of scientific evidence or principles. In my experience, this is very helpful to policy makers in their understanding

of the scientific evidence and principles. Since our job within SPI-B was to maximise the policymakers' understanding of policy-relevant science, I think the apparent effort to create a 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 and understand by providing policy examples or implications.

5.9. In the SPI-B report '*Sustaining behaviours to reduce SARS-CoV-2 transmission, 22 April 2021*' which concerned sustaining behaviours in the long term (exhibited to this statement as **[SFM/06 - INQ000214032]**, the writing group included examples of policies that would be consistent with the various pieces of advice. We were verbally instructed by GO-Science, on behalf of the CSA, to take these out. I disagreed with this approach. The mantra – 'scientists advise, politicians decide' is, of course, correct. This should not, however, prevent understanding that there is a translational pipeline between scientific evidence and the importance of it being correctly understood in order for it to properly craft policy and influence practice. I did not see it as my role to challenge the CSA even though I disagreed with him, and I made it clear verbally to the Secretariat that I disagreed with removing policy examples.

5.10. Providing scientific advice is about enabling scientific evidence, which is often very foreign to those who might use it, to be comprehensible and useable. In my experience having direct communication between scientists and policymakers can lead to the scientists having a better understanding of the policy context and the policy makers having a better understanding of the science.

5.11. My experience of effective working relationships between policymakers and scientists, includes more of a partnership and iterative approach where scientists can make suggestions about ways in which we think we could be helpful in supporting policy needs. In my experience, this has been welcomed as policy makers are often not clear about the breadth of scientific expertise and potential contribution.

5.12. For example, SPI-B could have provided evidence-based advice about

a) The concept of 'behavioural fatigue' and whether there was sufficient evidence to take it into account when considering the timing of lockdowns and restrictions in 2020.

b) The use of penalties for breaking self-isolation and social distancing rules, and the imposition of curfews.

c) Possible unintended consequences of imposing a 10 pm curfew on pubs.

d) The moving from precise, behaviourally oriented messaging to vague, ambiguous messaging e.g., 'stay alert'.

5.13. The atmosphere generated was that our role was to respond to and make the most of what we were asked for, not to question or to suggest what we could helpfully advise on. There was a huge pressure of work and no time given to reflection on process. Although, the SPI-B Terms of Reference, exhibited to this statement as **[SFM/05 - INQ000214031]**, provided that: "Participants, observers and other interested parties should go through SAGE or the chair to suggest questions to be discussed at SPI-B…", it was only in late 2020 , after several people complained about our passive role, were we told we could make suggestions on a document for topics to consider. I think the view was that this would not go anywhere as there was no mechanism to inform us as to what was suggested and what was the result of those suggestions. Indeed, I do not recall ever being told whether anything had been suggested and if so, what. The communication between the co-ordinating group and the larger SPI-B group was poor as the co-ordinating group were focusing on getting on with the business of producing requested reports and the sense of the larger group was lost, as there were no regular meetings.

5.14. I understand that Dr Gavin Morgan has suggested that, at times, "expert guidance and advice was 'cherry picked' to suit the narrative", which I understand to be a reference to the Government being strategically selective about which scientific advice to follow. I agree with that statement.

Advice not reflected in policy

5.15. Much, possibly most, of SPI-B's advice did not appear to be reflected in government policy. I do not know whether that situation would have improved had we had a proactive role in providing advice. What I can say is that, it seemed to me that the policies that were developed, often, did not appear to have any correlation to the advice which had been called for by the Government from SPI-B.

5.16. In response to the increasing frustration amongst SPI-B members about a perceived lack of adoption of our advice, the CSA joined one of our meetings in late 2020/early-2021, to give us what might be termed as a 'pep' talk and tell us what a magnificent job we were doing and to thank us for all our hard work. I asked him if he could identify any policies that had been influenced by any of our advice. His reply was to the effect that, had we not given advice, the policies adopted by the Westminster Government would probably have been worse.

5.17. I do not know how behavioural science was used to support 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. An example of this was the final report produced by SPI-B, advising how to move from a rules-based to a risk-management approach to keep oneself and others safe whilst Covid-19 persisted. The report was entitled '*SPI-B: Sustaining behaviours to reduce SARS-CoV-2 transmission, 22 April 2021*' and a copy of the report is exhibited to this statement as **[SFM/06-** INQ000214032**] .** This was an extremely important paper as it advised what needed to happen at many levels in society to support people behaving safely in the long-term.

5.18. SAGE/SPI-B was asked "In relation to the four sets of behaviour of (i) physical distancing, (ii) wearing face coverings, (iii) ventilating enclosed spaces, and (iv) working from home where possible,

a. How can we manage the transition from rules to guidance in order to maximise risk reduction?

b. What do we need to communicate so that the public is sufficiently informed to manage their own risks? (and do we have this information?)

c. What research and data gathering are needed to monitor these changes and inform future policy?

d. What are the equalities implications of relying on guidance / choice?"

5.19. SAGE concluded in this report **[SFM/06 - INQ000214032]** that, as legal restrictions are eased, maintaining low levels of transmission will require continuing policies that promote COVID-19 protective behaviours. These are everyday behaviours that involve spaces that we normally inhabit, including our homes, public spaces, educational facilities, businesses, and hospitality and leisure facilities. We advised that, as restrictions are eased, COVID-19 protective behaviours would not be sustained without multiple co-ordinated interventions, and we gave this advice with high confidence.

5.20. We advised with high confidence that successful risk management involves: multiple layers of protection; a combination of physical, social and psychological measures;

effective communication of risk and uncertainty; inclusion of the targeted groups in its development; and continued monitoring and feedback.

5.21. We advised that there should be monitoring of this transition from a rules-based to risk management approach to guide how people behaved and that this should be used to guide decision-making in an ongoing, iterative manner before, during and after implementation, on potential negative as well as positive outcomes. We also advised with high confidence that co-production and extensive stakeholder engagement would be critical to the success of these interventions and to the monitoring.

5.22. We made the point that this transition was the responsibility of everyone, that the need for a multi-layered, multifaceted approach to long-term behaviour change requires the co-ordinated participation of an array of public and private sector organisations, rather than a series of separate interventions.

5.23. The Government delayed publishing this report for about three months, the explanation we received was that this was so that it could be published on "Freedom Day", 19 July 2020, the date when lockdown rules came to an end. This lost three valuable months when there could have been an effective public campaign to prepare people for life without Covid-19 rules and restrictions. As it turned out, although the report was put on the website on that date, there was no mention of it in Government communications and I have seen no evidence of its advice being discussed or implemented. One reason may be that it was not part of the Government's narrative of "freedom from Covid-19; there is no problem". As with all our reports, we did not receive any feedback about who the advice was sent to nor whether any of it was acted on.

5.24. I have set out below some further examples of advice provided by SPI-B but not implemented by the Government:

a) We advised the Government to engage with, and listen to, communities in discussing and developing policy (this serves both to ensure that policy reflects people's living and working conditions, and to give people the sense of being involved in the process, both of which are likely to increase adherence).

b) To increase adherence, we advised to use support as the first port of call rather than blame and punishment. We advocated using the 4E's approach: Engage, Explain, and Encourage adherence to Covid-19 guidelines and use Enforcement, only as a last resort.

c) We, and SAGE, advised the Government to provide adequate practical and financial support for people to be able to self-isolate. A copy of SPI-B's report: '*The impact of financial and other targeted support on rates of self-isolation or quarantine [SPI-B: 16 September 2020]*' which considered this topic is exhibited to this statement as **['SFM/07- INQ000214033]**.

d) We advised drawing on evidence-based behavioural principles to inform communication strategies.

e) We advised that support for a risk management strategy when rules were lifted to maintain protective behaviours in the long-term should come from many different organisations, including the Government, employers, and educational organisations.

Degree to which COM-B and the Behaviour Change Wheel were incorporated into Government policy

5.25. In my experience and knowledge, where COM-B and the Behaviour Change Wheel were used in the scientific advisory process, they were helpful to structure thinking, analyse behaviours in their contexts and guide advice about interventions and policies. I do not know how effectively these models were adopted into policy during the Covid-19 pandemic because, as mentioned above, SPI-B participants were not provided with feedback about whether and how their advice was adapted into policy during the Covid-19 pandemic.

Role of assumptions in Government policy

5.26. Statements were made by Government spokespeople that did not accord with the behavioural science advice that had been given and were more in line with 'common sense' assumptions about human behaviour. 'Common sense' assumptions can be wrong. An illustration of this would be threatening 'bad' behaviour with punishments, such as fines, rather than understanding the reasons for this behaviour and addressing the reasons, for example, the circumstances in which individuals find themselves.

5.27. I have been asked to indicate whether I agree with the opinions that the Governments decisions were based upon an "*assumption of frailty*" or were "*based on a mistaken set of assumptions about the nature of human behaviour, of adherence and resilience in the face of regulations that controlled the transmission of Covid*."

5.28. The assumptions being referred to in the paragraph above refer to a view of human behaviour that is rooted in individual cognitive or motivational deficits rather than

considering behaviour as a result of complex interactions among people and between people and their material and social environment. This view ignores the important influences of emotion and habit on human behaviour. Rather than working with the capabilities (knowledge and skills, including behavioural management skills) and motivations that people have and the social groups and networks they are part of, this view can lead to simplistic, ineffective, and even unethical efforts to change behaviour. 'Nudge' and behavioural economics have been criticised for over-relying on trying to change cognitive biases and the immediate environment around people rather than developing people's own capabilities to understand the influences on and motivations for their behaviour and work with these goals and strategies to achieve them. In other words, 'nudge' is perceived as treating people as passive recipients of change strategies rather than active agents who can be supported to choose their own strategies to reach desired goals. As outlined at paragraph 5.26 above, this can lead to a reliance on punishment rather than support, premised on the assumption that people are inclined to act antisocially, rather than that they want to adhere but lack the resources to do so. Another consequence of this approach was the Government's failure to develop a program of community engagement to increase vaccine take up, especially in marginalised communities.

Lack of feedback

5.29. SPI-B work was, in my view, limited by a lack of feedback from SAGE and the other sub-groups. We did not receive information about the advice provided by SAGE nor by its committees. Whilst this was obviously a huge amount of information, it would have been useful to have had access to the minutes as they were agreed and to have a precis of key advice that was relevant to our work.

5.30. Consequently, we were working very much in a silo. This differed from 2009/2010 where there were smaller groups both, for SAGE and its sub-groups and good communication between the groups. In 2009/2010, observers from SPI-B and SPI-M attended each other's groups so that we were better informed about each other's work and ways in which exchanging information could be helpful. For example, SPI-B could quickly pick up what behavioural assumptions were being made in models and improve these where needed. There was also a standing item for SPI-B matters to be brought to it by its Chair (myself); we could actively bring issues to SAGE not just wait to be handed down commissions.

5.31. For example, during the 2009 SAGE meetings, I initiated a practice of a behavioural scientist attending the modelling group and vice versa so that we could provide SPI-B with behavioural data where needed and we had access to up-to-date modelling data.

5.32. As time progressed there was some representation from SPI-B on EMG, which was a positive development. I do not have in my possession any EMG minutes, please ask GO-Science who have access to some of the minutes. They have confirmed to me that one SPI-B member attended each EMG meeting from its 4th meeting (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. This paper is exhibited to this statement as **[SFM/08** – INQ000214034] .

5.33. There are several problems arising from having no mechanism in place to monitor pathways of impact of scientific advice:

a) First, it is demoralising for scientists who are giving up many hours a week, voluntarily, sometimes a day to work at great intensity on SAGE/SPI-B work, to not know whether their advice is being communicated effectively to the quarters it should be communicated to.

b) Secondly, without feedback, the nature of the advice cannot improve if, for example, reports are too long or being written in too technical language, or not sufficiently connected to policy questions and issues.

c) Thirdly, the infrastructure cost of supporting SAGE and all its groups was high. I consider that politicians and taxpayers alike should be able to know how well this system was working in terms of the process at least.

Effectiveness of communicating uncertainties in scientific evidence

5.34. Uncertainties in scientific evidence arise for several reasons e.g., (i) lack of evidence about a particular topic, or the evidence being from a different population, setting or about a different but related behaviour, (ii) conflicting evidence from different studies using similar or different methods, (iii) contested or uncertain evidence given that there is always a degree of uncertainty in evidence, the question is how much and what is taken into account in estimating this, and (iv) changing circumstances and/or evidence.

5.35. Effective communication about uncertainties in scientific evidence in pandemics is very important as the context is continually changing. For example, the level of transmission

or harm of infection, as is the scientific understanding of these issues. There is specific academic literature which has been produced concerning how to communicate uncertainty effectively. Examples of this literature are exhibited to this statement as **['SFM/09 – INQ000214035] and [SFM/10 – INQ000214036]** .

5.36. SPI-B and SAGE attached levels of confidence (Low, Medium, High) to statements in their reports to communicate the degree of uncertainty attached to them. The extent to which this was effective is unknown to me as, as I have mentioned a number of times, we (that is, SPI-B) did not receive any feedback about our communications. I therefore do not know if policymakers understood this or whether they were able to include levels of uncertainty into their decision making.

5.37. I do not recall SAGE providing scientific advice about the process of communicating scientific and other uncertainties and SPI-B were not asked about this question. In the 2009 pandemic, SAGE's behavioural group covered behaviour and communications. However, during the Covid-19 activation of SAGE, the communications part of the work was placed elsewhere so that SPI-B was responsible solely for behavioural advice, (although communications is an important method of enabling behaviour change). I do not know who was responsible for providing scientific advice about communications during Covid-19 and despite asking the SPI-B chair, I was never able to ascertain the rationale for the decision to remove the communication aspect of SPI-B's responsibilities in 2020.

Lack of independence

5.38. There were about 30 reports produced by SPI-B with, I would estimate, several hundreds of pieces of science-based advice. As set out elsewhere in this statement, we were told we were not allowed to provide evidence-based policy recommendations. On some occasions, it did not feel like we were giving our scientific advice completely independently as we were given many steers from the Secretariat about what would or would not be acceptable in terms of scope, messages, language, and reference to policy.

5.39. The example of steering SPI-B references to policy that I recall most vividly was SPI-B's final report and one that I co-led on, entitled: *'SPI-B: Sustaining behaviours to reduce SARS-CoV-2 transmission, 22 April 2021'*, exhibited as **['SFM/06-INQ000214032]** This was a key report as it was the advice for how the Government and other parts of society could enable people to move from a rules-based to a risk-

management approach to minimise Covid-19 transmission and harm in an ongoing and proportionate way.

5.40. We were instructed by GO-Science to take out all the examples of implementing behaviour change principles for infection control in the table under **['SFM/06 – INQ000214032]**. We were told that this was an instruction from the CSA. Accordingly, the report was published without the examples.

5.41. I do not recall SPI-B challenging GO-Science/the CSA on this instruction, as we were told that these were the rules and that we had to follow them. Had we been meeting face-to-face and had the opportunity to talk to each other during breaks, my view is that there would have been more push-back by scientists. As it was, there were no opportunities to discuss process with other SPI-B members or suggest changes to current procedures. During a pandemic crisis, no-one wants to "rock boats" when everyone is working very hard for the same aim and there is an emergency at hand. However, ensuring mechanisms for including best practice from the beginning of emergencies is crucial.

Groupthink

5.42. I have been asked whether I consider that there was a degree of 'groupthink' within SPI-B. In short, I do not believe that there was. Groupthink typically occurs in fixed groups with very frequent interaction with little exposure to outside information. SPI-B, on the other hand, was organised into different groups for different tasks and its main job was to find information externally and synthesise and communicate it. Participants were from many different academic disciplines and had very heterogeneous scientific and professional experience and research expertise, leading to rich interdisciplinary discussions with a wide range of perspectives brought to bear on any particular topic.

6: SPI-B Substantive Advice

SPI-B Papers

6.1. I have been asked to provide summaries of certain papers produced by SPI-B. The papers to which I have been referred are brief, typically with fewer than five pages, and represented a summary and consensus of the discussions between SPI-B members. I was not part of the lead writing group of these reports and therefore, cannot do more than summarise the reports, which are themselves already in summary form.

SPI-B advice on particular topics

6.2. I have also been asked to provide details of the work that was undertaken, and the advice that was given by SPI-B during the pandemic. SPI-B's published advice remains available online and, in my view, is likely to be the most comprehensive source of the advice given. I do not propose to summarise SPI-B's published advice on topics where I was not lead-author of the report, as I do not have any specific recall of those reports and I am unsure of the value of my summaries to the Inquiry.

SPI-B advice on potential strategies to embed infection control behaviours in the long-term

6.3. I was co-lead author of the SPI-B report: *Staying 'Covid-safe': Proposals for embedding behaviours that protect against Covid-19 transmission in the UK*, exhibited to this statement as **['SFM/11- INQ000214037]** .The report examined (i) the risk and safety management literature for principles that would be relevant to Covid-19 protective behaviours and on which there is broad agreement in the field, (ii) previous relevant SPI-B reports, (iii) theoretical approaches to risk management, and (iv) theory and evidence on sustained behaviour change.

6.4. The reason I present this report in some detail is that it was key to bringing down transmission rates both within and between waves. The advice was not systematically acted on. The Government had this advice for 3 months and could have initiated a UK wide communication campaign and infrastructure investment in the run up to lifting all Covid-19 rules, but they delayed publication of the report for 3 months and appear to have ignored it. Unlike other countries, for example Australia, where I recently visited and spoke with Victoria State's Chief Health Officer, the UK had failed to bring down transmission between waves to low levels, with the result of several hundred deaths with Covid-19 on the death certificate a week, and increased chances of vaccine-resistant variants developing. Many of the recommendations from our report, however, are being implemented in Australia, with evident success in pandemic management, including in Victoria achieving excellent vaccination coverage.

6.5. The principles from this report were reviewed by the multidisciplinary authorship team at SPI-B and organised according to whether they primarily targeted people's capability, opportunity and/or motivation. The team also examined (i) evidence on inequalities as they relate to these behaviours and developed a set of principles for addressing these, and (ii) experience of previous monitoring and evaluation exercises in public health and behaviour change. On the basis of this work, a set of principles

were identified that informed the development of a set of proposals for sustaining behaviours in the long-term to reduce SARS-CoV-2 transmission.

6.6. SPI-B concluded with high confidence that as restrictions were eased, Covid-protective behaviours would not be sustained sufficiently to prevent further waves of infection. Additional interventions would be necessary, as would concerted efforts to replace the existing recommendations and legal restrictions with alternative evidence-based measures if sustained behaviour change was to be achieved. We advised that a joined-up approach across government and industry/businesses would be most effective, and that each element of the approach should be supported by (i) technical expertise, (ii) a logic model, (iii) scientific evaluation plan, (iv) co-production between internal and external stakeholders, and (v) extensive stakeholder engagement.

6.7. The report proposed an enhanced risk and safety management approach using principles that have been successful in sectors such as transport, food preparation and construction, but which are also relevant to informal and domestic spheres.

6.8. Based on the success of other large behaviour change programmes, such as the UK's tobacco control strategy, the evidence suggested that achieving sustained adoption of behaviours requires a number of essential elements. This involves structural changes to the physical and social environment leading to a step change in the approach taken by all sectors of society to infection risk and behaviours required to mitigate it. These elements are:

a) Multiple co-ordinated levels of intervention to ensure that the desired behaviours become normal, easy, attractive and routine, and that the harms associated with them are mitigated.

b) Incentives and resource packages to support businesses, public sector and other organisations to make their premises and work practices Covid-secure, such as providing adequate ventilation and financial and practical support for self-isolation.

c) Sharing good practice through trade bodies and associations and Trades Unions.

d) Regulation and enforcement practices for risk mitigation in high-risk settings, as well as, ensuring that regulations consider pandemic resilience in the future.

e) Sustained media campaigns to foster risk reduction habits and norms in all sectors of society.

f) Technical training for industry and employers to support the delivery of effective risk assessment and technical support to provide good quality environments (e.g., ventilation systems and technologies).

g) Education and training built into educational curricula at all levels to ensure that people across the whole of society understand how Covid-19 is transmitted, the risks in any given setting and what they can do to mitigate these.

6.9. The report advised that, the extent to which these will reach their potential of effectiveness depends on quality and consistency of delivery and the extent to which they are enacted in parallel and maintained over time.

6.10. We advised that the approach should:

a) Ensure that measures reduce existing inequalities, and do not generate inequalities. This includes setting-based interventions which are less likely to generate inequalities than individual-based interventions and providing more support, resources, and investment to more deprived communities.

b) Ensure sustained investment in interventions and infrastructure, accompanied by monitoring: as contexts change adjustments of intervention strategies are required.

c) Build in flexibility to be able to respond rapidly and effectively to changes in the level of risk.

d) Foster resilience on all levels to ensure that individuals, communities, organisations and systems can adapt to events in a manner that enables them to sustain an acceptable level of functioning.

e) Co-ordinate foundational research, including public engagement into factors that support or inhibit Covid-19 protective behaviours in terms of pre-existing knowledge and skills, physical and social environmental influences on behaviour, and motivation.

f) Embed effective monitoring of the impacts of the plan and its components, including impacts on inequalities.

7: Analysis of Implementation

7.1. I have made clear that I have no 'inside' knowledge of the implementation of SPI-B advice, only my general knowledge outside SPI-B.

Missed opportunities

7.2. I was worried about poor vaccination communication as a result of my own experience of being in vaccination centres, and thought that the couple of minutes that people spent with those administering vaccinations provided an ideal opportunity to explain 3 things:

a) That increased immunity would not be immediate and would take 1-2 weeks to develop;

b) That people vary in how effective the vaccination is, so you may be very well protected or only slightly; and

c) In view of this, it is very important to maintain protective behaviours such as mask wearing and social distancing where appropriate.

7.3. I was introduced to the person leading the work to increase vaccine uptake, seconded from Solent NHS Trust, by James Rubin, the Chair of SPI-B. I advised the team on simple communications of key messages in 14 languages which informed all the communication materials. For the public, there were leaflets and animations that could be viewed on smartphones. For the vaccination centres, there were posters and message guides for those giving the vaccinations stating the three key messages to convey. These resources were excellent. The lead of the work asked for support and resources to monitor implementation and to evaluate impact but, these were not provided. I inquired from many people working in or visiting vaccination centres and had no report of any of these excellent materials being used. This is an example of an important opportunity missed, and where a science-policy partnership could have been much more effective than the separation of 'advising scientists' from the 'doing policy makers and implementers'.

8: SPI-B Practical Constraints

8.1. Although SPI-B did produce around 30 reports with several hundred pieces of science-based advice, it did so in the face of a number of practical constraints.

Lack of Resource

8.2. Whilst we had excellent support from the Go-Science Secretariat, there were occasions when I requested research assistant resource to help with rapid literature searches and summaries but it was not available, as was the case for the report on sustaining behaviour change, summarised from paragraph 6.3 above. This meant that

those of us working on reports were working evenings and weekends, in addition to busy day jobs doing work that more junior researchers could have done under our guidance. For completeness, I should add that we, the SPI-B participants, did not receive any remuneration for our time or contribution to the group.

Limited data available during the pandemic and the impact on SPI-B's ability to advise

8.3. When there is no direct evidence to inform a question, as is the case in pandemics especially in the first year, one needs to extrapolate from one context to another and from syntheses of evidence across contexts to identify patterns of behaviour. For example, it is always necessary to look at published evidence to see whether there are patterns that can be detected in situations as similar as possible to the one that one is advising on. Given that relevant papers may be being published on a weekly basis, it is important to ensure that evidence reviews are conducted rapidly (methods for automating parts of this process are key here) and kept updated (called 'living systematic reviews').

8.4. Without direct evidence, it is important to draw up on as many sources of relevant data available and consider them together (called 'triangulation' of findings). Consistency of findings across different types of study and data increases the level of confidence that this may apply to a specific context. As well as published evidence, one can draw up on recent population surveys of likely influences on behaviours such as knowledge, attitudes, motivations and intended behaviours in relation to, say, public gatherings and their bans or discouragement. One can also gather data in interviews and focus groups, and in some cases use direct observation (e.g., video recording of mask wearing).

8.5. In some instances, it is possible to run quick studies to inform advice, for example, to compare different types of messages with different population groups (called experiments) and these can be conducted either in simulated situations (e.g., online) or in real life (e.g., automated measures of soap use in public toilets in relation to different messages). Analyses of data from social media was another source of useful data about people's behaviour and what is influencing their behaviours.

8.6. Whatever the source of evidence and information drawn upon, an explicit judgment should be made about one's level of confidence in applying generalised findings to the particular context. Data on the 'lived experience' and, where possible, the direct involvement of the subjects of the study, can greatly assist the generation, analysis,

and interpretation of data. The need for interpretation from findings to specific contexts is one of the roles for multidisciplinary expert judgment and why SPI-B included behavioural scientists with a high level of relevant expertise from a range of disciplines.

8.7. In the context of the Covid-19 pandemic, one of the challenges in relation to banning or discouraging public gatherings is that one cannot use actual situations in the first instance and ethical issues about collecting personal data must be considered. If, however, research protocols are set up and preparatory work completed in advance of crises, data can be collected at an early stage to inform policies and practices.

8.8. NIHR are to be commended to have realised this need after the 2009 pandemic and funded a series of studies which were developed and put into 'hibernation' pending the outbreak of the next pandemic. CORSAIR was, I think, the only social or behavioural science study funded under this scheme. Identifying key questions for the next pandemic that early studies could inform the management of, and funding 'hibernation' studies would increase the availability of data that could inform the behavioural science advice on proposals such as the banning or discouraging of public gatherings.

Change in structure to Coordinating Group & Effect of that change

8.9. At the beginning, SPI-B was a size in which it was possible and productive to discuss issues as a group and volunteer to work on reports on topics concerning which we had particular expertise, experience or interest. This was also how the group operated effectively in 2009 during the H1N1 pandemic.

8.10. However, the group grew in size and collective discussion about topics we were commissioned to advise on ceased. Towards the end of 2020, a small co-ordinating group began to operate which held the key discussions and made decisions about the work to be conducted and then brought in SPI-B participants to collaborate on pieces of work on an ad hoc basis. This is illustrated by an email from 26 October 2020 which attaches a 'SPI-B co-ordination group meeting note'. This email and its attachments are exhibited to this statement as **[SFM/12 - INQ000223285].** When this change was proposed at a SPI-B meeting on 1 June 2020, the minutes show that some participants expressed caution over moves to reduce the size of SPI-B, as doing so could limit the opportunities to learn from one another and ensure diversity of thought. These meeting minutes are exhibited to this statement as **[SFM/13- INQ000196765].**

8.11. I do not recall being given a rationale for this decision, nor for who was included and who was not. I think that the co-ordinating group was handpicked by the SPI-B chairs

but the mechanism for this and the criteria for selection were not communicated to the participants. Those not in the group were not routinely kept informed of commissions coming in, SAGE discussions or other activities relevant to SPI-B. It felt like there was an in-group and an out-group, which was not a good feeling after people had worked so well and hard together over many months.

8.12. This change meant that the larger group's rich, multidisciplinary discussion about the commissions and how to approach them ceased. Indeed, SPI-B meetings in effect ceased for most of the group. I agree with Professor Stephen Reicher's comments in his Witness Questionnaire that this change also meant the end of the "productive atmosphere" that had existed before on SPI-B.

8.13. Concerns were expressed by participants that the change to management by a core group meant there was a small active group who were relatively well informed and a large passive group who were on the periphery of SPI-B work, and little communication between the two. In response to these concerns, an effort was made to improve communication from the co-chairs to the wider group. This resulted in an occasional update of what the co-ordinating group were doing, but no further SPI-B wide discussions. An example of one of these updates is found at **[SFM/12- INQ000223285]** above at paragraph 8.10.

8.14. The Inquiry has asked me about Professor Robert West's statement to The Guardian newspaper, which is exhibited as **[SFM/14- INQ000214041]**, that there was "just no interest in evidence or science on the behavioural side". It is not clear whose interest is being referred to. However, it was becoming clear over 2021 that the policies, statements, and behaviour of the PM and of Government ministers, in relation to the social and behavioural aspects of Covid-19 management, were far removed from the body of behavioural scientific advice that had been provided to them.

Recruitment by Government of an 'in house expert'

8.15. I think that the recruitment of in-house behavioural experts may have provided a reason for the Government to ignore SPI-B advice. When SPI-B participants raised the issue about how little of its advice appeared to find its way into policy, we were told by the Chair/s that the Government was receiving behavioural advice from its Cabinet Office advisors (e.g David Halpern, Director of the Behavioural Insights Team), from behavioural advisors in Public Health England, and from those in Government departments. It is, of course, a matter for the Government as to where it chooses to take advice. However, I was concerned that these advisors were not independent and

their advice was not transparent. SPI-B was not informed of the advice of the Behavioural Insights Team which resulted in a complex and disjointed behavioural advisory landscape. I believe that this situation effectively gave the Government permission to ignore the independent advice produced by the SAGE advisory structures and seek advice elsewhere. Pertinent examples of this were the consideration of reducing the 2-metre distancing rule to 1-metre distancing and the consideration of a September 'firebreak'.

8.16. An example of behavioural advice influencing policy without input from SPI-B was the notion of "behavioural fatigue" invoked for the purpose of arguing in favour of delaying the initial lockdown, which I consider later in this statement.

8.17. It would have been very helpful to have had a contemporaneous collection of data and analysis about what scientific advice, from where, was taken into account when considering policy, what advice was adopted, and where advice was not adopted, the reasons for not doing so. This record of information flow and decision-making processes would have been very helpful for the Covid-19 advisory process, as well as, for learning what worked well and what less well to inform future advisory processes. This is a point I made in an article published since I submitted responses to the Inquiry questionnaire.

Restrictions upon/delay to publication of SPI-B reports.

8.18. SPI-B's report on sustaining behaviours to reduce SARS-CoV-2 transmission, which advised on how to move from a rules-based to risk-management approach to managing Covid-19 in the long-term was released by SAGE on 30 April 2022 but not published by the UK Government until 5 July 2022. I raised my frustration about this with the Chair of SPI-B on three occasions, as I was concerned that there was no preparation to help people adopt a risk management approach which would take time to achieve. The Chair made enquiries but was not able to find the reasons for this for more than two months, when he was then told that the Government did not want it published before "Freedom Day". No reason was given for this decision and it made no sense to me. I suspect that the reason was as Professor John Drury surmised in relation to the 'Freedom Day' slogan: it reflected a *"political need to be popular"* which was *"trumping public health needs"*. This is an example of delay being caused by political reasons, rather than by the communication process.

8.19. As it was, no mention was made of the report or its advice alongside the lifting of Covid-19 restrictions on 19 July 2020. To my knowledge this advice was not referred to by

the Government in its communications before, during or after 19 July 2020 and I have not seen evidence of its proposals being adopted into policy or implemented.

9: Behavioural fatigue

9.1. As I explained in my Witness Questionnaire, the term "behavioural fatigue" is not a behavioural science term; that is to say it did not feature in behavioural theories and there was no measure of it. The term in relation to a pandemic appears to have been introduced into SAGE and the Government discourse as a justification for delaying lockdown, with negative consequences. For example, during a Government press briefing on 9th March 2020, reference was made to 'fatigue' in the context of imposing Covid-19 rules too soon, namely, "There is a risk that if we go too early, people will understandably get fatigued and it will be difficult to sustain this over time." SPI-B were not consulted about this statement. A link to this video/transcript is exhibited as **[SFM/15**- INQ000223088].

9.2. SPI-B was not asked for our views on the notion of "behavioural fatigue". Had we been, the response would have been that there was not such a concept in the behavioural science literature, not in published evidence nor in theories of behaviour nor in measurement. SPI-B never mentioned this term apart from a discussion I recall concerning its source and use. The source of the introduction of the term 'behavioural fatigue' into discussions around Covid-19 is unknown, but it certainly did not come from SPI-B. More than 600 behavioural scientists signed a petition expressing their disquiet about the use of this notion in relation to Covid-19 management. This petition is exhibited to this statement as **[SFM/16- INQ000214043**

9.3. As I explained in my Witness Questionnaire, I was the lead author on a paper, '*The concept of "fatigue" in tackling Covid-19*', which was published in the BMJ in November 2020, written in response to the "behavioural fatigue" which I considered misleading and which had been ascribed, inaccurately, to SPI-B/SAGE. A copy of that article is exhibited to this witness statement as **[SFM/17- INQ000214045].**After considering three different scientific meanings of the term 'fatigue', we concluded that at the time of the article, overall, in the UK, we had not yet seen evidence for the kind of decreasing trend in compliance with regulations that could be construed as fatigue within its scientific meanings, but that there were substantial capability, opportunity, and motivational factors that could be contributing to lower levels of adherence than are needed to prevent the spread of the virus.

9.4. The term 'behavioural fatigue' which, in my professional opinion, had several negative consequences, undermining both policy and science, became part of the conversation around the introduction and adherence to rules:

a) The term was used by the CMO, Professor Chris Whitty, in a press conference on 9 March 2020 as mentioned in 9.1, as a reason for not asking people to adhere to rules too early. The CMO told the press conference that: "[t]here is a risk that if we go too early, people will understandably get fatigued and it will be difficult to sustain this over time", this is **[SFM/15-** INQ000223088**] .**

b) The term was taken up by the UK media, attributed to unnamed experts, despite there being clear evidence of people working from home without the Government advice to do so.

c) It was taken up internationally, for example, a WHO report using that term in its title: '*Pandemic fatigue'; 'Reinvigorating the public to prevent COVID-19*'. This report is exhibited as **[SFM/18- INQ000214046]**. Despite its title, the report was actually about waning motivation to adhere to protective restrictions, not 'fatigue' (which means tiredness). In science, precision of terms is important for understanding and policy implications.

d) Despite Sir Patrick Vallance, CSA, stating on 12 March 2020 that the decision to delay was not based on behavioural science (implying that the term did not come from SPI–B), the use of the term nevertheless undermined psychology and behavioural science, as argued by SPI–B member Professor Stephen Reicher in an article in the Guardian newspaper on 24 June 2021.

e) In my opinion it caused behavioural scientists to be blamed for the delayed first lockdown which cost many lives. . For example, in a private meeting with MPs on 16 June 2021, Matt Hancock was reported in the press as having blamed unnamed behavioural scientists for their advice about managing the pandemic, saying that they had "got it wrong". I recall that this information may have first appeared in the Sun Newspaper, but I cannot assist further as to its source.

9.5. SPI–B and SAGE minutes will demonstrate that behavioural science advice given was not to delay lockdown and did not invoke the concept of 'behavioural fatigue':

a) The SPI–B report to SAGE dated 4 March 2020, exhibited to this statement as **[SFM/19- INQ000109111]** state: "Expectations of how the Government will react will be set by media reports, public health strategies in other countries. This increases the risk of public concern if interventions that are perceived to

be effective are not applied. A clear explanation as to why expected interventions are not being implemented may be necessary."

b) The paper titled 'SPI-B Insights on Public Gatherings' dated 12 March 2020, discussed at SAGE meeting 15 on 13 March 2020, exhibited to this statement as **[SFM/20- INQ000214048]** states at page 3: "While there may be concerns about the sustainability of adherence for difficult behaviours such as entering isolation for weeks or months, it is not clear that these concerns apply to the specific context of making day-to-day adjustments to reduce social contact. We are concerned that our comments about the difficulty of maintaining behaviours should not be used as a reason for not communicating with the public about the efficacy of the behaviours."

c) The minutes of SAGE from 13 March 2020, exhibited to this statement as **[SFM/21- INQ000109142]** state at paragraphs 29 and 30: "29. There is no strong evidence for public compliance rates changing during a major emergency. There is, however, a link between public anxiety and protective behavioural change. Difficulty maintaining behaviours should not be treated as a reason for not communicating with the public about the efficacy of the behaviours and should not be taken as a reason to delay implementation where that is indicated epidemiologically." The behaviours referred to in Clause 30 include social distancing and adhering to lockdown.

10: Government Messaging

SPI-B advice for culturally appropriate communications

10.1. SPI-B advocated using culturally appropriate communication using channels of communication appropriate for the diverse communities that make up the UK population. Indeed, SPI-B produced a report '*Public Health Messaging for Communities from Different Cultural Backgrounds*', dated 22 July 2020, exhibited to this statement as **[SFM/22- INQ000214050],** which set out the group's consensus and advice concerning the importance of culturally appropriate communication to address the emerging evidence of a disproportionate impact of Covid-19 on Black, Asian and minority ethnic communities, due to increased risk of infection and excess mortality.

10.2. SPI-B participants in their discussions expressed frustration that the Government did not appear to be adopting its advice on communication (e.g., listening as well as telling; using language and concepts familiar to the audience; using appropriate channels of communication). This occurred on several occasions, and we agreed we

would not continue to repeat advice that appeared to be ignored, but instead to refer to earlier reports, such as the SPI-B report: '*Behavioural principles for updating guidance to minimise population transmission*'. This is exhibited to this statement as **[SFM/23- INQ000214051]**.

10.3. As time went on, my impression was that Government communication appeared to become less effective, with changes not sufficiently explained, ministers saying different things and a mismatch between what they were saying and what some ministers were doing. As I recall, there was little effort to explain changes in approaches to pandemic management in terms of the evolution of scientific understanding.

Mixed messages and the importance of clarity of messaging

10.4. Some of the communications from government during the pandemic were good but I believe that on many occasions they gave mixed messages.

10.5. By mixed messages I mean the giving of different messages by different people, at different times, or in different modalities. This would include instances where different messages were being given verbally to those being communicated by behaviour. One example of mixed messaging observed during the Covid-19 pandemic was the members of the Cabinet telling the population to follow advice or rules but not doing so themselves, such as exhorting people to wear facemasks in enclosed, crowded indoor spaces (such as shops and workplaces), whilst Government ministers, and their relatives, were observed shopping without facemasks and MPs not wearing facemasks in Parliament. Other examples were the reports of ministers and their advisors attending parties at times when this was not allowed, people being told to stay at home to prevent transmission alongside thousands entering the country through airports everyday without screening and the continuation of non-essential work such as the building of luxury hotels.

10.6. Mixed messaging tends to lead to confusion, undermines trust in the source of the messaging, reduces adherence to what is being asked of people, and can make people anxious and/or annoyed. It can also lead to a perceived unfairness, which further undermines adherence to measures imposed. If what is said and done by those in authority in not consistent with the content of messages asking people to adhere to rules, the reason for apparent inconsistencies should be explained to people.

10.7. The impact of mixed messaging can be seen in the marked reduction in reported compliance to Covid-19 rules 6 days after the news of Dominic Cummings breaking lockdown rules was reported in the news. On 28 May 2020, 'complete' compliance across the UK had decreased by 20%, from an average of 70% in April to 50% according to the UCL COVID-19 Social Study. This study is exhibited to this statement as **[SFM/24- INQ000214053]**. One in three people surveyed gave the Cummings story as a justification for breaking lockdown rules and 70% of people surveyed thought the incident would make life harder for the government in future lockdown messaging according to YouGov. This effect was maintained over many months with an October Ipsos MORI poll, exhibited to this statement as **[SFM/25- INQ000214054]** , finding that 47% of respondents cited the lack of people in government following the rules as a convincing excuse to not follow them themselves.

10.8. An example of policies and messages changing, and confusing people was seen during the weeks following 12 October 2020, when different regions in England were placed in varying degrees of restriction (Tier 1, 2 or 3) without a clear rationale or evidence for the decisions. Three days later, a UK-wide YouGov poll found that 42% of people were 'not very clear' or 'not clear at all' about the new tier system. By 22 October 2020, an Opinion poll found approval for the Government's response to COVID-19 to be at a record low of 29%, with 50% disapproving. The same poll reported that 34% said they were not "confident that they know what the rules are in their own area". Non-adherence increased, the percentage of people disobeying rules increasing from 10% to 18% in 18-44 year olds. This data is exhibited to this statement as **[SFM/26 - INQ000214055]** .

10.9. Another example of mixed messaging (different people saying different things on different occasions) was whether or not people should return to their workplaces following the "roadmap out of lockdown". On being questioned, responses from the PM and other ministers were inconsistent and confusing.

10.10. The importance of avoiding mixed messages is to prevent any fuzziness and grey areas in the advice about what people can and cannot do .

a) By 'fuzziness', I mean vagueness and lack of clarity. SPI-B provided advice about good communication in several of its reports. Fuzziness would be reduced by using simple, clear, precise, coherent, and consistent messaging, being behaviourally specific, and providing concrete examples of what is being asked of people.

b) By 'grey areas', I mean areas which are not clear in that the rules as to what people can and cannot do are not precise, specific, and spelt out in terms of behaviours. To improve communication aimed at shaping and supporting people's behaviour in future, it would be helpful to seek and adopt the advice of behavioural scientists about how to make present advice that is behaviourally specific and therefore easier to implement. The poor quality of much communication during Covid-19, suggests to me, that bringing communication back under the remit of SPI-B would be a good idea.

10.11. An example of the difficulties presented by 'fuzziness' and 'grey areas' in messaging was when, on 10 May 2020, Boris Johnson announced that the government had changed its key message from 'Stay at Home' to 'Stay Alert'. The devolved administrations in Scotland, Wales, and Northern Ireland all rejected the new slogan. This is an example of the decreasing clarity of UK Government messaging after the first two months of the pandemic. The first message tells people exactly what to do and is an observable and measurable behaviour; the second gives no information about what to do. Alertness is a cognitive state which is neither observable nor measurable. Further, no information was given as to what people were supposed to be alert about. SPI-B was not consulted about this change before it was implemented, or indeed at any point.

10.12. In an Ipsos MORI poll on 27 March 2020, 90% of people believed that the UK Government communications on what to do in response to Coronavirus had been clear, half (51%) rating it as 'very clear', this data is exhibited to this statement as **[SFM/27- INQ000214057]**. Three days after the PM announced that the government had changed its key message from 'Stay at Home' to 'Stay Alert', 65% of people in a UK-wide poll stated that they were 'not very clear' or 'not clear at all' on the UK government's message, this data is exhibited to this statement as **[SFM/28 - INQ000214058]**. A YouGov poll on 10 September 2020 found that 55% were 'fairly unclear' or 'very unclear' about the Government's guidance on the Covid-19 rules people should follow, this data is exhibited to this statement as **[SFM/29- INQ000214059]**.

Wandsworth Guardian

10.13. I have been asked to elaborate on a quotation (attributed to me in an article in the Wandsworth Guardian in January 2021) where I am reported as saying “it’s not so much people not sticking to the rules, but it’s the rules themselves that are the

problem." What I meant in that context was that the evidence was that people were largely adhering to the rules that had been set out but that those rules were not sufficient to control the rapid spread of infection at that time.

Tailoring information

10.14. Tailoring information means adapting the content or form of information to particular audiences to promote comprehension, identification with the information and adherence to advice being given or demands being made. This is important given the wide diversity of the UK population beyond demographics and age. Other areas of diversity in the UK which should be taken into account in order to appropriately tailor the communication of information to the recipient are language and literacy, cultural (including religious) beliefs and practices, life experiences and circumstances, ethnic group and socio-economic circumstances (such as jobs, housing, neighbourhoods). SPI-B advised the use of tailored communication in many of its reports, especially where there was evidence of low adherence to rules or adoption of protective measures by certain groups, for example, evidence of low adherence to social distancing amongst some groups of young people, or the relatively low uptake of vaccination amongst disadvantaged groups and those with African heritage. I recall SPI-B discussions reflecting on how little appeared to have been done to tailor the information. I saw little evidence of tailored information and persuasive messaging, given the evidence indicating the superiority of tailored information when compared to 'one size fits all' communication.

Concerns about the government's use of the term "Freedom Day"

10.15. One area of government communication which caused me particular concern was in relation to the usage of the term "Freedom Day".

10.16. The UCL Covid-19 Social Study survey, exhibited to this statement as **[SFM/24-INQ000214053]** , found that there was a decline in self-reported adherence in advance of "Freedom Day". The Office for National Statistics ('**ONS**') showed social distancing beginning to drop in advance of 19 July 2021 as people began to anticipate it. The proportion of adults reporting to always or often maintain social distancing fell from 85% 14-18 April to 62% by 16 July 2021. This data is exhibited to this statement as **[SFM/30 - INQ000214060].**

10.17. The lifting of all protective measures on 19 July, without ensuring safe air quality for people in shared social, educational and workplaces meant that, whilst many people

were now unrestricted in their behaviour, there were millions of people who were clinically vulnerable, or wanted to avoid getting Covid-19 for whom this meant less rather than more freedom. I have explained elsewhere in this statement, my suspicion that the "Freedom Day" slogan reflected a political desire for popularity taking priority over public health needs.

Government use of the phrase "following the science"

10.18. The phrase "following the science" that was used by the Government as a mantra did not help to communicate its uncertainty and, if anything, undermined the notion that science is complex, multi-faceted, and changing. There was not one science, but many sciences and sometimes, different disciplinary perspectives might point in different directions. For example, modellers might focus on measures that predict maximum effectiveness in reducing Covid-19 transmission whereas, behavioural scientists may focus on potential social benefits and harms of measures, including unintended consequences. In addition, the idea that policies would "follow" rather than be informed by scientific considerations undermines the notion of uncertainty inherent in scientific advice, as well as policy decisions being informed by factors other than scientific considerations.

10.19. I agree with the finding in the Institute for Government's report, "*Science advice in a crisis*", footnoted in the Inquiry's Rule 9 request of 21 December, that *"ministers' insistence that they were 'following the science' was inaccurate and damaging".* I have worked with policymakers in Government over decades and have trained scientists in working with policymakers. Before the Government's use of this term, I had not encountered it used amongst policymakers nor scientists. Scientific advice is only one of many factors taken into account in making policy decisions. 'Following the science' was perceived to be damaging to the discipline of scientific advice giving as it enabled politicians to hide behind this phrase, thus lessening the imperative to consult others or explain their policy decisions. Secondly, there was a concern that one of the reasons for its use was to blame scientists if politicians' pandemic management decisions had damaging results. I would, therefore, say that the dangers were more to do with hiding behind the phrase and setting up scientists to blame if things went wrong than it was to do with blurring the distinction between scientific advice and policy decisions. I think it is regrettable that the CSA and CMO could not or did not feel able to do more to explain the role of scientific advice in decision-making at their press briefings. For example, they could have explained that policymakers are informed by

scientific evidence and thinking, but do not directly "*follow the science*" as they consider issues other than scientific evidence, when making political decisions.

10.20. I agree with the Institute for Government, that the Government's use of the phrase "*following the science*" may have undermined the "protective space" in which scientific advisers operated, since they may have felt threatened by being set up to be blamed. I further agree that it may have made it difficult for scientific advisers to set out their expert views without appearing to be accountable for policy decisions, and that this may have made scientific advisors reluctant to consider policy implications or examples of their advice. I think, in general, scientists were well protected by the scientific advisory process, although, not by some of the media who liked to present scientists as having more influence over policy than they had. SAGE scientists were advised to, and supported in, making it clear to the media that, whilst they were part of the scientific advisory process, they were not responsible for Government policy decisions.

Lack of transparency to public about how the Government was taking decisions and how scientific advice was being incorporated into decision making.

10.21. I consider that there was a lack of transparency to the public and to scientists about how decisions concerning pandemic management were made and how scientific advice was incorporated into the decision-making process. There was also a lack of transparency in explaining how particular key decisions were made, the extent to which they aligned with scientific advice and reasons for departing from scientific advice. Neither explanation, in words nor underpinning evidence, were adequately provided. The data and statistics presented at Government briefings were overly complex, obscure, and difficult to understand, even for those of us with statistical training. This was in contrast to the data presented weekly by Professor Christina Pagel on Independent SAGE, which I consider was a model of clarity.

Approach in Scotland

10.22. Within my Witness Questionnaire, I described the Scottish Government as representing "*a good example of clear and consistent messaging*". This comment was based upon having heard the First Minister of Scotland and other spokespeople of the Scottish Government give public broadcasts on television. In the public broadcasts from Scotland, as well has having a signer to increase access to those hard of hearing, the language was simple, accessible and direct. It was made very clear what people were being asked to do and, very importantly, why they were asked to do this.

Empathy about the challenges and difficulties of what people were being asked to do was often expressed and reference was made to the realities of the lives of 'ordinary' people. This was in contrast to the PM and other UK Government spokespeople, where the style included flippant remarks and tone, expressed little understanding of the lives of those most challenged to adhere to advice, and included confusing messages.

10.23. I am not able to comment on the approach of behavioural science in the devolved nations.

Importance of trust in government, and the impact of rule breaking on public trust

10.24. Trust in the source (whether that be a person or an organisation) giving advice or imposing rules is key to their adherence. I am aware of a number of studies which variously concluded that higher levels of trust in government was associated with a higher uptake of health behaviours, pro-social behaviours, and vaccine uptake. An example of this study is exhibited to this statement as **[SFM/31- INQ000214061]** .

10.25. An online survey of public perceptions of the UK government's COVID-19 response during the first wave found that of the almost half of people who did not think the government was making good decisions, 60% believed the economy was being prioritised over people and their health, and that positive views on government decision-making were associated with positive views on government transparency about the COVID-19 response.

10.26. Trust in leaders (in this context, the UK Government) depends on not only the clarity but also the coherence of what they say. What they do ('role modelling') can be a powerful influence as to how the source is perceived and whether there is alignment between what they say and do. Positive views on government decision-making were associated with positive views on government transparency about the COVID-19 response. An example of this survey is exhibited to this statement as **[SFM/32-INQ000214062].**

10.27. An OECD study identified five drivers that can influence trust: Governments' integrity, responsiveness, reliability, openness, and fairness. This is exhibited as **[SFM/33-INQ000214063]** In addition, trust depends on the behavioural principles of good communication outlined by SPI-B, exhibited to this statement in both [**SFM/22-INQ000214050]** and **[SFM/34- INQ000214064]** , and summarised here:

a) Do not assume that barriers are purely motivational

i) *show an appreciation of structural barriers that prevent otherwise willing individuals to adhere to the advice*

b) Use simple, clear, precise, coherent and consistent messaging

i) *be behaviourally specific to increase knowledge of what to do, and why*

ii) *provide concrete examples of what is being asked of people.*

c) Be transparent

i) *about why the Government is taking certain measures and the science behind the policy making*

d) Develop consent and trust

i) *show respect and draw on voices trusted by the group*

e) Demonstrate empathy around the difficulties people might face

i) *show gratitude on the effort made by everyone; emphasise positives*

f) Continually measure the impact of all communication

i) *Tailor and amend in real time to ensure responsive*

10.28. The extent to which that level of trust is maintained depends on:

a) the quality, nature and timeliness of messaging,

b) the content of what people are being asked to do,

c) the extent to which this is perceived as legitimate, just and equitable,

d) the perceived consistency and coherence of policies, and

e) the alignment of what the source (government) is asking others to do and what they are doing themselves.

10.29. I am aware that according to the ONS, Trust in the UK Government's handling of Covid-19 started high with 65% of adults in May 2020 reporting that they trusted the government to handle the coronavirus pandemic, while 29% did not trust the government. By February 2021, only 43% of adults were reported to have said they trusted the government to handle the pandemic, while 38% did not. This drop was probably due to changing restrictions, mixed messaging, and controversy around government decisions such as the handling of exams and the awarding of contracts. I cannot recall where this data is published.

10.30. Trust in governments tends to be high at the start of crises when many are experiencing uncertainty and anxiety, are looking for leadership and have little reason to doubt the motivations of government in responding to and managing the crisis. There were signs that trust fell in response to Government actions and policies, for example:

a) On 10 May 2020, the Government announced a new COVID-19 alert level system and changed from clear messaging about what people should do to the morevague "Stay Alert" with no specific behaviours indicated and/or inconsistent messaging. Longitudinal data collected in the UCL Social Study survey, found that this change was followed by a decrease in confidence of the Government to handle the pandemic. Leaders of devolved Governments in Scotland and Wales who expressed concern that these measures were risky and premature, and who did not change lockdown measures or messaging did not see any clear decreases in confidence from their public. This data is shown in **[SFM/35 - INQ000214065].**

b) Dominic Cummings travelling across England when this practice was not allowed. There was a significantly greater decrease in ratings of confidence in the Westminster Government to handle the pandemic amongst those living in England than those living in Scotland or Wales rating confidence in their own devolved Governments.

11: Adherence to the test, trace and isolate system in the UK: results from 37 nationally representative surveys

11.1. In 2021, I co-authored the paper '*Adherence to the test, trace and isolate system in the UK: results from 37 nationally representative surveys*'. The aim of this paper, which was published in the BMJ on 2 March 2021 and is exhibited to this statement as **[SFM/36- INQ000214066] ,** was stated as being *"to investigate rates of adherence to the UK's test, trace, and isolate system over the initial 11 months of the covid-19 pandemic*." The papers 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*."

11.2. In relation to the effective communication of messages, the challenges of the Test and Trace system that the UK Government chose to adopt were manifold.

11.3. Compared to other countries, especially South-East Asian countries such as South Korea, Taiwan and Singapore, the UK's Test, Trace and Isolate 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).

11.4. The Test and Trace 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.

11.5. I have already discussed the importance of trusted sources of information and of receiving communications appropriate to one's own culture and language. The call centre model meant that there was no tailoring of communications which evidence shows to be very important for its effectiveness.

11.6. 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.

11.7. 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.

11.8. 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, their friends and families and their community. 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.

11.9. The Government attempted to communicate via a smartphone app which had a couple of false starts and then was not widely used, less so by more disadvantaged groups. A Survation poll in July 2021 found that only 46% had 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. This data is exhibited as **[SFM/37- INQ000214067]** .

12: Effectiveness of the UK Government's use of approaches informed by behavioural science

12.1. As I mentioned at paragraph 2.23 above, SPI-B in many of its reports advised that the preferable approach to behavioural interventions was to take a facilitative (also referred to as 'enabling') approach.

12.2. It is my view that the UK Government did not make sufficient use of facilitative approaches to increasing adherence. I think that their use of monetary fines was not very effective and engendered negative attitudes. For example, there were widely reported instances where people received fines for having outdoor gatherings or for going for country walks further from home than allowed, which were perceived to be unfair. As discussed previously, perceiving rules to be unjust or lacking in coherence, can undermine trust in them and therefore adherence to them. The £10,000 fines imposed for not self-isolating when symptomatic or testing positive may have led to unintended consequences of reducing testing or providing information about contacts, especially amongst those not able to afford to pay such fines. Evidence shows that those with least income were least likely to test for symptoms or to self-isolate when symptomatic.

13: Eat Out to Help Out

13.1. The 'Eat Out To Help Out' scheme (**'The scheme'**) was introduced on 3 August 2020. SPI-B was not consulted on the scheme. Since SPI-B were not informed of the work of SAGE, I do not know if SAGE were consulted.

13.2. The scheme went ahead despite widely disseminated knowledge in the months beforehand that Covid-19 was transmitted through the air by tiny droplets and probably also aerosols, and that social mixing in indoor spaces would increase Covid-19 transmission. I provide some examples below of scientific evidence that was made available to the Government before the scheme was launched. In the case of SAGE reports, these were provided to the Government before the scheme was launched.

Evidence provided to Government before Eat Out To Help Out was launched

13.3. On 22 April 2020, the article '*Evidence for probable aerosol transmission of SARS-CoV-2 in a poorly ventilated restaurant in China*' was published on MedRxiv, a preprint server for health sciences.

13.4. On 4 June 2020 SAGE, informed by its Environment group and its Modelling group, published a report entitled, '*Transmission of SARS COv-2 and mitigating measures*', stating with high confidence that transmission was most strongly associated with close and prolonged contact in indoor environments, that the highest risk of transmission is in crowded spaces over extended periods and that physical distancing is an important mitigation measure. They advised that selection of prevention and mitigation measures should consider all the potential transmission routes.

13.5. On 13 June 2020, a review of case studies across other countries: '*Transmission of COVID-19 virus by droplets and aerosols: A critical review on the unresolved dichotomy*', which is exhibited to this statement as **[SFM/38- INQ000214068]**, was published and concluded that "airborne transmission plays a profound role".

13.6. On 22 June 2020, Independent SAGE published a statement on its website considering the Government's proposal to decrease social distancing from 2m to 1m. It outlined basic principles that would suggest a scheme such as Eat Out to Help Out would be very unwise. The report states that "the closer the contact and the greater the length of time of contact between people, the greater the risk of virus transmission – especially in indoor environments." They cite a global study finding that indoor

environments account for more than 97% of "super-spreading" events across the world.

13.7. Independent SAGE was sufficiently concerned about this move, which was a prerequisite for the Eat Out to Help Out scheme, that it called for SAGE and the Government, which is exhibited to this statement as**[SFM/39- INQ000214069]** , to "immediately publish all the evidence that underpins its advice including in its meetings this past week. This includes data available on the potential impact of environmental conditions (e.g., indoors versus outdoors); types of environments opened (e.g. shops vs restaurants); role of indoor ventilation and air conditioning) and individual behaviour (e.g. use of face coverings, side-by-side versus face-to-face positioning, hand cleansing and eye/nose/mouth touching). This would allow the public, businesses and other organisations to make informed decisions about how to best balance the risks with their individual and collective behaviour, policies and practices if the Government were to abandon the 2-metre guidance."

13.8. On 22 July 2020 SAGE's Environment and Modelling groups published a joint report, exhibited to this statement as **[SFM/40- INQ000214070]** , entitled 'NERVTAG & EMG: Role of Aerosol Transmission in Covid-19' stating that: "It is possible that aerosol transmission plays a role in super spreading events. These are characterised by high secondary attack rates and tend to occur in poorly ventilated indoor spaces … People should not spend long periods of time in poorly ventilated spaces with other people."

The impact that the scheme had on the transmission of the virus

13.9. I have been asked to comment on a study conducted by the University of Warwick on the impact that the scheme had on the transmission of the virus. The Centre for Competitive Advantage in the Global Economy ("**CAGE**") Research Centre in the Economics Department at the University of Warwick is highly regarded in scientific circles. I, therefore, take seriously its analysis of the causal impact of 'Eat Out to Help Out' on Covid-19 infections and its finding that it caused a significant rise in new infections in August 2020 and early September 2020, accelerating the pandemic into its second wave.

13.10. Specifically, they found that areas with a higher rate of uptake of the scheme (both from restaurants and consumers) experienced a sharp increase in the emergence of the new Covid-19 infection clusters a week after the scheme began. Between 8 and 17% of the newly detected Covid-19 infection clusters were attributed to the scheme.

Areas with high uptake saw a decline in new infections a week after the scheme ended. The scheme's economic benefits were found to be limited and short-lived.

13.11. I recall at the time being very concerned that the scheme was incentivising people to put themselves at risk, which is the opposite of a public health measure. The summer months were an ideal time to encourage people to socialise, eat and drink outdoors, which was known to be much less risky. Instead, people were subsidised to eat a sandwich sitting indoors with other people and financially penalised for eating the sandwich outdoors.

13.12. At this time, there should have been a communications campaign explaining the role of aerosols in transmission, namely that aerosols could last for many hours in indoor unventilated places, and what people should be doing to reduce their risk of inhaling the virus. Independent SAGE had been calling for the Government to encourage people to socialise outside, and to subsidise pop-up restaurants and bars, especially given the fine weather that the summer of 2020 enjoyed.

13.13. I believe SAGE and its relevant groups, including SPI-B, should have been consulted on the scheme. Given SAGE's advice not to move from 2m to 1m social distancing, it is probable that scientific advice would have pointed to the likelihood that such a scheme would increase transmission rates. SPI-B could have presented scientific advice relevant to how people were likely to respond to the scheme. SPI-B could have advised that the increased engagement in eating out would be likely to reduce after the incentive was withdrawn. It could also have advised about how to present the scheme as an informed choice, providing the downsides, as well as the upsides of the scheme.

13.14. Behavioural evidence and advice could have been presented by SPI-B that providing external reward for a behaviour (the external reward being a financial discount) that may not be intrinsically rewarding (e.g., spending money in risky situations) is unlikely to lead to long-term behaviour change, which was the Government's aim.

14: Media statements

Omicron

14.1. I am quoted in an article, published on the Byline Times website, as saying that the UK Government made the 'biggest mistake you can make in a pandemic' by delaying tough measures to tackle the Omicron variant of the coronavirus. This was in the

context of the initial delay in the Government imposing a 'lockdown' in the face of an exponential rise in transmission and was based on the evidence from the epidemiology of pandemics. Professor Neil Ferguson has been widely quoted, which is exhibited to this statement as **[SFM/41- INQ000214071],** as estimating that 20,000 lives would have been saved if lockdown had been imposed a week earlier. In the same interview I explain the position of the WHO, which was reported thus: "What the World Health Organisation's (WHO) Doctor Mike Ryan has said is that this is exactly the biggest mistake you can make in a pandemic, which is to wait until there is certainty,"; "Professor Susan Michie said. "If you wait until there is certainty, it's too late." It is also consistent with what the CSA has said on many occasions, for example, in his interview on The Life Scientific, in which he is reported as saying: one needs to go sooner, harder and wider than one would want to when a pandemic is increasing exponentially. A link to this interview is exhibited as **[SFM/42- INQ000223087].** The second time in which the UK Government failed to restrict social contact was when SAGE suggested a "circuit breaker " at SAGE meeting 58 on 21 September 2020. These minutes are exhibited as **[SFM/43-** INQ000137290**]**.

Facemasks forever

14.2. I have been asked to comment on statements I made in relation to facemasks and some social distancing measures remaining in place 'forever' in an article from The Independent dated 11 June 2021. This statement was taken out of context and my full statement not reported. I was asked by a news reporter about facemasks and she asked me how long we might be required to wear facemasks for. I responded "Forever, to some extent …" expecting to finish my sentence to explain what I meant by "to some extent". However, the news reporter laughed and cut me off.

14.3. Had I been able to finish the sentence, I would have explained that the extent would depend on prevalence and virulence of infectious disease that people are exposed to, how vulnerable they are and their role or occupation. The same applies to social distancing: for both, the extent to which these measures are warranted depends on the context.

14.4. I have been asked to comment upon the conclusion in my and Simon Williams' BMJ article: '*Covid-19: One year on from "Freedom Day," what have we learnt?*' (a copy of which is exhibited to this statement as **[SFM/44- INQ000214074]** that the current UK strategy "omits the learning from 'learning to live with Covid'". The SPI-B paper on sustaining protective behaviours in the long-term outlines the steps needed for British

society and authorities to 'learn to live with Covid'. I have addressed this earlier, outlining the steps that have not been advocated nor implemented in any systematic, universal way. In addition, SAGE and SPI-B have been stood down, despite the Covid-19 pandemic as of February 2023 still not being brought under control and more than 100 people dying a week with Covid-19 on the death certificate. It is unclear to me what the current mechanisms are for translating the burgeoning scientific evidence into advice for the Government.

15: Evaluation of SAGE's performance

15.1. I think SAGE did an excellent job in difficult circumstances, producing a large quantity of high-quality evidence, thinking, and report writing from world-leading scientists over two years. The leadership and mechanisms had many strengths. However, I also believe that there are many areas for potential improvement. It is always a good idea to evaluate the processes and outcomes of science-policy advisory, and other, mechanisms so that lessons learned from experience can be used to inform improvements for the future. This ensures that such mechanisms are 'learning systems' which enable increased effectiveness and efficiency for the future. I am not sure of the extent to which SAGE incorporated the recommendations of the Hine independent review of the management of the H1N1 pandemic. Presumably there should be lessons learnt about the reasons for non-implementation and the steps that should be taken to ensure implementation of the recommendations of the current Inquiry.

15.2. Given that SAGE 2020-22 operated in circumstances and over a time period never encountered before, there is a need for an evaluation/re-evaluation for different scenarios. This should draw on several types of evidence and analysis, such as from interviews and questionnaires amongst advice generators and users and from documentary evidence. The scientific questions being asked within this evaluation should be consensually agreed upon and, together with the research itself, be informed by a range of disciplines, such as anthropology, sociology, psychology, implementation science, communication sciences. There should be a clear mechanism by which the findings of this research are implemented, to ensure the appropriate changes within future science-policy advisory mechanisms.

15.3. I have set out my thoughts about potential improvements that could be made to SAGE in detail, starting at paragraph 16.2 below.

Role of the CMO and CSA in communication of SAGE's advice

15.4. I have set out above, certain matters which caused me to question the role of the CMO and CSA, as conduits of SAGE's advice. The CMO and CSA, were generally trusted by scientists and, I surmise, by policymakers, which is a strength. However, the public alignment of the CSA and CMO with the PM and other ministers, in their public broadcasts attracted criticism from scientists and public alike. Given that some of the statements made by the Government did not align with scientific advice, the failure of the CMO and the CSA to distance themselves in public briefings, may have undermined trust in the CMO and the CSA amongst the public and respect amongst scientists, given the low trust in the Government's handling of the pandemic over time. One example of this is, that I think that the CSA and the CMO should have distanced themselves from the Government's decision to reduce social distancing from 2m to 1m.

15.5. The importance of perceived independence for gaining and maintaining trust, according to an article he wrote for Prospect Magazine in July 2020, was the reason that former CSA, Sir David King, ensured that, under two Governments (Blair and Brown), he spoke directly to the public and not alongside politicians, who are much less trusted than scientists. This article is exhibited to this statement as **[SFM/45-INQ000214075].** SAGE is supposed to be constituted of independent scientists whose role is to give impartial advice to the Government. In my view, this means that those responsible for communicating that advice to policymakers should have a role that allows independence from the Government rather than being a civil servant answerable to Government. When he was in post as CSA, Sir David King carved out a role for himself with a greater degree of independence than has been the case with later appointments.

16: Looking forward/Lessons learned

SAGE

16.1. I have been asked to comment on how effective the structures of SAGE and its sub-groups, were in informing decision-making. I am not able to comment on this as I do not know the extent to which scientific advice provided via SAGE and its sub-groups were used to inform decision-making.

SAGE'S semi-permanent role during the pandemic

16.2. Although SAGE was not designed for a semi-permanent role, in my opinion, its strengths and weaknesses are relevant to whatever time period advice was being

given over. The duration for which SAGE was convened did not seem to me to be a limiting factor to its contribution as we had a large number of committed scientists who could be drawn on for particular pieces of work. It would seem sensible to build review points into the work of SAGE to reflect on whether, and how changes, should be made over time. However, these should be informed by wide consultation, as there may be unintended consequences.

How SAGE could be better structured and/or equipped for future crises

16.3. I believe that the issue of how SAGE could be better structured and/or equipped to deal with future crises is an important one that needs to be addressed by research into the pros and cons of SAGE 2020-22 from different key perspectives. Perspectives may differ between scientists on the main body, those on the sub-groups but not on the main body, the medical officers and scientific advisors, and policy makers and decision makers.

16.4. The research should be commissioned nationally and conducted by a multidisciplinary group of social scientists with theoretical, empirical, and methodological expertise in the translation and implementation of evidence, some of whom had direct experience of the group/s. This would provide evidence to inform improved structure, processes and procedures and resources.

16.5. My own initial thoughts on the issue, some of which are elaborated on in a recently published article, ' *'Lessons from the UK's handling of Covid-19 for the future of scientific advice to government: a contribution to the UK Covid-19 Public Inquiry'*, exhibited as **[SFM/46- INQ000214076]** are:

a) Having a clear and transparent advisory structure, with SAGE being accepted as the official independent scientific advisory body, without having parallel structures that could present different or even contradictory advice, as this may confuse recipients of the advice and/or undermine SAGE as a trusted source of scientific advice. The Cabinet Office had its own behavioural science advisors operating independently of SPI-B, and SPI-B did not know what advice was being provided by them. There was also reference by the PM to what he called a 'Downing Street review' being conducted by selected scientists and economists, when the Government wanted to change social distancing policy against SAGE's scientific advice, but no publication to my knowledge of the membership or of the evidence relied upon.

b) A monitoring, evaluation, and review process should be set up from the beginning with resources to enable periodic feedback, reflection, and adaptations where necessary or desirable.

c) Have a transparent and agreed mechanism to identify the appropriate experiences, expertise, and scientific disciplines to participate and the people best placed to represent those.

d) Ensure mechanisms for scientists and policymakers to interact: Discuss commissions with policymakers so that scientists can understand their purpose and context and efficiently develop commissions that are possible to address with scientific advice, discuss with policymakers new issues, questions and areas of policy that could be beneficially informed by scientific advice and address policymakers' questions about the advice provided.

e) Transparency, both internally and externally, of commissions, minutes, reports etc. So that all parts of SAGE have headline feedback about work of other parts, and access to material if further information were required.

f) Ensure that groups provide detailed rationales for their advice, with links to the relevant evidence so it can be evaluated by others. For example, it would have been helpful if the Joint Committee on Vaccination and Immunisation ("**JCVI**") had presented its evidence for not recommending vaccination for children when many other countries were recommending this.

g) Have a clear internal feedback process for scientists to report if they are dissatisfied or concerned about any aspect of the work of SAGE, with a commitment that the concern be addressed in a timely fashion.

h) Have a clear feedback mechanism so scientists can find out what has happened to their advice, in terms of being considered by committees or individuals and are being implemented

i) Timeliness of publication of advice; advice should not be held up from publication by the Government, as was the final SPI-B report, as this is a form of political interference and undermines the aim of SAGE to be an independent voice.

j) Limit the number and role of those attending SAGE who are not independent scientists employed by universities or other bodies independent of the Government.

k) Have a clear process by which resources for pieces of work are allocated.

l) Have scientists work in pairs so that if one cannot attend, the other can and report back, or if one has to step back for a while due to heavy commitments elsewhere or due to exhaustion, the other can take over.

m) Allow scientists to consider policy implications of scientific evidence and advice and to communicate this; this is not the same as formulating or deciding policy. When scientists publish and disseminate their research, they are asked to address its practical and policy implications. Universities are financed partly according to the extent to which the scientific work they produce has policy and practical impact, hence, impact case studies being part of the Research Excellence Framework.

n) Ensure that the minutes and reports of SAGE are easy to find on the website. This is not the case now and even SAGE participants struggle to find published documents.

o) Ensure an accessible document written for the public and press explaining what SAGE is and how it works, and accessible channels of communication about the advice it publishes, given the importance of transparency for trust and the importance of trust for adherence to advice and rules.

p) Ensure that scientific advice can be communicated directly to the public by, for example, the CMO or the CSA, as the former CSA Sir David King had done in the past.

q) Ensure that scientific advisers are truly independent from political influence and interference, including having a more sophisticated definition of their roles and responsibilities and being free to criticise misrepresentations or undermining of scientific evidence by politicians.

r) Set up structures and networks of scientists able to do rapid research to inform policy questions that are clearly and transparently linked to the work of SAGE.

s) Use the experience of SAGE and other evidence about group functioning to consider the best sizes, configurations, and communication channels between groups to enable time for in-depth discussion, whilst also ensuring that key disciplines or expertise are not omitted.

t) Ensure sufficient time and structuring to enable in-depth discussions about contested or complex issues.

16.6. I have been asked for my views on how scientists and policymakers can work more closely and collaboratively together to ensure the effective translation of scientific advice into evidence-based policy. I suggest that, mechanisms are set up for scientists and policymakers to discuss the questions that policymakers are seeking advice on and to discuss the advice being provided. This should include a discussion forum that meets regularly as well as an 'advice clinic' like those I have been involved in setting up in NIHR's Behavioural Science Policy Research Unit and at UCL. Good collaboration requires time to develop trust, rapport, and good communication and the size of these groups is important. One method would be to have groups of scientists with explicit scope of expertise who are familiar with policy advice and who can link up with policymakers covering the equivalent policy areas.

International alternative models of scientific advisory structures

16.7. I have been asked whether I agree with Professor Neil Ferguson's comment that the Inquiry would *"benefit from looking outside the UK for examples of alternative models of scientific advisory structures",* and if so, which models I would consider to be most effective and why.

16.8. I think one of the weaknesses of the Government's management of the pandemic was to be too internally focused and failing to learn from effective policies and procedures outside the UK. I am not sufficiently familiar with scientific advisory structures outside the UK to comment on them, therefore, I believe that research should be commissioned to do so. From informal discussions with colleagues advising European governments, I know of two examples of countries with possibly better aspects of behavioural science advice:

b) In Finland and the Netherlands, there was more direct communication between scientists and policymakers, with the equivalent of SAGE advisors being located within the PM's office in the case of Finland, thus bypassing the multiple informal channels of scientific advice that the Government drew on as and when it suited them. An example of this was inviting individual scientists to Downing Street when the Government did not want to adopt the scientific advice for an Autumn 'circuit breaker' in Autumn 2021.

c) In the Netherlands, the Government funded a research centre where behavioural scientists could conduct rapid research to inform policy questions as part of the advisory process. In the UK, a wide range of groups and individuals were commissioned to conduct research to inform SPI-B; it was not

clear what the processes and criteria for this were, and the lack of a centralised centre to conduct this research may have led to fragmentation and inefficiencies. Given the pressure to do enormous amounts of work at speed, the need for external research is clear, but how this is commissioned and integrated within a UK advisory system I think could be improved.

Lessons from international approaches to the incorporation of behavioural science into epidemiological modelling over the course of the pandemic

16.9. I don't know enough about what other countries did to be able to comment on any lessons that can be learned from international approaches to the incorporation of behavioural science into epidemiological modelling during the pandemic.

Public engagement in development of pandemic policy

16.10. I consider that the public should be much better informed about pandemic policy and that there should be mechanisms for two-way communication between the public and the Government. Hearing about the concerns and views of the public in relation to pandemic policy is important for two reasons:

a) It can inform policy, so that it is likely to be more appropriate for people's lived experiences, especially those living and working in very different circumstances than those making the policy. Policy that is more sensitive to diverse experiences and conditions is more likely to be implemented.

b) It is more likely to earn trust in the outcome, meaning that, the very process of engaging the public is likely to lead to increased adherence to policy.

16.11. One of the reasons for the establishment of Independent SAGE was former CSA Sir David King's belief, with which I agree, that it was very important for scientists to communicate directly with the public. Independent SAGE's weekly public YouTube broadcasts, as well as providing up to date data about the current situation regarding pandemic management, includes questions from the public that they ask directly during the session. It also includes guest experts, who address issues about which the public are concerned or confused or that Independent SAGE considers to require more awareness and understanding amongst all sections of society.

16.12. As of the beginning of 2023, viewing figures at its weekly broadcasts are still around 8-10,000, having risen to 20,000 in 2022. Over its almost two years of existence, it has published more than 100 reports to communicate scientific advice and policy implications, addressing a wide variety of topical questions related to pandemic

management. Every week, members received many emails and other communications expressing appreciation and raising issues, concerns, and questions.

Diversity and equality and how they can be addressed so that barriers to adherence within certain groups of society can be overcome.

16.13. Diversity and equality should be addressed for several reasons, including ensuring that evidence is understood within the wide range of people's lived experiences, so that barriers to adherence across all groups in society can be addressed. Steps to achieve this should include ensuring a diversity of membership of advisory groups, that all participants are appropriately trained to understand issues of diversity and equality, and that processes are in place to provide support where needed to facilitate participation. There are many published accounts of good practices in this area that should be drawn on and I suggest having a small Equality, Diversity, and Inclusion group to advise and monitor this.

17: Conclusions

17.1. SPI-B participants were selected because they were leaders in their field so almost by definition, already extremely busy. Many, like me, had large research teams and centres to lead and manage within their institutions. The pressures of Covid-19 created additional responsibilities in relation to the pastoral care of our staff and changed patterns of working required by social distancing. This was on top of an already full workload. The accumulation of these roles and responsibilities meant that my work for SPI-B, necessarily, needed to be completed during evenings and at weekends; this was true for many, if not, most scientists participating in SAGE. This meant that for over a year many of us had little in terms of lives outside work, a sacrifice I was very happy to make if that work had the potential to make a positive difference to people's health and wellbeing. As time went on and it appeared that very little, if any, of our advice was making its way into policy or practice, morale became dented. We had no way of knowing whether the advice we produced was being considered by its intended recipients or being used in any way to inform policy or practice. Had we been told, for example, that the advice had been considered, but was not implemented as it conflicted with the ideology of the Government, or even simply told that it had been considered by a particular committee, but not accepted, the situation would have been clearer. Had that happened, feedback could have been used to refine and improve the content and/or format of the advice being given to maximise the impact of

the investment in scientific advice to play its role in informing policy to keep the public safe.

17.2. I have provided the general disclosure requested by the Inquiry at questions 1 and 2 of Annex B to the Rule 9. I was not a member of any WhatsApp or other messaging groups with the CMO, CSA, Scientists, Ministers Officials, advisers and/or civil servants where messages were concerned with the Covid-19 response. I do not hold any text, WhatsApp, written and email exchanges of the kind described in paragraph 3 of Annex B to the Rule 9.

STATEMENT OF TRUTH

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court 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 in its truth.

Signed: Personal Data

Name: Susan Michie

Date: 22nd August 2023