Witness Name: Professor Dame Jenny Harries Statement No: 4 Exhibits: JH4/001 – JH4/378 Dated: 3 October 2023

UK COVID-19 INQUIRY MODULE 2

FOURTH WITNESS STATEMENT OF PROFESSOR DAME JENNY HARRIES

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I, PROFESSOR DAME JENNY HARRIES, will say as follows:

Section 1: Introduction

- I am the Chief Executive Officer ("CEO") of the UK Health Security Agency ("UKHSA").
 Prior to taking on that role, I was Deputy Chief Medical Officer ("DCMO") for England from 15 July 2019 to 31 March 2021.
- 1.2. I make this statement in response to a Rule 9 request from the UK COVID-19 Inquiry ("the Inquiry") dated 14 July 2023. This is the fourth witness statement I have submitted to the Inquiry and should be read alongside those I have made on behalf of UKHSA: the corporate statement provided for Module 1 of the Inquiry; a supplemental statement for that module; and the Module 2 corporate statement. In preparing this witness statement, I have also considered the corporate witness statements submitted on behalf of the Office of the Chief Medical Officer ("OCMO") for Modules 1 and 2.
- 1.3. Before being appointed as DCMO, I was Regional Director for the South of England within Public Health England ("PHE") from 2013 to 2019. Alongside this, I was interim Deputy National Medical Director for PHE from 2016 to 2017 providing specific support for strategic incident response. From April 2017 until I commenced the DCMO role, I also formally held the strategic incident Deputy Medical Director role at PHE. I have been a member of a number of national advisory groups including the Joint Committee on Vaccination and Immunisation ("JCVI"), the National Advisory Committee on the NHS Constitution, the NHSE Clinical Priorities Advisory Group and the Women's Health Taskforce.
- 1.4. Before joining PHE, I worked as a Director of Public Health in Norfolk & Waveney, Swindon and Monmouthshire, and was additionally a Chief Officer in the two former Local Authorities and a joint appointee between local government and health services. My background is as a clinical doctor with specialist training in public health medicine. I hold a medical degree (MBChB) and Fellowship of the Faculty of Public Health ("FFPH") alongside other formal qualifications. These include a BSc in Pharmacology, a Masters degree in Public Health ("MPH"), a Masters degree in Business Administration ("MBA"), a Postgraduate Diploma in Health Economics Evaluation and

a Postgraduate Certificate in Strategic Planning and Commissioning. I am also a Fellow of the Chartered Management Institute, a visiting Professor of Public Health at the University of Chester and an Honorary Fellow of both the Faculty of Occupational Medicine ("FFOM") and the Royal College of Paediatrics and Child Health ("FRCPCH").

- 1.5. The Rule 9 covers a period of time during which I held two consecutive but distinct roles: firstly, that of DCMO, an established predominantly senior professional advisory role; and then that of CEO of the newly formed UKHSA. While I was appointed on 1 April 2021, I did not take on an operational and professional leadership role in UKHSA until 1 October 2021. The Department of Health and Social Care ("DHSC") led on the restructuring programme necessary to establish UKHSA. From 1 April 2021, I also shadowed Baroness Harding of Winscombe in her role as Executive Chair of NHS Test and Trace until 7 May 2021, following which I inherited that role.
- 1.6. As the Inquiry is aware, UKHSA and the OCMO are distinct and separate entities. In making this witness statement, I have relied upon my own personal recollection of events, as well as the records available to me at UKHSA. I have also been assisted by the OCMO in the preparation of this witness statement by the identification of pertinent documents from my time as DCMO.
- 1.7. I have endeavored to respond to the Rule 9 to the best of my ability. In some instances, to provide the necessary context, I have referred to the minutes of meetings at which I was not present, or to documents prepared or the advice given by others. This statement is structured by reference to themes which address those issues identified by the Inquiry in the Rule 9. In considering each theme, I have where appropriate described my involvement consequent to each of the two main roles I held over the course of the pandemic, namely DCMO and CEO of UKHSA. I have provided examples of my involvement which I think will be of most use to the Inquiry given the Rule 9, and have not set out every aspect of my work during the pandemic.
- 1.8. Some of the requests made of me in the Rule 9 fall entirely outside my direct knowledge. In certain instances, other individuals will be better placed to assist the Inquiry with its work than I am. Where I have felt this to be the case, insofar as I am able, I have indicated accordingly.

Section 2: Glossary of Terms

- 2.1. In this statement I refer to a number of acronyms, committees and groups which it may be helpful to summarise at the beginning so they can be easily understood when reading this statement in isolation:
 - CDC: The Centers for Disease Control and Prevention in the United States.
 - CMO: Chief Medical Officer. The role and function of the Chief Medical Officer, supported by his or her office and the Deputy Chief Medical Officers ("DCMOs"), is the provision of medical and public health advice to Government (in addition to the broader scientific advice provided by others). These functions are covered in detail at section 4 of the corporate witness statement made by the OCMO for Module 2 of the Inquiry.
 - COBR: The Cabinet Office Briefing Rooms is the term used to describe the Civil Contingencies Committee convened to coordinate the response of government departments and other agencies in times of national emergency.
 - CSA: Chief Scientific Adviser to a government department. CSAs provide independent scientific advice to their main department, and individually and collectively give scientific advice across Government in their specialist areas.
 - DPH/DsPH: Director(s) of Public Health. Based in, and employees of, local authorities, these are the lead public health officials in upper tier and unitary local authorities, providing public health advice to local leaders and the public in their locality. They have a key role in all matters relating to the protection of the health of their population, including health protection, and have both non-statutory functions and statutory duties pursuant to the National Health Service Act 2006 and the Health and Care Act 2022 (JH4/001A INQ000090425).
 - GCSA: Government Chief Scientific Adviser. The GCSA is responsible for providing scientific advice to the Prime Minister and members of the Cabinet, advising the Government on aspects of science for policy and ensuring and improving the quality and use of scientific evidence and advice in Government. The GCSA is a permanent secretary level post, reporting to the Cabinet Secretary, and is supported by GO-Science.
 - GO-Science: During the period of interest to the Inquiry, GO-Science was an office of the former Department for Business, Energy and Industrial Strategy. It was responsible for: giving scientific advice to the Prime Minister and when required

Cabinet committees; ensuring and improving the quality and use of scientific evidence and advice in Government; providing relevant scientific advice in the case of emergencies, through their secretariat role with SAGE; helping the independent Council for Science and Technology provide high level advice to the Prime Minister; supporting strategic long term thinking in Government through Futures and Foresight; and developing the Government Science and Engineering profession.

- JCVI: This is the Joint Committee on Vaccination and Immunisation. It is an independent committee and a statutory advisory body to provide scientific advice to the Secretary of State for Health and Social Care on the provision of vaccination and immunisation services.
- LA/Local Authorities: These are units of local government with responsibility for delivery of many local public services, including a statutory duty to protect their populations, a leadership responsibility exercised predominantly through their Director of Public Health (see above) (JH4/001A – INQ000090425).
- LRF(s): Local resilience forums are multi-agency partnerships made up of representatives from local public services, including the emergency services, local authorities, the NHS, the Environment Agency and others. These agencies are known as Category 1 Responders, as defined by the Civil Contingencies Act. They aim to plan and prepare for localised incidents and catastrophic emergencies, working to identify potential risks and to produce emergency plans to either prevent or mitigate the impact of any incident on their local communities.
- NERVTAG: The New and Emerging Respiratory Virus Threats Advisory Group. It is a standing committee of DHSC and advises the Government on the threat posed by new and emerging respiratory viruses.
- NIHR: National Institute for Health Research (the National Institute for Health and Social Care Research since April 2022). The main Government funder of applied research in health and social care.
- ONS: The Office for National Statistics.
- PHE: Public Health England. The single national public health organisation from 1 April 2013 to 30 September 2021. PHE had technical advisory and some operational responsibility for the three 'pillars' of public health: i) health promotion (primarily non-communicable diseases); ii) health protection (chemical, biological, radiological and nuclear including infectious disease); and iii) healthcare public health (maximising the population benefits of healthcare and reducing health

inequalities), underpinned by data systems and science. The functions of PHE were separated in October 2021, when UKHSA and the Office for Health Improvement and Disparities ("OHID") were established. The former received most clinical and science technical staff and laboratory infrastructure from PHE, whilst the latter received those professionals with a focus on health improvement. Some further technical staff moved to NHS England and NHS Digital.

- PHEIC: A Public Health Emergency of International Concern. The WHO declares a PHEIC where it determines an extraordinary event constitutes a significant public health risk to multiple other member States through the international spread of disease which potentially requires a coordinated international response. Most PHEICs are not pandemics.
- RWCS: Scenarios are widely used in emergency planning. The RWCS is the reasonable worst case scenario. This usually assumes countermeasures are either not available, prove ineffective, or are not used. It is assumed that if effective countermeasures are used or new ones become available, the outcome can be partially or fully mitigated and will be improved compared to the RWCS scenario. The RWCS is not a prediction nor is it a forecast of what will happen. It is a theoretical picture of one possible outcome of many, used to inform planning purposes so that a scenario is not inadvertently underestimated.
- SAGE: This is the Scientific Advisory Group for Emergencies. SAGE is an independent advisory group, convened to provide scientific advice to support decision-making in COBR in the event of a national emergency. A precautionary SAGE ("pre-SAGE") can be formed to consider emerging hazards and risks prior to COBR being activated.
- SPI-B: The Independent Scientific Pandemic Insights Group on Behaviours is a subgroup of SAGE. Through behavioural science expertise, it provides critical analysis and research insight into the individual and collective response to public health interventions aimed at better understanding and anticipating the public's response to, and acceptance of, the different interventions recommended by medical or epidemiological experts. This will usually include significant sociodemographic insight.
- SPI-M and SPI-M-O: The Scientific Pandemic Infections Group on Modelling and Scientific Pandemic Infections Group on Modelling, Operational subgroup are two groups of modellers who advise Government. Their membership is drawn from academia and the government service.

- UKHSA: UK Health Security Agency. Established in name only in April 2021 and formally operational from October 2021, it is the UK's standing health protection and emergency response agency, preparing for, responding to and building capacity for the impact of chemical, biological, radiological and nuclear incidents including infectious diseases.
- UKRI: UK Research and Innovation. The umbrella body of the seven research councils, including the Medical Research Council (MRC).
- WHO: World Health Organization.

Section 3: My roles from January 2020 to February 2022

Deputy Chief Medical Officer

- 3.1. In early January 2020, my responsibilities as DCMO were primarily in respect of the health promotion and health services portfolio. This included responsibility for advice on non-communicable diseases, preventative medicine (primary, secondary and tertiary), pharmaco-public health¹, and professional registration. It also included specific responsibilities for advice on screening, reproductive health, specialised commissioning, workplace health and rare diseases. The health protection portfolio, which in normal times includes the surveillance, monitoring and emergency response to infectious diseases, was held by Professor Sir Jonathan Van-Tam.
- 3.2. I did however have significant professional experience of infectious disease management and of emergency response strategy and operations both locally and globally. My public health roles and experience in local authorities had equipped me with a broad understanding of public health theory, service commissioning and operational management, as well as the integration and operation of health and wellbeing with and within local authorities, the third sector, patient advocacy groups and specific communities.
- 3.3. My previous work also included leading the UK public health response to several significant health protection incidents. These include the Novichok poisonings (2018),

¹ The contribution of pharmacists and pharmacology to wider public health.

the first cases of Monkeypox in the UK (2018), the Zika epidemic (2016) and support to other global crises such as the Hurricane Irma response (2017). I had been the National Programme Director for Ebola screening and established the UK returning workers programme, initially operational from 2014 to 2016, as well as being Senior Responsible Officer ("SRO") for the subsequent development of the High Consequence Infectious Disease ("HCID") programme. As already set out above, I had significant professional experience of infectious disease management and of emergency response strategy and operations on a local, national and global level.

- 3.4. Whilst it followed from the division of labour between myself and Sir Jonathan that I was not involved in the immediate direct response to COVID-19 in early January 2020, I was aware of the outbreak, initially in China and then wider Asia, and had some knowledge of the activity being undertaken both in the OCMO and across wider Government in response. This was for two reasons: firstly, as a senior professional I have a personal responsibility for continued learning and professional development; and secondly, it was clear that a potentially significant global event was occurring and therefore I chose proactively to ensure I was abreast of current information flows in order to seamlessly take up any role required of me. I set out in greater detail my involvement in the COVID-19 response between January and March 2020 at section 7 of this statement.
- 3.5. As the threat from COVID-19 became progressively more apparent over the first three months of 2020, I was increasingly involved in the emergency response. At first, this was a gradual involvement, with my early work relating to the management and repatriation of travellers from abroad (for example from Wuhan and the Diamond Princess cruise ship) and the quarantine facilities established at Arrowe Park Hospital and Milton Keynes. By February 2020, the response to COVID-19 had come to dominate both my role and the broader activity of the OCMO. This remained the case throughout my time as DCMO, during which I contributed to a number of relevant advisory groups, co-chaired (as clinical co-chair) the SAGE Social Care Working Group ("SCWG") from early summer 2020 following the first COVID-19 wave, led clinical work on the initial shielding programme, acted as SRO for coordination of the subsequent Enhanced Protection Programme for those who may remain more clinically vulnerable to serious outcomes from COVID-19, and led the workstream to deliver the Q-Covid risk stratification tool including UK clinical oversight.

- 3.6. Throughout the pandemic, the OCMO's role, and by extension my own as DCMO, was to provide medical and scientific advice to Government. As DCMO, this was most frequently at ministerial or departmental level, for instance with the Department for Education. I had less direct or frequent involvement with Cabinet or the Prime Minister, such meetings usually being attended by the CMO, Professor Sir Christopher Whitty. I provide a list of the decision making committees I attended as DCMO and CEO of UKHSA below at section 4.
- 3.7. Frequently, I would be required to provide advice to government departments in parallel to that being provided by the CMO and Sir Jonathan. As will not be a surprise, events during the pandemic were fast moving and the calls for advice made to OCMO were many and often required swift responses. I would frequently be asked to provide advice to government departments either alone or together with the CMO and Sir Jonathan. We were also providing advice to fellow professionals and had a public role in disseminating advice. It was important that we liaised with each other to ensure that we gave consistent advice in a manner which was easily understood. In formulating that advice, we drew on available publications, research data as it emerged and our own professional experience. As is usual in the medical and scientific communities, we would challenge each other's provisional views before reaching a consensus view. The intent was always to provide the best practical advice on the basis of current evidence within the timeframe available.
- 3.8. I cannot recall any specific examples of times where I felt that my own view of the science was in conflict with the position at which we jointly arrived within the OCMO. Indeed, this same pattern of challenge and consensus was and is routinely applied in wider or alternative groupings for example when interpreting research findings and social evidence relating to care home risks in the SAGE sub-group or in discussions with expert professionals on individual topics e.g. with paediatricians and obstetricians in relation to the risk to health of children or during pregnancy. It was an approach mirrored in my dealings with the GCSA, Sir Patrick Vallance, where again I cannot remember any particular instance in which he and I disagreed as to the nature of the scientific advice we provided to Government.

3.9. Whilst the CMO had the lead role as the work of the OCMO continued during the pandemic, there was a natural division of labour between the three key clinicians with each of us focusing on areas to which we could bring our previous experience to bear. The CMO is an expert in infectious disease, whilst Sir Jonathan had direct experience of vaccine development and the pharmaceutical industry. My previous experience included health and care services and their commissioning and delivery, local council functions particularly community public health, and the devolved nations' health systems. My experience in local authorities allowed me to proactively move to support and address those areas I believed were important, but where there was less central Government insight or experience.

Chief Executive of UKHSA

- 3.10. As Chief Executive, I am responsible for the leadership and management of UKHSA and the delivery of its objectives. After the initial transfer period, I was also appointed as Accounting Officer for the agency for the majority of UKHSA programmes which means that I am personally responsible for safeguarding the public funds for which I have formally received charge; for ensuring propriety, regularity, value for money and feasibility in the handling of those public funds; and for the day-to-day operations and management of UKHSA. I am also responsible to DHSC for establishing UKHSA's strategic and business plans in light of the department's wider strategic aims and agreed priorities, informing the department of progress in helping to achieve the department's policy objectives in so far as they relate to UKHSA functions and duties, and in demonstrating how resources are being used to achieve those objectives.
- 3.11. The particular detail of my role is set out in the Framework Document dated 27 January 2022, as agreed between DHSC and UKHSA (JH4/001 INQ000203658).
- 3.12. In my role, I am supported by an advisory board composed of a non-executive chair and both non-executive and executive members, although it is important to note that I was unable to benefit fully at the start of the organisation's existence from the full structure outlined due to the time frame of UKHSA's establishment and the finalisation of its budgets and appointment processes which lie outside the CEO's direct control.

- 3.13. Annex A to the Framework Document lists statutory duties that UKHSA carries out on behalf of the Secretary of State for Health and Social Care (JH4/002 INQ000090309). The Framework Agreement specifies that UKHSA should develop a three-year strategic plan, with annual business plans developed from this, to be approved by the Secretary of State for Health and Social Care. UKHSA has agreed with DHSC that its first three-year strategic plan would begin in 2023/24 and the strategy was published in July.
- 3.14. An annual remit letter from the relevant Minister in DHSC details the Government's expectations and priorities for UKHSA in the year and going forward. Remit letters for UKHSA are available for 2021/22 and 2022/23 (JH4/003 INQ000090310, JH4/004 INQ000090311). DHSC consults with UKHSA when preparing the letter. The 2022/23 letter acknowledges that UKHSA is still in a developmental phase and is undertaking a transition of its functions in line with the *COVID-19 Response: Living with COVID-19* strategy published by the Government in May 2022 (JH4/005 INQ000090312) and that the agency's budget for 2022/23 was finalised just before the start of the financial year.
- 3.15. Until 1 October 2021, UKHSA had an appointed CEO (myself) and an appointed Chair, Ian Peters, but no other substantive staff. Formal organisational design and development and management of the closure of PHE was overseen by a Public Health System Reform Board, led by a Director General at DHSC, Jonathan Marron. I joined this Board from May 2021 to support design of the new organisation and worked separately to initiate recruitment for a senior team for UKHSA (JH4/006 – INQ000287602).
- 3.16. I met on several occasions with the acting PHE CEO, Michael Brodie, who continued to have operational oversight of PHE until 30 September 2021. During this time, we worked with a formal risk assessment and handover process to ensure the safe operational transition of the health protection function to UKHSA. On 1 October 2021, NHS Test & Trace ("NHS T&T"), including the Joint Biosecurity Centre ("JBC"), was joined with the PHE health protection, clinical, science and operational functions, its staff and infrastructure to form UKHSA. From 1 October 2022, the Covid Vaccine Task force was brought into UKHSA and named the UKHSA COVID-19 Vaccine Unit.

3.17. Having absorbed these functions, and as of the date of this statement, UKHSA currently comprises five groups led by Directors General and five led by Directors: Clinical and Public Health; Science and Research; Data, Analytics and Surveillance; Health Protection Operations (which incorporates Testing Operations); Strategy, Policy and Programmes; Finance and Corporate Services; Commercial; People; Technology; and the COVID-19 Vaccine Unit. These span a very wide range of professions. Each group has a leader who reports to me as Chief Executive. The UKHSA model is designed in such a way that these capabilities work together to provide an integrated all-hazards health protection, science and research capability.

Head of NHS England Test and Trace

- 3.18. Following my nominal appointment as CEO of UKHSA on 1 April 2021, I shadowed Baroness Harding of Winscombe in her role as Executive Chair of NHS Test and Trace until 7 May 2021, following which I also inherited that role. Accordingly, I am unable to make any meaningful comment on the Head of NHS T&T role prior to this date, having not been involved directly either with the formation of NHS T&T or its function up to that point. I would strongly recommend that the Inquiry take direct comment from the previous incumbent, Baroness Harding, who will be better placed to assist the Inquiry in this regard. Thereafter, my position as Head of NHS Test and Trace was an assumed consequence of my role as CEO of UKHSA.
- 3.19. I have set out the structure and purpose of NHS T&T at paragraphs 50 to 59 of the UKHSA Module 2 Corporate Statement. In particular, I have explained there the formal transfer of the role of Head of NHS T&T to me in October 2021 so that I had responsibility for operational policy decisions and became the delegated budget holder and SRO for the NHS T&T programme.

Section 4: Decision making structures

4.1. There were a vast number of meetings which considered the Government's response to COVID-19. As DCMO, my role in these was to provide clinical, public health and

scientific evidence and advice as required by Ministers and other decision makers to inform their decision-making. That remained my role throughout my tenure as DCMO.

- 4.2. In addition, from 7 May 2021, I had oversight of the key functional divisions of NHS T&T and, in particular, working with the acting CEO of PHE, I focused on maintaining safe clinical, professional oversight of the two systems until they were formally joined. I continued to contribute after 1 April 2021 to those areas on which I had historically provided advice as DCMO until the appointment of a new interim DCMO. This was to enable continuity and reduce the potential risks of corporate amnesia.
- 4.3. The CMO tended to cover meetings with the Prime Minister or Cabinet, although the DCMOs attended occasionally depending on the topic. The DCMOs often covered meetings with other government departments beyond the Cabinet Office and No 10. I outline below the various committees and meetings involved in the response to COVID-19 and my involvement with each:
 - COBR: the OCMO was normally represented by the CMO. If that was not possible, Sir Jonathan would have attended as DCMO for health protection. I did not attend COBR.
 - Cabinet: the OCMO was normally represented by the CMO when a representative was invited. I attended Cabinet twice as appointed CEO of UKHSA on 14 June 2021 and 30 November 2021.
 - Ministerial Implementation Committees ("MICS") which became Ministerial Implementation Groups ("MIGS"): these were cross departmental Minister attended meetings to resolve and finalise the implementation of decisions derived through the COVID-O and COVID-S decision making processes (see below). DCMOs would attend to provide advice on any areas of clinical, scientific or practical relevance to the topic in hand. They would normally be chaired by a 'neutral' senior Minister, for example the Chancellor of the Duchy of Lancaster or the Chief Secretary to the Treasury, to ensure appropriate alignment and attention to different departmental concerns regarding the implementation of an individual policy or group of policies. An example of their use was in providing targeted testing early in the pandemic so as to enable critical workers to attend work if they returned a negative result.
 - COVID-O and COVID-S: the Cabinet Office organised ministerial meetings that were focused on "Strategy" chaired by the Prime Minister and those on "Operations" chaired by a Cabinet Office Minister ("COVID-S" and "COVID-O" respectively). Throughout the pandemic I attended both as required in both my role as DCMO and CEO of UKHSA.

As DCMO, my attendance would depend on our (i.e. CMO's and DCMO's) schedules and the topic being covered. I attended COVID-O more often than COVID-S.

- The Inquiry has asked about the "the Covid-19 Daily Meeting". I take this to mean the Prime Minister chaired morning meeting. I attended this as a standing invitee in my capacity both as DCMO and CEO of UKHSA. Although data was initially provided by Cabinet Office colleagues, JBC subsequently led the data collation including modelling and there was broad continuity of the data presented between the Bronze/Silver/Gold Local Action Committee meetings (see below) and these Prime Ministerially chaired meetings. My personal contributions would vary but, in addition to ensuring robust data flows corporately, might also include specific insights into key lines of enquiry for example an update on urgent overnight work to understand the cause of an epidemiological spike in a particular geographical area, or to outline the operational handling of an outbreak, for example in a food factory.
- SAGE: I first attended SAGE on 6 February 2020 and thereafter attended as DCMO as frequently as possible given other diary pressures. I became clinical co-chair of the already extant SAGE Care Home Working Group from early summer 2020 after the first pandemic wave until I left the role of DCMO. This group was renamed the "SAGE Social Care Working Group" on 10 September 2020 to formally recognise that the matters which could benefit from the group's consideration were wider than care homes and that many of those contributing expertise were also providing advice to other vulnerable groups supported more widely by care services, such as prison populations or children with disabilities, and to prevent too exclusive a focus on older age. From summer 2020, it operated proactively to provide rapid advice to support social care policy provision directly to the Minster for Social Care as soon as robust evidence was available. This was in order to maximally protect vulnerable groups. I infrequently attended other SAGE sub-groups as DCMO, but due to time pressures this was not routine. Once I became UKHSA CEO, I would attend main SAGE meetings and occasionally go to subgroup meetings either if invited or if I was asked on a key topic. I did not routinely attend SAGE sub-groups after appointment to this role.
- Four Nations Meetings: There were meetings chaired by the Rt Hon Michael Gove MP, Chancellor of the Duchy of Lancaster, to exchange information and coordinate with First Ministers across the Devolved Administrations. In addition, there were meetings of Health Ministers, or their representatives, from across the Four Nations chaired by the Secretary of State for Health. I attended both as required in an advisory capacity

in both my DCMO and CEO roles, largely to explain the current epidemiology and the scientific or evidence base behind different policy decisions. I also attended the frequent UK CMO meetings at which we shared information with our counterparts in the Devolved Administrations.

- Meetings within the Department of Health and Social Care: From late January 2020, there was a Permanent Secretary (Sir Christopher Wormald) led series of meetings on COVID-19, and then from February 2020 onwards, a Secretary of State for Health and Social Care led series of meetings (see below). I attended most of these routinely throughout the pandemic, initially as DCMO but then continuing as UKHSA CEO. Along with written advice, usually provided via email, they were the principal route by which OCMO advice fed into decision making in DHSC. In the later role, I was additionally responsible for provision of operational response management insight to support decision making.
- Meetings with the Minister for Social Care. During the early part of the pandemic as DCMO and as co-chair of the SCWG, I would routinely attend most of the senior level meetings held by the Minister for Social Care ("MSC"). This had the practical benefit of allowing developing or robust new evidence on mitigations for those receiving care to be considered for policy change at the earliest opportunity.
- Local action committees: I routinely attended the CMO chaired Silver meeting and Health Secretary chaired Gold meetings. These meetings focused on local epidemiology, its causation, interpretation, ongoing mitigations and, as appropriate, potential interventions. This included (after their introduction) the system of tiers and resulted in recommendations by the Secretary of State for Health and Social Care to COVID-O as to the measures to be adopted.
- Other departmental ministerial and official meetings: I attended a range of meetings with Ministers across Government. These included the Department for Education ("DfE"), the Department for Transport ("DfT"), the now Foreign, Commonwealth and Development Office ("FCO/FCDO"), the Department for Culture Media and Sport ("DCMS"), the Department for Business, Energy and Industrial Strategy ("BEIS"), the Government Equalities Office and the Department for Levelling up, Housing and Communities ("DLUHC", prior to September 2021 the Ministry for Housing, Communities and Local Government "MHCLG"). At the request of the Cabinet Office or Secretary of State respectively, I also briefed the Leader of the Opposition and other senior politicians from time to time on the current epidemiology and scientific rationale of mitigations Ministers were considering or had agreed at the time.

- 4.4. These systems and structures developed and matured over time and in general, provided as inclusive a decision-making process as possible within the limits posed by the combined complexity and pace of the national pandemic response. It was important that these systems provided the opportunity for the latest epidemiology and scientific understanding of the virus, new variants and the rationale and evidence behind potential mitigations and interventions to be provided on a regular basis, usually daily, to both the Prime Minister and the Secretary of State for Health, as well as at a slightly lesser frequency directly to other Ministers and senior officials in other government departments. Given the national importance of the decisions Ministers needed to take, requiring them to consider the science alongside wider economic, service and security parameters, this seemed an appropriate but necessary level of interaction.
- 4.5. Historically, science would often have been translated through experienced but generalist senior officials without detailed topic knowledge. This created a risk that in the context of a fast moving emergency response, the right information would not be readily available at the right place for the right discussion to allow consideration against the wider policy core for which they were responsible. The working of officials across government departments during the pandemic was, in my experience, exceptional with very challenging timeframes and topics but with a shared objective of maximising public health outcomes at a time of national stress.

Section 5: Advisory Structures

Scientific Advisory Group for Emergencies

Role of SAGE

- 5.1. It may be of assistance to the Inquiry if at the outset I identify what SAGE is, its purpose and structure.
- 5.2. Frequently, there will be a need for scientific advice to inform Government decision making and policy. SAGE is convened to provide independent scientific advice to

support decision-making in the Cabinet Office Briefing Room ("COBR") in the event of a national emergency. Invariably however, the scientific knowledge and understanding of any given topic is unlikely to be a known certainty in which there can be absolute confidence at the time SAGE is convened. This is likely to be even more so when the emergency concerns a new and rapidly developing situation where knowledge is incipient, such as the emergence of a wholly novel pathogen, rather than circumstances where the scientific understanding is more established.

- 5.3. Instead, it is usual for there to be various hypotheses as to what the true scientific position is and multiple sources of data which are put forward in support of those hypotheses. Within the scientific community in any given field, there will therefore be proponents of particular schools of thought and proponents of the various alternatives. Each individual will arrive at their own understanding and view based on their previous knowledge and expertise, the new and emerging evidence available which they have seen and their interpretation of it. This can be seen across all scientific disciplines and topics, and applies as much to say, global warming, as it does to infectious disease epidemiology, risk, control and treatment.
- 5.4. The main purpose of SAGE is as an advisory scientific group, to enable Government to better make decisions, but it does not itself set any policy or make any decisions. Should wider considerations be required for example, legal, political, security or economic then this is for Ministers to source separately. There is no reason why individuals contributing to SAGE on particular topics with identified expertise on interface matters for consideration cannot be invited to support other government fora. However, SAGE's main purpose is to consider the state of scientific understanding through different technical, experiential and evidence based lenses and deduce a consensus perspective with which to advise Government.
- 5.5. Given that the best expert knowledge will come from highly regarded, experienced and focused work by individuals and teams in specific areas of research or discovery, the assembly of a scientific committee with the opportunity for individual views and schools of thought to be considered, and challenged constructively, is a logical and routinely effective approach to scientific learning. It allows for outlier positions to be deprioritised where appropriate, pending any new contrary supportive information, and a central

scientific thematic estimate or estimates to be followed through. This process also allows for automatic review, reconsideration and reprioritisation as new evidence arises, thereby ensuring that any single line of enquiry is not maintained inadvertently once the evidence has evolved, but rather that continuous challenge to our understanding persists. This process of reappraisal can be seen in, for instance, the evolving position in respect of facemasks over the course of the pandemic.

5.6. SAGE members arrive at a consensus statement view which is reported alongside an estimate of the robustness of the evidence available at the time. Unless there is a clear shared understanding and agreement of evidence in a particular direction, SAGE will not usually make any statement on a topic. Occasionally, because of the importance of a particular area of concern, the Group will be asked to provide an opinion notwithstanding the recognised lack of robust evidence. On these occasions, balanced statements are delivered highlighting the impossibility of directing understanding in one direction or another but laying out any known accepted possibilities. These deliberations are all publicly available along with the background papers discussed.

Structure of SAGE

- 5.7. SAGE does not have a standing membership other than the GCSA who will normally chair all SAGE meetings except when clinical human health is of a priority consideration. In such cases SAGE is usually co-chaired by the GCSA and CMO. It is set up with relevant experts from within and outside Government for any emergency that requires significant scientific advice on a cross-Government basis. SAGE exists to ensure Government can integrate science from multiple groups, and that a single version of the scientific advice, presented with appropriate levels of confidence and outlier opinion if relevant, is presented to policymakers rather than several slightly different versions of advice.
- 5.8. During the COVID-19 pandemic, the GCSA and CMO co-chaired SAGE. Once activated, SAGE was the formal route for providing scientific advice to COBR. The SAGE secretariat sits within GO-Science, who are responsible for providing support to

the Group. The first pre-SAGE meeting of the pandemic was on 22 January 2020, and I attended frequently from 6 February 2020.

- 5.9. Over the course of the pandemic and due to the scale and complexity of the response, SAGE developed a series of sub-groups that fed advice into the main SAGE committee. These essentially undertook a similar role as SAGE, but on areas of more focused scientific enquiry or where additional insight or capacity was required. They were generally established in response to specific scientific challenges or policy needs as identified during the course of the pandemic.
- 5.10. As I have indicated above, I was the clinical co-chair of the SCWG from early summer 2020 until I left the role of DCMO in April 2021. The role of the SCWG was to provide expert modelling and evidence review functions to support science based policy decisions intended to continuously improve the management of COVID-19 in social care service provision, with particular consideration of the context of the individuals involved and the settings in which many of those affected were living or working. The SCWG functioned slightly differently to most other SAGE sub-groups in one particular aspect, in that rather than providing its advice to the main SAGE committee on a regular basis, the SCWG more frequently provided advice directly to the Minister for Social Care. It also additionally provided key position updates to the main SAGE committee as required or requested. This arrangement was arrived at so that robustly evidenced advice in respect of social care could be provided to the Minister for her decision and incorporation as appropriate into policy without delay.

Commissioning of SAGE

- 5.11. SAGE could be commissioned by formal structures e.g. COBR, or frequently through requests from the GCSA or CMO in order to address questions identified in wider fora (for example the Senior Clinicians' Group). My input would usually be indirect, for example in identifying issues requiring further evidence or consideration and raising that with CMO, GCSA or clinical and environmental groups.
- 5.12. The exception to this was in my role as co-chair of the SAGE SCWG when specific policy queries could result in a commission direct from the Minister for Social Care's

private office, or arising from the Social Care Taskforce, particularly to support protection in care homes. I was also able to refer a 'sub-commission' from the main SAGE or identify relevant research questions from other parts of the central pandemic response. An example of a direct adult social care commission would be to provide modelling of the protective impact of different testing types (PCR or LFD) and test time intervals for care staff and/or residents in order to implement the most protective practical option. Commissioning requests improved in quality over time and benefitted from some coaching for policy teams in terms of how to pose an appropriate research question to be sure to arrive at a useful answer.

Effectiveness of SAGE

- 5.13. In my view, SAGE performed its role well and the quality of advice it provided to Government was good. The key scientific considerations necessary for the pandemic response took place at SAGE, with sometimes more urgent interjections on evidence, epidemiological developments or practical response management needing to be introduced to decision making by relevant responsible individuals on an interim basis, for example by the GCSA or CMO.
- 5.14. Whilst there has been considerable challenge to the functionality of SAGE by some to date, and the establishment of various other groups e.g. 'Independent SAGE', I have seen no evidence that suggests the alternative groups proposed would be any more independent than the SAGE group which operated. I have seen plenty of evidence to suggest that those within SAGE felt able to challenge views and give alternative perspectives. My own experience is that the group of individuals who contributed their skills, experience and insight from 2020 to 2022 came from a very wide background and knowledge base and provided the country with an exceptional level of voluntary, professionally expert and very high quality service.
- 5.15. It is an inevitable feature of any emergency response I have attended, whether local or national, that those who are not in the main decision making group will be critical of those who are. Ultimately, groups need to be formed for functionality and adding too many people or too many insights in one grouping will diminish effective progress after a critical mass has been reached. Retaining trust between technical professionals,

both in and outside Government, and across multiple clinical and scientific boundaries is of critical importance in supporting communities to trust the advice they are being provided and for them to take steps to enable their own and the nation's protection. From my perspective, working to improve this aspect of inter-professional engagement should be a focus – and a responsibility - for all professionals likely to be involved in leadership or scientific knowledge relating to emergencies. My personal view is that this is of more urgent reconstruction need than that of the SAGE advisory system.

- 5.16. SAGE members are drawn from those individuals who are identified in the scientific and academic community as being best placed, willing and able to assist with particular questions at a particular time. GO-Science will be better placed to comment on how individuals were originally recruited although this changed, responsively and from my perspective appropriately, through the pandemic, an example being on environmental transmission insight. In my view the balance achieved was reasonable. I am not persuaded that a significant expansion in the size of the group would have been advantageous.
- 5.17. I understand that the Inquiry is interested in how economic advice to Government was provided during the pandemic. Whilst many Committee members will have much wider economic knowledge and experience than perhaps public criticism might acknowledge, whether through business, management experience or academic study, and will use this knowledge routinely, consideration of the totality of the economic consequences of policies (save for how those policies might impact on health or aspects of health economics) was not something SAGE was equipped to advise on. It would therefore have been inappropriate had the Group done so.
- 5.18. I doubt that the full scope of economic considerations would have been done justice by the involvement of a small number of economists on SAGE – this would still require wider Ministerial and Government involvement and my view is that that was why the decision making structure was established as it was, including Covid-O, Covid-S and cross departmental MIGs.
- 5.19. The Inquiry has asked to what extent economic and social impacts were adequately considered in decision making. As described above, I consider this wider consideration

to be built into processes outwith SAGE. What I personally, and every public health professional with whom I worked, did consider routinely was the potential underlying causative contribution of socio-economic factors to the epidemiology of the pandemic, the need for access to and granularity of relevant data and other information sources and the potential differential impact of interventions on various geographical, vulnerable or intersectional communities and populations. This will not always be evident in public communications or the headline policy decisions but it is a founding feature of public health professional analysis and operation which was exercised throughout the pandemic, including in SAGE discussions.

Public Health England

- 5.20. As I have stated above, in early 2020 my primary role was focused on the health promotion portfolio as DCMO. I had therefore not worked within PHE in the immediate run up to the pandemic. Accordingly, my direct involvement with PHE in the earliest phase of the COVID-19 response was limited as organisational links to the OCMO on health protection matters would routinely have occurred through the CMO and the DCMO for health protection.
- 5.21. I was aware from my previous roles however of the excellent scientists and very committed teams within PHE who regularly provided internationally recognised health protection expertise as well as direct contributions to local, national and international infectious disease control and scientific understanding. I was also aware of the resource constraints of that organisation. These included sustained reductions in funding over the life cycle of the organisation, with a 40% reduction in the overall PHE budget between 2013/14 and 2019/20.
- 5.22. From my understanding of PHE's early response to the pandemic, gained through my own preparations for contributing to the Inquiry, I would state that the rapid development of a test for COVID-19 (including as a result of earlier pandemic preparatory work to develop a pan assay) and its early successful deployment in an emergency response was one very clear example of PHE's longstanding scientific endeavour and excellence. Whether through local health protection teams, or through central epidemiological investigation, contact tracing and the provision of public advice

for the management of transmission risk was already well practised and organised within PHE and was a standard part of incident investigation.

- 5.23. Depending on the geographical or contextual location for example the involvement of a local food outbreak or an international plane the PHE Centres' local health protection teams and/or the central epidemiological response teams, supported by pathogen experts from the specialist reference labs, would work with local authorities, resilience fora, research groups, behavioural science teams, other government departments, the Food Standards Agency, the Animal and Plant Health Agency, the media and many other professions and organisations to manage both small, regional and national incidents on a routine basis. PHE was however never designed, resourced or equipped to deliver mass population testing nor mass contact tracing. Further, there was no large scale logistics capability within PHE nor DHSC, nor in fact the majority of government departments.
- 5.24. I believe this positive scientific knowledge and incident experience, as well as the more negative limitations of total capacity, were both clear in the early response to COVID-19. With the benefit of my current reading for the Inquiry, it appears to me that at the beginning of the pandemic knowledge of PHE's operational capabilities and opportunities for PHE to contribute its scientific expertise to policy making, were not widely understood across Government. My personal view is that the focus on supporting the health improvement and promotion agenda between 2013 and 2019, important as it was, may have resulted in lower recognition and development of the scientific experts in PHE than had been the case for the preceding organisation (the Health Protection Agency). I also believe that historic ways of working generally between officials at DHSC and PHE did not enable Ministers to readily gain more granular insight into, and awareness of, the scientific skills at theirs and the country's disposal.
- 5.25. The need for urgent direct Ministerial advice during the pandemic and development of wider cross government working as well as the development of UKHSA and recent excellent new ways of working with DHSC have, in my personal opinion, improved both interactions and opportunities immeasurably. This means that scientists at UKHSA are called upon more frequently to advise at the foundational stage of policy making, with

an overall improvement in how policy is considered with reference to the underlying evidence base.

- 5.26. I am not able to comment personally on any difficulties PHE may have encountered in responding to COVID-19 which occurred during the time I was DCMO, except to have observed an occasional lack of wider understanding of some of PHE's existing skills and functions as noted above. It does however seem clear to me on reflection that the challenge arose when there started to be significant numbers of cases and an attendant requirement to increase testing and contact tracing capacity at speed to fulfil whole population demands.
- 5.27. I had no significant involvement in the decision to disband PHE. I became increasingly aware as DCMO of the background lack of support for the organisation but only very close to the public announcement in 2020 that it was going to be disbanded. However, my understanding is that the decision was a political one and not one which I as DCMO was ever asked to opine on.

Joint Biosecurity Centre

- 5.28. The JBC brought together data science, modelling and data visualisation skills to provide analysis and user friendly insight on the status of the COVID-19 epidemic in the UK. It later drew in evidence on the drivers and risk factors of transmission from across the organisation/s along with data sets previously unlinked on a real time basis the most obvious being vaccination coverage and NHSE operational insight.
- 5.29. JBC focused on our interpretation of domestic COVID-19 case data, although work to understand the wider global prevalence and activity of COVID-19 also formed a significant workstream. Along with specific surveillance and research from PHE teams and wider academic study and commissioning of the community surveillance study delivered by and through the ONS, JBC analysed the factors affecting the spread of COVID-19, and the sectors and settings which were the most significant drivers of transmission. In turn, this assisted local and national decision-makers to understand local incidence and prevalence and the potential consequences of COVID-19 on the health and social care system.

- 5.30. As DCMO, I was not involved in the decision to set up the JBC, was not asked to advise on its creation, and cannot comment on the motivations or rationale for so doing. The organisation was initially established as a standalone body, designed in line with the Joint Terrorism Analysis Centre ("JTAC") and with initial leadership and personnel predominantly from counter terrorism and aligned intelligence professions. It may be that Tom Hurd, the initial leadership appointee, or Clare Gardiner, who held the substantive lead for the Centre until UKHSA was established, would be better placed to assist the Inquiry in that regard. I am not aware of any reason why the establishment of JBC should have been linked to the performance of PHE. It is likely that, as noted above, the task requested was a new one and the capacity to deliver those functions in PHE had been severely constrained financially as of the start of the pandemic.
- 5.31. The questions asked of me by the Inquiry suggest there is a misunderstanding of the function and organisational change of JBC. JBC was not merged with UKHSA in October 2021. The JBC was initially established separately in the Cabinet Office and then transferred into NHS T&T on 1 June 2020. Therefore, in October 2021, JBC was already part of NHS T&T when NHS T&T was absorbed into UKHSA.
- 5.32. The roles of the JBC and SAGE were very different. As noted above, SAGE's role is as a scientific advisory group, convened to provide independent scientific advice to Government, across the entire spectrum of scientific disciplines, to support decision-making in COBR in the event of a national emergency. SAGE is used for all emergencies which require scientific advice, for instance significant animal disease outbreaks, but equally could be called for in climatic weather incidents far removed from an infectious disease outbreak.
- 5.33. This is not a function the JBC was set up to perform. The predominant data analysis involved in doing so would sit with other government departments. During 2022, JBC now the UKHSA Data, Analytics and Surveillance ("DAS") team took over routine collation of modelling of COVID-19 from SPI-M, the latter not being funded to maintain a substantive ongoing provision to Government. This followed an exercise, supported by the group of modelers who had worked through the pandemic, and approval from all four UK CMOs, to ensure any improvements or consistency required for future outputs had been appropriately considered and incorporated in the DAS/JBC future

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workplan. In this way, this one small part of SAGE activity has been incorporated into business as usual endemic infectious disease management processes in the same way that other parts of COVID-19 management have been included into routine operational responses in line with the Government's "Living with Covid" agenda. The current work of DAS is much broader than the remit held during COVID-19 and is being merged with and aligned to specialist analytical and interpretation expertise of teams across UKHSA. Critically, it is building a systematised approach to all hazards intelligence and carrying out a discovery phase of a potential new UK biosecurity surveillance network.

5.34. Even in the narrower context of COVID-19, SAGE provided wide ranging scientific advice which extended beyond the interrogation of epidemiological data and data science capabilities which were the focus of the JBC. By way of illustration, SAGE opined on the likely modes of COVID-19 transmission, the likely effectiveness of the various testing technologies, the importance of new variants and considerations relevant to vaccine development. JBC alone was not equipped to provide this type of scientific or clinical advice without wider skills and evidence input corporately from across UKHSA, and for significant topics, linking with external academic and research expertise. To the extent that some have suggested JBC may replace SAGE, this is in my view based on a misunderstanding of each body's separate role and purpose.

Section 6: Data

- 6.1. As a preliminary point, I refer the Inquiry to the UKHSA Module 2 corporate statement, section 5. In that statement I provided a detailed summary of:
 - (1) the initial surveillance operation for COVID-19 (paragraphs 650-680);
 - (2) key data collected or obtained by UKHSA and its predecessor organisations (paragraphs 681-748);
 - (3) visualisation, analytics and mechanistic modelling (paragraphs 749-754);
 - (4) dissemination of data and insights from visualisation, analytics and mechanistic modelling (paragraphs 755-787); and
 - (5) key data challenges (paragraphs 788-799).

6.2. Further, a detailed analysis of our experiences with data and modelling during the pandemic can be found at Chapters 4 and 5 of the UK CMOs' "Technical report on the COVID-19 pandemic in the UK", to which I contributed ("the Technical Report") (JH4/007 – INQ000087225). That report addresses many of the questions concerning data posed in the Rule 9 and I support its content and conclusions. For brevity's sake, I do not repeat the content of the Technical Report in its entirety but have instead highlighted some key issues that arose in respect of data in response to the specific requests made of me in the Rule 9.

Early data limitations

- 6.3. At the outset of the pandemic, data were sparse and there were considerable challenges gaining timely access to the most basic data to understand the situation. Amongst other things, this was a consequence of colliding forces early in the pandemic the novel nature of the infection, the lack of existing digital infrastructure or appropriate connectivity, the absence of routine shared data systems as well as limitations on some key necessary data sources, for example robust prevalence data which can be derived from large scale population testing capacity or appropriately statistically powered studies.
- 6.4. Prior to the first domestic UK cases, the immediate response to the pandemic relied of necessity entirely on information and data obtained from various international partners. Throughout this time, the wholly novel nature of COVID-19 meant much was unknown, the available data was very limited and where it was available it was difficult to interpret. In many cases, our initial interpretation had to be informed by alignment and comparison with our knowledge of other viral respiratory diseases.
- 6.5. Even where data were available, the underlying parameters of collection and analysis, or the case definition ascribed in one country or another, were often unclear or made data non-comparable. For example, initial cases in China relied on a radiological confirmatory diagnosis which likely excluded positive cases who lacked access to diagnostic services. Individual countries had differential testing capacity and hence positivity rates could be skewed. Once the detection and management of new variants

became important, there was significant variation internationally in the technical capability in genomic sequencing where voluntary uploads to international databases (e.g. GISAID) could be severely limited or demonstrate lengthy posting intervals.

- 6.6. Much of the useful early information we had access to was derived from longstanding direct international scientific discussion between experts to both confirm diagnostic approaches in a location and to understand the robustness of the data recorded and its context. Early UK clinical data streams were handled predominantly through direct clinician interfaces, PHE, and by the CMO and DCMO for health protection. I would be updated on these through OCMO team and clinical professional meetings and clinical reports.
- 6.7. As case numbers began to rise consistently, I received updates through the routine meetings outlined above at section 4 and other *ad hoc* lines of enquiry. I also generally tended to receive on a daily basis, once they were established, three separate data reports: the Covid Sitrep, the Cabinet Office COVID-19 Daily Dashboard and the NHSE sitrep spreadsheet. In addition, I would regularly see other information of relevance, for example DfE daily reports on schools, the Adult Social Care Capacity Tracker and relevant reports from FCO overseas 'posts' who may provide national, regional or local data to help with UK foresight or response. An example here would be the regional picture or local insight into overseas passenger numbers and handling of the Diamond Princess cruise ship.
- 6.8. Data on the earliest UK cases came from studies using the First Few Hundred (FF100) protocol to investigate the clinical and epidemiological characteristics of the first few hundred confirmed COVID-19 cases. The data from these studies were helpful in informing case definitions and our early situational awareness. These data also gave a crucial initial understanding of the time lag between infection and a patient's clinical outcome e.g. a patient developing severe disease. This had implications for policy as it reflected the delay we would experience between the introduction of any policy intervention (for instance non-pharmaceutical interventions, "NPIs") and any observable impact on the healthcare system. Research study protocols are available to use rapidly to support early and continuous understanding of severe respiratory infections through ISARIC (the International Severe Acute Respiratory and

Emerging Infections Consortium), several of whose UK members contributed to NERVTAG and/or SAGE.

- 6.9. When domestic cases of COVID-19 rose in early March 2020, these increasingly manifested themselves in acute presentations to hospital. The first data set that provided insight into hospitalisations was the "COVID-19 Hospitalisations in England Surveillance System" ("CHESS"). Established on 15 March 2020 by PHE, CHESS was a secondary care surveillance system of hospitalised patients with laboratory confirmed COVID-19 in England. The system was adapted from the previously established UK Severe Influenza Surveillance System. Its aim was to collect epidemiological data on COVID-19 cases requiring hospitalisation and admission to intensive care or high dependency units, monitor the impact of severe COVID-19 on the population, inform our understanding of the natural history of the disease and the clinical severity of cases, and to provide data to inform models of transmission dynamics to forecast and estimate disease burden and health service utilisation. The inferences which could be drawn from such data were however limited: the trusts which provided data to CHESS were not a representative sample of hospital admissions within England; and the study provided no data on those cases which did not require admission to ITU/HDU.
- 6.10. As the first wave of the pandemic progressed, the epidemiological data to which we had access from the limited testing available became an important limiting factor in understanding the out of hospital disease burden and overall population prevalence. Tests which were available at this time were necessarily prioritised for clinical presentations of suspected COVID-19 in hospitals and were not available for broader population testing, population surveillance or the diagnosis of individuals with milder disease who did not attend hospital. Accordingly, data on these matters was lacking until significant testing capacity had been built. As this is a matter which I understand is likely to be the focus of a standalone Inquiry module in due course, I do not address those limitations here.

6.11. Overall, our access to timely and accurate data improved throughout the period of time of interest to the Inquiry. Below, I cover some particular features of the data response in greater detail to address specific enquiries made in the Rule 9.

Difficulties with data from the adult social care sector

- 6.12. The availability of data in respect of the adult social care sector was an area of particular weakness at the start of the pandemic and in my opinion one of the areas of fastest improvement. The model of adult social care provision in the UK for many years has been one of private provider provision commissioned through Local Authorities for the individuals in their communities who need to access care through public sector support or privately contracted by families and individuals. Along with all private businesses, business continuity arrangements were primarily the responsibility of the business and any data access requirements of the commissioning party would normally be brought about through the relevant contractual processes.
- 6.13. Prior to the pandemic, there was no significant relevant national data system for adult social care to help inform management of an event like a pandemic and little evidence of which I am personally aware that routine contracting processes across the country required providers to report relevant business management, health and/or health protection data or emergency response preparedness to local authority commissioners. Whilst some relevant data was reported separately to the Care Quality Commission ("CQC") to support care home registration, in many circumstances as of the first few months of 2020, pandemic relevant data either did not exist or was not linked in a way so as to be timely or meaningful. There was no extant incentivisation for private providers to deliver data to local or central government and given that each provider had their own individual data systems, data was collected and stored in a non-standardised way across the social care landscape. It followed that, prior to substantial work, initially from the DHSC policy team and subsequently from a focused task force, data flows from adult social care were often difficult to obtain in a timely manner and of varying quality.

6.14. One of several workstreams of the Social Care Sector COVID-19 Task force set up by the Minister for Social Care under the leadership of Sir David Pearson was to rapidly commission a dashboard to allow detailed understanding of the state of the social care sector and therefore the necessary interventions to manage and improve the response on a daily basis. Sir David or colleagues within the DHSC Social Care team will be best able to provide additional practical detail on its foundation and daily utilisation, which included publication on 18 September 2020 of recommendations on data collation and the use of the Social Care Capacity Tracker, developed earlier in the pandemic, and the dashboard within the Winter Plan.

Limitations in data sharing and complexity of organisational data utilisation

- 6.15. There were other limitations to the data response beyond the simple existence and availability of data. Data acquisition and sharing between different organisations was essential to interpret the totality of the data available across the health, social care, wider social and business systems, and to translate these data into action. Very few extant data linkage systems were available, particularly across organisational and sectoral boundaries, and bespoke systems needed to be built urgently to 'tie' together relevant streams.
- 6.16. In any health emergency of this scale and complexity, data from hospitals, primary care, health protection agencies, research units, local authorities, private providers and academic partners will need to be shared rapidly between a range of government departments and public sector organisations. The range of organisations which created and held data relevant to the COVID-19 response was vast. These included: Public Health England; after its inception, UKHSA; Public Health Wales; Public Health Scotland; the Public Health Agency in Northern Ireland; the National Health Services for each of the UK nations (which could have both separate hospital data and general practitioner records); other government agencies; consortia such as the COVID-19 Genomics UK consortium ("COG-UK"), private companies; academic organisations and Local Authorities. All had their own separate data platforms, adding to operational challenges of sharing data even where data sharing agreements were in place.
- 6.17. In addition, formal and informal secondary data usage was necessarily frequent and recurrent. One organisation or team could select data to provide insight into a topic,

policy development or programme whilst others might draw from different sources. Appropriate control of data flows and technical interpretation of data with the right contextual knowledge was and remains critical for good decision making. An example of these difficulties was clearly evident in the need to protect and support the clinically extremely vulnerable, work with which I was personally involved (JH4/007A – INQ000298942). This included different teams attempting to evaluate effectiveness and the complex but critical data governance required between different user groups (JH4/007B – INQ000298956).

- 6.18. It followed that early in the pandemic, there was a proliferation of separate data summaries from different organisations as above, shared in different formats, rather than as data sets that could easily be analysed alongside one another. Other problems which caused delays to data acquisition included:
 - a lack of understanding about exactly what data sat where across multiple organisations;
 - (2) a lack of routine relationships across some organisations;
 - (3) a dearth of formal agreements and data governance processes at the outset of the pandemic; and
 - (4) the need for appropriate platforms and sufficient data engineering capacity.
- 6.19. Much of the work in improving the flows of data was undertaken by the JBC. To my mind, this demonstrates well the JBC's strengths in data collation, analysis and data science. However, interpretation of this data required further expert clinical or sociodemographic knowledge from PHE or academic partners, with further scrutiny and provision of scientific advice undertaken by SAGE. As part of its activity, JBC set up a dedicated team responsible for data acquisition which mapped what data sat where and formed relationships with organisations to systematically agree access to data and overcome barriers where existing routes were absent or non-viable.
- 6.20. Over time, our understanding of the data available and management of the relationships across organisations, assisted by relevant formal agreements where necessary, improved substantially. Nevertheless, this process was labour and time

intensive, and the attendant data lags lengthened the time to optimal understanding and use, especially in the early stages of the pandemic.

Limitations in data linkage

- 6.21. It was possible to use individual data sources to understand the epidemiological progress of the pandemic. However, the interpretation of epidemiological variation and the quality of response through focussed community or cohort specific interventions was enhanced through data linkage. Linkage of data, rather than simply the ability to share across organisations and systems, allows for deep interrogation of data sets in order to understand specific features.
- 6.22. At the outset of the pandemic, wide data linkage platforms and data sharing agreements were less common. Data linkage requires line list data to be available as well as a secure research environment where multiple data sets can be linked. This relies upon adequate digital infrastructure and support. Data linkage can be enhanced through pseudo-identifiers allowing for wider dissemination and greater academic engagement. At the start of the pandemic, many of these systems for enabling data linkage were either absent or inadequate.
- 6.23. The process of data linkage was however a complex one. For example, linking data on clinical outcomes to past infection required an individual to have been tested on more than one occasion and to have provided identical details on each so as to allow those two tests to be linked.
- 6.24. Linkage across some data sets became possible in 2020, but the process of bringing all the necessary data sets together (including vaccination data) was not achieved until late in 2021. When these logistical difficulties were overcome, data linkage enabled a number of important analyses to be undertaken, e.g. on vaccine effectiveness and hospital admissions by variant and vaccination status. As the pandemic developed, the ability to link core data to disease outcomes, vaccination status, past infection and COVID-19 variant became essential to facilitate our understanding of the pandemic and its evolution. This was particularly important as we came to try to understand how natural or vaccine derived immunity was influencing the pandemic with a view to relaxing the NPIs necessary to keep control of the disease.

Data lags

- 6.25. Data lags imposed limitations on our analysis throughout the pandemic. Some of these were unavoidable, for example the natural lag between a patient being infected and requiring hospitalisation. Others were a consequence of operational processes or performance. Data on diagnoses were reported at the point of discharge rather than at the time a diagnosis was made, whilst the speed at which testing data was returned largely improved over time as the testing infrastructure matured and processes were refined. Decision makers therefore had access to more contemporaneous data from testing sources, and by extension better epidemiological data at their disposal, by autumn 2020 compared to the spring.
- 6.26. The precise nature and extent of data lags, and how they varied by individual data streams, are covered in detail in the tables which form part of Chapter 4 of the Technical Report.

Section 7: Initial Understanding and Response to COVID-19 (January 2020 to March 2020)

- 7.1. Below, I outline some of the key activities of the OCMO in relation to the COVID-19 response from the start of January 2020 until the introduction of what has become known as the first national 'lockdown' on 23 March 2020. This is not intended as a complete account of all the activity undertaken, or advice provided, by either myself or the OCMO during this time. Rather it seeks to highlight the key aspects of our response to COVID-19 to address the questions posed by the Inquiry in the Rule 9. A more detailed account of the advice I and the OCMO provided in respect of specific NPIs over the course of the pandemic can be found separately at section 8 of this witness statement.
- 7.2. My involvement in the OCMO's response to COVID-19 evolved over the first three months of the pandemic. At the start of January 2020, when awareness of this emerging disease was just developing, my direct responsibility was limited but I
retained a professional interest through discussions with OCMO colleagues. Thereafter, from the end of January 2020, I took direct responsibility for specific aspects of the OCMO's work on COVID-19, notably those relating to the repatriation of travellers from abroad and the introduction of early systems of quarantine for those returning from Wuhan². From the end of February 2020 onwards, all my work was focused on the COVID-19 response. I outline this activity and our understanding at the time in more detail below.

Chronology of Events

January 2020

7.3. In my role as DCMO for health promotion, I was not directly engaged in the OCMO's earliest investigations of, or response to, COVID-19. On 9 January 2020, I was copied into some initial correspondence concerning the Wuhan outbreak by Sir Jonathan (JH4/008 - INQ000151298):

"To keep you looped in...if we do end up in a situation where the animal reservoir (and human exposures) become persistent or if there is even limited P2P transmission, we may need the resilience of two DCMOs + Chris"

7.4. I took steps during January to keep abreast of any developing epidemiological insight and was absent for five days due to bereavement during the third week of January. Immediately upon my return, my first significant involvement with the COVID-19 response came on 27 January 2020. On this date, I emailed PHE to highlight work that had been done previously in respect of quarantine during the West African Ebola outbreak (2014-2016) in order to support discussions on infection containment of any returning travellers (JH4/009 – INQ000151363).

² This was a separate system to that of managed quarantine in hotels for travellers from certain "red" countries introduced in February 2021.

- 7.5. On 29 January 2020, Sir Jonathan emailed colleagues in DHSC to inform them that I would provide support in relation to the British Nationals who were being repatriated from Wuhan and managed in supported isolation (JH4/010 INQ000151376).
- 7.6. The policy being adopted at that time was one of quarantining those who returned to the UK on Government sponsored flights in facilities established at the Arrowe Park Hospital site. These planned arrangements, which took place at speed, caused concern locally and the local authority, Wirral Metropolitan Borough Council, with other first responder organisations, was reported to be considering declaring a major incident.
- 7.7. With detailed knowledge of local level response arrangements in England, on 30 January 2020 I spoke to the CEO of Wirral Council in this regard to provide an explanation of the developing quarantine plans and their rationale and to offer to enable support from other parts of DHSC and connected organisations, for example NHSE and local public health teams. With this assurance and subsequent follow through, I was able to advise DHSC Ministers and officials that no major incident would be imminently declared. I also personally visited the Wirral quarantine site, and subsequently a second site at Milton Keynes. I then provided initial advice to DHSC on the isolation arrangements for the care of these individuals. This was subsequently worked up into full guidance on the broader infection prevention and control systems in place, as well as for sensitive communications approaches cognisant of the quarantined individual's wider wellbeing needs (JH4/011 INQ000151391).
- 7.8. 30 January 2020 was also the day on which the WHO declared a PHEIC. The UK CMOs accordingly advised the public of an increase in the UK risk level from "low" to "moderate" (JH4/012 INQ000203938).
- 7.9. On 31 January 2020, the UK's first 2 positive COVID-19 cases, both imported cases, were announced (JH4/013 INQ000051857). On this date, I provided advice to various government departments about the use of quarantine orders pursuant to Part 2A of the Public Health (Control of Disease) Act 1984 for individuals returning from China on repatriation flights facilitated by the UK Government (JH4/014 –

INQ000151393, JH4/015 – INQ000151394, JH4/016 – INQ000151396). My concern was that the use of Part 2A orders would set a precedent for treating these individuals inconsistently in terms of public health risk rationale to others who may have had similar or higher levels of potential exposure but who were required only to self-isolate at home. I also spoke on this date with the Directors of Public Health ("DsPH") across the country to keep them abreast of developments in the first of what subsequently became a series of meeting which ran through the pandemic.

February 2020

- 7.10. On 2 February 2020, Sir Jonathan advised the FCO in respect of their travel advice to those travelling to China. I had sight of that advice, was in agreement with it and made brief comments by email (JH4/017 INQ000151404).
- 7.11. On 5 February 2020, I emailed the DsPH nationwide to update them on our approach to managing coronavirus cases as they arose at a local level (JH4/018 – INQ000151411).
- 7.12. As of 6 February 2020, our working reasonable worst case scenario ("RWCS") for a pandemic caused by a respiratory viral pathogen was based on influenza, informed additionally by our prior experience of MERS and SARS and as best it could be by our early understandings of COVID-19 (JH4/019 INQ000236439). That is not to say that it was considered that COVID-19 was equivalent to influenza nor that planning based on other coronaviruses had not been considered and exercised. Practically however, in the absence of reliable data and information on COVID-19 specifically, the pandemic influenza RWCS was in my view a reasonable starting point for our planning and one which, based on our existing knowledge of SARS and MERS, considered much wider and more severe potential population impacts. It was therefore the more precautionary approach for supporting population protection.
- 7.13. On 7 February 2020, I provided further advice to DHSC in relation to the legal options for enforcing quarantine (JH4/020 – INQ000151415). At this time, the only legal power to enforce quarantine was found at Part 2A of the Public Health (Control of Disease) Act 1984.

- 7.14. On 9 February 2020, I advised DHSC in respect of the draft coronavirus legislation JH4/022 – INQ000151424, JH4/023 – INQ000151425, JH4/024 – INQ000151434). This was discussed that evening with the four UK CMOs (JH4/025 – INQ000151435).
- 7.15. On 10 February 2020, in response to an inquiry from DHSC about decontamination of coaches, I stated (JH4/025A INQ000151437):

"JvT and I have discussed briefly.

Science:

• We both agree that the likelihood of viable transmissible virus remaining on the coaches at 48 hours is minimal

• The draft NERVTAG discussion paper collating scientific support was looking at either a 48 hour recommendation or a 72 hour precautionary approach

• We do not yet have full understanding of the epidemiology of transmission including asymptomatic transmission although all passengers were well when they boarded the plane

• Based on other respiratory illness it is possible, but as yet unknown, that there could be some super spreaders of this virus"

- 7.16. On that day, I also advised DHSC on the appropriate approach to isolation for passengers on the Diamond Princess cruise ship (JH4/026 INQ000151442).
- 7.17. On 12 February 2020, I provided advice to DHSC on the requirements for isolation facilities (JH4/027 INQ000151452).
- 7.18. On 14 February 2020, I emailed colleagues in the NHS to enquire about adult social care planning in the reasonable worst case scenario (JH4/028 INQ000151466), a topic I discuss in greater detail at section 9 of this witness statement.
- 7.19. On 15 February 2020, I was asked to review a submission to the Secretary of State for Health and Social Care in respect of the potential evacuation of British nationals from

the Diamond Princess cruise ship (JH4/029 – INQ000049380, JH4/030 – INQ000151475). These repatriation efforts occupied much of the following days during which the OCMO, including myself, provided technical advice to support policy formation. I exhibit some of the key correspondence at (JH4/031 – INQ000047773, JH4/032 – INQ000151478, JH4/033 – INQ000151480, JH4/034 – INQ000151481, JH4/035 – INQ000151483, JH4/036 – INQ000151499, JH4/037 – INQ000151500, JH4/038 – INQ000047814, JH4/039 – INQ000151502, JH4/040 – INQ000151503, JH4/041 – INQ000151504, and JH4/042 – INQ000151505).

7.20. On 17 February 2020, I emailed the CMO and outlined the following views in respect of the Diamond Princess, which he in turn supported (JH4/042A – INQ000298938):

"You will be aware from earlier discussion that there are ongoing and urgent conversations regarding management of the c78 BNs on board the British flagged Diamond Princess cruise vessel currently held in quarantine in Yokohama Harbour, Japan.

Epidemiological investigation, including that confirmed by Japan's health officials themselves (attached) and modelling carried out by PHE, suggests the ship is currently a definable epicentre of disease in its own right with infection rates predicted to be around 1 in 10 of the passengers currently due to leave the boat or greater. Similar numbers have already been reported in a US passenger cohort which was repatriated two days ago. Despite imposition of quarantine by the Japanese, measures have failed to halt the transmission on board the ship and reported rates of illness in crew appear to be considerably higher (>20%).

Returning passengers and crew therefore pose a high risk to assuring a strong containment phase for disease control in the UK if they either:

a. Return to the UK on an HMG chartered flight but do not comply with the supported isolation provided or

b. Are released by the Japanese which we now understand could take place as early as tomorrow morning – this will be Day13 from first date of quarantine imposed by Japanese health officials on the ship but actual exposure is likely to have been ongoing through crew contact. In this early release scenario BN passengers may find their way back to the UK through other transport routes. Declaring a high risk area under the coronavirus 2020 regulations will ensure supported isolation can be maintained for those who choose to enter facilities initially. It will also allow detention to isolation for 14 days (or appropriate risk surveillance period) for those who may return separately. Finally such a designation lends support to the valid use of Border Force watches to identify relevant individuals returning to the UK to ensure active PH risk containment.

Please can you confirm as soon as possible that your advice to the Secretary of State would be that the Diamond Princess is currently a high risk area as defined by the 2020 regulations, in case he should wish to use the regulations within the next 24 to 72 hours to designate the ship as such."

- 7.21. This position was relayed to the FCO, CCS and DHSC. I and the wider OCMO later (on 21 February) advised a 14-day quarantine for returnees from the Diamond Princess after their departure from the ship JH4/042 – INQ000151505, JH4/043 – INQ000298940).
- 7.22. On 19 February 2020, I discussed the risks of potential asymptomatic positives found from proactive testing amongst the high risk passengers from the Diamond Princess with colleagues at DHSC, PHE and NHSE in respect of the plans at that time to manage such individuals in an HCID setting (JH4/044 – INQ000151496).
- 7.23. On 20 February 2020, I emailed DHSC advising them of the symptoms associated with COVID-19 infection in order to respond to questions on material to be included in social marketing health promotion messages (JH4/045 – INQ000151498):

"Top ones (including abnormal x-ray which is not relevant for direct public messaging) are, in order, history of fever/chills, cough, sore throat, general weakness, runny nose, headache, muscular pain, diarrhoea, shortness of breath. The latter is probably of direct significance in appropriate management of severe cases so we should not remove"

- 7.24. On this date, I also contributed to discussions within the OCMO about provisions in the draft coronavirus bill (JH4/046 INQ000151501).
- 7.25. On 27 February 2020, SAGE provided a RWCS for COVID-19 (JH4/047 INQ000203874, JH4/048 INQ000074896). Amongst its other conclusions, the RWCS stated:

"6. SAGE reviewed Covid-19 planning assumptions and advised that, in the reasonable worst case scenario, 80% of the UK population may become infected, with an overall 1% fatality rate in those infected. Only a proportion of those infected will experience symptoms.

7. This fatality rate represents a reduction in the number of excess deaths relative to previous planning assumptions.

8. SAGE agreed that the case fatality rate (2-3%) remains the same, but the fatality rate for the overall infected population (identified and unidentified cases) is closer to 1%. This better reflects the expected proportion of mild and possible asymptomatic infections. It still includes an assumption that there is a higher fatality rate in vulnerable groups.

9. The case fatality and infection fatality rates only reflect deaths as a direct result of infection, not those related to NHS overload or other second order effects...

...10. SAGE reviewed a table summarising the impacts of non-pharmaceutical interventions – to be finalised at its next meeting...

13. Modelling suggests that earlier and/or combined interventions will have more significant impact. Such interventions would have to be maintained for an extended period.

14. On the risk posed by national and international travel associated with large events (e.g. sports), SAGE advised that the additional numbers travelling are not significant relative to overall numbers, but that this question should be further

investigated.

15. On large events, SAGE noted that alternative/replacement behaviours (e.g. going to the pub instead of a stadium) would pose comparable risk."

- 7.26. The inquiry has asked whether there was an appreciation of the seriousness of COVID-19 in early 2020. I can only comment on my personal understanding rather than that of any other individual. From the point I first became aware of it, I took the emergence of this pathogen as being potentially a very serious threat. The OCMO took the emergence of a novel coronavirus seriously from the very first diagnostic confirmation. This would be normal good practice, but it was accompanied by a very low degree of knowledge or certainty of any defining characteristics and therefore, as with current new COVID-19 variants, very limited ability to understand at an early stage what plausible parameters of impact or persistence the virus might have.
- 7.27. That this was seen as a serious threat was reflected in the early utilisation of the pandemic influenza RWCS with additional developing information. The pandemic influenza RWCS relied upon more severe assumptions than those ultimately encountered during COVID-19. In my view, it became clear in February 2020 that this emerging disease had the potential to cause widespread and severe morbidity and mortality (albeit at the time there was still insufficient information to make it a certainty). The recognition of this risk was reflected in actions taken at the time such as the use of the pandemic plan itself, managed quarantine for returnees to maximise containment, consideration of the consequences for the capacity of the health system and excess death planning.
- 7.28. By the end of February, SAGE was advising that in the reasonable worst case scenario up to 80% of the population could become infected, with an infection fatality rate in the order of 1%. Although in comparison to some other pathogens the CFR was considerably lower, the scale of the immunologically naïve population that would be exposed and therefore the additional likely indirect negative health outcomes from impacts on routine health services were clearly significant. This is why not only was there a plan to manage the transmission and treatment of COVID-19 but also, from the

outset and throughout the pandemic, there was a focus on protecting the NHS in order to be able to minimise harm from other disease.

7.29. All of this information, the similarities and differences between influenza and COVID-19 and the rationale for using the flu plan at the time was explained to the public (see for example (JH4/049 – INQ000087573)) and the scientific comparisons of the two pathogens were reflected in the discussions at SAGE (JH4/048 – INQ000074896).

26 February 2020 until the first national "lockdown"

- 7.30. During the period 26 February onwards, cases were starting to rise rapidly and along with the CMO and Sir Jonathan I commented on numerous urgent advice publications and policy documents in preparation. Some of these related to specific ongoing incidents and some focused on strategic national response management. I particularly tried to focus on clarifying and elucidating those elements of advice or guidance which impacted the interface between central Government or the NHS and local communities given my background experience. This included guidance for sea ports, leisure centres and prisons and places of detention as well as contributions to discussions on preparedness for the national action plan and associated communications.
- 7.31. On 28 February 2020, the UK recorded the first case of COVID-19 which appeared to have been contracted domestically (i.e. the individual had no known international links). From around this time, it was considered likely that there was established community transmission in the UK. As of that date, the UK had confirmed 20 cases of COVID-19 (eighteen in England, one in Wales and one from Northern Ireland) and no deaths. This was also the date on which the WHO raised the global risk level to "very high".
- 7.32. On 29 February 2020, I emailed PHE, the Local Government Association and the Association of Directors of Public Health regarding the announcement of COVID-19 cases and their management in the community (JH4/050 INQ000151519).

- 7.33. On 3 March 2020, I provided advice in respect of public communications in relation to the "contain, delay, research, mitigate" strategy (JH4/051 INQ000151528, JH4/052 INQ000151529). This strategy was published that day in the "coronavirus action plan: a guide to what you can expect across the UK" (JH4/049 INQ000087573). My first sight of this document was around 28 February 2020. Although I was not heavily involved in its initial development, I agreed with its principles, and in the days immediately preceding its publication took proactive steps to try to ensure the elements of the community interface e.g. with Local Authority responsibilities, as well as the clinical and epidemiological aspects, were as robust and practical as possible.
- 7.34. By 5 March 2020, there was cross-Government activity in preparation for the possible implementation of non-pharmaceutical interventions. At that time, the measures being envisaged were home isolation of cases, household quarantine and some social distancing, with particular focus on older individuals and those felt to be immunosuppressed (JH4/053 INQ000151538). The SAGE advice on that day was (JH4/054 INQ000061521):

"There is epidemiological and modelling data to support implementation – within 1 to 2 weeks – of individual home isolation (symptomatic individuals to stay at home for 14 days) and whole family isolation (fellow household members of symptomatic individuals to stay at home for 14 days after last family member becomes unwell) to delay COVID-19 spread, modify the epidemic peak and reduce mortality rates"

7.35. On 6 March 2020, NERVTAG advised the following in respect of the isolation of cases (JH4/055 – INQ000087540):

"NERVTAG's recommendation for the length of time in self-isolation is between 7 and 14 days. In the current situation NERVTAG would prefer this period to be towards the longer end of the range"

7.36. On 7 March 2020, I chaired a meeting proactively arranged with colleagues from PHE and NHSE to inform recommendations to Ministers as to how to identify those patients who were likely to be most vulnerable to COVID-19 for the purpose of mitigating risk,

including through potential social distancing policies (JH4/056 – INQ000151540, JH4/057 – INQ000151541). The agenda included:

"1. Have a shared understanding of the evidence in relation to risk of Covid-19 morbidity and mortality by clinical disease and age groups from knowledge to date 2. Discuss the parameters already included in the SPI-M modelling which relate to these age and disease risk groups

3. Consider the groups identified by NHSE in protocols to date – either relating to selfisolation and/or other risk management categories.

4. Consider infection risk in relation to potential interventions in relation to daily life of the risk groups eg work, outdoor social settings, indoor social settings etc

5. Construct a table or hierarchy of clinical and social disease risk which can underpin decisions on social and behavioural intervention decision making

6. Explicitly consider whether any of these proposals or conclusions need retesting with the modellers and whether it is practical to do so."

7.37. The proposal following that meeting was to adopt a two-tier approach, which was conveyed to DHSC that day (JH4/058 – INQ000151543, JH4/059 – INQ000151542):

"• The first group would be comprised of very high risk people who may be immunosuppressed or have other very specialist conditions. This group is thought to be between 1 and 2 million people (across the whole population) and could be identified between clinical reference groups, NHS SUS data and cancer registries.

• Individuals in this group would be asked to follow something close to the current PHE advice for those self-isolating for a period of up to 13 weeks – they would not, for example, be able to go to work or to go food shopping.

• A second, larger group (probably compromised of individuals who are 70+) would be advised to reduce social mixing to reduce their number of social contacts over a 13 week period. This group would also include some individuals with chronic health conditions (circa 6.7m), some of whom would be of working age.

· This group would be advised to reduce unnecessary contacts but would follow a

more liberal approach. For example, whilst where possible they would be advised to work from home, if that was not possible then in general they would be able to go to work. However, we might need to advise a small number of individuals with increased risk, such as healthcare workers or social care workers, or for example bus drivers with cardiovascular disease, to take further steps to protect themselves.

• We would not seek to identify individuals in this wider group but would communicate through the usual channels to the public for them to self-identify; however, we may consider actively identifying individuals in the first, higher risk group and proactively contacting them."

7.38. On 8 March 2020, the advice of the CMO and DCMOs was sought in respect of extending the requirement for self-isolation on return to all travellers from a large part of northern Italy (JH4/060 – INQ000151548, JH4/061 – INQ000151552). In relation to a further enquiry regarding the introduction of temperature screening at the border, the advice from myself and Sir Jonathan was that such measures were unlikely to be effective (JH4/062 – INQ000151554). That same day, I advised DHSC in respect of draft guidance on the home isolation of individuals with coronavirus (JH4/063 – INQ000151563). By now, three deaths had been reported in the UK. SPI-M advised on this date that 7 days of case isolation might confer broadly similar benefits as 14 (JH4/064 – INQ00048000), but how people responded would influence outcomes:

"From a population perspective, the difference between 7 and 14 days is negligible, but you might expect higher compliance from 7 days"

7.39. On 10 March 2020, SAGE advised (JH4/065 - INQ000061522):

"5. Based on surveillance, including cases in intensive care units (for whom there is no travel history accounting for infection), the UK likely has thousands of cases – as many as 5,000 to 10,000 – which are geographically spread nationally.

6. Transmission is underway in community and nosocomial (i.e. hospital) settings.

7. Available data for the UK are accruing fast. Firmer estimates of infection rates will be available next week...

12. The UK is considered to be 4-5 weeks behind Italy but on a similar curve (6-8

weeks behind if interventions are applied)

14. SAGE endorsed NERVTAG's advice that individual case isolation should last for 7 days from onset of symptoms."

- 7.40. On 11 March 2020, I shared with the UK CMOs an initial draft list of the conditions which could be used to support identification of those thought to be potentially clinically extremely vulnerable to severe outcomes from COVID-19 (JH4/066 INQ000151572, JH4/067 INQ000151573). This would place them in the first of the two higher risk groups I discussed above. I also advised PHE on draft guidance for staff in the transport sector (JH4/068 INQ000048049, JH4/069 INQ000048050).
- 7.41. On 12 March 2020, I provided advice to PHE on draft guidance for those in supported living environments (JH4/070 INQ000151578, JH4/071 INQ000151579). That same day, the UK Chief Medical Officers raised the risk to the UK from "moderate" to "high" (JH4/072 INQ000052485). This was in response to the clear increase in prevalence.
- 7.42. On 13 March 2020, SAGE advised (JH4/073 INQ000109142):

"1. Owing to a 5-7 day lag in data provision for modelling, SAGE now believes there are more cases in the UK than SAGE previously expected at this point, and we may therefore be further ahead on the epidemic curve, but the UK remains on broadly the same epidemic trajectory and time to peak.

2. The science suggests that household isolation and social distancing of the elderly and vulnerable should be implemented soon³, provided they can be done well and equitably. Individuals who may want to distance themselves should be advised how to do so.

³ These SAGE minutes were distributed on 14 March 2020 and a slightly amended version followed on 16 March – the amended version changed paragraph 2 to read:

[&]quot;The science suggests that household isolation and social distancing of the elderly and vulnerable should be implemented as soon as practical (i.e. they can be done well and equitably). Individuals who may want to distance themselves should be advised how to do so" (JH4/199 – INQ000236391).

3. SAGE is considering further social distancing interventions – that may best be applied intermittently, nationally or regionally, and potentially more than once – to reduce demand below NHS capacity to respond. The modelling sub-group is discussing potential interventions on Monday 16th, for review by SAGE on Tuesday 17th.

4. The behavioural science suggests openly explaining to the public where the greatest risks lie and what individuals can do to reduce their own risk and risk to others, even if this is ahead of measures announced by the Government – but SAGE recognises that taking individual measures may be more feasible for some than others. Greater transparency could enable personal agency, send useful signals about risk and build trust.

5. Measuring the impact of all interventions depends on sufficient, relevant data delivered on time: it is a priority to ensure accurate and complete data are available with minimal delay"

- 7.43. On 13 March 2020, I provided advice to DHSC in relation to community testing as we moved from contain to delay, highlighting that whereas testing had previously been used to provide confirmation of infection (or not) in symptomatic individuals, all probable cases would now be asked to isolate and testing capacity was to be focused on clinical management need. (JH4/074 INQ000151587). This is discussed further at section 10 below.
- 7.44. On 14 March 2020, I advised DHSC in respect of a draft policy to isolate entire households should one member display symptoms of COVID-19 (JH4/075 INQ000151597). The following day, I advised DHSC in relation to the policy of shielding and how individuals affected by the policy would be identified (JH4/076 INQ000151603, JH4/077 INQ000151604). This policy included pregnant women in those defined as generally vulnerable.

- 7.45. On 16 March 2020, the total number of cases known in the UK was 1,544 and the total number of deaths was 35⁴ (JH4/078 INQ000203882). That same day, the Secretary of State for Health and Social Care advised the public against all unnecessary social contact, whilst the Prime Minister urged people to work from home and to avoid pubs and restaurants. Household isolation where there was a symptomatic case was introduced along with social distancing risk management advice for the moderately clinically vulnerable ("CV") and an announcement of imminent advice for those considered extremely clinically vulnerable ("ECV/CEV") (JH4/079 INQ000203947).
- 7.46. On that day, I also shared the likely health service management implications of the forecast rapid rise in cases with DHSC colleagues in respect of the management of hospital capacity and care home residents (JH4/080 INQ000151606). SAGE's advice in respect of the epidemiology that day was (JH4/081 INQ000075664):

"UK cases may be doubling in number every 5-6 days"

- 7.47. On 17 March 2020, I provided comment on draft advice from the Royal College of Obstetricians and Gynaecologists ("RCOG") on the risks of COVID-19 in pregnancy (JH4/082 – INQ000151608, JH4/083 – INQ000151609).
- 7.48. On 18 March 2020, SAGE advised (JH4/084 INQ000061525):

"1. Based on limited available evidence, SAGE considers that the UK is 2 to 4 weeks behind Italy in terms of the epidemic curve. The consensus is that growth of the UK epidemic is tracking at the same rate as in other countries.

2. SAGE advises that available evidence now supports implementing school closures on a national level as soon as practicable to prevent NHS intensive care capacity being exceeded.

3. SAGE advises that the measures already announced should have a significant

⁴ Throughout this statement, I refer to the number of cases and deaths as known to us at the time. These were provided through the COVID-19 daily sit-rep.

effect, provided compliance rates are good and in line with the assumptions. Additional measures will be needed if compliance rates are low.

4. Reliable data on the health impacts of existing interventions will only be available in 2-3 weeks. This would not be in time to inform judgements on additional interventions to limit NHS pressures, which are likely to be significant within 2-3 weeks. It may be possible to collect intermediate data, and this should be a priority.

5. Social distancing based on a) places of leisure (restaurants, bars, entertainment and public spaces) and b) indoor workplaces depend on compliance with the guidance issued earlier in the week. We do not yet have reliable compliance data and therefore collecting reliable compliance data should be a priority.

6. If the interventions are required, it would be better to act early.

7. Transport measures such as restricting public transport, taxis and private hire facilities would have minimal impact on reducing transmission in London."

- 7.49. On 19 March 2020, I provided comments to DHSC in relation to draft guidance on shielding and protecting the extremely vulnerable from COVID-19 (JH4/085 INQ000151610, JH4/086 INQ000151611). That same day, Sir Jonathan and I commented to DHSC, the Cabinet Office, BEIS, MHCLG, HMT and DEFRA on proposals to require all dine-in restaurants, bars, cafes, leisure outlets, cultural outlets, gyms and non-essential retail to close in London. I supported the proposals, which in turn reflected the advice of SAGE the day before (JH4/087 INQ000151613, JH4/088 INQ000151614).
- 7.50. On 20 March 2020, I emailed Professor Maria Zambon, a world renowned virologist, requesting any information she may be able to provide on transplacental viral transmission in a UK neonate identified as having COVID-19 after being born to a COVID-19 positive mother (JH4/089 INQ000151618). On this date, the Prime Minister announced the closure of pubs, restaurants, gyms and other social venues (JH4/090 INQ000203946).

7.51. On 23 March 2020, the extension of NPIs to reduce transmission, which became known as a the "national lockdown", was announced by the Prime Minister. This extended mandatory closures to include non-essential retail and followed SAGE advice in the following terms (JH4/091 – INQ000129072):

"1. UK case accumulation to date suggests a higher reproduction number than previously anticipated. High rates of compliance for social distancing will be needed to bring the reproduction number below one and to bring cases within NHS capacity.

2. Public polling over the weekend on behaviour indicated significant changes but room for improvement in compliance rates.

3. Estimated COVID-19 fatalities are anticipated to overlap with those who are likely to be within the final year of their lives. It is important to get an accurate excess deaths estimate, including potential deaths due to the measures taken.

7. The data suggest that London is 1 to 2 weeks ahead of the rest of the UK on the epidemic curve. Case numbers in London could exceed NHS capacity within the next 10 days on the current trajectory.

8. The accumulation of cases over the previous two weeks suggests the reproduction number is slightly higher than previously reported. The science suggests this is now around 2.6 to 2.8. The doubling time for ICU patients is estimated to be 3 to 4 days.

18. There is significant uncertainty concerning the impact of interventions brought in thus far on numbers of cases.

. . .

. . .

20. SAGE noted that social distancing behaviours have been adopted by many but there is uncertainty whether they are being observed at the level required to bring the epidemic within NHS capacity.

21. Key areas for further improvement include reducing contact with friends and family outside the household, and contact in shops and other areas"

- 7.52. My own activity on this date included providing clear rationale to media/professional links on outdoor exercising, advising PHE and DHSC to ensure coherent PPE advice across the breadth of the health and social care sectors, as well as discussions with the RCOG on advice for pregnant women in the workplace. (JH4/092 INQ000151630, JH4/093 INQ000151633, JH4/094 INQ000151639) Other guidance input related to that for those with learning difficulties, and those in approved national probation service premises (JH4/095 INQ00048178, JH4/095A INQ000280006, JH4/096 INQ00048179).
- 7.53. In my view, the Government introduced a national lockdown on 23 March 2020 because there was uncertainty and growing concern that with the higher reproduction number articulated by SAGE on that date, the rate of population uptake of NPIs (lower than originally modelled by SAGE) and the inability to evaluate with certainty that the recently introduced NPIs would be effective due to the time interval required to make that assessment, there was no certainty that national health services would not be overwhelmed. The evidential visualisation of recent events in northern Italy almost certainly served to reinforce this awareness.

The UK's preparations for a pandemic

7.54. The Inquiry has asked on what basis I made the observation that the UK was an "international exemplar in terms of preparedness" and whether I still consider that to be the position. To give the proper context, I believe the Inquiry is referring to comments I made amongst other remarks at the Government's daily COVID-19 press conference on 19 April 2020. In response to questions from journalists I noted that:

"the UK, regardless of the position we may be in now or commentary, has been an international exemplar in preparedness, so the fact there is a pandemic influenza stockpile is considered a very high quality mark of a prepared country in international terms"

7.55. My observation was based on an external objective comparative assessment of the UK's position globally and I do not believe it was considered controversial at the time

of publication. A very recent (at the time of the pandemic) 2019 report published by John Hopkins School of Public Health, called the Global Health Security Index, ranked the UK 2nd globally in terms of its pandemic preparedness (**JH4/096A** - **INQ000146027**).

- 7.56. Further, in 2015 the UK had proactively 'offered' itself for external assessment to support the development of the Joint External Evaluation tool which is supported by WHO to evaluate country readiness against the requirements of member states under the International Health Regulations (2005). Following assessment of multiple different capabilities including laboratories, biosafety, AMR and surveillance, the report, a draft version of which is exhibited, concluded that "*The UK has a well-practiced system of response to real outbreaks and testing the systems through simulation exercises. Few countries have this degree of experience and number of targeted exercises which serve to fine tune the system"* (JH4/096B INQ000298947). A review of the findings was discussed with DHSC (JH4/096C INQ000298954)).
- 7.57. This recognition of the UK's capabilities has resulted in subsequent requests for emergency response support and training provision to other countries, through GOARN calls and through FCO funding, distributed through DHSC, to the IHR strengthening programme which UKHSA continues to provide. Finally, a standardised self assessment report is provided to WHO annually. For 2019, the year immediately preceding the pandemic, this identified the UK to be achieving predominantly the internationally recognised levels of 4 and 5 (out of 5) against the majority of assessment criteria. Significantly lower scores only pertained for aspects of capacity at the border.
- 7.58. It was based on this objective assessment by experts that I made my comment on our emergency response preparedness and it was a view supported globally for example both the EU and G7 countries requested UK exercise training provided by PHE to support improvements in individual country and global resilience. That is of course not to say that our preparations were flawless or that our execution of them could not have been improved. There is clearly considerable learning for our own and most other countries from the COVID-19 pandemic. However, I consider that my comments at the time were reasonable in that the UK was advanced in its pandemic planning in

comparison with global standards, including in comparison to many peer countries. To reject them completely would be to suggest that others' assessment, rather than my own, were inaccurate.

Herd Immunity

- 7.59. The Inquiry has asked to what extent the concept of herd immunity was adopted as a strategy in the first part of the COVID-19 response. In answering that request, it may be helpful if I set out some of the fundamental principles which underlie the concept.
- 7.60. Herd immunity refers to a concept by which the spread of a disease in a population is either prevented, or at least significantly inhibited by, the widespread immunity to that disease present in that population. Once the majority of potentially susceptible individuals in a population have developed immunity the disease effectively has nowhere to go and transmission ceases. Vaccine preventable disease programmes whether in the UK or globally aim to generate herd immunity in specific populations. An example can be seen in measles in the UK. Save for occasional outbreaks, often driven by vaccine hesitancy and reduced vaccine uptake, measles has not circulated widely in the UK in recent years. This is because most individuals are vaccinated in their youth with a vaccine which produces durable long-term immunity. Recent low uptake of measles vaccine in London particularly is now starting to leave local communities at significant risk of outbreaks again.
- 7.61. Immunity can be naturally acquired through infection or actively acquired through vaccination. The combination of natural and vaccine induced immunity will describe the levels of herd immunity in a population. The duration of immunity acquired, whether infection or vaccination induced, will dictate the maintained levels of herd immunity in a population. If immunity is only of short duration, then recurrent vaccination may be needed. Depending on the vaccination programme pursued it may be that some cohorts or age groups of the population will have different proportions of vaccine and naturally acquired immunity.

- 7.62. In the absence of a vaccine, a very high proportion of the population would have to catch the disease for herd immunity to be achieved. This would inevitably expose all those individuals to potential negative sequalae from infection, including for some groups serious morbidity or even death.
- 7.63. As far as I am aware, it was never Government policy to pursue a strategy of controlling COVID-19 through the acquisition of population herd immunity through natural infection. This was not advised by myself, nor to my knowledge was it advised by any other individual within the OCMO. Neither was the concept of naturally induced herd immunity as a method of controlling COVID-19 a feature of the advice we received from SAGE. To me it seems evidential that a Government and its advisors, investing so much time, effort and resource from the outset in developing vaccines ultimately delivering the first successful product in the world and using NPIs to control transmission, were clearly not following a policy reliant on allowing large swathes of the population to become ill if at all avoidable. That is not to negate the fact that for many diseases where we have achieved historic control, this has been brought about by a high level of population immunity derived from a combination of immunity acquired from infection and vaccine derived immunity. The concept of herd immunity itself is a good one: vaccine induced herd immunity for small pox for example eradicated the disease.
- 7.64. In my view, the attempt to 'flatten the curve' was not a concept related to herd immunity but rather one intended to protect the NHS and prevent secondary indirect morbidity and mortality from the health service being overwhelmed by a peak in demand which was unmanageable. The total number of cases of COVID-19 was likely to be the same, but the numbers were spread over a longer more manageable time frame allowing each individual a real chance of benefitting from appropriate clinical care. I believe this is clearly articulated in the SAGE modelling and in the discussions and policy relating to NPIs.

Approach to the introduction of NPIs and timing of lockdown

7.65. The Inquiry has asked me about comments I made to NBC News on 11 March 2020 which are re-provided below:

"Timing of an intervention is absolutely critical, if you put it in too early you have a time period [where], people actually get non-compliant, they won't want to keep it going for a long time, if you put it in too early it's going to cause people to disrupt their lives without a long term effect; if you put it in too late then clearly it doesn't cut off that top piece of the peak"

7.66. I made similar comments in the days before. On 10 March 2020, I provided the following advice to DHSC media colleagues in response to media stories about the timing of non-pharmaceutical interventions (JH4/097 – INQ000151565):

"I think a responsible government taking decisions based on evidence would want to make sure the timing was as good as it possibly could be for maximum effect. Applied too early we risk trying to suppress the peak too soon for it to bounce back later having enduring social and economic demise for absolutely no health or mortality benefit at all."

- 7.67. The questions posed by the Inquiry on this matter appear to proceed on the presumption that I argued for a delay in the imposition of NPIs. Insofar as that is the intent behind the question, it is inaccurate. When deciding to introduce interventions to limit transmission in a population which has hitherto never experienced such interventions and where they may need to be adopted for some time, it is rational to consider all the factors and outcomes that might ensue.
- 7.68. To this extent, comments I have made represented advice to exercise due consideration to achieve the *correct* timing, not necessarily a *delayed* timing. These considerations included, amongst others: the extent to which non-compliance may reduce the modelled efficacy of the intervention; the cumulative impacts, whether positive or negative, which might result from two or more interventions running concurrently, for example reduced infection rates from shielding verses an increased harm from chronic disease in shielders caused by reduced utilisation of hospital services in such circumstances a short period of intervention may offer an overall advantage but a longer period may deliver worse longer term outcomes; or many other more obvious practical issues relating to population movements, religious events,

seasonality and particularly the modelled estimates of peaks and troughs of a particular infection. The timing as to when something should be imposed is part of that total consideration. Overall, the introduction of measures and the timing of doing so was a decision for political leaders rather than myself; my role was to advise as to the benefits and the risks. In doing so, in relation to the timing, I do not believe I was saying something which was particularly novel or which would not have occurred to other scientists.

7.69. SAGE advice has noted that for various interventions at different points in the pandemic, the impact of a particular measure or measures would depend on the proportion of the population that partially or fully adhered and the duration for which that adherence was maintained. In a long running incident, epidemiology, scientific and public understanding and adherence to control measures will all vary and therefore the impact desired and achieved will also vary temporally. It was a reasonable working assumption at the start of the pandemic that people would find the widespread restrictions on their civil liberties, social contact and economic activity arduous. This was a feature of, for instance, the SAGE advice dated 26 February 2020 (JH4/098 – INQ000075403):

"The measures outlined below assume high levels of compliance over long periods of time. This may be unachievable in the UK population. Furthermore, uptake of these measures is likely to vary across groups, leading to variation in outbreak intensities in different communities"

- 7.70. It was also later evidenced (from evaluation of testing programmes) that peoples' intention to act was often greater than the intervention that followed e.g. their actual period or manner of isolation following a positive test (JH4/0098A INQ000298951). SAGE also noted early on discussions on isolation and quarantine that a period of seven days would likely deliver greater adherence than 14 (JH4/0064 INQ000048000).
- 7.71. In my view, it was therefore a responsible thing to do to flag areas of concern or issues needing consideration prior to either the legal or advisory implementation of NPIs. This

was of particular importance for the advice provided to the CEV group and for those in poorer socioeconomic circumstances, to ensure that if stringent advice was provided (e.g. shielding), systems of safeguards were in place to support people through a period of significant personal impact and to ensure they were not put at immediate or greater risk. These systems included access to food, mental and physical health support, alerting and communication systems and medicines delivery services.

7.72. I do not consider an awareness of the risks associated with the introduction of NPIs to be the same as advising a delay to their introduction. We were highly cognisant of the potential negative consequences associated with the introduction of NPIs even if the population was happy to tolerate them in the long-term. I had highlighted my own concerns on 14 March 2020 in an email advising DHSC in respect of the risk mitigation and social distancing policy then being developed (JH4/099 – INQ000151605):

"can I just ask if someone somewhere is also pulling together a list of other risks of going too early – or in some cases going at all?...

...The critical ones are of implementing programmes without effective social care and community care support systems in place, which are obvious to everyone and have been mentioned. The ones that bother me most of all currently are those in relation to **safeguarding** (adult and children) and **domestic violence** more generally. For some, these risks will be considerably greater than a negative health impact from coronavirus"

- 7.73. My comments were designed to ensure that both the benefits and risks associated with the multiple different policy strands at that time under consideration, which were not fully quantifiable, were considered coherently and consistently whenever possible. They were not a specific comment on the precise timing of NPI introduction but rather a flag to consider all points carefully and particularly in relation to ensuring support for the most vulnerable through any lockdown or severe social distancing measures.
- 7.74. More broadly, the negative effects of NPIs were laid out clearly in a briefing note produced by the CMO and shared with key decision makers shortly after the introduction of widespread NPIs on 23 March 2020 (JH4/100 INQ000203890).

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- 7.75. In that note, he identifies that deaths would result from the social measures needed to control the virus, including a failure to diagnose non-COVID-19 ill-health, and the effects of loneliness, mental health and social issues. Further, the economic consequences of lockdowns would themselves have the effect of causing ill-health and premature death. Poverty and lower incomes are well recognised as social determinants of ill-health, whilst prosperity is conversely usually a protective factor. It followed that any approach which prolonged NPIs beyond the minimum necessary to control the disease was likely to cause morbidity and mortality of its own. This was in addition to being an infringement of peoples' civil liberties which, if it were of no benefit, would not be justifiable. Like others I was aware of the SAGE advice on 18 March 2020 to the effect that if restrictions were going to be introduced, they should be introduced early and was personally supportive of that position (JH4/084 INQ000061525).
- 7.76. NPIs were introduced at different time points and to have increasing impact in response to changing case numbers and in particular modelled estimates of the sustainability of health services. Therefore, decisions about introduction were usually a product of: i) our understanding of the epidemiology at the time; ii) the predicted effectiveness of the intervention to mitigate viral transmission and infection risk; iii) practical considerations around their introduction; and iv) the national and local political willingness to introduce them. Insofar as these four factors combine over the period from 16 March to 23 March 2020, a phased introduction of NPIs can be observed.
- 7.77. In considering the actions taken in March 2020, it is important to appreciate them in the context of the reported cases at the time:
 - a. on 1 March 2020, the UK had reported a total of 35 cases and 0 deaths;
 - b. on 8 March 2020, the UK had reported a total of 273 cases and 2 deaths;
 - c. on 16 March 2020, the date the first significant NPIs were introduced, the UK had reported a total of 1,544 cases and 35 deaths (JH4/078 INQ000203882);
 - d. on 23 March 2020, the date of the first 'lockdown', the UK had 6,650 reported cases and 335 deaths.
 - e. on 23 March 2020, SAGE advice was that NHS capacity in London would be exceeded in 10 days (JH4/091 – INQ000129072).

- 7.78. Whilst there was a growing appreciation that the UK epidemic was more advanced than we had initially appreciated (see, for example, the SAGE minutes on 13 and 18 March 2020 (JH4/101 INQ000061523, JH4/084 INQ000061525)), earlier action would have required widespread and severe impositions on civil liberties and economic activity at a time when the observed effects of COVID-19 in the form of ill health and death remained low.
- 7.79. It is not clear to my mind that even if we had had a greater awareness of the state of the epidemic in the UK in mid-March, the public or political appetite for widespread NPIs would have facilitated their earlier introduction, although more detailed testing data may have provided more objective evidence to Ministers, professionals and the public. The pace of the introduction of NPIs did not in practice radically depart from the advice of SAGE, which reported on 5 March 2020 that: "There is epidemiological and modelling data to support implementation within 1 to 2 weeks of individual home isolation (symptomatic individuals to stay at home for 14 days) and whole family isolation"; and on 13 March: "The science suggests that household isolation and social distancing of the elderly and vulnerable should be implemented soon". These measures were introduced 3 days later. By the time of the expansion of NPIs between 16 March and 23 March 2020, the consequences of COVID-19 were becoming increasingly clear to both the public and decision makers in Government, by virtue not only of our domestic situation, but also observations of events in Italy, Spain and France.
- 7.80. Finally, a policy that, for example, confines vulnerable individuals to their home with no explanation as to how they would continue to receive the essentials of life, was unlikely to inspire confidence (with possible consequences for adherence) in the absence of a clearly articulated concomitant package of social support. As I have described above, some of the NPIs envisaged had significant implications for example for adult safeguarding and those at risk of domestic violence. It was important that these consequences were adequately considered and, where possible, appropriate strategies to mitigate them introduced, prior to the announcement of any NPIs.

Section 8: Advice and Decisions in relation to Non-Pharmaceutical Interventions ("NPIs")

- 8.1. In response to the requests made of me by the Inquiry in the Rule 9, I set out below examples of the instances on which I and the wider OCMO provided advice in respect of the introduction of the various NPIs specified by the Inquiry. As with section 7 above, what follows is not intended to describe each and every piece of advice I provided over a period in excess of 12 months. Instead, I have attempted to highlight the key instances and thrust of the advice coming from myself and the OCMO, as well as the scientific basis for it.
- 8.2. As with section 7 above, I have been assisted in identifying relevant documents from the time for the purpose of this section of the witness statement by the OCMO. I appreciate that the Inquiry will consider such documents in their entirety but I have where appropriate quoted extracts from those cited not least because it better assists in understanding what was occurring at a particular time.
- 8.3. In general, I was not always personally involved with the origin of policy decisions or their consideration but would be asked to discuss the public health challenges and opportunities of implementing the 'direction of travel' under consideration or decided by Ministers. This enabled me to triangulate whenever possible to ensure consistency across guidance and policy changes in different sectors in order to maintain coherence for public or sector usage.
- 8.4. It is important to note that frequently the time allocated to comment on or influence any significant change in direction if a public health issue of concern or of coherence was identified would be extremely rapid (at extremes sometimes a few hours or minutes and occasionally *post hoc*) and the workload demanding. Advice would sometimes need to be generated at the same time an evidence consensus was being developed in a parallel meeting (e.g. SAGE). This is critical context for the products delivered and the totality of the demands on myself and OCMO.
- 8.5. Insofar as NPIs were considered in my time as UKHSA CEO, I refer the Inquiry to the Module 2 corporate statement dated 22 August 2023 and as signed by me, and in particular paragraphs 589-595. As explained at paragraph 589 of that statement, by

October 2021, when UKHSA became operational, much of the COVID-19 response structure and NPIs were withdrawn, or in the process of being withdrawn. I have also detailed in that statement the involvement of UKHSA in the formulation of legislation which mandated, amended or revoked the use of NPIs (see paragraphs 225-241).

- 8.6. This section is in turn broken down into various subsections:
 - a. Section 8.1: events from March 2020 to July 2020;
 - b. Section 8.2: activity in the autumn and winter of 2020, (including tiering, circuit breaker lockdowns and the introduction of further national NPIs);
 - c. Section 8.3: December 2020 to April 2021 "lockdown";
 - d. Section 8.4: shielding;
 - e. Section 8.5: social distancing;
 - f. Section 8.6: schools;
 - g. Section 8.7: the use of face-coverings;
 - h. Section 8.8: borders; and
 - i. Section 8.9: "Eat Out to Help Out".

Section 8.1. March 2020 to July 2020 'Lockdown'

Introduction of the first lockdown

8.7. I have explained above at section 7 my involvement in the COVID-19 response prior to the introduction of the first national 'lockdown' on 23 March 2020. Accordingly, I do not repeat that material here.

Easing of Restrictions after the first lockdown

- 8.8. From May to July 2020, policy decisions were made to relax the social restrictions introduced on and prior to 23 March 2020. Below, I outline some of the key advice given in relation to the documents and the implementation process by both myself and the OCMO, as well as the SAGE advice on which our views were based.
- 8.9. On 16 April 2020, the First Secretary of State (The Rt. Hon. Dominic Raab MP), at that time deputising for the unwell Prime Minister, announced five tests to be met prior to

lockdown restrictions being eased (JH4/102 – INQ000086576, JH4/103 – INQ000203990).

- 8.10. On 5 May 2020, I commented on proposals circulated to the Cabinet Office, DCMS, No10, the Home Office, DHSC and MHCLG for allowing greater social contact and the use of outdoor spaces (JH4/104 INQ000151842, JH4/105 INQ000151843).
- 8.11. On 7 May 2020, I provided professional commentary to DHSC in relation to proposals from MHCLG regarding the relaxation of social distancing measures on waste and recycling centres, hotel stays for those who could not return home from work, the reopening of garden centres and the resumption of "click and collect" services (JH4/106 INQ000151846).
- 8.12. On 9 May 2020, I commented to DHSC colleagues in relation to proposals to relax the restrictions in place at that time, including on outdoor exercise (JH4/107 INQ000151864). I provided further advice on this topic on 11 May 2020 (JH4/108 INQ000151900).
- 8.13. On 10 May 2020, the Prime Minister announced the Government's plan for easing NPIs, which was published the following day (JH4/109 INQ000069181).
- 8.14. On 14 May 2020, SAGE advice included (JH4/110 INQ000120519):

"2... further release of distancing measures should not be contemplated until effective outbreak surveillance and test and trace systems are up and running...

12. SAGE advised strong caution concerning the introduction of social bubbling — particularly in the short term, when other distancing measures have only just been lifted, or in conjunction with release of other measures. SAGE has advised previously against making too many changes at once...

[...]

14. Any bubbling will increase infection risk. If introduced, bubbling should only happen when it is safe to do so from an epidemiological perspective and on a very modest basis initially. 15. Currently, incidence is too high and R close to 1. Active contract tracing should be a pre-condition of introducing bubbling.

16. Modelling of risk to date has assumed schools remain closed and that R is 0.8 or lower. Risk would be amplified if schools are open and if workplaces are busier".

- 8.15. On 15 May 2020, I provided advice to DHSC on the public health implications of outdoor seating and other arrangements at restaurants to minimise infection transmission risk (JH4/111 INQ000151924). This included flagging the risk of multiple concurrent changes in lifting NPIs in different sectors and social contexts.
- 8.16. On 21 May 2020, the advice from SAGE included (JH4/112 INQ00061546):

"15. SAGE advised that either social bubbling or opening both primary and secondary schools had the potential to recreate significant transmission networks, which would have a large effect on the epidemic"

8.17. That same day, I provided advice to the Cabinet Office, MHCLG, BEIS, the HSE, No10, DHSC and HMT in the following terms on proposals to reopen non-essential retail (JH4/113 – INQ000151970, JH4/114 – INQ000151971, JH4/115 – INQ000151972):

"1. Although some retail settings may be in inherently safer settings eg outdoors, or have less risky products or product environments, they can become equally risky to those in the proposed 'high risk' group if risk mitigation measures are not in place and managed appropriately

2. The total reduction in social contact of a big bang retail opening compared with staged (on whatever the sub-division parameters are based) is likely to result in a higher number of social interactions. That said, it we believe shoppers will venture out slowly having wider retail environments for a predicted maximum number of shoppers on any one day, will presumably reduce density across the totality of outlets

3. Associated behaviours are important – the most obvious is travel. Crowded buses will increase interactions. No public transport will provide inequalities in access for the more deprived, those with some disabilities etc"

8.18. On 25 May 2020, I provided advice to DHSC in relation to draft guidance for staff working in shops and other retail branches which included the following statement (JH4/116 – INQ000152009, JH4/117 – INQ000069414):

"Final point – I am not clear yet what policy changes are being planned for this guidance to support... In sending the guidance clearance now I am... NOT in any way endorsing any opening of non-essential retail premises. Any lifting of lockdown will increase the risk of a rise in the R value and potential transmission and all Departments' proposals need to be considered together for public health safety and for any changes in policy for advice to clinically vulnerable groups"

8.19. On 26 May 2020, I provided advice to DHSC in respect of proposals for those in the CEV group with a view to safely increasing the opportunities for social contact outside. The options under consideration were: a. to spend time outside alone; b. to spend time outside with members of your household or with one person from another household, while keeping two metres apart; or c. to spend time outdoors including in private outdoor spaces subject to not meeting up with up with any more than 6 adults or two households. My advice was (JH4/118 – INQ000152021):

"For rapid recommendation in June I think it is 1a. At a push it could perhaps go to a safer version of 1b ie Spend time outside with members of your household – but not others – given that however careful shielding individuals have been they may already be sharing a home with others ie this is probably not much difference. However beyond this for an immediate opportunity I think it would be stepping too far at one go in the midst of multiple changes in other sectors eg schools, retail, travel etc. We also need to remember that it will be very problematic if we are on a different trajectory to the DAs and the wider step down/opening up does not yet have clear content"

8.20. That same day, the CMO, Sir Jonathan, the GCSA and I sent the following email to Simon Case following his appointment as Cabinet Secretary (JH4/119 – INQ000069434, JH4/120 – INQ000069418):

"Dear Simon

Congratulations on your new role, we are all very pleased to see someone with your

experience returning to lead and coordinate COVID-19 work at such a crucial moment.

Since the initial peak of the COVID-19 pandemic in mid-late April, there has been careful scientific and policy consideration into how we lift the lockdown without triggering a second wave. This would have the well-recognised risk of endangering lives, generating renewed pressure on the NHS and delaying many aspects of routine healthcare whilst also returning many businesses to a state of standstill.

Given the economic impact of COVID-19, it is right and inevitable that different government departments are eager to restart their industries. We are also acutely aware of the harm that economic downturns can have on the health and welfare our societies, especially the most vulnerable. The societal impact of social distancing is also significant and there are clear reasons to reduce this when it is safe to do so.

We are comfortable with small, individual releases of specific industries in a 'COVIDsafe' manner as laid out by SAGE. We need to think however not only about individual decisions but about the totality of the changes, how they interact in linking households and the pace at which these are planned to occur. Multiple, small changes, appearing reasonable when examined in isolation, can easily lead to R going above 1, and we will be at severe risk of a second wave. There is always a temptation to push the risk just a little bit further on every decision; this is happening across government, often by people unaware of the other changes.

Given the time lag between the implementation of changes and the impact on disease activity (typically 3 weeks allowing for incubation period, disease progression and requirement for medical care) there is a significant risk that we will only recognise we might lose control of the disease when it has regained appreciable momentum. As we have already seen, it then takes several months to reverse.

We also need to think through how we meet the Government's commitment to evaluating the measures already announced (e.g. partial return of children to schools) to allow them to progress to the next stage.

Our biggest concern is however that the combination of multiple small decisions across government, all made in good faith and if taken in isolation, unlikely to push R above 1, do not lead in aggregate to a significant risk of a return to exponential growth. We also need to get the tone right so that the decision to release several sectors in a safe way does not inadvertently send a signal that people can relax social distancing. No individual department can see the totality of the changes made, and you and your team are central to leading in government and ensuring the whole package is coherent and safe.

We all look forward to working closely with you over the coming months."

- 8.21. On 28 May 2020, the CMO, Sir Jonathan and I provided advice on proposals to allow individuals from separate households to meet outside (JH4/121 INQ000152050). My concerns focused on how relaxed the proposals would be and the potential for inequalities to be exacerbated by the policy. There was for instance a reliance on the use of private gardens and a discouragement from using public transport. I was concerned that these measures were likely to disadvantage those on lower incomes without access to private gardens and vehicles, and it was important in my mind that this potential inequality was recognised.
- 8.22. On 30 and 31 May 2020, I provided advice on proposed new social distancing guidance (namely the "staying alert guidance"), as well as proposals to relax restrictions on outdoor recreation (JH4/122 INQ000152085, JH4/123 INQ000152086, JH4/124 INQ000152087, JH4/125 INQ000152088). These efforts culminated in the CMO sending summary advice on the OCMO's position in respect of various topics on 31 May 2020 (JH4/126 INQ000069490):

"Summary of CMO office positions at this point of the epidemic

6 individuals meeting up or two households

• There is a slight preference for 2 households vs 6 people meeting up, but it is not an overwhelming preference given little evidence to support one way or another, and being able to communicate it is critical and probably more important.

• Issue surrounds the lack of limitations that is built into this. There needs to be clear lines around:

- 2 metre distance should be kept at all times at this stage of the epidemic
- Families do not equal households, extended families do not count as

household members

• Travelling to different areas is the main place of transmission, and should not be done in mixed households

 Indoors = anything with 3 walls and a roof – garages, cabins, sheds etc. all count as indoors

• If there is a change in weather, you should go home. If there is a need to be indoors, different household members must remain in separate rooms

Hairdressers

• Hairdressers is likely to be next service resumed and there is a need to make this as safe as possible when it occurs

• There needs to be regular engagement between CMO's office and HSE to ensure this

• HSE have proposed a visor is needed for haircuts and all non-face beauty treatments, CMO's office have no view on this

• Facial beauty treatments should not be permitted as they are higher risk

Pubs and restaurants – indoors

• They should not open yet. Their business model is getting people from different households to meet.

• When they do, 2 metre distancing should occur

Eating outside a restaurant / pub

• They should not open yet, but the risks are much lower than indoors so earlier opening is likely provided:

• When they do, 2 metre distancing should occur

• Evidence for a closer than 2 metre range lowering transmission is only in non-faceto-face interactions for short periods of time. 2 metres should remain the distance used at this stage of the epidemic.

Dentists

• The risk to dentists and dentist staff is high, particularly with aerosolisation causing procedures

• The risk of a dentist causing an outbreak is a lower risk with the adherence to hygiene standards and wearing of PPE

Camping

• While camping itself takes many different forms, the risk of transmission is largely in the shared facilities available at campsites, rather than tents for people in the same household

• There needs to guidelines written on how to access these facilities in a socially distant manner

• Another issue with camping is that it creates the movement of people around the country - however, this is not an epidemiological question

Second homes

• This is similar to the camping question - people moving to their second home has little epidemiological impact

• Transmission issues arise when one area has a localised outbreak and is spread through travel. Localised outbreaks should potentially remain contained by limiting travel. Travelling between two areas of similar transmission intensity has limited impact."

8.23. On 3 June 2020, I provided comments to DHSC in respect of those businesses it was proposed to keep closed (JH4/127 – INQ000152115, JH4/128 – INQ000152116). I provided further advice on the same topic in respect of "close contact services" (i.e. those services which involved close person to person contact) on 5 June 2020, which included the following observation (JH4/129 – INQ000069575, JH4/130 – INQ000152128):

".... I have seen no evidence of specific IPC advice provided (which would normally be initially from PHE and/or HSE) to be assured that the additional risks inherent in close physical working have been adequately covered.

[...]

I have been presented with the below as a policy decision and as such the wording is ok – but I can provide no assurance that adequate steps have been taken to manage risks appropriately. I am not clear exactly what CMO/DCMO sign off means – to my mind it is highlighting PH risks or agreeing they have been adequately considered and/or covered for policy decisions. On this basis no I can't sign it off because I have no evidence. For dentistry, the evidence arrived after the operational and policy decision was made so that also was not agreed by DCMO prior to launch."

- 8.24. On this same date, Sir Jonathan and I provided advice in respect of the package of relaxation of NPIs anticipated up to 4 July 2020 (JH4/131 INQ000152131, JH4/132 INQ000152132).
- 8.25. On 11 June 2020, I attended a "Star Chamber" on reopening remaining elements of the retail sector. I summarised the discussion at that meeting to others in the OCMO in a subsequent email (JH4/133 – INQ000152155). One issue discussed was the timing of any re-opening where I raised concerns over BEIS's proposal for full opening by 4 July 2020:

"6. Pubs and restaurants – lots of push back from BEIS. Keen to open all on 4th July. I pushed for outdoor opening only and an evaluation pause based on transmission risk – broadly accepted. More persuaded when I pointed out purpose of indoor meeting would be social mixing and that if they reopened you could go to the pub to meet other family households socially distanced but you couldn't do so in your own home – illogicality would not be accepted by the public. Also potential for loss of control over social distancing if people were alcohol fuelled. Some consideration of alcoholonly-with-food' policies but rejected largely on lack of specific PH rationale with which to legally uphold the differentiation"

- 8.26. On 15 June 2020, Sir Jonathan and I provided further advice to DHSC in relation to proposals for the relaxation of restrictions on gatherings in both indoor and outdoor settings (JH4/134 INQ000069702).
- 8.27. On 20 June 2020, I advised the Cabinet Office in relation to the currently understood risks associated with shouting and singing in a pub, restaurant or workplace setting (JH4/135 INQ000152217).
- 8.28. On 21 June 2020, I provided comments on draft guidance for hotels and other guest accommodations (JH4/136 INQ000152221).
- 8.29. On 22 June 2020, the OCMO advised DHSC in relation to the proposed package of reopening in the following terms (JH4/136A INQ000152235):

"The CMO office's view is that this is a high-risk package, but not reckless. It is at the high end of manageable risk and the mitigations (and the enforcement of) are key. It will be essential to get communications right – emphasising the importance of continued caution and discipline; and making clear the reintroduction of measures may well be necessary if changes in behaviour lead to significant increases in infection rates"

8.30. On 23 June 2020, SAGE issued further advice (JH4/137 - INQ000061551) including:

"1. Releasing a significant number of measures in combination presents a material risk of accelerating transmission and the impacts will need to be carefully monitored.

2. Reintroduction of measures will need to be considered at a local level in response to outbreaks.

3. There will be trade-offs to be made when considering what measures need to be retained or reintroduced, and equity will be an important consideration in making these trade-offs given the varying impacts on different sections of society.

....

9. Releasing a significant number of measures in combination presents a material risk of accelerating transmission and the impacts will need to be carefully monitored. An increase in local outbreaks is highly likely. Modelling indicates that, in the absence of enhanced levels of immunity provided by vaccination, contact tracing and COVID-secure measures are unlikely to be sufficiently effective to allow a return to 'pre-COVID' normality without increasing infections rates.

. . . .

11. It will take some time (one month or more) for the impact of changes to measures on transmission to become apparent, due to both the lag in people's response, and the lag in measurement of key indicators such as hospital admissions. Some people's responses will also occur ahead of changes being introduced, and the overall effect is one of gradual change in levels of contact (this is true both when imposing and releasing measures)

• • • • • •

16. There may be a need to change measures at the end of the summer in order to be able to keep R below 1 whilst proceeding with the planned reopening of schools. Planning for safe full reopening should take place now and should take account of the health benefits of reopening schools as well as the educational benefits."

- 8.31. Also on 23 June 2020, I advised DHSC in relation to the final "stay alert and safe (social distancing)" guidance (JH4/138 INQ000152266). The same day, the Prime Minister announced that from 4 July 2020 (JH4/139 INQ000088026):
 - pubs, restaurants and hairdressers were able to open, providing they adhered to COVID-19 Secure guidelines;
 - two households would be able to meet up in any setting with social distancing measures;
 - accommodation sites for 'staycations would reopen';
 - leisure facilities and tourist attractions could reopen including outdoor gyms and playgrounds, cinemas, museums, galleries, theme parks and arcades, as well as libraries, social clubs, places of worship and community centres; and
 - where it was not possible to stay two metres apart, guidance would allow people to keep a social distance of 'one metre plus'. This was to mean staying one metre apart, plus mitigations which were likely to reduce the risk of transmission.

Section 8.2: Activity in the autumn and winter of 2020

8.32. This period saw a general trend towards rising numbers of COVID-19 cases. Accordingly, much of our advice concerned the measures which were necessary to address this rise. Over the period, Government policies included the introduction of a system of tiers; a national lockdown for one month from 5 November 2020; and ultimately further widespread restrictions implemented in the vicinity of Christmas 2020. Again, I highlight occasions on which I personally provided advice, as well as contributing to that from OCMO and the SAGE outputs that informed our positions.

- 8.33. Much of my personal activity during this time focussed on those areas of the policy response for which I had come to provide lead OCMO support, in particular care homes, education and the management of the clinically extremely vulnerable (often referred to as "shielding"). In addressing these topics here, I have kept in mind not only the ambit of the Rule 9, but that these topics are likely to be considered in much more detail in later modules (I understand that Module 6 concerns care homes).
- 8.34. On 13 September 2020, I provided advice on proposals for a "tier system" being developed by DHSC (JH4/140 INQ000152806, JH4/141 INQ000070669).
- 8.35. On 21 September 2020, SAGE provided the below advice. This describes the contemporaneous scientific advice in the early autumn of 2020 (JH4/142 INQ000061566):

"1. COVID-19 incidence is increasing across the country in all age groups. The effect of opening of schools, colleges and universities has only just begun to affect this increase. Even so, the latest data suggest that the doubling time for new infections could currently be as short as 7 days nationally. COVID-19 related hospitalisations and intensive care bed usage have started to rise. SPI-M has modelled the potential increases.

2. A package of interventions will need to be adopted to reverse this exponential rise in cases. Single interventions by themselves are unlikely to be able to bring R below 1 (high confidence). The shortlist of non-pharmaceutical interventions (NPIs) that should be considered for immediate introduction includes:

- a circuit-breaker (short period of lockdown) to return incidence to low levels
- advice to work from home for all those that can

. . .

- banning all contact within the home with members of other households (except members of a support bubble)
- closure of all bars, restaurants, cafes, indoor gyms, and personal services (for example hairdressers)
- all university and college teaching to be online unless face-to-face teaching is absolutely essential

5. All the interventions considered have associated costs in terms of health and wellbeing and many interventions will affect the poorest members of society to a greater

extent. Measures will be urgently needed to mitigate these effects and to achieve equity and social justice, some of which could be introduced relatively quickly. Policy makers will need to consider analysis of economic impacts and the associated harms alongside this epidemiological assessment. This work is underway under the auspices of the Chief Economist.

6. The more rapidly interventions are put in place, and the more stringent they are, the faster the reduction in incidence and prevalence, and the greater the reduction in COVID-related deaths (high confidence). Both local and national measures are needed; measures should not be applied in too specific a geographical area.

7. A more effective response now may reduce the length of time for which some measures are required. However, some restrictions will be necessary for a considerable time (at least throughout the winter) and therefore consideration should be given to their sustainability.

8. A consistent package of measures should be adopted which do not promote, or appear to promote, contradictory goals. This will enable clear, consistent communications that can explain the rationale for measures, which in turn will support adherence.

9. Communication should increase public understanding of risk and should explain the importance of everyone adhering to guidance and reducing contacts, as anyone can contribute to transmission (even if they have previously been infected). Adherence will continue to be central to the effectiveness of measures, and it should not be assumed that people will respond in the same way that they have done previously.

10. The rapid rise in cases means that a raft of complementary operational response measures is even more important to reduce transmission, particularly in care homes, hospitals and other enclosed settings, such as prisons and hostels for the homeless."

8.36. On 24 September 2020, SAGE advice was (JH4/143 - INQ00061567):

"1. Incidence across the UK continues to increase rapidly. The latest estimate of R for the UK is 1.2 to 1.5.

2. Unless current NPIs reduce R back below 1 soon, it is possible that infection incidence and hospital admissions will over time exceed scenario planning levels. Further measures will be needed to bring R below 1 in the event that current measures do not do so. The earlier additional measures are introduced the more effective they will be"

8.37. On this same date, I provided further advice to DHSC in respect of the tier proposals then in development (JH4/144 – INQ000152871):

"If I have understood correctly any area at level 3 can 'pick and mix' out of the available optional interventions... In reality most places that have reached this level of concern and in the midst of a pandemic wave will probably end up just piling all the options in one after each other and lockdown. The only concern for me would be that if they didn't want to – eg transmission raged and local areas continued to choose not to shut venues/operations what happens?"

8.38. On 1 October 2020, SAGE advised (JH4/145 - INQ000061568):

"1. Some data streams indicate potential slowing in the growth rate of the epidemic, but it remains highly likely that infection incidence is growing overall. The latest estimate of R for the UK is 1.3 to 1.6.

2. Unless current NPIs reduce R back below 1 soon, it is likely that infection incidence and hospital admissions will exceed scenario planning levels in the next 2 weeks".

- 8.39. On 7 October 2020 and in the subsequent week, I provided advice to DHSC on measures to support risk mitigation for attendance at funerals (JH4/146 – INQ000152971, JH4/147 – INQ000152972, JH4/148 – INQ000152977, JH4/149– INQ000152978).
- 8.40. On 8 October 2020, SAGE advised (JH4/150 INQ000061569):

"1. Incidence and prevalence across the UK continue to increase, and data show clear increases in hospital and ICU admissions, particularly in the North of England.

2. In England the number of infections and hospital admissions is exceeding the Reasonable Worst Case Scenario (RWCS) planning levels at this time. Projections also indicate the number of deaths is highly likely to exceed Reasonable Worst Case planning levels within the next 2 weeks.

[...]

4. As previously, a package of non-pharmaceutical interventions (NPIs) needs to be adopted to reverse the exponential rise in cases (see SAGE 58)"

8.41. On 9 October 2020, with respect to Tier 3 and use of a circuit breaker, the CMO wrote to the Cabinet Office in the following terms. In my view, his advice summarises the position of the OCMO well (JH4/151 – INQ000071071):

"There were two options we thought had a reasonable chance of success of meeting the strategic goals set out by the PM, based on SAGE advice, in some combination:

1) A package of interventions sufficient to get areas with rapidly rising transmission back to around R<1, stabilising the situation but not decreasing incidence below current rates. These would, by definition have to be maintained over the entire major period of risk, which probably for practical purposes means to the end of winter (ie 5-6 months). Incidence would not drop below what it is now but track along even if the package were sufficient. R may naturally rise over the respiratory virus season requiring additional measures to retain status quo.

2) A firebreak period of very strong measures for a defined period of a few (2-4) weeks that have a high chance of pushing R below 1 so cases fall, resetting the clock on transmission. It should be possible to get away with fewer NPIs over the long run than 1) above if this approach is taken but some would still be needed.

The current minimum package, which at its core is pretty limited, for only 4 weeks is likely to be neither significant enough to achieve a time limited firebreak, nor prolonged enough to maintain control albeit at a higher level. Only if Local Authorities chose to go to the top of the possible range of options which are defined as 'subject to engagement' across multiple domains would it be likely to have an effect in a short period, and even this is not certain. Longer periods of significant NPIs are likely to be needed in these high incidence areas" 8.42. On 11 October 2020, I provided advice in relation to NPIs on the proposed tier system (JH4/152 – INQ000152960, JH4/153 – INQ000152961), as well as guidance on how the clinically extremely vulnerable would be advised to keep safe in the tier system being proposed (JH4/154 – INQ000152962, JH4/155 – INQ000152963).

8.43. On 15 October 2020, SAGE's advice (JH4/156 - INQ000061570) included:

"5. Incidence and prevalence across the UK continue to increase, as shown by data from the latest ONS infection survey and modelled estimates from SPI-M.

6. The latest estimate of R for the UK is 1.3 to 1.5, while the daily growth rate estimate for new infections is +4% to +7%...

7. There is no clear evidence that the epidemic's trajectory has changed in the past month. The growth rate estimates equate to a doubling time for new infections of 10 to 15 days, but it could be faster in some regions and age groups.

[...]

11. In England the number of infections and hospital admissions is exceeding the Reasonable Worst-Case Scenario (RWCS) planning levels at this time. The number of daily deaths is now in line with RWCS planning levels and is almost certain to exceed this within the next 2 weeks".

- 8.44. On 29 October 2020, SAGE issued advice (JH4/157 INQ000061572) in which it had considered a number of "*high-level illustrative scenarios for the coming months so as to inform the consideration of the potential impact of any approach adopted going forward*".
- 8.45. On this same day, I advised on proposals by the then Secretary of State for Health and Social care for a "tier 4" which might include the closure of all hospitality, a stay at home requirement save for reasons of work and education, the closure of nonessential retail, travel bans with lower tier areas and the reintroduction of shielding. I supported the proposals (JH4/158 – INQ000071374).

- 8.46. Also on 29 October 2020, the CMO emailed advice to the Cabinet Office and No10 outlining a path to spring 2021 (JH4/159 INQ000071377, JH4/160 INQ000153066). I had contributed to his advice and was in agreement with it.
- 8.47. On 30 October 2020, amongst broader advice on the introduction of more widespread NPIs, I advised DHSC (JH4/161 INQ000153077, JH4/162 INQ000153075):

"overall, from my observations on direct discussions in recent local discussions with SoS MHCLG, MPs, local leaders and DsPH, the more options there are the more diluted the messaging and the less actual PH benefit there is in any of the actions finally agreed – latest example is West Yorks. Arguing about a 9pm or 10pm pub cut off, or about gym classes versus wider gym opening, has missed the obvious public health intervention (which is shut the pubs or gyms quickly) and extended the time period for people to become ill and subsequently die. IE action should be decisive and very understandable"

8.48. After reviewing his own observations on the draft proposals, I emailed Sir Jonathan (JH4/163 – INQ000153078):

"I agree with almost all your points – the process of the 'negotiations' between the taskforce and the politicians, and to be honest even with the local DsPH, meant that they just ended up debating whether to have indoor gym classes or individual sessions when the real action needed was clearly to close the gym. The one I did want to pick up was the shielding one. Advising 'full shielding' just means advising people to stay in their homes all the time and never see anyone. If we go into lockdown or proper tier 3s, then most of this happens anyway. Given the negative mental health impact we don't want to advise them not to go out at all, particularly not to stop exercising."

8.49. On 5 November 2020, the Government introduced the second national lockdown. On that date the SAGE advice was (JH4/164 – INQ000061574):

"15. It will take 2 to 3 weeks to be able to assess the impact of new measures in England. The effects of the tiering system will be seen before that. If well-adhered to, the lockdown measures starting in England on 5 November are likely to reduce R to less than 1. If this reduction in R is sustained until 2 December, the number of hospital admissions and deaths would be expected to fall until at least the second week of

December.

16. The longer-term outlook depends on both the nature of non-pharmaceutical interventions that are implemented in England after 2 December and policies put in place over the festive period"

8.50. On 12 November 2020, SAGE advised (JH4/165 - INQ000061575):

"32. Overall, early analysis suggests that the tiers system in England had an impact on viral transmission during the period it was implemented, with higher tiers having a greater impact. Tier 1 measures alone are not enough to prevent the epidemic from growing rapidly.

33. ...This suggests that tier 2 is the minimum intervention required to maintain any degree of control on transmission, though this would not be the case in all places and there is significant uncertainty. In most cases moving from tier 1 to tier 2 would slow growth rather than reverse it.

34. The package of measures applied in tier 3 varied between places, with some areas applying more stringent restrictions than others. Evidence suggests that tier 3 restrictions reduced local transmission, particularly in the North West, and possibly North East and Yorkshire regions, however the scale of the reduction is currently hard to quantify. ONS analysis is consistent with the SPI-M analysis, though also with significant uncertainty. It is therefore unclear whether baseline tier 3 restrictions alone would be sufficient at a regional or national level to reduce R below 1.

35. It is almost certain that prevalence will remain high in some parts of the country at the end of the current national restrictions. When policymakers plan transitions from national measures to a localised approach, or between tiers in future, consideration will need to be given to both prevalence and growth rate of new infections.

36. Basing transitions on prevalence alone leads to an outcome where growth rates are highest in the lower prevalence areas and interventions sufficient to halt growth do not take place until prevalence is very high. This eventually leads to high prevalence across the whole country and the consequent need to implement national measures. SAGE has advised that interventions need to be introduced whilst prevalence is low in order to maintain low prevalence, and should be based on growth rate as well as prevalence. Test and trace systems work best at low levels of prevalence.

37. It will also be important to consider a range of restrictions that are more stringent than those in the current tier 3 that might be required for some areas to avoid the need for further national-level interventions. This will be particularly important in the run up to the winter festive period if relaxation of measures is under consideration"

8.51. On 19 November 2020, SAGE advised (JH4/166 - INQ000071857):

2. As previously noted, evidence shows that the earlier and more rapidly interventions are put in place, and the more stringent they are, the faster the observed reduction in incidence and prevalence. Recent data show uniformly shrinking epidemics as a result of the implementation of tier 3 restrictions in England...

5. Relaxation of interventions over the festive period presents a significant risk of increased transmission and increased prevalence, potentially by a large amount (high confidence). Keeping prevalence low before the festive season would reduce transmission during any relaxation period (high confidence)...

[...]

23. If measures are relaxed there is a risk growth rates will return to previous levels. It will be important to monitor growth rates and implement interventions to prevent areas of low prevalence from becoming areas of high prevalence, as well as reducing prevalence where it is high. As soon as rising prevalence is detected, measures should be strengthened in order to manage the overall epidemic, irrespective of the absolute prevalence...

31. Keeping prevalence low before the festive season would reduce transmission during any relaxation period (high confidence). The duration of any such period is also critical. The period of new networks should be shorter than 1 generation time (which is around 1 week), so that transmission occurs in events, rather than outbreaks. This may limit the increase to 1 doubling in prevalence"

8.52. At the conclusion of the second national lockdown on 2 December 2020, England returned to a three-tier system of restrictions.

Section 8.3: December 2020 to April 2021 "Lockdown"

8.53. Since almost all areas of potential intervention for NPIs and for clinical care, social interactions and business had by this stage received consideration and extant guidance was available, advice on a wide variety of topics became more a process of amendment of the detail rather than necessarily contributing to novel decision making or drafting. I will therefore focus on the areas in which I was personally involved. These were the approach towards "shielding" and the clinically vulnerable, care homes, and education.

Section 8.4: Shielding

- 8.54. On 5 March 2020, SAGE discussed an initial concept of what was termed 'cocooning' of the most vulnerable. This included the elderly and those with significant underlying health conditions and aimed to protect the most clinically vulnerable from routine societal interactions during the peak waves of the pandemic so as to reduce the likelihood of them being infected. The formal shielding/CEV policy adopted had similar aims but varied in its application for practical reasons from that originally considered at SAGE (JH4/054 INQ000061521).
- 8.55. On 7 March 2020, I set out an agenda for a call with a group of senior clinicians across PHE, DHSC, NHSE and NHSD (including the DCMOs) to discuss the potential approaches that could be adopted to protect those understood at the time to be the most clinically vulnerable (JH4/056 INQ000151540). I outlined these efforts at paragraph 7.36 to 7.37 above. I later emailed the CMO to ensure he was content with the approach being proposed (JH4/058 INQ000151543):

"...just wanting to check with you that you are content with the position we have arrived at.

1. This is effectively quite a liberal social distancing position for the majority of older people and those with underlying chronic conditions – which would include going to work if necessary and appropriately manageable (ie work environments etc) since this is actually the data with which the modellers worked. This group is largely the 'flu

vaccination' group. They could exceptionally go to the shops, but advice would be to wash hands ++, limit trips to times when not busy etc etc. There are a few cohorts within this for whom we would need to take further more detailed consideration (eg healthcare workers).

2. A much tighter group where we think a true 'cocooning' policy should apply is for exceptional high risk groups eg immunocompromised. We think we could identify these through clinical sources and advise directly. These individuals should self isolate almost as if a confirmed case.

- 8.56. The CMO replied stating that he agreed the approach in principle but that it would need to be put to the other UK CMO's and SAGE to ensure it aligned with their thinking (JH4/058 INQ000151543). All work subsequent to this, including the agreement of those considered to be at clinical risk and any further policy changes, were considered across all four UK nations. Although identification of those at risk, implementation dates of policies or their practical utilisation varied from time to time to align to local data systems and health services, the underlying principles were agreed on a four nations basis throughout the shielding programme.
- 8.57. On 13 March 2020, SAGE stated (JH4/073 INQ000109142):

"The science suggests that household isolation and social distancing of the elderly and vulnerable should be implemented soon, provided they can be done well and equitably. Individuals who may want to distance themselves should be advised how to do so.".

8.58. I updated the CMO on 14 March 2020 (JH4/167 - INQ000151591):

"the objectives are listed but key ones are to (1) identify the clinically vulnerable groups (2) understand the process for them to move safely into isolation and equally for them to receive appropriate clinical and social care [inc Covid and non-Covid] whilst isolated and (3) describe the links with local communities eg through LAs or LRFs so that the latter are fully aware of their local clinical and socially vulnerable populations"

8.59. An important practical consideration in the implementation of the shielding policy was how to robustly agree and then identify those who would need to be contacted and included. Given this particular policy was clinically risk based this was firstly a medical question, i.e. which conditions were likely to confer particular individual vulnerability to COVID-19, and advice was sought rapidly through a number of clinical expert conversations; and then one of how those individuals could be identified, contacted and appropriately supported.

- 8.60. On 17 March 2020, a final draft list of the proposed CEV cohort was circulated to the Senior Clinicians group. On 18 March 2020, OCMO wrote to the NHS Digital lead to ask them to digitally identify patients that fell into the agreed cohorts, so that they could be contacted with a recommendation to follow stringent social distancing measures initially for 12 weeks (JH4/168 INQ000048118). Equally important was the need to ensure that an appropriate package of social support was in place for those who were being advised to isolate themselves to a degree not previously implemented at this level of population inclusion.
- 8.61. On 15 March 2020 I, with input from various stakeholders, produced a briefing note on the shielding policy which was sent to the CMO (JH4/077 – INQ000151604) and practical policy inclusion was worked through with Cabinet Office leads. The policy was announced on 16 March 2020 (JH4/079 – INQ000203947).
- 8.62. On 19 March 2020, I provided comments on the detailed "Guidance on shielding and protecting extremely vulnerable persons from COVID-19" (JH4/086 INQ000151611).
- 8.63. Distinct from this protective advice for the clinically extremely vulnerable, the Government published separate advice on 16 March 2020 advising a wider group with other clinical conditions which it was thought at the time may place an individual at higher risk from COVID-19, albeit not with the same predictability or to the same extent as the clinically extremely vulnerable cohort.
- 8.64. This group was referred to as the clinically vulnerable group (or "CV" group) and was distinct to the clinically extremely vulnerable (or "CEV") group who were able to be supported by the shielding programme. The advice for the CV group in effect encouraged them to be particularly careful in their adherence to the social distancing guidance published for the population in general.
- 8.65. Nomenclature which included the word "vulnerable" was very active in many other government departments for recognised different elements of vulnerability e.g. socio-

economic, transport, education etc. Therefore, the need for somewhat cumbersome but important lengthy clinical definitions to ensure reach to those at predictable risk was important as was the need to continue to reinforce the advisory nature of shielding guidance. At no time was shielding compulsory or legally prescribed. At all times it was a patient choice.

- 8.66. On 21 March 2020, Professor Stephen Powis, National Medical Director of NHS England, and the CMO sent a CAS alert to clinicians asking for help in the management and shielding of patients considered at that point likely to be at the highest risk of severe morbidity and mortality (JH4/169 INQ000068544). The alert described the complex process needed to enable maximum inclusion of potentially affected patients, many of whom could not be identified by centralised electronic systems e.g. those on particular immunosuppression therapies. Identification and subsequent communications, on an ongoing basis, therefore included complex work with NHSE, subspecialty clinical leads in secondary care services, the Academy of Medical Royal Colleges ("AoMRC"), the Royal College of General Practitioners ("RCGP") and numerous patient advocacy groups for all of whom I contributed to meetings and/or chaired frequent webinars.
- 8.67. It was recognised at the start that whilst the majority of individuals could be identified relatively quickly, for others there would be a time lag and therefore a phased inclusion into the CEV cohort. For obvious protective reasons, we did not delay alerting the majority whom we could reach digitally and immediately. As a result, there was a planned expansion of the cohort over several weeks as different clinicians in different specialties identified individual patients and conversations with those patients took place, and a recognised continuous change in numbers as patients moved into and out of the 'at risk' cohort and/or the evidence changed. The final initial cohort size was an everchanging but approximate 2.2 million people.
- 8.68. The programme of shielding was initially envisaged as one of approximately twelve weeks duration. Alongside the clinical elements of shielding, a support programme ("the Shielding Programme") was led by MHCLG which covered all relevant support packages with the exception of the medicines delivery service which was overseen by DHSC. I tried to explain in simple terms the likely forward approach for shielding advice from an epidemiological perspective to policy colleagues in DHSC on 15 April (JH4/170 INQ000151753).

- 8.69. On the same day, I also provided feedback on rapidly constructed proposals from DHSC to measure the effectiveness of the shielding programme following a request from No 10 (JH4/171 INQ000151754), in particular its effectiveness in improving mortality and/or morbidity. I expressed my concerns that the proposed evaluation framework was not adequate or robust for the task in hand. This was in large part due to the heterogeneity of the group identified and the uncertainty about the virus and therefore the difficulty in identifying an expected versus observed mortality outcome. The note also highlights an early request to the ONS on potential evaluation of many of the behavioural aspects of the CEV group, although in practice the reports which were later produced did not actually capture the formally identified CEV cohort.
- 8.70. Given the potential serious risk to this group of patients based on clinical plausibility, it would have been unethical not to commence the programme as early as possible or alternatively to try to have any process which would lead to more robust methods of evaluation, such as a non-interventionalist study arm. Nor do I think this was possible. It was recognised that the shielding programme would have an impact on daily living and independent ethics advice was obtained on the appropriateness of making changes to the programme. There was also considerable post hoc resource expended in trying to understand for future benefit what the impact of the programme had been and how any future similar programmes, if appropriate, could be improved.
- 8.71. In April 2020, the UK Clinical Panel for Shielded Patients (which I chaired along with senior clinical representation from all UK CMOs offices) was established to review the evidence on which groups were considered most vulnerable at that time and make recommendations to the UK CMOs as to who should be added to the Shielded Patients List ("SPL"). Changes to that list were made only with the support of all UK CMOs.
- 8.72. In the context of the future of the shielding programme and possible growth of the group asked to shield, I provided advice to DHSC on 26 April (JH4/172 INQ000151804) and 29 April 2020 (JH4/173 INQ000151814). These documents both highlight the difficulties of maintaining clarity of the purpose and delineation of shielding for the CEV group across policy makers as well as the voluntary nature, and personal benefit, of its design and objective.

8.73. As the relaxation of NPI's began to be considered, there then needed to be consideration of the advice to be given to those shielding. I gave my view to DHSC on the matter on 4 May 2020 (JH4/174 – INQ000151824):

"My own proposal is that we should keep the original clinical vulnerable group (ie generally clinically vulnerable including the shielded group) within the group which SAGE identified and separate from the rest of the population. If the rate of implementation had stayed as originally envisaged the different groupings would be well understood by the public – it was because of growing evidence from Italy that we then responded rapidly to new data and moved the general population into a lockdown position almost as soon as the generally clinically vulnerable group were identified. In short we should put everyone back in their original risk groupings for this weekend. There may be new advice for the public at large but there is existing advice for the clinically identified groups, the criteria for inclusion for this group being under active review"

- 8.74. This process continued over the course of the month. On 24 May 2020, I advised DHSC on the need for caution when considering loosening the requirement for the clinically extremely vulnerable and those of 70 or over to shield. I noted for example the risks of someone having to isolate for a long period and "bubbling" (JH4/175 INQ000152001).
- 8.75. From 6 July 2020, with the changing epidemiology, advice to the CEV group was made less restrictive. I provided written clinical advice on more than ten occasions to inform and clarify the policy discussion with this decision summarised in a final recommendation (JH4/176 – INQ000203905):

"We have now received initial clinical advice from the DCMO that the incidence rate in the community is sufficiently low that advice for those in the CEV group to shield could be paused. The DCMO has advised that the CEV group could be advised to follow the same guidance as the clinically vulnerable (CV) group from the end of June, noting that it will be important to maintain the CEV cohort, even if advice is stepped down, to allow us to rapidly step up support again should this be needed in the future. There are likely to be significant associated psychological as well as physical impacts of a change in policy. It is therefore recommended to be managed gradually and with detailed clinical professional as well as patient and public communications."

- 8.76. Accordingly, the formal advice that they should pursue extensive restrictions on their daily lives was revisited (JH4/175 INQ000152001). In circumstances however where local prevalence of the disease remained high, a different approach needed to be taken. This was for instance the case in Leicester in the summer of 2020 (JH4/177 INQ000152493, JH4/178 INQ000152563).
- 8.77. On 29 July 2020, I responded to a request from DHSC regarding whether I supported maintaining the 'at risk' and 'clinically extremely vulnerable' categories in care home guidance despite the pausing of the shielding programme. I replied (JH4/337 INQ000152614):

"I am fully supportive of the policy team position for two reasons:

• Whilst the shielding advice will end for most in England on 31st July, this is a paused process. Therefore we should continue to recognise this group of vulnerable individuals in consideration for safe policy and operational developments

• In some areas eg Leicester, Luton etc where local lockdowns are in force this will remain relevant

It is very likely that there will be ongoing surges in community transmission across the country and potentially nationally again at a single point in time in the autumn/winter
This group remain highly vulnerable to Covid-19, particularly the very elderly, within a setting where we are still looking to fully explore and mitigate risks of transmission and therefore it is important that all appropriate steps in care should continue".

8.78. In the context of rising case rates in autumn 2020 and the prospect of a new national lockdown, consideration needed to be given to the approach of advising the CV and CEV groups. On 31 October 2020, I advised DHSC (JH4/179 – INQ000153080):

"We should not return people to fully restrictive shielding ie never leaving the house, given the known negative mental health impact, particularly given the extended periods of relative isolation we have reached through the pandemic to date

• We should however move to the Tier 3+ advice already drafted - which is effectively

the 'modern' form of shielding - and already signalled in existing advice and will in large part be being followed by the general public in any national intervention

• This includes the following provision:

• Those on the SPL [the Shielded Patients List] should stay at home at all times except for exercise or critical exit requirements (eg essential healthcare)

 Medicines delivery should be turned on to support staying at home for those who need it

• Food access arrangements should be supported through local community engagement delivery prioritisation, volunteers

 Those unable to work from home (current estimate c 62k should) should have access to SSP – this should be accessible through the digital portal already developed. The intervention is for a specified period and the assumption will be this ceases at the end of the 4 week period

 School children who are due to remain on the SPL indefinitely should NOT attend school (but there will be some detailed messaging required to ensure children due to leave the SPL are encouraged to stay in school)

 We should continue to rapidly include those additional groups already identified by the Clinical Panel at increased risk and not yet included in the SPL
 CKD5 and Downs. This work has been paused by CO but there is clinical agreement with NHSE that work should proceed apace on Monday unless other factors preclude this.

• In addition advice should be that those on the SPL do NOT provide childcare or other caring arrangements even though these are permitted more generally

Generally clinically vulnerable

• There is broad advice in the public domain for individuals to take extra care if they are elderly or have underlying health conditions – this covers large numbers of the population and all will be supported by the fact all will be required to work from home where they can

• SPI-M modelling was based on 70 + age groups as a key inflection point in risk rise and current advice reflects this. In reality age risk starts to rise in mid-life and varies by gender therefore the point at which advice is commenced cannot easily be isolated to a fixed period to encompass all increased risk •For simplicity and consistency in adherence in messaging I suggest we continue to use the70+ age cut off in existing guidance but ensure that it sits within a wider comms message that as one gets older risks increase, **this is particularly true for those in older age groups from 70+**"

- 8.79. On 20 November 2020, I provided advice to the Cabinet Office on shielding including during the Christmas period and the maintenance of consistent messaging between the four nations, which was strongly supported by all UK CMOs and their representatives on the Clinical Panel (JH4/180 INQ000153288).
- 8.80. When the vaccine rollout began in December 2020, the CEV group was deemed a highest priority group by JCVI and hence included in Phase 1 of the roll-out.
- 8.81. On 19 December 2020, I advised MHCLG, DHSC, HMT and the Cabinet Office on shielding in tier 4 areas (JH4/181 INQ000153507).
- 8.82. The CEV group was again advised to shield from 5 January 2021 due to significantly rising case numbers.
- 8.83. On 10 February 2021, I provided advice regarding the extension of the shielding advice until 31 March 2021 (JH4/182 INQ000153711):

"I am content to recommend that our current shielding advice time period should be extended to 31st March.

This reflects:

1. The reducing but continued high background community transmission rates of Covid-19

2. Our current very rudimentary understanding of vaccine effectiveness, particularly in some of the CEV groups

3. The ongoing pressures on NHS capacity, both from Covid-19 and additionally in recent days from support required due to winter pressures

As previously we do not want to extend this too far into the future without good reason given the important consideration of the impact on mental as well as physical health and infection risk."

- 8.84. This advice continued until 1 April 2021, when the shielding programme was paused and the CEV group were advised to follow the national restrictions alongside the rest of the population whilst taking certain extra precautions. From 19 July 2021, the CEV group were advised to follow the same guidance as everyone else. On 15 September 2021, the shielding programme was formally stood down; this was largely due to the success of the vaccine program. I and Sir Jonathan provided advice on this on 23 July 2021 (JH4/183 INQ000203914).
- 8.85. At this point, the final total identified cohort was 3.8 million, a rise from the c2.2 million originally identified through clinical routes, to incorporate utilisation of the intersectional risk scoring of the Q-Covid Risk Tool, a product described later in this document and developed with Oxford University early in the pandemic to support individual patient risk discussions with work overseen by myself and colleagues in OCMO.

Shielding and children

- 8.86. Although this issue will likely fall for detailed consideration in a later module, it is important to recognise that a cohort of children were considered on a precautionary basis to potentially fall within the clinically extremely vulnerable group which formed part of the original CEV cohort. It became clear after early review that the risk of serious disease or death in most children from COVID-19 infection at that time was very low.
- 8.87. In turn, the CEV child cohort was reviewed with RCPCH, the NHSE clinical director for children and other specialists, including from the four nations and it was agreed by the UK CMOs that only those with significant neuro developmental and other specific conditions needed to be advised to shield. These changes were communicated through both clinical and direct patient/carer routes and guidance for children to return to school for the autumn term 2020 clearly included all those previously identified on the SPL except where individual clinical advice had been received to continue shielding.

Involvement of UKHSA with the Shielding Programme

8.88. Around the same time as the establishment of UKHSA and through 2021, new evidence on individual clinical condition risks began to strengthen as well as evidence

of effectiveness of vaccines for many of those on the SPL, including those with significant immunosuppression. There was recognition within government that: (a) patient groups remained concerned about their own individual condition risk factors; (b) vaccine effectiveness and new treatment information would be critical both over time and with new product approval; and (c) that as had been evidenced in the original set up of the programme, complex communications across policy, NHS delivery, vaccine and therapeutics recommendations, priority testing access and epidemiological changes all benefitted from a mechanism of coordination.

- 8.89. In January 2022, the Government therefore established a new coordination programme, called the Enhanced Protection Programme (EPP), for which I was asked to resume a coordinating lead in my role as UKHSA CEO (JH4/184 INQ000287603). The purpose of the EPP was to ensure that cohorts of individuals at higher risk of serious illness from coronavirus (due to immunosuppression or a specific other medical condition), largely identified through the shielding programme, continued to be easily identified and received appropriate interventions, support and communication. To ensure oversight of the programme, a Clinical Coordination Oversight Group was established and ran across all relevant contributing organisations, with myself as chair, from 11 January 2022 to 19 April 2023. This work was broadly very similar to that which I had led on previously from April 2020 to September 2021 in my DCMO role.
- 8.90. As before, the various organisations' combined work was to ensure that cohorts of high risk individuals were identified for current and future clinical advice and, if appropriate, treatments and interventions. There was a process for reviewing inclusion criteria through NHSE specialist clinical reference groups and for ensuring wherever possible all communications were coordinated and a process for reviewing public health advice was agreed. A complimentary Coordination and Delivery Group was established with DHSC oversight but with contributions from those working in all the main contributory organisations.
- 8.91. The EPP was brought to a close in April 2023 with those with specific clinical conditions being managed through their own specialists and test and treatment systems in place for them to rapidly access antivirals. However, there was recognition that meetings for the CEV group representatives will be arranged for any significant changes in policy, with UKHSA oversight. The Oversight Group can be convened by any contributing organisation at any point where there is a need for wider action and/or policy

agreement to support those in the CEV group, both for COVID-19 but importantly for novel pathogens or significant relevant future health protection incidents.

Section 8.5: Social Distancing

- 8.92. As with many policy decisions and explorations, I provided advice as papers emerged or on request, often in combination with Sir Jonathan, OCMO colleagues or the various groups already described. For example, in March and April 2020 I provided advice on early draft social distancing guidance to try and ensure coherence of description and evidenced advice, in particular for the CEV and CV groups. The advice exhibited from 06 April 2020 served to merge two sets of guidance together, that which had previously been provided by PHE and that from the Cabinet Office (JH4/185 INQ000151725, JH4/186 INQ000151726, JH4/187 INQ000151727).
- 8.93. The purpose of social distancing measures was described well in advice which came from SAGE on 14 April 2020 (JH4/ 103 INQ000203990):

"There are two primary objectives of social distancing measures:

The first is to reduce "contacts" (these are not necessarily physical contact) that are the opportunities for transmission. The aim is to reduce their number, duration and proximity.

The second is to reduce the diversity of contacts, that is to minimise linkages between households and so break chains of transmission"

8.94. SAGE provided further guidance on social distancing measures on 6 May 2020 (JH4/189 – INQ000203981). The term "social distancing" came to encompass a whole suite of behaviours which were intended to further those aims above and included amongst other measures: i) the closure of venues; ii) maintenance of physical distance; and iii) restrictions on numbers of contracts. Below, I attempt to summarise some of the advice I and the wider OCMO gave in respect of some of the separate policy approaches which came to form part of the strategy of social distancing.

2m rule

8.95. The initial advice to adopt 2 metres of separation for the purpose of social distancing reflected the scientific understanding at that time of how COVID-19 transmission occurred. Initial understanding was that droplet spread would be a significant component of transmission. This was set out in SAGE advice dated 4 June 2020 (JH4/190 – INQ000120526):

"32. Risk of transmission varies in a continuous non-linear way with distance of separation and with duration of contact. Physical distancing is an important mitigation measure.

33. SAGE continues to advise at least 2*m* separation where possible, given the significant reduction in risk compared to shorter distances. Current evidence suggests that 1*m* separation carries 2 to 10 times the risk of 2*m* separation, though there remains significant uncertainty.

34. Given the continuum in risk, 2m separation should not be treated as an absolute rule, with greater distances presenting lower risk, and shorter distances presenting higher risk.

35. Other mitigations can reduce risk and should particularly be considered where it is necessary for people to be closer than 2m for a prolonged period, or where someone has multiple, frequent interactions with others at a shorter distance. Selection of measures should be tailored to the environment and activities.

36. SAGE endorsed the paper on transmission and mitigation measures"

8.96. The paper endorsed by SAGE stated (JH4/191 - INQ000192101):

"Physical distancing is an important mitigation measure (high confidence). Where a situation means that 2m face-to-face distancing cannot be achieved it is strongly recommended that additional mitigation measures including (but not limited to) face coverings and minimising duration of exposure are adopted (medium confidence).

• • •

There is a non-linear relation between the risk of transmission and distance of separation for face-to-face contact. Duration of this contact is also important with risk proportional to time. Given the uncertainties about transmission and dose-response it is not possible to say with certainty what a safe distance of separation is, but best current evidence suggests that 1m carries between 2 and 10 times the risk of 2m of separation.

Where it is necessary for people to be closer than 2m face-to-face for a prolonged period or where someone has multiple frequent interactions with others at shorter distance, additional measures will be required to disrupt close-range transmission"

- 8.97. On 5 June 2020, advice was provided to the Secretary of State for Health and Social Care on the next steps for social distancing policy with a particular focus on the 2m distance rule. Sir Jonathan and I discussed at some length and I supported the comments provided back on the draft submission (JH4/132 INQ000152132).
- 8.98. On 14 June 2020, the OCMO provided advice on the principles to consider when reviewing the need for 2m social distancing (JH4/192 INQ000069679). This was in response to growing demands over the summer of 2020 to reduce the required 2m distance in order to aid businesses.
- 8.99. In July 2020, a Cabinet Office review of the 2 metre rule proposed that where 2 metre separation was not 'viable', then 1 metre of distancing with additional risk mitigations should be used instead. The Cabinet Office considered that in the presence of additional mitigations, such as physical barriers, the risk at 1 metre could be reduced so as to be similar to that at 2 metres. I had previously advised DHSC and the Cabinet Office on this topic on 27 June 2020 in the following terms (JH4/193 INQ000152317):

"The guidance that has been coming through in the last couple of days keeps trying to change the 2m to 1m plus various interventions as a sort of optional alternative. That is not what has been agreed. It is only 1m in very limited strict circumstances (...) if there is the possibility of keeping the 2m and an event or service can still function than that is the default ie the wedding party needs to manage its size to fit into the building rather than the building needs to increase its risks of transmitting the virus to cram 30 people into a suitable space. The only place where this is likely to hit different directions is in direct relation to business profitability"

The Rule of Six

- 8.100. As with the examples of advice given above, I would provide input to colleagues in the OCMO, often following direct debate with Sir Jonathan, and this then informed the summary positions (JH4/121 INQ000152050). Where policy proposals or draft submissions were commented on, often one or other DCMO would take a lead reviewer role reflecting our previous familiarity with the scientific or clinical topic or the working relationships we had developed during the pandemic. Where time allowed, the other DCMO would review and add in additional relevant comments or none if in full agreement. If there was a specific area of concern or initial disagreement we would often set up a separate line of inquiry before finalising a consensus view, for example a rapid evidence review, discussion with specialist colleagues or similar.
- 8.101. On 28 May 2020, I provided advice to the Cabinet Office on the two options for social gatherings for which there was strong political advocacy and which were under consideration at that time. This was namely allowing either the mixing of two households or what would become known as the "Rule of Six" (JH4/194 INQ000152067). My comments included that:

"...the risk of transmission occurring in increasing group sizes is not a linear increase in risk. Where the increase is +1 or +2 the risk rises but is not too excessive in terms of overall changes in reproductive number (the absolute risk within the new group depends on prevalence of infection), but as this increase in group size get to >2 this very quickly approximates to the uncontrolled population mixing seen before current restrictions were imposed.

The actual effect of the policy will depend on how families (particularly large families) and individuals mix, and this is likely to vary by age, living arrangements, cultural norms etc"

8.102. The Rule of Six ultimately came into force on 14 September 2020. SAGE advice prior to that was that the number of households meeting was one of the biggest determinants of spread (JH4/195 – INQ000120554).

Restrictions on Mass Gatherings

- 8.103. The advice given by the OCMO on mass gatherings, including sports events, in early 2020 reflected that advice emanating from SAGE (see for example 4 February 2020 JH4/196 INQ000051925, 13 February 2020 JH4/197 INQ000106109, 27 February 2020 JH4/047 INQ000203874, 3 March 2020 JH4/198 INQ000061520, 5 March 2020 JH4/054 INQ000061521, 13 March 2020 JH4/199 INQ000236391).
- 8.104. The Inquiry has asked about comments I made in the media in early March 2020 that "the virus will not survive very long outside" and that "many outdoor events, particularly, are relatively safe". The Rule 9 letter does not identify the media source on which it relies but these comments were attributed to me in a BBC article dated 10 March 2020 which reported an earlier interview with BBC Breakfast. I have not been able to locate a recording of that interview. I would be happy to comment further on it if the Inquiry can provide a copy. What I can say is that I have been, and am, careful when giving advice to the public through the media. Any comments I would have made in March 2020 about outdoor events would have reflected the advice emanating from SAGE and my own understanding, discussed with colleagues, of the scientific evidence then available. It may assist the Inquiry if I set out what SAGE's advice was at the time.
 - i) On 27 February 2020, SAGE advised (JH4/047 INQ000203874):

"On large events, SAGE noted that alternative/replacement behaviours (e.g. going to the pub instead of a stadium) would pose comparable risk."

ii) On 3 March 2020, SAGE advised (JH4/198 - INQ000061520):

"There is currently no evidence that cancelling large events would be effective"

iii) On 5 March 2020, SAGE advice was (JH4/054 - INQ000061521):

"there is no evidence to suggest that banning very large gatherings would reduce transmission. Preventing all social interaction in public spaces, including restaurants and bars, would have an effect, but would be very difficult to implement"

- 8.105. In addition, there had been consideration at SAGE that the likely timeframe for SARS-CoV2 viruses to maintain viability in UV daylight was 3 to 4 minutes (JH4/111 INQ000151924) and this was also noted by SAGE at its meeting of 12 May 2020 (JH4/199A INQ000071110). It was, and still remains, our understanding that outdoor events were safer than indoor ones and that ventilation, natural or safe mechanical reduces transmission risks. This approach was used to lift lockdown periods in sequential safety steps through the pandemic e.g. exercising outside, outdoor gyms, meeting outside, eating outside and takeaways etc.
- 8.106. Following the introduction of the first lockdown, the issue of gatherings and social events arose again in the context of the planned relaxation of social distancing regulations due to come into force on 4 July 2020. These were important for daily life but challenging to consider and communicate. On 25 June 2020, I had discussions with DHSC who were working with other Government departments on a list of potential exceptions to the extant 30-person limit and who were keen to ascertain CMO/DCMO's views.
- 8.107. In my view, it was important for public support that any guidelines were rational and coherent to all using them. Many initial proposals did not feel logical or contradictions would emerge under close review. In many of these proposals, fitting a generic policy to an unspecified environmental context precluded the ability to specifically define levels of safe operation. For example, I set out below questions that DHSC put to me by email on proposed exceptions to the 30-person limit. My responses are set out in bold text below each query (they appear in red in the original document). One point I raised was to ask DHSC to clarify whether there was a definition of 'gathering' to ensure the public and the policy had a solid central reference point (JH4/200 INQ000269389, JH4/201 INQ000152313):

"• Communal worship in a place of worship. Where a life cycle event or ceremony (such as a baptism) takes place as a part of communal worship service, then only 30 people should be invited to the event as 'guests' of the family with whom the life cycle event is centred. Other worshippers taking part in the communal worship, but not 'guests' of the family won't be counted. The latest position seems to be that standalone ceremonies such as marriage and funerals will be limited to 30 people. This is where I get lost! The examples above this are all where we accept the participants will not be socially distanced. This one I think we are expecting they will be and they are both 'gatherings'? A lot of the safety depends on risks around supporting facilities available – eg toilets, transport etc. If you had a service or wedding in Westminster Abbey (and many other large churches) it would be perfectly safe with lots more than 30...

• Live performances in theatres and concert halls but make clear in relevant guidance that these should not happen at this point. However Cabinet Office are keen because having the exception in law would allow some piloting going forwards. Is this live cast or live cast plus live audience? If it is the cast only, is it a socially distanced gathering (as with two families inside a house or in their garden) or is it a nonsocially distanced gathering (as in the first examples above)? If it is a live audience are they socially distanced or not? At the moment I am working with DCMS on this agenda and my worst public health nightmare is musical theatre with a live audience, including orchestra with wind instruments in the pit, loud singers, half time drinks with insufficient seating and everyone going to the toilet in the interval. Short answer is, it depends."

8.108. The following day, on 26 June 2020, DHSC having reviewed my comments, provided clarification. I then advised (JH4/ 200 - INQ000269389):

"I think the problem now - from a public health risk management position – is the definition.

• A gathering is defined as "when two or more people are present together in the same place in order to engage in any form of social interaction with each other, or to undertake any other activity with each other"

Now I have the definition of a gathering, it is actually the social interaction part which is the problem. A close social interaction can result in transmission – but standing 2 metres away from someone, in most circumstances, will likely mitigate this – and that is of course what the Covid Secure recommendations are about.

• • •

3. The guidance is now so complex that it is likely the public generally will not adhere to it - either because they don't understand what they are allowed/supposed to do or because they think the public health risk has subsided with the lifting of regulations

...My own view is that it is now virtually irrelevant what is prescribed because the rules are falling over themselves. The place where it needs thinking through really carefully is the employment front. Implications are huge"

These issues applied similarly to comments I provided on high risk and other settings and demonstrated the complexity of delivering systematic guidance particularly when different government departments, initially at least, were independently developing guidance.

- 8.109. On 27 June 2020, DHSC circulated guidance on marriages and places of worship which I reviewed and advised on (JH4/203 – INQ000152315). I raised concerns about the clarity of this guidance and whether it was consistent with other guidance which was in force at that time.
- 8.110. Sir Jonathan had also advised on this question and on 28 June 2020, we were informed by the Cabinet Office that while our advice and recommendations on the places of worship guidance had been taken on board, not all our views had been accommodated. Sir Jonathan responded outlining some of our concerns in relation to the easements that had happened on 15 June and were planned for 4 July but where he also recognised the difficult decision making for Ministers including on the economy, which itself impacted health outcomes (JH4/204 INQ000152319):

"Your email below is clear that you cannot accommodate all the points that clinically we feel are best. There is an audit trail that we have tried, and history and no doubt enquiries (sic) will pick over the bones of the differences. What we can do is always block things that are outrageously unsafe. And point out inconsistencies that we think may later be a problem.

8.111. That same day, I confirmed I was in agreement with Sir Jonathan's concerns (JH4/205 – INQ000152320):

"I am JvT – and I also just want to highlight that the guidance as published to which you have referred Katie is about business viability.

I don't think either JvT or I have suggested otherwise in business settings.

We have applied what PM has said in the media – that 2m is still the rule wherever it can be managed, and we have also applied what this guidance says in supporting making businesses safe.

Where there are high risk contexts – such as religious congregations – where we have seen large numbers of people internationally become unwell and there is no economic viability element, then it is our responsibility to provide a strong scientific steer".

Section 8.6: The closure and opening of schools

8.112. The OCMO's advice on the necessity of restrictions on schools in England on 18 March 2020 reflected that of SAGE (JH4/084 – INQ000061525). From the outset, the importance of education to life chances for children was well recognised and earlier in 2020, SAGE had thought it may have been possible to achieve control of COVID-19 without the need to resort to school closures. As the strength of transmission became more apparent and health services were threatened with being overwhelmed however, the collective view changed. On 18 March 2020, the Government announced that most schools would be shut from 20 March 2020 other than for the children of key workers and vulnerable children (JH4/206 – INQ000203937). This was informed by the SAGE advice that day:

"2. SAGE advises that available evidence now supports implementing school closures on a national level as soon as practicable to prevent NHS intensive care capacity being exceeded."

8.113. I provided little direct advice on this topic at this early point in the COVID-19 response. I was however asked on 19 March 2020 to advise DHSC on the impact of the restrictions on social activities for children and their participation in sports (something which would quickly be overtaken by events in any case) (JH4/207 – INQ000048133). 8.114. I later provided advice to DHSC and PHE in respect of DfE guidance aimed at opening childcare and education settings. On 11 May 2020, I advised particularly on two issues (JH4/208 – INQ000151890):

"1. The description of the science relating to the risks to young children and the use of the word 'ill'. I think as drafted it gives the impression to parents/teachers that young children are less likely to get infected and that scientific evidence supports this. In fact SAGE (01/05/2010) notes that the susceptibility of younger (age up to 11-13) children to infection might be lower than for adults but with a low degree of confidence ie the evidence is not strong enough yet. Children definitely get less severe disease than adults and less susceptible to clinical disease (ie symptomatic disease) once infected. I have tried to provide some alternatives.

2. The issues of clinically extremely vulnerable children is under review but current policy remains that this group does exist in children and indeed they will all have received letters saying so. Therefore with respect I have reconfirmed this in the text"

8.115. In late May of 2020, I wrote to the National Association of Head Teachers regarding the risk to teachers in school to give background on a comment made at a technical panel (JH4/209 – INQ000151996):

"In relation to working in schools, it is currently not possible to predict a totally risk free environment for any community, occupational group or setting. The purpose of my comments was therefore to report any signals that could indicate a greater or lower risk using published data. The ONS data, which described deaths registered to 20th April 2020 in those aged 20 to 64 years, reported that death rates amongst those in the teaching and educational professions were lower than the national average and significantly lower than some other occupations. As discussed at the technical panel, these data utilise broad occupational categories which may not be specific to the teaching profession or an individual type of school setting. They were also reported from a period during which schools were closed. Nevertheless, due to the timeline in which serious illness develops, they would likely include deaths from any transmission occurring prior to school closure when circulating virus would be expected to be at much higher levels than we are seeing now. Therefore, it is true to say that there is no indication currently that the school setting is a greater risk than other settings and a possible signal that it may be safer"

- 8.116. On 24 May 2020, I provided further advice to DHSC on the guidance for the reopening of schools (JH4/210 INQ000152008).
- 8.117. On 3 June 2020, I provided advice to DHSC on using rotas in primary schools (JH4/211 INQ000152111, JH4/212 INQ000152112).
- 8.118. On 23 June 2020, SAGE advice noted the important health and educational benefits of children's in person attendance at school, the need to plan in advance for the reopening of schools in the autumn and the need to accommodate this within the broader context of the NPIs necessary to maintain control of the pandemic (JH4/137) INQ000061551):

"16. There may be a need to change measures at the end of the summer in order to be able to keep R below 1 whilst proceeding with the planned reopening of schools. Planning for safe full reopening should take place now and should take account of the health benefits of reopening schools as well as the educational benefits"

8.119. On 29 June 2020, Sir Jonathan and I advised DHSC regarding the schools guidance and in particular the return of pupils in September. I have set out some of my comments to DHSC (which are in bold) below (JH4/214 – INQ000152328):

"All classes back in September (and not optional for children to return);

•SAGE view was that the return of all year groups to full time education could move R above 1. This risk remains but is also contextual upon the background level of community infection (which continues to decline in most areas and is lower than when the last SAGE modelling was completed).

• Overall it was the wider social interactions in the older children groups which was a more critical infection risk than the formal return to school. This included elements where schools can exercise some heightened risk mitigation approaches eg with transport. There is no mention in the document yet of suggesting limited family/year group socialising out of school

•Full return to school needs to be managed as one of many elements of local

easing measures such as non retail premises opening ie it becomes 'unmodellable' once so many NPIs have been lifted

large (year group) bubbles;

•the proposal is to retain bubbles and year groups wherever possible.

The advice in the document is sound

• I am not aware of any relevant modelling for wider groups, ie together or in context with other easing – the nearest was the full return to school scenario in the original education task force work [which resulted in R >1]"

I also commented on proposals for transport to and from schools, children taking home testing kits with them and shared resources and social distancing and provided a summary view on planned guidance and actions for return to school as follows:

"OVERALL:

I am satisfied that DfE understand the hierarchy of risk mitigation well... The risk attached to full opening is I think now unquantifiable against the backdrop of wider easements and social interactions – there is a clear risk benefit equation in terms of children's longterm health and economic outcomes. Suggest therefore management of risk needs to be through robust local surveillance and outbreak response, and schools should be prepared through the recommended contingency planning to go back into local lockdown arrangements"

- 8.120. As the above made clear, the risk in schools could only be managed rather than completely eradicated. I provided advice on this to DHSC, also on the 30 June 2020 (JH4/215 – INQ000152337).
- 8.121. On 23 August 2020, the 4 UK CMOs wrote a joint letter to parents, teachers and others. This provided support for the reopening of schools in autumn 2020 and explained how we had reached that position. The decision was nevertheless, like all those made during COVID-19, one of balancing the risks and there was recognition of the likely contribution to an upward pressure on COVID-19 transmission from an epidemiological perspective. Our view at the time however was that the disadvantages to children and their families from them not being in school, assuming no major wave of COVID-19, were substantial and serious (JH4/216 INQ000070464):

"This is a consensus statement from the Chief Medical Officers and Deputy Chief Medical Officers of England, Scotland, Northern Ireland and Wales on the current evidence of risks and benefits to health from schools and childcare settings reopening. It takes into account UK and international studies, and summaries of the scientific literature from SAGE, the DELVE Group of the Royal Society, the Royal College of Paediatrics and Child Health, and data from the Office for National Statistics. The current global pandemic means that there are no risk-free options, but it is important that parents and teachers understand the balance of risks to achieve the best course of action for their children.

Children.

1) We are confident that multiple sources of evidence show that a lack of schooling increases inequalities, reduces the life chances of children and can exacerbate physical and mental health issues. School improves health, learning, socialisation and opportunities throughout the life course including employment. It has not been possible to reduce societal inequalities through the provision of home-based education alone. School attendance is very important for children and young people.

2) We are confident in the extensive evidence that there is an exceptionally small risk of children of primary or secondary school age dying from COVID-19. The infection fatality rate (proportion of those who are infected who die) for those aged 5-14 is estimated at 14 per million, lower than for most seasonal 'flu infections. Every death of a child is a tragedy but COVID-19 deaths in children and teenagers are fortunately extremely rare and almost all deaths are in children with significant pre-existing health conditions.

3) We are confident that there is clear evidence of a very low rate of severe disease in children of primary and secondary school ages compared to adults, even if they catch COVID-19. The percentage of symptomatic cases requiring hospitalisation is estimated to be 0.1% for children aged 0-9 and 0.3% among those aged 10-19, compared to a hospitalisation rate of over 4% in the UK for the general population. Most of these children make a rapid recovery.

4) We are confident that there is clear evidence from many studies that the great majority of children and teenagers who catch COVID-19 have mild symptoms, or no symptoms at all.

5) There is reasonable, but not yet conclusive, evidence that primary school age children have a significantly lower rate of infection than adults (they are less likely to catch it).

6) Evidence that older children and teenagers are at lower risk of catching COVID-19 is mixed. They are either less likely to catch COVID-19 than adults or have the same risk as adults.

7) Transmission of COVID-19 to children in schools does occur. On current evidence it is probably not a common route of transmission. It may be lower in primary age children than secondary age children.

8) Control measures such as hand and surface hygiene, cohorting to reduce number of daily contacts, and directional controls to reduce face to face contact, remain key elements of maintaining COVID-19 secure school environments and minimising risk.

9) Children and young people who were previously shielding were identified on a precautionary basis at a stage when we had less data on the effects of COVID-19 in children than we do now. Based on our better understanding of COVID-19 the great majority have now been advised they do not need to do so again, and that they should return to school. A small number of children under Paediatric care (such as recent transplant or very immunosuppressed children) have been or will be given individual advice about any ongoing need to avoid infection.

10) Our overall consensus is that compared to adults, children may have a lower risk of catching COVID-19 (lowest in younger children), definitely have a much lower rate of hospitalisation and severe disease, and an exceptionally low risk of dying from COVID-19. Very few, if any, children or teenagers will come to long term harm from COVID-19 due solely to attending school. This has to be set against a certainty of long term harm to many children and young people from not attending school.

Teachers, other school staff and parents.

11) Data from the UK (ONS) suggest teachers are not at increased risk of dying from COVID-19 compared to the general working age population. ONS data identifies teaching as a lower risk profession (no profession is zero risk). International data support this.

12) Transmission of COVID-19 to staff members in school does occur, and data from UK and international studies suggest it may largely be staff to staff (like other workplaces) rather than pupil to staff. This reinforces the need to maintain social

distancing and good infection control inside and outside classroom settings, particularly between staff members and between older children and adults.

13) If teachers, other school staff, parents or wider family catch COVID-19 their risks of severe illness are similar to those of other adults of the same age, ethnicity and health status. Younger adults have a much lower risk of severe COVID-19 than older adults. The greatest risk is to those over 80 years old.

14) Current international evidence suggests transmission of COVID-19 from children of school age to parents or other adult family members is relatively rare compared to transmission from adults, but this evidence is weak. Teenagers may be more likely to transmit to adults than younger children.

15) Children and young people should be engaged in the process of establishing COVID-19 secure measures as key participants and promoters of safe communities to help protect their wider families, teachers and other school staff and other social networks. This will help reduce the risk of school outbreaks.

Impact of opening schools on wider transmission (R).

16) Because schools connect households it is likely opening schools will put some upward pressure on transmission more widely and therefore increase R. We have confidence in the current evidence that schools are much less important in the transmission of COVID-19 than for influenza or some other respiratory infections. Other work and social environments also increase risk and are likely to be more important for transmission of COVID-19.

17) The international real world evidence suggests that reopening of schools has usually not been followed by a surge of COVID-19 in a timescale that implies schools are the principal reason for the surge. There has however not been sufficient time to say this with confidence.

18) On the other hand, a local or national surge in transmission in the community may lead to an increased risk of school outbreaks occurring.

19) Opening schools may be as important in linking households indirectly as through direct transmission in school. For example allowing parents to go back to work, or meeting at the school gates, on public transport or in shared private vehicles, via after school social or sport activities or wrap around care may be as important as what happens within the school.
20) It is possible that opening schools will provide enough upward pressure on R that it goes above 1 having previously been below it, at least in some local areas. This will require local action and could mean societal choices that weigh up the implications of imposing limitations on different parts of the community and the economy.

21) Early identification and quickly managing outbreaks of COVID-19 in schools is essential as part of a local response to COVID-19. Clear advice for pupils and staff not to attend school with symptoms, and prompt availability of testing, appropriate isolation advice, and careful public health surveillance and monitoring of educational establishments are key to support the safe return to schools."

8.122. On 22 December 2020, SAGE considered a paper prepared by the Children's Task and Finish Group (a sub-group of SAGE). This stated (17 December 2020 - JH4/217 – INQ000074951):

"Overall, accumulating evidence is consistent with increased transmission occurring amongst school children when schools are open, particularly in children of secondary school age (high confidence): multiple data sources show a reduction in transmission in children following schools closing for half term, and transmission rates increasing again following the post-half term return to school (medium confidence). It is difficult to quantify the size of this effect, and it remains difficult to quantify the level of transmission taking place specifically within schools compared to other settings."

- 8.123. On 4 January 2021, the Prime Minister announced that schools would again be closed from 5 January 2021 except for vulnerable children and children of key workers (JH4/219 – INQ000236451). Schools remained closed until 8 March 2021 when they reopened as part of Step One of the Government's Roadmap (JH4/220 – INQ000236452, JH4/221 – INQ000236453).
- 8.124. Overall, it seems clear from the above that:
 - the wider negative impacts in terms of mental health and wellbeing and reduction in life chances which run in parallel with school closures was understood and actively considered;

- the importance of inequalities whether in terms of longer term outcomes, or in balancing risk for example by ensuring vulnerable children continued to attend schools, was promoted and solutions sought; and
- the restrictions on school attendance were implemented only when there was a genuine and calculable risk of the NHS becoming overwhelmed, thereby creating significantly greater risk to life than COVID-19 alone.

Section 8.7: The use of face-coverings

- 8.125. The advice provided by the OCMO on the use of face-coverings throughout the pandemic reflected the scientific understanding at any given time. The initial position was that outside healthcare settings, the use of face-coverings for individuals who did not have COVID-19 in community settings was unlikely to have a significant impact and was not recommended (see position of NERTAG on 3 February 2020 (JH4/223 INQ000047818); SAGE on 4 February 2020 (JH4/196 INQ000051925) and on 9 April 2020 (JH4/224 INQ000068781)). In the latter minutes, SAGE observed, "WHO has concluded there is currently no conclusive evidence that facemasks are beneficial for community use".
- 8.126. Later in the pandemic, as the transmission characteristics of the virus became better understood and stronger evidence of asymptomatic transmission emerged, there was a growing emphasis on the use of face-coverings as a precautionary tool by which to potentially reduce COVID-19 transmission in the community. The evidence base for their use in community settings was, and still is to some degree, uncertain. The detail of the evolution in this position is set out in the technical report at page 244 (JH4/222 INQ000203933).
- 8.127. The position of the OCMO therefore reflected the views of most other experts at this stage, including the WHO, as well as the difficulties of obtaining a robust evidence base for use in community settings which, in contrast to health and care settings, is the focus of my response here.
- 8.128. These difficulties arose in part due to the variation in both the description and definition of the intervention (i.e. both the composition of a 'face covering' and the cohort to whom it has been applied, as well as the rationale for use as a hazard source control

mechanism or as a protective wearer option) but also the combination of interventions used at the same time e.g. social distancing rules, media and social media communications and epidemiological notifications. The relative effects of each of these interventions was difficult to establish. There was additional uncertainty regarding behavioural approaches to mask wearing, ranging from appropriate handling techniques to perceptions that mask wearing may be perceived as an alternative to self-isolation.

- 8.129. An important concern was the availability of PPE at this time. Put simply, any precautionary advice to the population at large to wear facemasks which was given with low confidence of existing evidential benefit, risked taking stocks of PPE away from those in healthcare settings and in whom we knew it to be of real value in reducing transmission and subsequent nosocomial infection. This was of particular concern in those first few months of the pandemic when PPE supplies were severely constrained amidst unprecedented global demand. I had raised this in advice I provided to PHE and DHSC on 3 April 2020 where I made the point that we needed not only to await the WHO's conclusion on community use of face coverings but also to consider the effectiveness of facemasks in the UK context (JH4/225 INQ000151707).
- 8.130. It may assist the Inquiry to show the progression of advice over time.
- 8.131. Over the course of April 2020, SAGE's view remained that the evidence base for the use of facemasks by the general population was weak (see SAGE minutes of 14, 16 and 21 April 2020 (JH4/226 INQ000061533, JH4/227 INQ000075780, JH4/228 INQ000074918, JH4/229 INQ000062295). SAGE's position was that: the use of facemasks in the community would be "marginally positive" at most; if increased use of facemasks in the community threatened the stocks available to healthcare, social care or other high-risk environments then there "would be a net increase in risk in public health terms"; and there would be a need for public guidance on the design construction, use, cleaning and disposal of masks.
- 8.132. On 23 April 2020, the OCMO sent a document from the CMO summarising the advice on facemasks to the Secretary of State for Health and Social Care. It reflected the SAGE advice at the time and I agreed with its content (JH4/230 – INQ000068922).
- 8.133. As I have explained, there were concerns at this time about the sustainability of our PPE supplies and the broader PPE supply chain, both domestically and internationally.

Accordingly, DHSC subsequently provided guidance on how to make and wear cloth face coverings which would aim to provide some of the benefits of a face-covering without distracting from formal PPE stocks. I provided practical comments on a draft of this guidance on 8 May 2020 but was of the opinion that a homemade cloth face covering was unlikely to be effective in reducing the transmission of the virus (JH4/231 – INQ000069151). This was based on early evidence available at the start of the pandemic suggesting multi-layer fabric coverings were of greater effectiveness and variations in composition were subsequently proactively explored in more detail in later stages of the pandemic. This view on mask composition was reiterated later by Sir Jonathan.

- 8.134. That same day, I provided advice on the guidance document 'Staying Safe Outside Your Home'. I noted for consistency and clarity that the document now suggested people were expected to wear a face-covering unless they were unable to do so. I also had concerns that the guidance did not specifically recognise within its listed exemptions that there would be individuals who could not wear masks for psychological reasons, potentially exacerbating mental health issues (JH4/232 – INQ000151859).
- 8.135. On 1 June 2020, Sir Jonathan and I were asked to advise rapidly on the proposal for mandatory wearing of face coverings on public transport. I advised that the certainty of evidence around masks was low but that a new currently embargoed study which included a systematic analysis of the effectiveness of face coverings and which I had seen showed a potential small benefit in some situations (JH4/233 INQ000152097). That study was published in the Lancet shortly after and Sir Jonathan and I reviewed it so as to provide a joint DCMO view to policy colleagues (JH4/234 INQ000069516). We observed that the evidence base was still weak and that while top grade respiratory facial protection is effective for SARS type viruses, the masks being used by the UK public offered much poorer protection. While there was no harm in requiring the use of facemasks on public transport, that should not be used as an excuse to abandon or lessen social distancing on public transport, which remained the overriding protective factor.
- 8.136. On 5 June 2020, while noting "the widespread use of masks by healthy people in the community setting is not yet supported by high quality or direct scientific evidence", the WHO updated its guidance on the use of facemasks advising that "that to prevent"

COVID-19 transmission effectively in areas of community transmission, governments should encourage the general public to wear masks in specific situations and settings as part of a comprehensive approach to suppress SARS-CoV-2 transmission". (JH4/235 – INQ000229307). This was without any known additional evidence sources.

- 8.137. On 26 June 2020, I commented on a draft DHSC submission in relation to wider risk issues focused on employment but which included consideration of settings perceived as high-risk, and which included reference to the consistency and logic of face covering advice (JH4/236 INQ000152311). On 14 July 2020, I commented on the Cabinet Office's updated guidance on face coverings (JH4/237 INQ000152497).
- 8.138. On 16 July 2020, when the first lockdown had been lifted, the OCMO's view on the use of face coverings was summarised as follows (JH4/238 – INQ000070114):

"Now that the lockdown has been lifted, there are likely to be increased interhousehold interactions across a multitude of quite varied settings. Face coverings have been recommended/mandated on public transport and in shops, and this is the time to establish a collective view on the use of face coverings as a public health intervention in a broad range of settings where others may seek advice now and in the future.

The evidence remains broadly the same (weak) but it is logical that potential benefits will be greatest in confined indoor spaces, where ventilation is likely to be lower than outdoors and where social distancing is difficult to maintain; in these settings face coverings are, on balance, more likely than not to be helpful in further reducing transmission and should be worn.

We cannot provide advice for every setting as the variables of indoors area within sectors can widely vary but the principle is as stated above.

This is different to outdoor areas where the case for face coverings is considerably less strong; in these circumstances they can be considered on an exceptional basis setting by setting, for example when social distancing rules are likely to be breached alongside excessive or prolonged shouting.

Whether advice should be mandated or through guidance is a political judgement"

8.139. On 2 September 2020, I summarised my position on face coverings for the Cabinet Office who were seeking to align the advice for higher education with that given to schools and offices. I noted that whilst the direct scientific evidence base for face coverings had not changed significantly, our understanding of SARS CoV2 asymptomatic and presymptomatic infection, singing research, environmental dynamics and the recognition of small droplets as one part of a continuum of potential aerosol transmission all indicated that a stock take of government guidance in this area would be useful (because of the need to ensure that advice to the public on face coverings did not conflict with advice on, for example, social distancing). I was mindful that, with winter approaching, people would be spending more time indoors in less well ventilated conditions. I also noted that there were political decisions to make in terms of balancing various risks (JH4/239 – INQ000152749).

Section 8.8: Borders

Early border measures

- 8.140. As I have previously stated, I was not significantly involved in the OCMO's initial COVID-19 response in January 2020. Accordingly, I had little involvement in the consideration of border measures at this time.
- 8.141. From previous work I was however aware of some of the difficulties of managing border controls and sensitivities on a global basis in line with the existing responsibilities of Member States under the International Health Regulations (IHR 2005). I was also cognisant of the importance of supporting and informing those working on the front line and between borders for example Border Force staff, health protection teams, import controllers, medical teams at airports, airline operators and airport operators as well as travellers themselves. I was aware that the WHO advice at the time was that border closures would not be an effective tool to contain the spread of COVID-19, certainly once it had begun to transmit widely outside China.
- 8.142. On 3 February 2020, SAGE considered travel restrictions. They noted the following (JH4/247 INQ000203939):

"1. On the expected impact of travel restrictions, SAGE estimates – with limited data – that if the UK reduces imported infections by 50%, this would maybe delay the onset

of any epidemic in the UK by about 5 days; 75% would maybe buy 10 additional days; 90% maybe buys 15 additional days; 95%+ maybe buys a month.

17. Gaining 5 to 10 days of extra time for the NHS and wider HMG to prepare for a WN-CoV epidemic would be of limited value.

. . .

20. Ongoing transmission of WN-CoV in other countries would negate the effectiveness of travel restrictions on passengers coming directly from China – as might other international travel restrictions which force travellers from China to use alternative means or routes to travel"

- 8.143. Also on 3 February 2020, a SPI-M-O paper to SAGE estimated that based on current information from China, the average delay to the arrival of COVID-19 in the UK resulting from a 90% reduction in travel from China would be only up to two weeks (JH4/248 INQ000051882).
- 8.144. On 8 March 2020, along with Sir Jonathan, I advised DHSC on the use of temperature checks for people arriving from Italy. Sir Jonathan advised that given the short flight of 2-3 hours, and COVID-19's incubation period, almost all cases would be missed by such checks. I followed up on the email and provided corroboratory advice on the use of temperature 'screening' at ports of entry for Ebola.
- 8.145. By 23 March 2020, once there was widespread domestic transmission, SAGE concluded that the numbers of cases arriving from other countries were estimated to be insignificant in comparison with domestic cases, comprising approximately 0.5% of the total (JH4/091 INQ000129072).
- 8.146. On 20 April 2020, I provided advice to DHSC on a document produced by the Home Office regarding border measures. On the topic of medical certification, I noted (JH4/249 – INQ000068877):

"this sentence (unlike subsequent comments) suggests passengers will arrive with some sort of prepared medical certificate. This would require us/BF/other border staff to be fully assured which certificates from which countries with which results were acceptable. Forged documents would be likely. The UK may well not have detailed understanding of the comparable quality of PCR testing applied in other countries."

I reiterated my advice on the effectiveness of temperature check methodology and instruments at ports of entry as described above.

8.147. I had previously advised DHSC on the same Home Office paper the day before, and had summarised my views as follows (JH4/250 – INQ000151760, JH4/251 – INQ000151761):

"• There is persistent use of the word screening without any definition of what it is, and with comments it can be added to. I think we need to be really clear what we are talking about:

 Temperature check – will do little and needs a whole stream of legal acceptability etc about declaring use of anti-pyrexials

◦ GAD⁵ – these are routine practice. Nothing new. Aircraft should use them anyway

 Information provision – very good. Evidence it works from ebola in getting people to access healthcare safely and early

•Quarantining probably has benefit but is a major undertaking. However it is being lumped with screening and I am not clear why. Auto quarantining is what I think NZ and others are doing and this is not being specified separately. I think we should completely separate screening from quarantining as an intervention

•There is no mention of capacity/resource to do any of these interventions at borders. It is very limited, and in some cases the border is actually not in the UK eg for eurorail it is in France

•We have hit problems of racial discrimination before

•many of the risk countries will be those where we have unreliable data so we would have to appear to act on 'no evidence' against a country

• The start stop points for any intervention need to be very clear before implementation – and particularly considered in terms of precedents for any future international outbreaks of disease"

⁵ General Declaration: a declaration by a flight prior to landing in the UK as to whether they have any sick passengers on board, their numbers and the nature of their illness (amongst other things). It is a usual air safety precaution and was not a new intervention for the control of COVID-19

- 8.148. On 21 April 2020, I advised DHSC on a further draft noting the importance of clarity of the purpose, effectiveness, resource requirements and legal implications of any proposed interventions and in particular on screening including by using temperature checks (which I observed were fraught with problems) and self-validation (including that a negative test caried out in another country might not be considered sufficiently robust for the UK) (JH4/252 – INQ000151767).
- 8.149. Sir Jonathan and I provided further comments on the same topics on 26 April 2020, including on temperature checks, workforce capacity and the handling of transit passengers (JH4/253 INQ000151795, JH4/254 INQ000151796).
- 8.150. Following consideration of a paper from the Home Office commissioned by their CSA Professor Sir John Aston, which contained questions on borders, on 28 April 2020 SAGE advised (JH4/255 – INQ000053212):

"30. As the number of cases in the UK decreases, the potential proportion of imported cases may increase. It is possible to estimate the number of cases which may be imported and their proportion of the total.

31. Determining a tolerable level of risk from imported cases requires consideration of a number of non-science factors and is a policy question.

32. Measures implemented at the border may change the level of risk and these will be reviewed"

8.151. On 9 May 2020, the UK CMOs jointly laid out some general principles on border measures set out below. I contributed to this agreed position (JH4/256 – INQ000203899):

"1) Imported cases matter most when the UK has a low level of infection. When domestic transmission is very high imported cases are such a small amount of total that they are make no significant difference to the epidemic. As the UK moves to situation where local incidence and prevalence is much lower, imported cases could become a higher proportion of the overall number of infections and so preventing them can have some benefit. This is a gradual process, so there is not a 'threshold'. It is however the case that once rates of domestic transmission are low it is potentially a material issue. 2) That benefit only exists to a significant degree when people are coming in from a country with a higher rate of infection (chance of being infected) than the UK, and so the person being asked to self-isolate has a higher probability that they have the disease than the UK population, therefore adding to the risk. Quarantining for 14 days those people who come from a country with a higher rate than the UK may have a useful impact on the epidemic once the UK is at low levels, but quarantining those from countries with a lower rate than the UK will not.

3) However, quarantining is not only, or even mostly, about the epidemiology at this stage of the COVID-19 epidemic. Wider public confidence in the response, impact on travel and trade among other issues should be considered when making policy on quarantining at the border and may be more important in policy terms. This is not for the UK CMO's to offer advice on, as it is not where their expertise lies. Points 1) and 2) they are agreed on"

Border measures from June 2020 onwards

- 8.152. At this point, consideration was being given in Government as to whether to introduce a 14-day period of self-isolation alongside the collection of contact tracing details for incoming travellers to the UK. The advice of the OCMO, as summarised in the UK CMO's statement of 9 May 2020, was that imported cases mattered most when the UK had a low level of infection relative to the levels in countries from which the travellers originated. Conversely, when domestic transmission was very high, the contribution of imported cases to the total was usually so small that it made no significant difference to the course of the pandemic in the UK. There was however the potential for benefit in preventing imported cases from summer 2020 onwards, once the first lockdown had reduced the UK domestic prevalence of COVID-19 to low levels. This reflected the advice from SAGE.
- 8.153. A policy of travel corridors was introduced from early June 2020. The JBC led the data and evidence collation for this policy, including developing the technical aspects and thresholds for countries to be categorised on what became a "red", "amber" or "green" basis. The broad principles underlying the system had been agreed by all 4 UK CMOs prior to this. The challenges of defining a robust system were summarised well by the JBC in their June 2020 paper, which is set out below (JH4/257 INQ000236410):

"The current blanket approach to mandatory self-isolation is currently justified on the basis that (a) it is difficult to ascertain with confidence the risk levels in certain countries; for example a country with high levels of disease will in fact report low incidence and prevalence if there is inadequate testing capacity or limited access to testing; (b) risk levels may vary as incidence/prevalence changes within a country, but reporting may be lagged by several weeks; and (c) international travellers may have visited higher risk countries during the incubation period, before or after travelling from a low risk country in which they are ordinarily resident. As requested by the PM, we are now developing an approach stratified by the public health risks posed. However implementation risks, particularly linked to confidence in incidence/prevalence reporting and compliance, remain inherent in any risk-stratified approach.

The CMO has advised that there is limited public health rationale to require people to self-isolate when they arrive from countries which have a lower incidence of coronavirus than the UK.

We would also need to have confidence in their testing capacity, accessibility and the credibility of incidence reporting. The DCMO has advised that once UK incidence is low, there is a clear public health rationale to require international arrivals from countries with a higher incidence of coronavirus than the UK to self-isolate on arrival, including where the reported incidence is low but we have little confidence in the reliability of reporting or the country's disease trajectory is rapidly escalating. This is especially true if traveller arrival volumes from those countries is high"

8.154. On 9 June 2020, based on my experience of Zika and in response to JBC colleagues,
 I was able to provide some general comments on this approach (JH4/258 – INQ000152142):

"This approach to application of an epidemiologically assessed risk based approach to country definition is almost identical to that applied through the PHE emerging infections unit for zika. There are problems with data and reporting reliability as you have outlined and they also hold/can acquire much soft information on country risk. The follow on issue to this which may affect FCO and transport interactions will be the size of the area you are designating at risk – I would recommend you consider **whether**

you wish to use country or area in your terminology and how you define either. An example for zika was that one square mile of Florida was a high risk zone but the rest of the USA was not – it will likely cause problems in subsequent policy if not considered now"

8.155. Once the JBC methodology was established and linked to additional PHE information streams, consideration of the international data and decisions on border epidemiology recommendations was largely added into existing decision making groups such as silver and gold meetings within DHSC and then onwards through COVID-M/O and MIGs. Therefore, my input was largely to review data interpretation or to contribute to these meetings as and when required. Other ongoing streams of review and advice were linked to various testing options for border controls throughout the pandemic including types of test to be used, to whom they applied, what evidence was permissible and, in due course once vaccines had been introduced, which vaccines were acceptable to provide various exclusions from the need to test and/or isolate. Many of these considerations came after I had moved to UKHSA but as an example, I provided advice on 11 January 2021 on the guidance document "Coronavirus (COVID-19): testing for people travelling to England" (JH4/259 – INQ000072429, JH4/260 – INQ000072430). I anticipate there will be further consideration of these latter points in the testing module.

Section 8.9: Eat Out to Help Out

- 8.156. The Inquiry has asked what advice I provided in relation to the Government's "Eat Out to Help Out" scheme. I did not offer any advice on this matter prior to its launch, nor am I aware that any was sought from OCMO. My recollection is that the first time I became aware of the scheme was when it was announced publicly. It is uncontroversial to say that there was tension between a policy which encouraged people to meet up and socialise and other policies which aimed to decrease the frequency of their interactions so as to reduce opportunities for COVID-19 to spread.
- 8.157. Once a policy was decided, including this one, any advice I then provided would be to minimise the public health risk and maximise the coherence and clarity of public health communications, whether in written guidance or verbally through media or other direct interactions. Throughout the pandemic there was a need to continue to advise on

recognised associated transmission risks of settings with purely social interactions – for example the potential for alcohol to reduce compliance with social distancing measures, the additional risks of social venues beyond their primary purpose (e.g. music venues with singing within restaurants and pubs) and the opportunities for mitigating some risks by using simple measures such as central table collection points, distancing and eating outside etc. It was also an important consideration that those in poorer socio-economic groups, young adults and those with lower incomes are disproportionately represented in the leisure, hospitality and catering industries.

Section 9: Care Homes

Chronology of key advice

- 9.1. As with sections 7 and 8 above, what follows is intended to illustrate the key advice given by myself in respect of care homes in response to the specific asks of me in the Rule 9. I anticipate however that further questions may be received in the subsequent module on the care sector that will examine these issues in more detail. I anticipate that the Inquiry will be seeking evidence of topic discussions, timelines and publications from all SAGE subgroups including the SCWG. I have therefore highlighted only those of most relevance to my personal response.
- 9.2. As necessary, I include below instances of advice given by other individuals in the OCMO, as well as the scientific foundation for our views, in particular the advice we received from SAGE. As previously, I have been assisted in my preparation by the identification of pertinent documents by the OCMO.
- 9.3. As a preliminary observation, it appeared to me in the early phase of the pandemic that few people in DHSC had direct or practical experience of having worked in or with care homes, commissioning care home services, understanding the local connections for care emergency response (e.g. Local Resilience Forums, LAs, DsPH) or the routine support they might expect from local systems (e.g. Health Protection teams in LAs or PHE). I was also aware that there were no equivalent extant relevant data flows for monitoring the progress and response to a pandemic in the same way as could be found in the acute and community health sector. Having had personal experience in most of these areas and recognising that the elderly population cohort was reported in

early data from China to be particularly vulnerable, I proactively joined meetings with DHSC adult social care colleagues to support early discussions where possible and appropriate.

- 9.4. Once systems had been established for systematic input from PHE technical colleagues and for data flows to support DHSC decision making I provided a less direct role. The following discussions reflect some of the relevant inputs.
- 9.5. On 14 February 2020, after being asked to support the discussions on adult social care planning in the reasonable worst case scenario, I contacted colleagues at NHSE to request further information on their pandemic preparations and how these would interact with the adult social care sector (JH4/028 INQ000151466).
- 9.6. On 18 February 2020, I attended a meeting at which the urgent need to develop guidance and a RWCS for the adult social care sector was discussed. This involved further consideration as to the impact on adult social care should NHS pressures become so great that patients needed to be moved into community settings in order to relieve pressure on acute hospital beds (JH4/261 INQ000151491).
- 9.7. On 25 February 2020, guidance for social or community care and residential settings was published (JH4/262 INQ000223341). On 3 March 2020, I emailed colleagues at PHE to highlight developments around a planned assurance process for social care resilience within the LRF organisational structures. I had requested and obtained support for a PHE regional director ("RDPH") representative with the right experience and background to join LA CEOs, Directors of Adult Social Services ("DASSs") and integrated care system representatives with support from the Association of Directors of Public Health ("ADsPH"). The intention was to proactively ensure alignment across the health, public health and social care interface (JH4/263 INQ000151531).
- 9.8. On 9 March 2020, I had a meeting with colleagues at PHE in respect of new guidance for social care settings and provided comments on it (JH4/264 INQ000151562). I provided further input on that guidance on 12 March 2020 (JH4/070 INQ000151578, JH4/071 INQ000151579). On 13 March 2020, the February guidance on social or community care and residential settings was superseded by the guidance on COVID-19: residential care, supported living and home care (JH4/265 INQ000237430).

- 9.9. On 16 March 2020, when case numbers were rising acutely one week ahead of the first lockdown, I was contacted by colleagues at DHSC regarding the potential future management of those in care homes who were elderly and likely to fall within the clinically vulnerable or shielding policy. This was because it was likely that, to maintain hospital capacity effectively, less acutely ill patients would need to be returned to their usual residential settings, including care homes where relevant (as noted at paragraph 9.6 above). DHSC's working assumption was that appropriate discharges would require strict infection control once patients were transferred from the NHS. In response, I confirmed my understanding of this approach to manage overall clinical risk and capacity, being aware of the exponential rise in COVID-19 cases in the UK and having observed the early experience in Northern Italy and other countries where care demand had been overwhelmed (JH4/080 INQ000151606).
- 9.10. On 1 April 2020, I provided my comments to DHSC on a "dear colleague" letter being drafted to go from the Secretary of State for Health to MPs to update on emergency response preparations. The content was centered on the acute health sector. Amongst other comments, I flagged both the omission in the draft, and the critical importance, of ensuring that care staff and the criticality of their work to the nation's response was recognised in all correspondence, planning and announcements (JH4/266 INQ000151693, JH4/267 INQ000151694).

I noted in my response:

"The out of hospital care sector, whether in care homes or domiciliary, will be critical in stopping patients appropriately going into hospital and supporting rapid discharge when acute bed capacity is critical. The two [workforces] are inextricably linked but we alienate one very regularly."

9.11. On 2 April 2020, working directly with PHE, I reviewed and advised on the isolation period in care homes and whether it should be required for 7 or 14 days (JH4/268 – INQ000151702, JH4/269 – INQ000151703):

"The agreed position is as follows:

- * The 7 days isolation period will normally apply but
- * The elderly and care home setting is a particularly vulnerable group of patients and

the setting at higher risk of onward transmission and severe disease

* And the elderly immune response may differ from younger normally healthier individuals therefore

* A 14 day period of isolation (either when discharged well or to complete a period of isolation).

9.12. On 4 April 2020, I had a conversation with the Minister for Social Care in which the issue of hospital discharges to care homes was discussed as well as the potential for nosocomial infection within the care home environment. Following this, I made enquiries with DHSC, GO-Science and the NHS about whether the SAGE nosocomial subgroup was already considering the care sector specifically or was planning to do so. The GCSA replied confirming the intention was to consider care homes and other healthcare settings outside hospital. Following focused proactive research to try to better understand the prevalence of infection in care homes, PHE reported the initial results (at the NERVTAG meeting of 24 April 2020) on what was subsequently known as the 'Easter six' study (JH4/270 – INQ000120161):

"swabs were taken in six care homes in London over the Easter weekend. All residents and staff were sampled and a total of approximately 500 swabs were collected. The six care homes were at different stages of outbreak. One of the homes had only identified two cases and had very few symptomatics. It was found that 75% of the residents carried the virus and only 25-33% were symptomatic. Approximately 45% of the healthcare workers were also carrying the virus, with 25-33% symptomatic."

9.13. Of importance was the fact that while symptomatic staff were self-isolating, they were being replaced by bank staff who moved between care homes. This initial investigation provided an early insight into the characteristics of care home outbreaks and interventions which were subsequently explored in much more detail in the Vivaldi research study, a joint programme of work between UCL, PHE/UKHSA and other investigators with the principal investigator subsequently reporting findings directly into the Social Care Working Group (JH4/270A – INQ000298953).

- 9.14. On 21 May 2020, I reviewed and provided comments to DHSC on guidance for the admission and care of people in care homes (JH4/271 INQ000151981, JH4/272 INQ000151982).
- 9.15. On 4 June 2020, I provided further input on the updated admissions to care homes guidance and, in particular, reviewing the definition of an 'outbreak' in a care home and the relevant practical response. At the time, a single COVID-19 case triggered an outbreak response given the vulnerability of the population, as opposed to a more usual definition for other diseases of two or more confirmed cases connected in time place and person. I supported this enhanced approach (JH4/273 INQ000152122).
- 9.16. On 8 June 2020, I was informed that PHE had reviewed their definition of 'outbreak' in light of my comments but had decided to adopt the standard epidemiological definition. However, they specified that practical outbreak management measures would still be undertaken if there was one confirmed case given the risk of spread in care homes. Single laboratory confirmed cases would be reported as incidents and two or more clinically suspected or laboratory confirmed cases would be recorded as an outbreak. Any suspected case was still to be reported to the local health protection team (JH4/274 INQ000069606).
- 9.17. On 14 June 2020, I advised DHSC on the updated care homes visiting guidance and, in particular, on the proposal to amend regulations to facilitate care home visits in exceptional circumstances. This approach facilitated locally delegated decision making on whether to support care home visits in exceptional circumstances, a decision which also allowed more individualised approaches to particular residents for improved overall wellbeing, for example those with dementia. I sought agreement from DsPH before supporting these changes which included some oversight from themselves, the PHE Local Health Protection Teams and/or the Clinical Commissioning Group Infection Prevention and Control lead in order to be implemented safely. I informed the CMO that I supported this and he concurred (JH4/275 INQ000069682).
- 9.18. On 16 June 2020, I provided DHSC with my views on a draft submission on care homes visits policy and reiterated (JH4/276 INQ000152202):

"I think we should make it really clear to care homes that the 'relaxation' is the

exception not the rule. Ie they need to have a really good logic, with full RA⁶, each time it is relaxed rather than that there should be a free for all visiting policy developed. I think this is what has been planned and that the safeguards in the process as described with DsPH etc will support this, but please can we make ultra-clear.

I have discussed with CMO and he is content for this to be in place with current epidemiology as long as I have been assured about the proposals. With the point above re exception not norm, and noting this is in the current epidemiology and evidence knowledge, then I am supportive noting that some residents lives will be at risk for reasons other than Covid-19 and we need to have a system which allows us to address this".

9.19. Following the relaxation of restrictions announced on 23 June 2020, DHSC again requested my view on the draft care homes guidance and, specifically, whether the guidance on care homes visiting was too restrictive. I advised (JH4/277 – INQ000152294):

"The key points, by way of explanation are:

1. Those in the care homes are both individually at very high risk (ie clinically vulnerable) but to compound this they are also in a very high risk setting – so not the same as those shielding at home and not living within the same lower community prevalence rates as others are. They are living within care home disease prevalence rates which are higher though difficult to define.

2. There are two way legal positions to consider: the first is the liberty debate and harm from not being free to receive visitors – the second is that the government is accused of not having adequately protected those in care homes

3. These latter two points are oppositional so there is a clinical and legal balance point to be achieved. The clinical point needs to highlight strong disease transmission risk control and for care homes this effectively translates as prevention to avoid early fatalities so it should be quite strong."

I went on to state:

⁶ RA: risk assessment.

"The first priority must remain preventing infections in care homes and this means that visiting policy should still be restricted with alternatives sought wherever possible. However, care homes should now develop their visiting policies based on a dynamic risk-based approach taking fully into account the significant vulnerability of residents in most care homes."

- 9.20. On 6 July 2020, I advised DHSC and PHE further following concerns from the Secretary of State for Health and Social Care on the proposed approach to allow visits in care homes on the basis of a local assessment. My view was that wherever possible visits should be limited to a single regular visitor in order to limit the risks of infection, and that if feasible DsPH should be involved in overseeing the introduction of care home visits. Given the length of time some residents had been without recognised visitors however, there was a careful balance to be struck between protecting care home residents and not having overly onerous restrictions (JH4/278 INQ000152376).
- 9.21. On 18 August 2020, I wrote to PHE to request prioritised, urgent, technical support as follows (JH4/279 INQ000152704):

"I am writing as the formal chair of the SAGE Care & Care Home Subgroup to ask for your support in prioritisation of PHE analytical capacity for research into the impact of hospital discharge on care home infection rates.

As part of the national winter Covid preparation planning we are trying to gain robust evidence on the role which hospitals may play on the transfer of infection to Care Homes. There is a strong causative narrative being articulated, particularly within the Care sector itself, but the reality is that there is limited evidence to drive policy in coming months. Some policy options could be major operational changes to protect our most vulnerable – for example the national development of a transitional care system – alongside other interventions such as changes in testing protocols, isolation facilities etc.

9.22. On 13 September 2020, I advised colleagues within DHSC and PHE with respect to the protection of care homes. I was seeking further urgent investigation and the

document summarises my broad understanding of some of the risks to care homes at the time based on the evidence available (JH4/280 – INQ000152802):

"• There isn't currently any very strong evidence that hospitals are a causative risk factor in care homes through transmission of infection via discharge policies

• There isn't any strong evidence that visitors are a particularly high disease transmission risk (if any)

• We don't know what the risk of transmission is for other peripatetic professionals eg GPs going in and out of care homes

• We do know there is a strong association with size of care home and risk of outbreak

• We do know that once an infection is in a care home there is a much higher risk of further cases/fatalities ie an unaffected care homes tend to stay unaffected and rising case numbers and fatalities tend to get clustered in specific care homes.

• We do know that a large number of staff and residents will have asymptomatic disease where cases exist

• We do know that some staff are still fulfilling multiple care roles and operating between settings as an ongoing risk ... and

• We have general information about ethnicity infection rates in the general population, the high proportion of care workers in lower SE groups and from BAME backgrounds and

• We know in the general population that the individual or family economic circumstances may impact strongly on the likelihood of a worker and their family complying with isolation advice.

• We know there are cases/outbreaks in care homes where no visiting has been allowed in recent weeks which still suggests the workforce is a particular risk

• We know that, even where there is robust testing availability, workers are showing testing fatigue. Clearly the policy questions coming from No 10 and the Minister for Care quite rightly focus on what action can we take to keep our care homes safe. My understanding of the latest data ... on current cases in care homes was that:

• There were over 1,800 positive cases last week in care homes compared to just over 600 the previous week

• Of those with known staff/resident breakdown on Friday 60% were staff and 16% resident ie nearly 4:1 staff infection ratios. If this continues to pertain when remaining results are through we have an urgent need to understand in much more detail the characteristics of these staff cases and I am not clear who is working on this or where

the information is being collated.

I will be absolutely delighted if this is happening already but for me the key variables which must be traced back in the staff in order to focus urgent interventions are:

- Age
- Gender
- Ethnicity
- Home postcode (for location and SE status)

• Geography ie travel corridors and breadth of work environment ie are individual workers travelling across the country to an employer at some distance

- Single or multiple employer/active workplace settings
- Family linked positive case ie at the same postcode and household

• Linked setting associations for staff cases eg active health workplace setting links, other employment setting links (eg food processing factories in worker doing multiple roles or in linked household members) or active social setting links"

- 9.23. On 21 September 2020 the symposium which I had organised as co-chair of the SCWG took place and, using genomic studies in particular, looked at complete and developing research to better understand viral ingress and transmission in care home settings. Representatives from all four UK nations and public health agencies participated. A consensus statement was developed, noting considerable levels of uncertainty, and shared in due course with SAGE and the MSC to support policy development ahead of the winter (JH4/281 INQ000074994).
- 9.24. On 30 September 2020, I further advised DHSC on the care homes visiting policy and confirmed I supported allowing two visitors but not three (JH4/282 INQ000070891, JH4/283 INQ000152889). Also on that date, following circulation of a draft Post-Discharge Designation Scheme Submission, I advised DHSC regarding planned discharge destinations for COVID-19 positive patients going into adult social care and provided detailed comments on the guidance (JH4/284 INQ000152890):

"A key point I want to highlight, which is important for Ministers to understand, is that I cannot see what scientific evidence we could currently offer to support this policy in the event of a legal challenge given that we think:

• Discharge from hospital to care homes has not so far been shown to be the major risk of outbreaks in care homes

We are creating an intermediary setting with a number of potential personal harms to those who are 'transited' back to their usual residential setting including
An additional isolation period of a further 2 weeks which is not being applied to any other population groups..."

- 9.25. On the same day, I further commented to DHSC, NHS and PHE on operational aspects of the proposals for a post-discharge designation scheme, which was established to enable robust assurance of infection control processes for discharge of hospital patients from acute settings through use of designated transitional settings as part of the Adult Social Care winter plan. The assured settings were designed to deliver high compliance in managing the isolation period effectively and securely and I provided advice particularly on appropriate isolation periods and the time periods and setting required for different presentations and discharges for care home residents (JH4/285 INQ000152897).
- 9.26. On 9 October 2020, I provided further advice on operationalising the post-discharge designation scheme where CQC had oversight of the specific assured residential settings which were due to receive discharged patients. I also provided detailed comments on a draft letter addressed to the President of the Association of Directors of Adult Social Services aiming to ensure awareness of the changes and system wide support. In relation to operations, I strongly advised the requirement for detailed data flows from the setting to allow appropriate surveillance, outbreak tracking, sender and receiver organisation knowledge and testing uptake and outcomes to be part of each contract (JH4/286 INQ000152954).
- 9.27. On 2 November 2020, I gave further input to DHSC on care homes visiting policy as a result of discussions within the SAGE Care subgroup to try and estimate more precisely the quantitative and qualitative benefits and disbenefits of different approaches to visiting and isolation (JH4/287 INQ000071437, JH4/288 INQ000153096).

"1. in terms of QALYs (Quality Adjusted Life Years) early indication on current evidence of infection risk is that the QALYs lost from 6 months of isolation appear to be substantially higher than the QALYs lost through risk of infection from visiting – but these are very, very broad indicators. 2. In terms of ordering of clinical risk of the below options in the current pandemic from infection risk alone (ie not balanced with other harms such as isolation), the order you have put them in is the correct order for clinical risk, with visiting ban being safest and permitting visiting without testing the least safe.

3. As long as the 'environment' is well managed, I don't think air tight visiting poses any real significant internal infection risk to residents – it may well pose other risks and critique, in particular issues of fairness

4. Given that we have not been permitting visiting in Tier 3 areas, it feels illogical to move to in person visiting during Tier 4/national lockdown unless you are going to shift the whole framework of visiting to align differently going forward – I haven't seen such a proposal."

9.28. Between 21 and 23 November 2020, I provided substantial input into the discussions surrounding the policy and measures for care homes during the Christmas period (JH4/289 – INQ000153292, JH4/290 – INQ000153297, JH4/291 – INQ000153303). Further to the Cabinet Office circulating draft guidance for care homes during Christmas and confirming that political special advisors were intending to change the position so that care home residents tested on their return and need not isolate for 14 days, I advised (JH4/292 – INQ000153315):

"...if you wish to change this element of safe return to care homes you will need to consider changing other admission policies also - In particular care home residents arriving from hospitals with negative tests or new entries from community settings.

This all seems quite risky to be changing on guidance without taking time to think through the wider implications when rates of disease in care homes are still rising in the second wave.

- 9.29. On 28 November 2020, I further advised DHSC and PHE colleagues with respect to measures for care homes during the Christmas period (JH4/293 INQ000153358).
- 9.30. On 7 December 2020, I reviewed and cleared guidance on designated settings (care homes) with DHSC and PHE who had been working to finalise a position on retesting individuals within a 90-day window of testing positive for COVID-19. The guidance included the then current position that individuals who had tested positive for COVID-

19 within 90 days of being discharged to a care home (provided they have undergone the 14 day isolation period), did not need to be retested or undergo additional isolation (JH4/294 – INQ000072055).

9.31. On 18 December 2020, I received an email from the Cabinet Office requesting my view on the policy position for care home visits in the proposed "tier 4" areas and more broadly and provided further advice. Amidst rapidly rising case numbers nationally, and given the relatively recent introduction of LFD visitor testing at that time, my conclusions were summarized as (JH4/295 – INQ000153503):

"... two reasonable options exist:

1. To continue with the current approach given that we do not yet see signs of increased risk with visiting – I am not in favour of this as a general principle because of rapidly rising rates and the fact that new test and visit policy has not been embedded sufficiently for us to observe any direct effect

2. Use a variation of the plan B outlined, which seems proportionate to changing epidemiology. My concerns would be

a. Potential inequality in access - possibly unavoidable

b. Potential deterioration in condition of residents – I think there should be very strictly controlled exceptions if manageable practically ie a resident for whom life threatening or significant deterioration is known to be linked to lack of visiting should be treated as exceptional and the visitor should go through the current LFD risk reduction process.

3. For full outdoor visiting I don't think testing is required (probably also for visiting areas where there is a full screen and separate outdoor entry and exit routes. For any version of indoor pod type visiting where there is a small chance of infection transmission an LFD protocol could be used"

Because of the significant community case numbers, I also spoke directly with MSC on this matter (JH4/296 – INQ000153506):

"I am very mindful that the epidemiology is changing so fast at the moment that the need for real caution is becoming paramount. In the London/SE/EoE LAs rates are now heading well over 1000 cases per 100,000 population – this is an entirely new recorded level of case numbers and immediately increases the risk of ingress to a care

home. I have just spoken directly to MSC and have noted I would send the comments below".

- 9.32. On 29 December 2020, I reviewed and provided feedback to PHE on guidance for vaccination in care homes (JH4/297 INQ000153536, JH4/298 INQ000153537).
- 9.33. On 28 January 2021, I advised DHSC colleagues on operational aspects of discharge from hospital to designated settings to ensure that appropriate clinical assessment was applied to each patient. This was to check for any signs of active COVID-19 as well as any signs of underlying conditions which would impact the individual's response to infection (JH4/299 INQ000072592).
- 9.34. On 4 February 2021, I advised colleagues at DHSC that whilst vaccination for care home visitors should be encouraged, it would be very difficult for this to be made a condition for visitation for a single designated visitor (JH4/300 INQ000269393, JH4/301 INQ000269392).
- 9.35. On 15 February 2021, further to discussions between DHSC and the Secretary of State on the roadmap to lifting lockdown measures, I was asked to advise whether care home visits could restart. My view was that a cautious return to care home visiting was a reasonable short term future ambition where vaccination uptake was good and once vaccine effectiveness had been assessed positively, prevalence was low, new variants were not active, and where IPC standards were well maintained (JH4/302 INQ000153730).
- 9.36. Also on 15 February 2021, I provided my views to DHSC with respect to mandating vaccination for care home workers (JH4/303 INQ000153735, JH4/304 INQ000153736). I considered that mandatory vaccination posed significant challenges despite my strong support for professional responsibility in all care workers to protect themselves and others through vaccination wherever possible. The challenges were both in terms of practical requirements to record and monitor uptake effectively; the clinical evidence underpinning mandation in terms of duration of effect and impact on transmission; and importantly the potential decrease in trust and uptake of vaccination more widely, particularly in a critical carer workforce, many of whom were from ethnic

minority heritage. This included the potential for staff to feel stimgatised, and of a potential longer term consideration of worsening health inequalities:

"Most of all I am concerned about the impact on wider vaccine uptake and subsequent health inequalities. If Covid goes well we could boost vaccine uptake for ethnic minorities in all communities and gain years of life now and in the future. If it goes wrong we lose children and parents and the communities spiral down with ever increasing inequalitie[s]"

9.37. In early March 2021, I provided further input to DHSC on guidance for visiting care homes (JH4/305 – INQ000072926, JH4/306 – INQ000072943, JH4/307 – INQ000072944).

PPE in the adult social care sector

- 9.38. Given that I understand operational aspects of the functioning of care homes are likely to be the subject of a future Inquiry module, I do not cover the systems by which PPE was provided to care homes here in detail. As I have noted previously, care home provision is largely a private business model in the UK. Whilst the maintenance of good infection prevention and control practices are considered routinely by the CQC as part of the ongoing quality and registration process for care homes, each 'business' has the responsibility for looking after its own staff and PPE stock, and for its business continuity arrangements.
- 9.39. My understanding is that in general central government does not commission care services directly and has not previously taken formal responsibility for PPE funding, procurement or provision on behalf of the care sector. At local authority level, this would likely only arise as part of a specific contract if the authority sought to exercise its responsibilities in this way. The national PPE stockpile, which I have previously understood to cover contingency for those services for which DHSC has taken routine formal responsibility i.e. NHS delivered and commissioned services, was overseen by DHSC colleagues. I had no personal link to the acquisition or general distribution of PPE but public health colleagues would advise on technical aspects of its makeup. Where my role could align would be in relation to considering the evidence base for guidance (for example that which PHE technical experts proposed), and new evidence

that arose during the course of the pandemic, highlighting potential areas where there were research gaps and, wherever possible, trying to ensure alignment of rationale and advice both within the different parts of the care sector but also between health and care sectors. As DCMO this was again an advisory rather than operational role.

9.40. I was however aware of the importance of PPE availability in the face of a growing pandemic and worked closely with colleagues in PHE, the NHSE and across the Devolved Administrations to try to ensure clarity of message and rationale. I also contributed to discussions on stock distribution through LRFs to ensure more remote care workers were able to access PPE. By way of an early example, on 23 March 2020, I requested information from colleagues at DHSC and PHE regarding the consideration of adjustments in PPE recommendations to ensure coherent advice right across the health service and care sector (JH4/093 – INQ000151633):

"Although I recognise I am sounding very much like a stuck record, I am really concerned that whatever adjustments are suggested to be made on the health side must be considered, before recommendation and implemention, for impact and inequality for similar risk exposure on the care side. When these are done together it is the combined PPE requirement which needs to be considered for all similar risk exposures eg NHS acute, community, primary care plus nursing care, residential care and all domiciliary care including all private and non-state funded provision. It will be unhelpful to recommend a change to manage angst amidst healthcare workers if we then have insufficient supplies to implement fully right across all relevant similarly exposed workers, care or health."

Testing in care homes

9.41. I am aware that in an email of 14 April 2020 the CMO's advice was that testing within care home settings was a priority following concern highlighted by a recent study of 39 care homes indicating potential high rates of nosocomial transmission. The issue of ingress into residential settings was one of significant clinical consideration, including at the SCWG where workstreams were delivered on an ongoing basis through the pandemic to support testing policy development and changes including for individuals being discharged from acute care settings to care homes. However, despite clinical support for discharge testing to be undertaken as soon as possible, testing was not

initially available at the scale necessary to achieve the objective **(14 April 2020 - JH4/308 – INQ000068798)**. Any system of testing prior to discharge from hospital into care home settings would have been dependent on there being sufficient tests available, as well as ensuring the appropriate process parameters - such as time of test, time period over which a test remained valid, turnaround time of the test result etc – were agreed and evidence based. These were fundamental considerations for the SCWG work programme.

- 9.42. In my view, capacity for all hospital discharges to be tested was not available in April 2020. Without this capacity being readily available, such a policy would effectively have led to vulnerable people being retained in a setting where their risk of acquiring the disease was potentially higher whilst there remained an ongoing risk of becoming infected whilst awaiting the test and/or result.
- 9.43. On 17 June 2020, whilst providing input to DHSC on a draft submission on care homes visits policy, we discussed precautions that should be in place to support changes in care homes visiting including whether to test regular visitors who may be involved in close and sustained contact/personal care and who could not maintain social distance requirements. I was aware there was a potential capacity issue. DHSC informed me they were reviewing this to see how much they could deliver on testing suggestions (JH4/309 INQ000152203).
- 9.44. On 25 June 2020, the CMO and I were sent a note setting out the background and context for the repeat testing proposal in care homes. The CMO's view was (JH4/310 INQ000152301):

"1. SAGE said, and I obviously agree, that weekly testing of staff and residents, where resources allow has advantages, but frequency of testing can go down as prevalence goes down. They also said that modelling suggests testing only staff and returning residents may well be as good as testing all residents. I note that testing can if done properly be distressing for residents so should not be done without good reason.

2. It follows that in areas of high community transmission, or areas [that] are having frequent outbreaks in care homes, weekly testing of staff and all returning residents does have a useful place, with some testing of residents. This complements wide

testing where outbreaks are occurring.

3. In areas of low prevalence and with few or no outbreaks testing frequency can decrease. At very low community prevalence there will be a relatively higher proportion of false positives, assuming a specificity less than 100% under operational conditions."

9.45. The same day, I responded (JH4/310 – INQ000152301):

"I think what SAGE has proposed and what you have written below are not incompatible – they appropriately propose a differential approach depending on prevalence of disease. The latter has dropped considerably during the weeks where the SAGE sub-group has been meeting.

I think there may be a short interim window where the testing frequency, the policy and the care sector expectations are brought together comfortably in a slightly stepped downward approach, probably over a period of a month. I will assume that is acceptable with you Chris unless advised otherwise. Managing confidence in care homes from a strong baseline position is likely to be an important bedrock for forward more localised outbreak controls."

9.46. On 31 July 2020, due to an increase in COVID-19 prevalence which threatened our ability to provide sufficient national testing capacity for all contexts, I received an email from DHSC regarding the strategies which might be considered to meet the testing requirements for care homes. Such considerations included (JH4/311 – INQ000152630):

"1. Use weekend lab capacity for care homes.

2. Accept longer turnaround times for care home asymptomatic testing to process tests in the lab at the weekend.

3. Take forward sample pooling to further increase our capacity in the channel

4. Look at whether we can procure further surge lab capacity – whether temporarily using NHS lab capacity or other commercial partners"

9.47. Due to the surge in demand for testing with rising case numbers, the Secretary of State for Health and Social Care had agreed to changes in general logistical test handling

which I was worried could potentially result in delays to test results for care homes. There were already some delays to test results and so in my view we needed to be careful about extending the processing time further. This was particularly so given the vulnerability of the care home population. In my response to DHSC I reiterated (JH4/311 – INQ000152630):

"Just for clarity, my concerns regarding delay in testing are:

1. Ensuring reliability of the testing process – ie we cannot have sample deterioration or inaccurate results because we have operationally needed to halt the laboratory process but have taken swabs some time previously. I cannot check this out from the detail but believe you were following up

2. Ensuring that any testing which is needed for good clinical management are not delayed – for example if there are positive cases within the batch which is delayed for 2 to 3 days, even if results are deemed reliable

3. Ensuring that testing protocol timetables still deliver an appropriate level of care home surveillance, particularly given the rising number of cases in some areas. This could potentially be handled by a 'shift' in the testing days to weekends as long as the interim days are covered and the move does not result in loss of surveillance to the section of the workforce which spends most time with residents ie weekday versus weekend staff cohorts".

- 9.48. In view of the objective uncertainty of the ingress into, and transmission of the virus within care homes, and the approaching winter season, one of my first actions as clinical co-chair of the SAGE Care subgroup was to urgently reconsider the evidence both existing and new research from first principles. I therefore planned a care home symposium drawing together relevant experts to assess the extant information in an unbiased way and arrive at a consensus of how infections were being introduced into care homes. This meeting took place in September and a consensus statement produced (JH4/281 INQ000074994).
- 9.49. The Care Home Symposium took place on 21 September and included representatives from a wide research and specialist knowledge base to support interpretation of findings including PHE, NHS and academia. Evidence was contributed from many different outbreaks and individual cases and included observational studies, detailed genomic investigations and linked data set work from England and Devolved

Administrations. The consensus outcome briefing note was agreed by the SAGE care subgroup. Ingress of the virus in many settings was assessed to be most likely from care staff, reflecting the rates of infection in their communities and the background science and understanding of this is recorded in a paper of 23 September 2020 presented to SAGE (JH4/281 – INQ000074994), which itself built on an earlier analysis of 12 May 2020 (JH4/311A – INQ000215643).

- 9.50. On 5 October 2020, I provided the advice to DHSC regarding technical aspects of testing prior to discharge from acute care into care homes and the implications for infection control processes when a Designated Care Home was being used (JH4/312 INQ000071001, JH4/313 INQ000152919).
- 9.51. On 27 October 2020, I provided further input to DHSC and PHE with respect to designated discharge destinations for adult social care patients on discharge from hospital (JH4/314 – INQ000153052, JH4/315 – INQ000153053).
- 9.52. On 4 November 2020, I provided a clinical view on technical considerations relevant to testing in care homes in response to questions asked by the Minister for Social Care (JH4/316 – INQ000153105).
- 9.53. Prior to a mass testing pilot in Liverpool and following a request from the DPH in Liverpool for greater policy freedoms, including whether a negative result from an LFD could allow visits to care home residents, on 5 November 2020 I provided clinical advice on the matter (JH4/317 INQ000153132). The following day, I commented further on the possible impacts of mass testing on staffing levels in the adult social care sector (JH4/317 INQ000153132).
- 9.54. On 16 November 2020, I provided the advice to DHSC in relation to the SAGE Consensus that there was largely an absence of evidence regarding visitors being a major route of infection (JH4/318 – INQ000153215):

"Because we have had no testing of visitors we have no certainty of rates of infection. Because we have limited genomics studies we can't routinely link positive cases in care homes to see where they hv come from. It is true to say that the evidence we do have does not suggest this is a significant route as others ie care workers appear to be the biggest risk. It's why it is important to capture information on rates from current testing pilots but it is not clear to me whether this will happen"

- 9.55. On 19 November 2020, I reviewed and commented on DHSC's updated draft care homes visiting guidance, and in particular the use of LFD tests (JH4/319 – INQ000153262).
- 9.56. On 19 December 2020, along with PHE, I advised DHSC with respect to movement of staff in and out of care homes, largely agreeing with comments from PHE's National Lead for Health and Justice (JH4/320 INQ000153509, JH4/321 INQ000153510). This covered important issues relating to vaccination and staff movements, testing effectiveness in mitigating risk and particular implications for staff movements and smaller care homes.
- 9.57. On 1 February 2021, further to having cleared guidance on staff movement between care homes, I was informed that the Cabinet Office had asked DHSC to review an approach to see if testing could be used as mitigation so as to allow staff to move between care homes. I advised (JH4/322 INQ000153686):

"1. No movement of staff within the 10 day infectious incubation period is the safest approach

2. Testing, as described in the guidance, where staffing levels are critical is a good second option but not as secure as the 10 day isolation period (as long as the individuals do actually not act in a way which may mean they gather more risk of infection within the 10 day period)

3. Clearly either of the above are better than nothing at all.

9.58. On 3 March 2021, I advised DHSC on the timing of testing for care home staff and of testing requirements for other health professionals visiting care homes (JH4/323 – INQ000072946).

Section 10: Testing and Contact Tracing

Testing and Tracing in General

- 10.1. It may be helpful if at the outset of this section, I provide some background as to the role of testing and contact tracing in the control of an infectious disease outbreak.
- 10.2. Testing is a critical factor in understanding the characteristics of a virus and its transmission and can play an extremely important role in the response to an outbreak of an infectious disease. However, for effective population transmission control, testing relies on associated complementary actions or interventions for example treatment pathways (where available), physical interventions such as PPE, cohorting and/or self-isolation. Depending on the nature of the virus, the infectious disease and its transmission route, different types of test may be appropriate at different times and at different population prevalence. The interpretation of the test result may also not be a simple dichotomous outcome as no test is 100% perfect. Therefore, simple provision of testing without further action, whether on the part of the individual or the health and social system is unlikely to secure pandemic control.
- 10.3. By way of comparison, Ebola is a disease with a mean incubation period of nearly one week Whilst the severity of disease and case fatality rates are high if viral transmission occurs, secondary infection requires direct physical contact with an infected case or their bodily fluids. Transmission risk is understood to be low in asymptomatic individuals.
- 10.4. It follows that most cases of Ebola in resourced health and social systems are likely to display symptoms which make them relatively easy to identify as long as efforts are being made to do so and people are willing and able to present to healthcare services. It is then quite feasible to contact trace the relatively smaller number of individuals who are likely to have been in close physical contact with an identified case over a heightened risk period of time. That the incubation period approaches a week affords sufficient time for this process to be undertaken and allows contacts of a case to be isolated so as to prevent further onward transmission. In this way, contact tracing can play a vital role in exerting downwards pressure on the reproductive rate and helping to control the spread of disease.

- 10.5. Testing and contact tracing does not however confer the same benefit for all diseases. In the context of seasonal influenza, the disease usually has a relatively short incubation period of one to three days. The consequence is that once exposed, people rapidly become symptomatic and infectious themselves. Contact tracing aimed at identifying these people and enabling their absence from societal interactions before they have had the opportunity to spread the disease is therefore more difficult.
- 10.6. Further, as a disease transmitted predominantly by the respiratory route, influenza can be spread to large numbers of people who might then prove difficult to identify, for instance fellow transport passengers, individuals in shopping centres or those attending restaurants or theatres. Accordingly, the opportunity to test an individual, identify them and intervene before they have had the opportunity to spread the disease is correspondingly lower. The consequence is that testing and contact tracing are likely to be of less assistance in the control of a pandemic with pathogen characteristics similar to seasonal influenza. Accordingly, widespread testing and contact tracing has not historically been employed successfully or recommended in the management of influenza pandemics (JH4/325 INQ000147830).
- 10.7. The purpose and relative value of testing may also change depending on the stage of the pandemic. In many cases, the symptoms of a pandemic disease will have significant overlap with other causes of ill health and symptomatology may change with waves and new variant presentations. This was particularly the case in COVID-19, where the symptoms of cough, shortness of breath or fever had significant overlap with other respiratory infections. The infection also had two early additional symptom cluster presentations beside respiratory a predominantly gastrointestinal and a predominantly neurological manifestation. It is therefore important throughout any pandemic, and on a wave by wave basis, to continuously assess the positive predictive value of reported symptomatology in those positive for infection. Even within the same chronological period symptoms may vary by age group.
- 10.8. As a pandemic wave progresses and there is a significant increase in the population with the infection, the likelihood that any given individual exhibiting the specific symptoms associated with the pandemic disease will indeed have it (as opposed to one of the other conditions which shares those symptoms) increases. Therefore, for many pathogens there comes a time where it becomes a reasonable assumption that

if you exhibit those symptoms, you will more likely than not be a case of the pandemic disease.

- 10.9. At this point, it becomes a pragmatic approach to advise those individuals displaying the symptoms of the disease to behave as if they are cases, and there is correspondingly less benefit in testing each and every one of what is now a very large number of individuals displaying those same symptoms. Individuals can be provided treatment or asked to self-isolate on that basis alone, without having their diagnosis confirmed by a test. This was the approach taken during the 2009 "swine flu" pandemic where individuals self-declared symptoms and then had access to antivirals. Testing was not part of the population management pathway for most individuals. It was largely reserved for clinical case management along with epidemiological surveillance.
- 10.10. Whilst the capacity to undertake whole population testing in the event of an infectious disease outbreak caused by a virus with the characteristics we now know are attributable to SARS-CoV2 and in the manner ultimately undertaken from summer 2020 onwards would have been advantageous, this was not something PHE or any other public sector agency had been tasked, equipped or resourced to do. Nor, for the reasons outlined above was it something which had been envisaged in the context of the UK response to an outbreak of an infectious disease. Whether, in light of our experiences with COVID-19, such a capacity should be developed, and if so the breadth and depth of that capacity, is a policy decision to be considered now.

Testing for COVID-19 in January to March 2020

10.11. As of January 2020, I was aware of PHE's capacity to respond effectively to single infectious disease outbreaks at local and regional level, and also those with international implications in respect of investigation, testing and contact tracing. This capacity had performed well on a routine basis covering, for example, the first cases of monkeypox to enter the UK in 2018, the rare but significant importation of high consequence infectious diseases such as Lassa fever and wider public health emergency response support to other government departments, for example during Hurricane Irma. These functions were in addition to the more routine but important local outbreaks such as those of meningitis, norovirus, and foodborne illness to which PHE would respond.

- 10.12. Mutual health protection team emergency response support arrangements had been in place historically to ensure individual localities or regions could receive surge support as necessary when their services were under strain. Similar arrangements were in place between laboratories. However, such arrangements rely on there being spare capacity in some place across the country and that not all laboratories and teams are required to operate to their maximum all at once. It is these same scientists and health protection frontline responders who have recently been praised for being the first internationally to identify and respond to the Mpox epidemic of 2022-2023, but it was equally well known prior to COVID-19 that there was a finite resource for mutual support for large scale multi-region responses.
- 10.13. In my view, in the early stages of COVID-19, PHE performed its function well. There was rapid development of a sensitive and specific COVID-19 assay with which to detect the disease, building on international collaborative scientific arrangements formed over many previous years. Similarly, there was longstanding and high quality experience which was used for early contact testing and tracing efforts around the first seeded cases. These efforts were largely successful.
- 10.14. As the pandemic wave increased however, the number of cases rapidly exceeded PHE's standing and emergency capacity to provide laboratory testing and contact tracing. The testing infrastructure required to perform the number of laboratory based tests now proposed for mass population testing simply did not exist and at this time there was neither the availability of point of care tests nor the logistics infrastructure to test using alternative approaches.
- 10.15. For practical purposes, once community transmission became established, testing was prioritised for those whose onward management depended on the result, predominantly within the hospital care setting. For the community at large, it was at that time increasingly likely that an individual displaying symptoms of COVID-19 would return a positive test and therefore appropriate advice for a symptomatic individual was to self-isolate in order to prevent onward transmission.
- 10.16. During the first pandemic waves in 2020, given the absence of any effective treatments or a vaccine for COVID-19, the only definitive measure available in response to a positive test was the same - self-isolation of a case and household isolation of their contacts. The availability of appropriately sensitive and specific wider testing capacity
for the population could have allowed for a more precise cohort of the population to be advised to isolate at any one time with a recognisable benefit that those who maintained a negative test could have been relieved of that obligation. There would also have been a benefit in identifying asymptomatic cases at this time had the testing infrastructure allowed.

- 10.17. For the reasons above, I consider the decision in March 2020 to prioritise the tests available for those requiring testing for clinical management, whilst advising those with symptoms (and who by this stage were quite likely to have COVID-19) to act as if they had a positive test, to have been reasonable and proportionate to personal and population risk management at the time in the context of a global pandemic.
- 10.18. It is this same context which provides the background for comments I made in the Downing Street press conference on 26 March 2020 in respect of the UK's testing strategy. It is important that those remarks are appreciated in their full context and so I outline both the question from George Parker, Political Editor at the Financial Times, and my response:

"I don't think we've ever really had a public explanation of why this country decided to stop testing people who were suffering with symptoms of coronavirus when every, well certainly when the World Health Organization was advocating that as a policy, and many other Asian countries have done this with great success?"

My answer was:

"So I think I'm going to answer in two different sections, the first one about the WHO comment, so I think the comment you were picking up was Dr Tedros saying "test, test, test", but in fact we need to realise that the clue for WHO is in its title, it is a world health organisation, and it is addressing all countries across the world with entirely different health infrastructures and particularly public health infrastructures, we have an extremely well developed public health system in this country and in fact our public health teams actually train others abroad, we have supported WHO through their GOARN process, and some of our epidemiologists have gone out to Manilla for example to support the early response in that area, so the point there is that they are addressing every country including low and middle income countries so encouraging all countries to test of some type. When you come to the UK, we have made it very

very clear there has been a plan right the way through this which is entirely consistent with the science and epidemiology, we started with a containment phase and every early case of this disease was followed through, every contact was traced exactly as we would do for other diseases but particularly noticing this one and of course your viewers will be very familiar with the fact that we had some very strict and very successful containment facilities, but there comes a point in a pandemic where that is not an appropriate intervention, and that is the point really where we moved, we moved into delay, and although we still do do some contact tracing and testing for example in high risk areas like prisons or care homes, that is not an appropriate mechanism as we go forward at that point, what we need to do is focus on the clinical management of the patients first and foremost, and then additionally as I've said earlier on our health and care staff and first responder staff. **So obviously if there was infinite testing facilities, and we are growing them at pace and we will have them, then it moves to the public, but we need to be very careful about focussing where its clinically most valuable"**

- 10.19. What was implicit in the question from Mr Parker, which is in no way a criticism of him, but which has also become something of a popular narrative since, is that we chose to stop community testing for reasons entirely separate from the need to prioritise the available testing capacity towards those who could benefit clinically from its utilisation. That is not the case the logic in restraining some elements of testing was to deliver maximum health benefit. To my knowledge, I do not believe that at any stage myself or the OCMO advised that there was merit in such restraint separate from the prioritisation I have highlighted above. This is evident clearly in my response to Mr Parker at the time.
- 10.20. In summary, those tests which were available had to be prioritised predominantly for the testing of hospital inpatients. As the supply of tests expanded, tests were then made available - as noted in my response and as supply allowed - first to health and social care staff, and then to the wider public. As to the first part of my answer, I understood Dr Ghebreyesus' comments to be directed as much to low and middle income countries, who at that point were often in a position where they were carrying out very limited or no testing, as they were an encouragement to high income countries to expand their testing strategies.

10.21. I reflected this position in advice I provided on 13 March 2020 to DHSC in relation to the discordance between the WHO's advice to test and contact trace everyone with symptoms, and our own policy (JH4/074 – INQ000151587):

"This would have been the advice up to yesterday. Now we have moved from containment to delay, and we expect many more cases, we pivot to maximum focus on making sure people who are ill get appropriate clinical care and cease to test routinely.

In effect we move from a confirmed clinical case to a presumed clinical case which is very common in large outbreaks – we essentially know that the predominant illness in a population with the relevant symptoms will be Covid-19. The advice/treatment for the individual remains the same (ie stay at home and isolate but also seek clinical care if symptoms don't resolve) so there is no real benefit in testing, and the infection transmission risks of sending a healthcare worker to test an infectious individual are removed so we keep our much needed healthcare professionals as free as possible from infection themselves. Similarly we no longer contact trace – this is important in containment when we can track and trace first and second degree transmissions. However now we know they are arising in the community and the chains of transmission are much longer. Contact tracing will not now add benefit and so we use the time of the public health professionals to support other aspects of health and care system response.

We would test and/or contact trace in some specific situations – we will prioritise testing in our hospitals to make sure cases who are at risk of more significant illness have a confirmed diagnosis for clinicians to work with and to manage infection control appropriately; and we may in due course do some testing of frontline care staff to confirm they have the disease because we would then know they were safe to manage highly vulnerable patients in the future and to plan workforce resilience"

10.22. For the reasons I have covered above, and for reasons of mitigating risk in respect of infections in care homes and other vulnerable settings and of nosocomial spread, I remain of the view that this prioritisation of available testing towards hospital inpatients (and then later, health and social care staff) was the correct approach. In the context of the limited tests available, to do otherwise would have deprived those individuals,

whose disease was so severe that they required hospital treatment, of tests, in favour of diagnosing mild cases in the community, the majority of whom would not have followed any different action on the basis of a positive result than that to self-isolate being advised at the time.

My involvement with NHS Test and Trace

- 10.23. My personal involvement with NHS Test and Trace ("Test and Trace") needs to be seen in the context of the distinct positions I held over the period of time of interest to the Inquiry.
- 10.24. As DCMO, I was not part of the system by which Test and Trace was established and did not provide any advice on how it should be set up or its operations. Nor was I involved in decisions about the set up of the operational delivery of testing, something which largely fell within the remit of DHSC.
- 10.25. After 7 May 2021, I became Head of Test and Trace by virtue of my appointment as the Chief Executive of UKHSA. I have already outlined in the UKHSA Module 2 corporate statement the transition process undertaken of NHS T&T to UKHSA (paragraphs 177-182) and the main decisions and advice on testing following my appointment (paragraphs 468-470) (including the increased surge capacity in July 2021, and the advice in November 2021 to Ministers regarding operational routes to increased PCR capacity following the detection of the Omicron variant).

Effectiveness of NHS Test and Trace

- 10.26. In order to have a better understanding of the performance of NHS Test and Trace and what may be useful for the future, UKHSA commissioned EY and the Oxford Health Analytics Consortium to carry out an independent evaluation of the national testing programme operating in England, covering the period October 2020 to March 2022; the time period for which UKHSA was responsible for the NHS Test and Trace service.
- 10.27. The resulting report from that evaluation was completed in March 2023 (the "EY Oxford report") (JH4/326 INQ000287604). The EY Oxford report follows earlier studies carried out by DHSC the Rùm Model, published on 11 February 2021 (JH4/327 INQ000223552) and by UKHSA the Canna Model, published in September 2021

(JH4/328 – INQ000262568) to ensure ongoing assessment of service effectiveness and efficiency.

- 10.28. I note here too that in 2021 the Health and Social Care and Science and Technology Committees took testing and contact tracing, and in particular the role and organisaton of Test and Trace, as subjects for scrutiny from Parliament (JH4/328A – INQ000075336) as well as the National Audit Office providing a progress update on Test and Trace in England (JH4/328B – INQ000287601).
- 10.29. While the EY Oxford report did not look at every individual testing programme delivered during the pandemic it was a significant formal research evaluation and its key finding was that 'overall, the national COVID-19 testing programme in England mostly achieved its intended aims, objectives and purposes, despite the considerable uncertainty due to the evolving pandemic threat', identifying between 26-40% of all cases. In addition, 'testing appears to have been an effective public health intervention for protecting high-risk groups.' The healthcare and adult social care testing services were cost effective considering the costs and health benefits achieved (measured in quality-adjusted life years).
- 10.30. The scale of what was carried out was enormous and complex, as the EY Oxford report explains:

'The English national COVID-19 testing programme was a complex programme with multiple, interlinked services that sought to address varied aims from a range of stakeholders. It was rolled out at speed and ramped up to high levels of testing capacity with a total of 2 billion lateral flow devices (LFDs) distributed and 158 million polymerase chain reaction (PCR) tests registered in England...'

10.31. I understand that the Inquiry intends to devote a future module to Testing and Tracing, in which the detail of these reports may be examined. For present purposes I draw the Inquiry's attention particularly to the external EY Oxford report's key findings and recommendations.

Section 11: COVID-19 disparities, vulnerable and at risk groups

- 11.1. It is inherently important in responding to any public health issue to have as full an understanding as possible of the relevant characteristics of the cohort of the population in question. As set out in the UKHSA Module 1 corporate statement (and as annexed to the Module 2 corporate statement at Annexes A and B), it is an integral part of the role of a public health professional to consider the variable characteristics of a population so that disparities in health status and outcomes can be properly understood, proposed interventions appropriately targeted and communicated and the effectiveness once implemented robustly analysed and evaluated.
- 11.2. As set out below, consideration of individual and community disparities and the potential differential impacts of interventions were therefore a constant factor in the analysis applied and the advice given during the pandemic in both my role as DCMO and CEO of UKHSA. The data utilised by myself and other public health professionals, as set out in section 6 of this witness statement, is very far reaching and access is often as a secondary user with limited or no control over the underlying data variables. Wherever possible, UKHSA collects and includes in its research appropriate population characteristics as well as sample size to give the granularity and statistical power to provide meaningful answers to minority groups as well as using proxy measures of socioeconomic deprivation for critical analysis. This approach was applied during the pandemic and for all of UKHSA's current work. However, for many data sets we are not the primary owner, user or investigator. In addition, it is important to realise that different population groups may be less confident to provide their data which, for example, was a pattern seen for ethnicity in contact tracing.
- 11.3. Disaggregating data robustly to identify population variation is critical in ascertaining where to provide appropriate intervention for improved outcomes. For example, a particular group may have a high mortality rate associated with a disease, but it is not *because* of the characteristic identified (e.g. race, gender, or disability), but because of another factor such as occupation or poor access to healthcare which may be associated with being a member of that group. Understanding the true attributable risk, and identifying so called confounders, for any disparity ensures interventions are properly tailored to have the most benefit in risk reduction or outcome improvement. Such an appreciation also ensures that communications to the public on personal risks

are properly explained and allows individuals to take informed decisions about their own health and risk. It also prevents decision-makers such as public authorities or employers from making decisions which create unintended adverse consequences because the link between a characteristic and risk are improperly understood.

- 11.4. The Covid-19 technical report published in 2022 covers many salient points I would wish to make personally. It begins with a statement which was well recognised before the Covid-19 pandemic by public health professionals that "Infectious disease epidemics and pandemics usually expose and exacerbate existing disparities in society, such as those associated with deprivation, ethnicity, sex, age and sexuality. It goes on to say "The COVID-19 pandemic had some predictable and some less predictable disparities in health outcomes such as the striking age gradient in risk, and the risk of severe disease for people living with obesity". Since age was the most significant risk factor for severe outcomes from COVID-19, I have commented briefly on this below as well as on examples of advice provided by myself on various other areas of inequality which were apparent at different time points.
- 11.5. The examples which follow below are by no means fully comprehensive, either in their coverage of important topics or in the totality of the advice I provided. I would for the main part refer the Inquiry to the Technical Report of which I was a co-author. What I have attempted to do is outline in broad terms the advice I gave in respect of some of the key disparities throughout the time of interest to the Inquiry.

Age and medical co-morbidity

11.6. Increasing age was the first identified risk factor for severe COVID-19. There was also a logical concern that certain pre-existing medical co-morbidities may be associated with more severe clinical outcomes from the disease. As the prevalence of medical co-morbidities increases significantly with advancing age, clinical risk as articulated by myself and the OCMO was frequently directly associated with age risk. There was also additionally overlap with advice and support for the shielding programme for the clinically extremely vulnerable. Accordingly, I cover below the impact of both age and medical co-morbidity alongside each other with some intentional overlap with the commentary I provided on protecting the clinically vulnerable at section 8.4.

11.7. On 4 March 2020, SAGE agreed with the following assumptions in a paper describing how COVID-19 fatality rates increased markedly in older cohorts, in particular those 70 years and over (JH4/329 – INQ000074987):

Age	Proportion of infected that die
0-9	0.01%
10-19	0.01%
20-29	0.04%
30-39	0.09%
40-49	0.15%
50-59	0.69%
60-69	2.21%
70-79	5.92%
80+	8.76%

- 11.8. On 7 March 2020, I set out an agenda for a call with NHSE and PHE colleagues to discuss the potential definition of at-risk groups and those with specific clinical conditions who might therefore benefit most from the social distancing policy then envisaged (JH4/056 INQ000151540, JH4/057 INQ000151541). I discussed the purpose of this call in greater detail above at paragraph 7.36.
- 11.9. That same day, a recommended approach to mitigating the increased risk associated with age and medical co-morbidity began to develop leading to the identification of two groups which were at that time being considered for specific advice on personal risk reduction. I have already outlined my advice on this matter at paragraph 7.37 above (JH4/058 INQ000151543).
- 11.10. On 11 March 2020, I shared the proposed clinical very high-risk condition list with the other UK CMOs and explained that this was forming the basis for further work on the ultra-vulnerable group (JH4/066 INQ000151572, JH4/067 INQ000151573).
- 11.11. On 13 March 2020, SAGE noted the UK was on the same epidemic trajectory as other countries but with more cases than modelled. They therefore recommended household isolation and social distancing of the elderly and vulnerable should be implemented soon, provided it could be done well and equitably. Behavioural science evidence

suggested public explanation and risk reduction advice could enable personal agency and build trust (JH4/073 – INQ000109142).

- 11.12. On 14 March 2020, I sent an email to the CMO outlining my proposals to develop the clinical component of what became the shielding programme and the shielding patient list. This included an initial communication planned to be sent out to relevant individuals to support design and delivery, including to those in DHSC, PHE, MHCLG, and NHSE. It also included an early exploration of how patient identification and programme content and implementation for clinically vulnerable individuals might work. From this initial proposal, a formal and complex clinical programme was linked through MHCLG oversight of the wider programme supporting the vulnerable and including other specific support measures such as DWP call centres, DEFRA food boxes and DHSC medicines delivery.
- 11.13. The clinical element of the shielding programme included a broad spectrum of personal and shared actions and responsibilities, extending from regularly chairing a clinical panel of representatives of the four UK CMOs (which reviewed evidence for inclusion/exclusion of clinical conditions as new evidence became available) to webinars with charity groups and review of digital identification processes for the rapid notification of existing and new patients. It also led to the work on QCovid, an award winning digitally based risk assessment tool, to support clinician-patient discussions on individual risk from COVID-19 and potential protections. The QCovid risk tool also included socio economic factors and sought to assess, on available data, the combined risk of exposure to, and outcomes from, COVID-19 infection. The following exhibits and comments, as well as the information I provide below at paragraphs 11.61 to 11.63, provide some examples of my involvement in this regard (JH4/167 INQ000151591, JH4/329A INQ000298948 JH4329B INQ000298952].
- 11.14. On 19 March 2020, I advised DHSC on guidance on shielding and measures to protect the extremely vulnerable from COVID-19 (JH4/085 – INQ000151610, JH4/086 – INQ000151611).
- 11.15. On 28 March 2020, I provided input to DHSC on the phrasing of the National Household Leaflet and suggested the below changes to the advice for those aged 70 and over, who had an underlying health condition or those who were pregnant thereby

supporting alignment of risk advice across Government. It also encouraged online prescription booking and GP consultations (JH4/330 – INQ000151646):

"People who are 70 and over, or those who have an underlying health condition, are likely to be more seriously affected. It is even more important that you protect yourself now by following the advice above.

If you are at very high risk due to a serious underlying health condition, you should have already received a letter from the NHS containing specific guidance about what to do.

If you need shopping or medication, ask family, friends or neighbours to drop these at the door, or if possible, order online."

- 11.16. On 29 March 2020, in response to the spontaneous publication of criteria for inclusion in the shielding group by many different clinical and patient support groups and the different Royal Colleges, I provided further advice to NHSE. At this time, there was a proliferation of published advice from various sources such as individual Royal Colleges and patient advocacy groups, encouraging various of their own specialty patients to shield. This would have resulted in up to 18 million of the population included in a national SPL. Work was therefore undertaken with specialists and charities to explain and, where appropriate, align national guidance. A regular webinar series chaired by myself and with support from colleagues across the health and care policy and delivery systems was established to advise on and explain policy changes and respond to questions. This ran throughout the pandemic and an example agenda is exhibited (JH4/331 INQ000151669).
- 11.17. On 15 April 2020, I assisted DHSC with a query from the BBC in respect of practical published guidance on the age at which an individual became vulnerable to COVID-19 (JH4/332 INQ000151752). My response reflected the understanding that age was associated with greater morbidity and mortality from COVID-19, with an increase from age 60, more notable from age 70 and which became increasingly severe as an individual's age increased further. It also noted that those at greater risk were likely to be identified in one of two ways either through their clinical condition, or by age, but clearly with some overlap.

- 11.18. On 5 May 2020, following circulation of slides from colleagues at DHSC trying to provide an initial review of the effectiveness of the clinical elements of the Shielding Programme supported by hospital utilisation metrics and including a timeline of the shielding programme to that point, I commented to highlight that no robust conclusions could be drawn from the data presented on the effectiveness of the programme to date. This was due to a number of factors including changing background prevalence rates, lack of an appropriate time interval to detect some types of clinical impact, and the lack of a comparator group to allow robust statistical comparison. Of importance was the fact that the very significant risk accrual with age was also clearly understood alongside clinical risk factors (JH4/333 INQ000151832, JH4/334 INQ000151833).
- 11.19. On 3 June 2020, I advised DHSC on the COVID-19 Adult Care Risk Reduction Framework (Assessing and Reducing the Risk to your Workforce) which included careful consideration of multiple individual worker potential risk factors, in particular age, underlying health conditions and ethnicity. This advice built on separate workshops I had chaired and contributions I had made to various discussions on workplace risk management including for those with specific clinical conditions and from various ethnic heritage groups. These meetings had also been attended by individuals from the Health and Safety Executive, The Faculty of Occupational Medicine and those working on areas of disparity research amongst others. Earlier, NHSE had rapidly produced guidance for NHS staff in health settings at a point when only a very limited evidence base was developing. I was keen to ensure that the Adult Care Sector had the best available evidence, that individuals were not unnecessarily alarmed but appropriately supported and that any learning from NHSE's original approach was reflected. I noted that (JH4/335 INQ000152109, JH4/336 INQ000152110):

"5. Risk – the evidence on risk is changing. Age is probably far more significant than any of the others mentioned, including ethnicity. Suggest all statements on risk need to be very cautious. Unfortunately the NHS document on which this is based was drafted hastily and almost too early. It did not assess confounding factors in any way so the statements on risk need caveating heavily with 'potential risk' and 'may be at increased risk' etc" *11.20.* On 1 November 2020, I provided advice to the Cabinet Office on the risk associated with increasing age in the following terms (JH4/338 – INQ000071411):

"1. Age is our strongest risk predictor

2. There is no clear absolute cut off but modelling suggests 70 + as a clear flexure point

3. We know that from the age of around 60 – as the PM said – that more people will have underlying health conditions though the risks start to rise in some 50 year olds, and equally many over 60 are very fit and healthy so"

11.21. For some specific medical co-morbidities, evidence accumulated over time and indeed continues to grow. As an example, given the respiratory presentation of early COVID-19 infection, asthma was considered likely to be a significant clinical risk factor. In practice this proved not to be the case and many children originally identified as potentially clinically vulnerable were provided with updated advice once the evidence was clear.

Ethnicity and religion

- 11.22. Following the earliest reviews of hospitalised patients, clinicians were alerted to the potential disproportionate representation of some ethnic minority patients amongst severe cases of COVID-19. In June 2020, a report on COVID-19 risk and ethnicity titled "Beyond the data: Understanding the impact of COVID-19 on BAME groups" was published by Public Health England (JH4/344 INQ000203982).
- 11.23. This report had been commissioned by the CMO and made numerous observations on the impact of ethnicity from COVID-19 in the early phase of the pandemic. It noted a likely increased risk of testing positive for COVID-19 amongst Black African and Black Caribbean groups and excess mortality. However, it lacked important data recognised as likely to have a material impact on the ability to draw robust conclusions from which to advise people of comparative individual risk. Notably for this particular assessment, it lacked data on medical co-morbidities in ethnic groups, many of which would be expected to be at higher age-standardised prevalence with resulting negative influence on COVID-19 disease outcomes.
- 11.24. Early risk assessments more generally were unable to clearly distinguish between the risk of becoming infected and the risk of serious outcome from infection. This meant

that as waves of COVID-19 moved around the country, individuals from different ethnic heritage backgrounds appeared to be differentially adversely affected. Thus, in the first wave, rates of infection were higher in London and amongst the Black African and Black Caribbean populations, whilst in the second wave incidence in the Midlands predominated and larger cohorts of the South East Asian ethnic diaspora were most adversely affected.

- 11.25. With the benefit of time, more complete and detailed data and more nuanced risk assessments became possible and, with statistical assessment of the relative impact of various confounding variables for example multi-generational housing, occupational exposure and significant co-morbidities such as obesity it has become easier to see the true relative impact of different potential risk characteristics.
- 11.26. A recent ONS review has shown that "unlike earlier in the covid pandemic, during the Omicron period (January 2022 to present), there is no longer evidence of ethnic minority groups having a significantly higher COVID-19 mortality rate compared with the white British group; in fact, males in the Black African, Black Caribbean, Chinese and Other groups had lower mortality rates involving COVID-19 than the white British group, while females in the Black African group had lower rates than the White British group. In the Omicron period, the White British group had the highest all-cause mortality rates for both males and females when compared with all other ethnic groups, apart from the Mixed ethnic group for males, indicating a return to pre-pandemic all cause mortality patterns" (JH4/339 INQ000298955).
- 11.27. This is markedly different to the mortality rates seen in the earlier second COVID-19 wave and subsequent alpha wave where the highest mortality rates were in men of Bangladeshi and Pakistani heritage. Numerous studies have considered the clustering of interdependent variables in the most affected cohorts over time, frequently grouped around socio-economic deprivation where ethnicity is likely to be disproportionately represented. Such disparities will predictably be seen again in future pandemics without significant improvements in underlying structural inequalities.
- 11.28. Statistically significant variation in mortality by religion can also be seen in the ONS data (JH4/339 INQ000298955). In particular, high mortality rates for those of Muslim faith are seen in the second and third waves, and different religious practices required consistent sensitive consideration and liaison with faith leaders and followers

throughout the pandemic. Examples of my own personal input included technical support for safe practice guidance and exemptions for funerals (all religions), leading meetings with key Jewish leaders to answer focused questions on safety and epidemiology and assuring social distancing measures and associated guidance and communications were culturally sensitive, including from a religious perspective.

11.29. For example, on 21 November 2020, the OCMO shared the UK CMOs joint view on proposed NPIs at Christmas with the Cabinet Office, clarifying opportunities to keep risks as low as possible both in the preceding period and during Christmas and New Year whilst ensuring loved ones could still meet up. This noted obvious risks for Christian faiths, for example carol singing, but was clear in its guidance to note that (JH4/360 – INQ000071794):

"These rules should be applied to all religious festivals - not just Christian ones"

- 11.30. In some cases, cautious but early, and less robustly evidenced advice regarding ethnicity provided to workforces impacted the important roles individuals played. For all, the inevitable lack of early reliable evidence of individual risk from a novel pathogen deepens the anxiety for individuals, families and communities, particularly those already dealing with illness or inequality. Of importance in a number of documents, including those from PHE, was the value, and sometimes notable absence, of culturally sensitive provision information, advice, access and risk discussion. I tried to support some of these areas during my routine work.
- 11.31. I reflected these concerns in comments I made on 3 June 2020 to DHSC on the development of the COVID-19 Adult Care Risk Reduction Framework. My views drew on wider discussions with the Health and Safety Executive and the Faculty of Occupational Medicine, as well as with the SAGE subgroup on ethnicity and those directly researching social and clinical inequalities at that time, including Professor Kamlesh Khunti and Professor Kevin Fenton (JH4/335 INQ000152109, JH4/336 INQ000152110). I made the following observations:

"3. Risk assessment discussion should be WITH an employee for them to have say in their own risk perception and handling. It should not be DONE TO them – which is the general perception here. A pregnant woman who wishes to continue working when fully aware of any potential risks should have her own views considered equally.

4. PPE – this is framed in a couple of places as something additional you give to someone if they are at particular risk. At the end it notes enhanced PPE as a possible option. This is entirely the wrong concept... All workers in a role need adequate PPE and should receive it. If you are 70 or black or pregnant the same applies.

11.32. On 9 June 2020, I provided feedback intended to assist DHSC in responding to a Government Equalities Office inquiry. I noted both the risks of inappropriate use of isolated statistics and handling and, in summary, some relevant wider issues for ethnic minority workforces (JH4/345 – INQ000152140):

"• I am very fearful that we will get reverse inequality long term if we are not very careful how this is managed: for example lack of BAME opportunity in senior positions – for example BAME banished from frontline roles and therefore career development in NHSE, where the trend in equality has only just started to be turned.

• We need to think through how this relates to management of other BAME health conditions – for example we do not have such an equalities focus on diabetes prevalence in SE Asian origin or hypertension/stroke in Afro-caribbean populations which also kills ad [sic] disables these populations earlier in life and is well known. There is a bigger picture into which to meld the current situation. Taken in isolation I suspect we will create handling issues, and poorer health outcomes, than could otherwise be achieved"

11.33. On 27 June 2020, I provided similar advice to DHSC in relation to the PHE ethnicity review and the risk stratification tool being developed (JH4/347 – INQ000152314):

"It is really critical that these conversations align and that any proposed workplace interventions think through both confounders of the evidence (which is acknowledged as absent in parts of the PHE report) and opportunities for mitigation. In particular where the latter mitigations should be applied to all ie not just BAME and where any action perceived to 'protect' in the short term has longer term implications for inequality at the work front or on how other infectious diseases are handled logically eg winter flu."

11.34. On 24 July 2020, the OCMO became aware of a discrepancy in how epidemic curves were developing over time which varied by ethnicity (JH4/348 – INQ000070202,

JH4/349 – INQ000070195, JH4/350 – INQ000070194). These showed higher rates of transmission in Pakistani, Indian and Bangladeshi community than others as noted above.

11.35. On 26 August 2020, I responded to a circulation by DHSC of the Social Care Sector COVID-19 Taskforce actions log (JH4/351 – INQ000152735):

"BAME and inequalities: I am somewhat horrified by the number of different groups and papers being written, generally without any recourse to proper interpretation of the data, and then a subsequent list of illogical actions. There are definite structural inequalities and I would be keen to highlight the need for robust data collection so we can understand the problem more as well as understand the impact of any future policy changes."

- 11.36. In September 2020, the Social Care Sector COVID-19 Support Taskforce's BAME Communities Advisory Group report was published (JH4/352 – INQ000109753). As well as delivery of a rapid literature review, the group particularly looked at the lived experiences of those within care settings, both professional and service users. The report generated rich personal insight and key recommendations including the request for a continued group to provide a platform for concerns and action, culturally sensitive information and support interventions, and improved data collation and sharing of epidemiology, infection risks and appropriate personal risk mitigation information.
- 11.37. On 12 October 2020, I advised DHSC in relation to disproportionately impacted groups and stated (JH4/353 INQ000152966, JH4/354 INQ000152968, JH4/355 INQ000152967):

"There are some very unbalanced statements in the graphs on the slides – eg specifying risks in various ethnic minority groups without specifying [that] the variables which are critical have not been included in the analysis. The part I am most concerned about are the points encouraging individual workplace risk assessments...

Please convey to DHSC colleagues and CO that I would be very opposed to many of the statements made about businesses introducing these without much greater understanding of what was meant and what outcome could be achieved, as I think from the round tables we have conducted would be HSE and the Faculty of Occupational Medicine.

In addition we should not be promoting interventions which are discriminatory towards any ethnic group"

- 11.38. On 22 October 2020, I provided advice to DHSC and the Minister for Equalities on the quarterly report on COVID-19 Health Inequalities (JH4/356 INQ000153008). My specific comments can be found in the document which I exhibit at (JH4/357 INQ000153009). I was particularly concerned about the timeframe provided to give comment, the appropriate analysis of the data, including understanding of confounders and the logic of some conclusions drawn, apparently rapidly. I provided numerous technical and process points.
- 11.39. On 23 October 2020, I provided advice on a series of papers addressing possible support for groups disproportionately affected by COVID-19 in anticipation of a second wave (JH4/358 – INQ000071290).
- 11.40. On 9 November 2020, I advised DHSC on the inclusion of those on the SPL in vaccine prioritisation groups. By this point hazard ratios identified by the QCovid tool included sociodemographic data (including ethnicity and post code as well as clinical conditions) and there was discussion as to how prioritisation groups could practically best address risk mitigation for different groups and geographies (JH4/359 INQ000153172).
- 11.41. On 10 February 2021, I provided comment on the second quarterly report on progress which highlighted various areas of ongoing but linked work to address COVID-19 health inequalities. These included recent relevant guidance (for example multigenerational household living), the Inequalities Board with the vaccine deployment programme, the specific ethnicities workstream with the Social Care Tasforce and the developing work on QCovid (JH4/361 INQ000072736).

Deprivation and social inequality

11.42. On 14 March 2020, I advised DHSC on the household isolation policy proposal and raised the following concerns regarding low-income families (JH4/362 – INQ000151596, JH4/075 – INQ000151597:

"There is a particular issue with low income families who currently use food banks and who go into isolation as a family unit. Their situation becomes worse if children are in the family because they would normally get food provided at school. The implication is people will not maintain family isolation in some low household income groups out of necessity beyond just the wage position".

- 11.43. There were disparities for those living in deprivation both in respect of the direct impact of COVID-19, but also the impact of the interventions introduced to control the virus. Where possible, I attempted to identify these and advise accordingly. For instance, I had previously made comments on access to public transport if travel was limited to private cars, and, during discussions regarding the implementation of the "Rule of 6", I highlighted the importance of including public spaces in the loosening of the restrictions (JH4/121 INQ000152050).
- 11.44. On 10 August 2020, I advised DHSC on a proposal by DCMS to support the reopening of local authorities' leisure services" (JH4/363 INQ000152677):

"•We cannot be promoting heavy traditional leisure centre use now given Covid-19 risks ie they cannot be promoted unsafely and may need to take a further closure hit in the future. So we should only support in Covid-19 secure way ...

•There is a very good case to be made (if we have some evidence) to retain leisure centres in areas of social deprivation where, for example, children from more socioeconomically deprived areas have no access to similar facilities... and that feels appropriate in terms of long term health inequalities – but they need to be evidence based"

Pregnancy

11.45. On 14 March 2020, DHSC approached the CMO and myself seeking our views on the risks of pregnancy in the context of COVID-19 and recommendations on treating pregnant women as a vulnerable group. Initial advice had been to include them within the clinically vulnerable group based on principles of a recognised risk, predominantly in the third trimester, from infectious diseases such as influenza. I liaised with the President of the Royal College of Obstetrics and Gynaecology ("RCOG") at the time.

A very small number of pregnant women with rare heart disease were separately identified and included on the SPL. In addition, the RCOG established appropriate data monitoring systems.

- 11.46. As I have stated above, on 3 June 2020 I advised DHSC on the COVID-19 Adult Care Risk Reduction Framework (Assessing and Reducing Risk to your workforce) since the health of pregnant staff was a matter of concern for all employers including those in health and social care. The principles of risk assessment where used were being applied to pregnant women as well as to minority ethnic staff or those with other protected characteristics and this was clear at the time (JH4/335 – INQ000152109, JH4/336 – INQ000152110).
- 11.47. On 31 July 2020, I advised DHSC, BEIS and the Cabinet Office to publish an occupational health guide for pregnant woman as a matter of urgency and to ensure it aligned in timing and was coherent with changing guidance for the clinically and clinically extremely vulnerable. This guidance had been developed by the Royal College of Obstetricians and Gynaecologists (RCOG), with input from HSE and the OCMO and took into account the views of the Faculty of Occupational Health as well as the outcomes from a number of roundtable discussions on the clinically vulnerable and workplace advice aforementioned. RCOG felt it would be more logically accessed by pregnant women and their employers if it formed part of the BEIS working safely guidance (JH4/365 INQ000152628).
- 11.48. On 18 November 2020, the OCMO responded on my behalf to DHSC regarding a statement on the risks to pregnant women from COVID-19 in which I agreed some wording which also recognised foetal as well as maternal risk assessment (JH4/366 INQ000071707).
- 11.49. On 01 December 2020, I provided comments on the draft health service user guidance
 "Supporting pregnant women using maternity services during the coronavirus pandemic: actions for NHS providers" (JH4/364 INQ000071973).

Prisons and Probation Services

11.50. I also provided comments on guidance to residents and support staff working in National Probation Service Approved Premises and Independent Approved Premises

to help prevent the spread of COVID-19 (JH4/095 – INQ000048178, JH4/096 – INQ000048179, JH4/367 – INQ000048180).

- 11.51. Between 29 March and 1 April 2020, I was involved in discussions with PHE (who were working closely with HMPPS, the Ministry of Justice and No.10) to explore options to protect prisoners from outbreaks of COVID-19 and the proposed approach to population management in prisons (JH4/368 – INQ000151688).
- 11.52. On 10 July 2020, I provided advice on the guidance for visiting someone in prison during coronavirus (JH4/369 INQ000152464).

Young People

- 11.53. Very early in the pandemic specific focus was given to understanding the course of COVID-19 infection and outcomes in children. Very few cases of COVID-19 in children or young people had been reported globally and it was important to understand the reasons, whether due to lack of infection, transmission severity, diagnosis or presentation in acute settings. Early work, initiated from the OCMO and led by Dr Nisha Mehta, systematically reviewed the knowledge base as of early March 2020 and this was provided both to DHSC and wider clinical discussions to inform policy decisions. It also led to peer reviewed publications in clinical journals to allow learning from the UK to be shared widely at a time when little information was available (JH4/369A INQ000298950 , JH4/369B INQ000298949).
- 11.54. Close consideration and liaison with the Royal College of Paediatrics and Child Health ("RCPCH") and the NHSE National Clinical Director for Children and Young People took place throughout the pandemic. This included discussing evidence and changes to advice for those children and young people initially included on a precautionary basis on the SPL. There was additionally close working to provide advice, including from myself as appropriate, to the Department for Education and which I anticipate the Inquiry will wish to review in detail separately. SAGE also reviewed the matter regularly. The clinical evidence was succinctly summarised in the UK CMOs joint statement highlighted at paragraph 8.121 above. Further, detailed consideration was given in relation to the potential vaccination of children, a topic I again anticipate will be covered in a separate module so I do not cover in detail here. Examples of specific advice are provided in the next few paragraphs.

- 11.55. On 3 April 2020, I advised DHSC on draft guidance to support the management of children and young people living in children's homes, residential special schools and colleges, other further education providers with residential accommodation, mainstream boarding schools and university halls of residence (JH4/370 – INQ000068656, JH4/371 – INQ000068657).
- 11.56. That same day, NHSE requested clarification on the inclusion in the shielding cohort of parents of children who were at the highest clinical risk, particularly those young children for whom 2m social distancing from their parents was impractical. I reinforced the individual, personal clinical and advisory basis of the shielding programme (JH4/372 – INQ000151712).

Homeless People

- 11.57. On 3 April 2020, I received an email from Andrew Hayward, Director of the UCL Institute of Epidemiology and Health Care, regarding approval of the COVID-19 homeless health response. At the time of his email this had been approved by PHE, MHCLG and NHSE, but not DHSC.
- 11.58. The plan then was to triage rough sleepers and homeless people living in shared facility hostels into empty hotels with ensuite facilities. There were to be two aspects to this: firstly, COVID-PROTECT, which was the provision of accommodation in order to allow stringent social distancing measures; and secondly COVID-CARE, which was the provision of a system of supported self-isolation and monitoring for those homeless individuals who had tested positive for the disease and who were recognised to have shorter life expectancies and higher incidence of risk factors. Professor Hayward explained that DHSC approval had been withheld due to inconsistencies with national general population guidance and I responded to support the main programme whilst also cognisant of some necessary practical operational steps (JH4/373 INQ000151708):

"You quite rightly highlight the increased age specific risk parameters for homeless individuals and I recognise that there are operational cut offs built into the COVID-PROTECT and COVID-CARE provision. This all seems very sensible... This email therefore is to reassure you that in principle the NHSE operational document is strongly supported in its ambition... The critical outcome is that the homeless who need support get the right prioritisation and we will be seeking to ensure this happens as quickly as possible."

- 11.59. During the pandemic the UK implemented a highly successful overarching *Everyone In* programme credited with saving many lives in contrast to outcomes for other homeless populations globally. The technical advice to the programme, which aimed to bring all homeless people into emergency or settled accommodation or supported housing and provide sensitively supported and safe isolation for those infected was primarily supported by PHE professionals, although I provided personal advice at times and checked guidance. The programme was the subject of scrutiny by the Public Accounts Committee and the Housing, Communities and Local Government Committee as well as the Independent Kerslake Commission on Homelessness and Rough Sleeping. Once prevalence rates dropped, I provided robust but practical input on the risks and mitigations of reopening hostels and similar multi-occupancy accommodation, joining meetings both with the Secretary of State (Robert Jenrick MP) and MHCLG teams as well as charities seeking to return to service provision. There were other areas of interface related to specific service provision.
- 11.60. On 14 December 2020, for example, OCMO wrote to DHSC to provide my feedback on a draft submission relating to a pilot that provided testing at a homeless hostel in Wolverhampton. I provided comment on the document itself noting the known vulnerabilities of this population cohort but also stressing that appropriate clinical governance be included. (JH4/374 – INQ000269391, JH4/375 – INQ000269390).

Risk Stratification and QCovid

- 11.61. On 7 March 2020, I advised DHSC in relation to early rapid proposals for the development of a possible digital risk stratification system (JH4/59 INQ000151542).
- 11.62. On 20 May 2020, I advised DHSC on the progress of the COVID-19 risk stratification tool which, as noted previously, was a shared programme of work, initially led by OCMO, but with the tool developed by Prof Julia Hippisley-Cox from Oxford University

who had many years of successful delivery of a prediction algorithm for cardiovascular disease (QRisk) used routinely in primary care in the UK (JH4/376 – INQ000151964). The QCovid tool went through a number of iterations as hazard ratios were identified more precisely with increasing evidence and as new variants emerged. The tool was welcomed by the CEV population particularly and was rolled out across the NHS for use predominantly by GPs to hold clinically led discussions with their patients on the likely risk to someone with similar characteristics to themselves.

11.63. I worked with the NHSE Primary Care Director and the RCGP to introduce the tool and to distribute training material and support for primary care. The information was incorporated into webinars for the CEV. Where clinical specialists or patient groups represented views that they should be included on the SPL, QCovid was one stream of evidence reviewed with other scientific publications to identify the relative risk associated with that condition. Where specific conditions were noted through data to highlight potentially higher hazard ratios than was initially understood, this information was returned for consideration to the clinical panel and, as appropriate, inclusion on the SPL or provision of specific advice. An example of this in practice was the notification of increased risk identified in adults with Downs Syndrome. Thus the programme not only provided a risk tool for individual clinician-patient discussion but was able to contribute to risk reduction in specific cohorts e.g. learning disability.

Learning disabilities and physical disabilities

11.64. A number of publications including those from PHE (JH4/377 – INQ000089700) and the LeDeR Programme (JH4/377A – INQ000298957) provided early insight into variations in mortality for those with learning disabilities. It is well known that data relating to these reports and to identifying relevant individuals generally is poor and incomplete and therefore it is difficult to draw detailed conclusions or analyse at a level of granularity effective and appropriate for focused support and intervention. For example, those with dementia, a significant number of the elderly population in England, may be recorded on GP practice records under learning disabilities, but there is little consistency. Similarly, data on childhood admissions indicated very low risk of serious outcomes from infection including for Downs syndrome (with the exception of those with severe underlying neurodisability or congenital malformations who continued to receive personal shielding advice) whilst later data for adults (see above) noted considerable hazard. In general, throughout the pandemic a precautionary approach was applied, an example being the wide inclusion of those on LD registers for priority vaccination.

- 11.65. On 23 March 2020, for example, I reviewed and cleared DHSC's guidance on shielding for people with learning difficulties and autism. I also commented on guidance on other topics produced as 'easy read' and/or pictorial versions to enable self protection for those less able to use standard population communications throughout the pandemic.
- 11.66. In relation to physical disabilities, my personal input related predominantly to considering any additional risk from associated clinical conditions and to ensuring interventions, services and guidance benefitted from practical consideration wherever I was involved. All proposals to Ministers were informed by inequalities impact assessments and decisions will have been made with that knowledge.
- 11.67. Some services were specifically developed to support certain user groups, for example the NHS T&T app development with 'Be My Eyes' to support visually impaired users to take their own covid test. I would however occasionally be asked to consider specific topics of risk or assistance. An example of this was mask wearing in those supporting children with hearing difficulties for whom lip reading was an important aid. DHSC approached the OCMO for advice on transparent mask use and I provided advice to DHSC on 18 August 2020. Whilst I was personally sympathetic to the issues they aimed to address, my view was that there was no scientific evidence base on which to found conclusions as to their safety or effectiveness at that time (JH4/240 INQ000152703).
- 11.68. The issue of transparent face-coverings arose again throughout my time as DCMO.
 By way of example, on 21 February 2021 I was asked by DfE to advise on the matter (JH4/377B INQ000153751):

"Thanks...

- There is no position here of what type of face coverings we are talking about.
- · Reviews for evidence for any types are nearer absent than limited and

• We therefore have no knowledge that any types are more likely to be effective than not for any intervention"

11.69. My suggested amendments to DfE's proposed guidance in order to ensure the evidence was appropriately portrayed (in bold and strikethrough) were (JH4/377B – INQ000153751):

"Transparent face coverings, which may assist communication with someone who relies on lip reading, clear sound or facial expression to communicate, can also be worn. There is currently **very l**imited evidence regarding the effectiveness or safety of transparent face coverings, but they **are more likely to may** be effective in reducing the spread of coronavirus."

Section 12: Long COVID

Post-viral syndromes in general

- 12.1. It is well recognised that viral infections can cause longer term sequelae. Such outcomes however can vary markedly in their nature, frequency and severity. If rare they may not be readily recognised at regular low prevalence rates but will become much more obvious in epidemics or pandemics when very large numbers of cases occur at the same time. In so far as COVID-19 was a viral infection, there were large numbers of cases simultaneously and the phenomenon of post-viral syndromes is known, it does not seem to me surprising that some longer term sequelae could emerge. That does not however suggest that there is predictability about the characteristics of those sequelae.
- 12.2. To provide context, it is helpful to consider some of the other documented long-term consequences of viral infections:
 - a. considerable research has been undertaken into various post-viral fatigue syndromes, for instance those associated with Epstein-Barr virus. This is a field in which our understanding remains unclear and incomplete;
 - b. in the case of Zika virus, the long term sequelae most commonly associated with the disease is that of microcephaly in the foetus caused by maternal infection. This causes severe long-term disability in affected children;

- c. Zika, cytomegalovirus and Epstein-Barr virus are all associated with the development of Guillain-Barre syndrome, a rare condition of progressive neurological weakness. Although the syndrome usually resolves within weeks without long-term complications, it can rarely persist much longer or result in long-term weakness;
- d. Ebola is associated with a variety of long term sequelae, some of which may be serious, which again are poorly understood;
- e. varicella zoster, the virus responsible for chicken pox, may cause shingles several years or even decades later; and
- f. many viruses have no documented long-term sequelae.
- 12.3. Accordingly, I do not consider that the precise nature of the long term sequelae now referred to as "Long COVID" was reasonably predictable. Whilst it was foreseeable that COVID-19 infection – as with any viral infection - had the potential to give rise to some form of long term sequelae, whether this would in fact occur and if so, how these would manifest themselves, was not.
- 12.4. The situation is complicated by the fact that what is now referred to as "Long COVID" likely describes various different pathologies, each with different underlying causes. These include, but are not limited to:
 - a. symptoms of long-term fatigue, which may have some similarities to the other post-viral fatigue syndromes;
 - b. the long-term direct effects of the virus, e.g. through resultant scarring in the lungs, or the effect of blood clots precipitated by infection; and
 - c. symptoms explained by the need to be admitted to the intensive care unit ("ICU"). Post ICU syndromes are a well recognised consequence of admission to intensive care settings, occurring in a variety of conditions quite distinct to COVID-19.
- 12.5. Further, it is unsurprising that our understanding of Long COVID only materially improved as the pandemic progressed with time. Often, our understanding of the long-term effects of any particular infection remain poor until such time as a causative link with the infective agent can be established. In the case of Zika for instance, the association with microcephaly was not recognised until the epidemic of 2015, despite the virus itself having been first documented in 1947. Pandemics may also give

increased prominence to the pandemic agent, resulting in greater observation and scrutiny of its long-term effects, as well as more money for research efforts.

Actions in response to Long COVID

- 12.6. By the summer of 2020, we had a growing awareness of possible mid-term consequences following COVID-19 infection. Around this time, the OCMO commissioned NIHR's Health Protection Research Units to perform some of the earliest research into the long-term outcomes from COVID-19 (JH4/378 INQ000069876). By the autumn of that year, as evidence of potential long-term effects steadily accrued, NIHR and UKRI launched a Long COVID research call focused on understanding Long COVID in the community. This in turn supported a number of trials which undertook research into Long COVID. Much of the work on these within the OCMO was led by the CMO, who was concurrently head of NIHR.
- 12.7. I did not have a formal role in research commissioning or NIHR and therefore my own involvement in the response to Long COVID was more to support early clinical discussions and topic exploration. I also contributed to a number of round tables initially chaired by Lord Bethel on this topic and from which some evidence gaps were identified which fed into the NIHR research call. Thereafter, much of the OCMO's work on Long COVID was led by Dr Aidan Fowler. This reflected the fact that the response to Long COVID was being advanced and owned by NHSE, who were first to encounter the clinical consequences, and so took the lead on management of Long COVID from a health service patient provision perspective.

Section 13: Communications

13.1. The DCMO has, and always has had, a public facing communications role. This became much more significant during the COVID-19 pandemic than in previous health protection incidents. It was always anticipated, and indeed was the case during the H1N1 "Swine Flu" pandemic of 2009, that key scientific advisers would have a role in public communications during a public health emergency. There is an organisational responsibility, through the remit letter for UKHSA (and previously PHE) to 'warn and inform' the public in response to public health protection incidents (JH4/04 – INQ000090311) and I believe a professional responsibility as a doctor and Chief

Executive of a public health protection agency to share information sensitively, openly and effectively to mitigate risk to individuals, communities and populations wherever possible. This applies as much in a pandemic as it does to any infectious disease threat. In the UKHSA Module 2 corporate statement, section 6, paragraphs 800-839, I have already explained the role of UKHSA and its predecessor organisations in providing advice and briefings on behavioural science, communications and guidance.

- 13.2. For the public health and policy response to a pandemic to be effective, it is important the public are equipped to understand as best they can the rationale and science which is the foundation of that response and in particular any actions which individuals are asked to take to protect themselves or others. In the event of a pandemic, it is likely scientific advisers, doctors and others with operational experience of emergency response will be better placed to explain what can be complex scientific concepts or interventions to the public than ministers who have far less experience and understanding of those technical or tactical concepts.
- 13.3. Polling continues to support the view that public trust and confidence in scientists and doctors has, on the whole, exceeded that in politicians. It was of the upmost importance that the public not only understood but also had trust in the public health communications around COVID-19 if that messaging, and by extension the public health response, was to be effective. To this end, the involvement of scientific advisors in public facing communications was to my mind important.
- 13.4. A significant part of my role during the pandemic was participating in what became known as the 'triple lock' on guidance sign off. Through this process nearly all guidance received a clinical/scientific review and could benefit from alignment of rationale and nomenclature as much as possible. The process endeavoured to ensure the scientific accuracy and consistency of public communications by departments across Government. There was however some limitation in the extent to which the OCMO could control quotes, media releases or narratives by other departments and the speed and breadth of presentation of documents for review at times outpaced capacity. This was an area in which the OCMO advised, but it was ultimately for other departments to decide how that advice was carried forward into public communications.
- 13.5. It is well known that I contributed to press conferences with Ministers but I also provided communications in other formats. These included other direct media interviews and

contributions to programmes such as news programmes (Today, BBC Breakfast), chat shows (Mumsnet, Woman's Hour) and a childrens TV interview which allowed me to share current epidemiology, promote appropriate mitigations such as vaccinations and answer questions direct from the public. I also worked with 'Media Medics' regularly to support their detailed understanding of the pandemic from both a clinical and policy perspective so that they themselves were better equipped to respond to viewers questions. In addition, I led 'off camera-on record' briefings for science journalists, ahead of significant policy changes to support better understanding and media translation of critical underpinning rationale. I participated in very many regular and *ad hoc* webinars and, where appropriate, in person meetings, to provide advice to professional representatives of specialist clinical groups and to public representatives of various advocacy, business and educational groups.

- 13.6. The Inquiry has asked about the widespread use of the phrase "following the science" in Government communications. It was of course important that scientific advice was considered by Government when formulating policy and making decisions. The use of this particular phrase however originated in Government and was not something which I as DCMO, or to my knowledge the wider OCMO, advised upon.
- 13.7. In my view, the phrase probably failed to properly reflect the difficult job Ministers and other key decision makers had in weighing the scientific advice against other policy concerns and therefore represented one component of the decision making rather than its totality. Nevertheless, I generally consider that Ministers, in particular the Secretaries of State for Health and Social Care with whom I worked directly during the peak phases of the pandemic, put considerable effort into understanding both the data available and the scientific advice with which they were presented. The weight they then gave that understanding in formulating policy was a matter of political judgment. To the extent that the phrase was intended by those who designed it to promote public confidence in the response, as I have commented above, that was a reasonable aim.
- 13.8. The Inquiry has asked about the extent to which alleged breaches of social restrictions and lockdown rules by Ministers, officials and advisers impacted public confidence and the maintenance of observance of those rules by the public.
- 13.9. In general, my view is that it is important that individuals in positions of responsibility, not just in Government but outside it, act as good role models and for myself personally

I do not expect others to do what I ask if I am not prepared to do so myself. That does not strike me as a particularly controversial position to take. One reason for this is that actions which are in conflict with the advice one gives to others have the potential to create mistrust and cause confusion. I am not however aware of any compelling evidence that such alleged breaches had an effect on the public's compliance with public health measures. Indeed, the commitment to public health measures which represented a considerable imposition on their civil liberties by the British public was commendable, persisted well throughout the course of the pandemic and increasingly displayed 'societal self-management' in relation to rising or falling data spikes. Beyond that, as an evidence based scientist, I am unable to properly comment further: it would be for the public to say to what extent their thinking and behaviour was influenced by any reported instances of breaches of rules by those in positions of responsibility.

Section 14: Lessons Learned

14.1. Although I have included in my personal statement a very broad topic range (reflecting the questions asked), I understand Module 2 to be focused primarily on core political and administrative decision making in the early phase of the pandemic. I provide three areas of opportunity in that regard from my own personal experience and perspective.

1 Care Sector – criticality and information flows

- 14.2. The care sector in England is predominantly a private business based model. Business continuity and response is therefore vested largely in individual units and the sector entered the pandemic with no truly centralised component. Whilst there are recognised, and regularly assessed, routine standards for clinical and care quality in care settings and amongst care service providers, these have proven not to cover key parameters required for an emergency response during events such as a pandemic. Workforce stability is fragile and, in my mind, its importance frequently underrecognised.
- 14.3. Critically, the care sector is both essential as a 'receiver' when health systems become, or are about to be, overwhelmed by a catastrophic health emergency, and is routinely the direct provider of care to some of our most vulnerable populations with high levels of multi-morbidity. It will therefore predictably be the focus of societal concern for

significant future health incidents.

14.4. To ensure appropriate action and response can be monitored and supported, robust care sector data accrual and sharing for decision making must be maintained both after this pandemic and routinely during 'peacetime'. In my view, the current system was not adequately clear on the role and responsibilities of individual care businesses and of central government prior to the pandemic, and there are opportunities to address both clarity of responsibility and provision, analysis and utilisation of data in this very special sector through revision of routine commissioning requirements and emergency response plans.

<u>2 Scientific clinical, technical and analytical capabilities – a longer term vision for emergency</u> response capacity and economic growth

- 14.5. Throughout the pandemic, decision makers were reliant upon scientific, clinical, and technical expertise in order to underpin what are ultimately political decisions. This was an extension of the routine process of using technical expertise to advise Government but at a much more significant pace, scale and duration with final decisions closer to the intersection of economic and geopolitical domains than in many incidents. Experts worked extreme hours with great skill. To have such capability to hand, to train and sustain an expert workforce capable of responding to a range of health threats from pandemics to CBRN incidents requires firstly a recognition of the need and subsequently and consistently a firm commitment to invest sustainably in this capacity. This is fundamental to the country's ability to respond to threats and minimise population harms.
- 14.6. The career path of many scientists and specialists is generally a dedicated one over many years, often with relatively little external recognition. Many of those who contributed to the pandemic response at the most technical levels have retired or are near retirement. In many specialties, the country has not sufficiently invested in strong succession planning. This risk is currently heightened with many of those who faced sustained pressure during the pandemic, including hostile public criticism at times, seemingly leaving the pool available.
- 14.7. Whilst this expertise is critical in a pandemic or other extreme situation, it is the same individuals who underpin the delivery of scientific innovation and subsequent economic

growth of this country on a day to day basis. As a result, without purposeful, sustained investment, the country simultaneously loses the skills of those who can contribute most strongly to economic growth in the science sector as well as to protecting us all.

- 14.8. It is critical that:
 - scientific work is valued as a necessary (but not sufficient) component of decision making;
 - clear, respected career pathways for technical experts are encouraged and sustained to retain a skilled national cadre to support decision makers in responding to public health threats; and
 - technical experts are given greater exposure to decision makers and the process of decision making, both within and outside the health system, to allow them to better understand the intersection of technical, sociological and political considerations.

3 Decision making in central government

- 14.9. The COBR system works well as a mechanism to gain rapid cross government information and make top level decisions in an emergency. Below COBR, the machinery and systems are not always sufficient or as efficiently aligned as ideally required in an enduring incident of this nature. During the pandemic we saw that many of the coordinating functions were set up at pace, with new staff and frequent changes, and so did not bring institutional memory where this could have been helpful. Strong experienced leadership, with recognition that decisions will be made affecting and requiring input from many government departments, and knowing what skills exist and where all those skills sit at the start of an incident, could make for smoother decision making. This would also provide more manageable interfaces and more clarity to the public.
- 14.10. In linking to potential lessons learned from Module 1, the opportunity to have an experienced 'Emergency Response' Minister and associated function could deliver more permanency and foresight across government. A minister and capability with awareness of the reality of the breadth of policy possibilities required *in extremis,* operating in 'peacetime' to plan for, prevent and mitigate risks, might bring greater coherence to extremely challenging decisions which are necessarily made at speed.

Statement of Truth

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

Signec	Personal Data

Dated 3 October 2023