

Witness Name: Dr Audrey MacDougall

Statement No.: 2

Exhibits: AMD

Dated: 16 November 2023

UK COVID-19 INQUIRY

WITNESS STATEMENT OF Dr Audrey MacDougall

In relation to the issues raised by the Rule 9 request dated 19 June 2023 in connection with Module 2a, I, Dr Audrey MacDougall, will say as follows: -

1. I am Dr Audrey MacDougall of the Scottish Government, St Andrew's House, Regent Road, Edinburgh, EH1 3DG. I have been employed by the Scottish Government since October 2006 and have been the Scottish Government Chief Social Researcher, since 2014. I am also the Deputy Director in charge of the SG Central (previously Covid-19) Analysis Division.
2. I am aware that this statement was requested of me in my role as Scottish Government Chief Social Researcher. However, my involvement in Covid was also in my other role as Deputy Director of the Covid-19 Modelling and Analysis Hub/Covid-19 Analysis Division. I have not responded separately for each of the roles I held with the exception of my role as a member of the Scottish Government Covid-19 Advisory Group where I have already provided a separate statement [provided 20 February 2023; ref. M2A-AMD-01].
3. I had a wide-ranging brief leading on the production of data, modelling, evidence and research, coordinating advice on the 4 harms, overseeing a range of publications and internal briefing documentation for Ministers and policy officials and attending a range of regular meetings to offer advice. In carrying out my role, the data, evidence and advice presented by me and my team was used to inform a wide range of policy decisions many leading to legislation and/or regulation.

4. Throughout this statement I present my response in a chronological order based around the phases of the epidemic to better demonstrate how the work I led evolved over the duration of the epidemic.
5. I have prepared this statement myself by reference to records and material held within the Scottish Government. I have also received assistance from the Scottish Government Covid Inquiry Information Governance Division and staff within the SG Central Analysis Division.
6. All of my work during the period from March 2020 to April 2022 was undertaken using Scottish Government IT systems. I did not use WhatsApp or text messages for substantive discussions or for decision making. I did use both for communications with staff about administrative matters (e.g. working hours or IT problems) or occasionally to draw attention to factual information when handing over to my Covid-19 Modelling and Analysis hub co-director for the period where we shared the oversight of the Hub.
7. Any discussion about or work on the Nike Conference and the Scotland v France rugby game preceded my involvement. In general, I was not involved in any Covid-related activity until early March as set out below and cannot comment on the period from January 2020 to early March 2020.
8. Unless stated otherwise, the facts stated in this witness statement are within my own knowledge and are true. Where they are not within my own knowledge, they are derived from sources to which I refer and are true to the best of my knowledge and belief.
9. References to exhibits in this statement are in the form [AMD/number - INQ000000].

Background, qualifications and role during the Covid-19 pandemic

10. My career history is set out below.

Deputy Director SG Central Analysis Division since November 2021 and SG Chief Social Researcher since 2014

I am currently the Head of the SG Central Analysis Division, which is the successor to the Covid-19 Division. I am also the SG Chief Social Researcher. In the period until April 2022 this division was responsible for the production of Covid Analysis as outlined below.

Due to the demands of Covid I held three positions from March 2020 to November 2021, hence the overlap in the dates below.

Deputy Director Covid-19 Analysis Hub then Division March 2020 – November 2021. Job shared with SG Chief Statistician until around March 2021 to enable 24/7 cover to be provided.

I established a new analytical hub and subsequent Division to lead on wide-ranging analysis for Covid using social and scientific research, modelling and statistical data, and public polling to provide a focal point for Covid analysis in the Scottish Government. The Division was responsible for:

- Leading the creation of a new evidence base to respond to a unique situation.
- Developing a range of internal briefings and publications for Ministers which informed Cabinet decision-making.
- Leading the development and implementation of analysis and evidence for the 4 Harms approach across the Scottish Government in collaboration with a diverse range of senior advisors to advise Ministers, senior colleagues and key external stakeholders.

Scottish Government Chief Social Researcher April 2014 -

In this role I am responsible for:

- All aspects of recruitment, retention, promotion and learning and development of social researchers within the Scottish Government ensuring that sufficient resource of the right calibre is available to meet demand across all areas.
- Overall responsibility for quality assurance and publication decisions for Scottish Government social research.
- Directing programmes of work to enhance external academic engagement, develop new methodologies and promote the value of social research.
- Offering advice on general social policy issues.

- In the context of Covid I played a role regarding the 4 Harms, particularly Harm 3. Further details of this role are provided later in this statement.

Deputy Director Communities Analysis Division. August 2017 – November 2021

In the period from March 2020 until November 2021 I was simultaneously the Deputy Director for Communities Analytical Division (CAD). This division covers housing, poverty, equalities, regeneration and social security. In the context of Covid the work of this Division was pivoted to focus on evidence around inequalities and Covid support for disadvantaged groups. I led the division on the production of equalities and four harms briefing materials. Further details of this role are provided later in this statement.

Education and qualifications

11. I set out below summary details of my education and qualifications.

PhD 2007 University of Edinburgh – Strategic Capacity in post-devolution government in the UK: a comparative analysis of the lifecycle of central strategy units. This research adopted a comparative case study approach and involves interviews with senior civil servants, politicians and special advisers in London, Cardiff, Edinburgh and Belfast and a review of Parliamentary and policy documentation.

MSc 2003 (with distinction) University of Edinburgh – European and Comparative Public Policy including the study of policymaking, the economics and resourcing of policy and the use of international comparative evidence both qualitative and quantitative.

MBA 1998 Open University – Included the study of strategy and creative management within the public and private sectors.

ACA 1990 – Qualified as a Member of the Institute of Chartered Accountants in England and Wales (ICAEW). Studies included the study of economics and financial management.

BSc 1986 University College Dublin. Mathematics and computer science.

Other

Fellow of the Academy of Social Sciences

Member of the Royal Society for Arts, manufactures and commerce (RSA)

Member of the Institute of Chartered Accountants England and Wales

12. In the table below I have identified the key meetings I or one of my deputies attended on a regular basis.

<u>Group</u>	<u>Role</u>
I was a formal member of the Scottish Covid-19 Advisory Group (SCAG) from April 2021. I attended occasional meetings before that time as a member of the Scottish Government cohort.	My role at each group was to update the group on modelling and data issues and to contribute to four harms discussions drawing on regular polling and other available research produced by external academics, other countries and international bodies. As an internal Scottish Government member or participant I also played a role in providing a link between the group members and other sources of information and analytics within the Scottish Government.
I was not a formal member of the Advisory sub-group on Education and Children's issues or the Advisory sub-group on Universities and Colleges; however, I attended regularly (or was represented by one of my staff).	To present data, modelling and scientific updates, to contribute to the evidence based discussion and to advise on meeting further evidence needs.
Communities and Public Services Ministerial Group.	I attended regularly to present research, data and analysis on equality issues arising from Covid and the policy interventions implemented.
SG Compliance Group – attended by me or my deputies.	To present polling data and other evidence on public attitudes and compliance at a weekly meeting resulting in advice to Ministers.

Regular Scottish Government Resilience Room (SGoRR) official (O) and Ministerial (M) meetings.	Throughout the Pandemic I attended SGoRR meetings to present analysis and evidence to support decision making.
Scottish Government Chiefs Group chaired by the Chief Medical Officer (CMO) and Chief Scientific Adviser (CSA).	A group involving all the Chief Advisers to the Scottish Government to facilitate the sharing of information.
Groups attended by my staff as deputies	
4 Country Modelling Group which met throughout the pandemic and had its secretariat in the Welsh Government before transferring to Joint Biosecurity Centre (JBC) and then the /UK Health Security Agency (UKHSA) late in the pandemic.	This was a key group for the sharing of modelling assumptions, data and code and the comparison of outputs.
Scientific Pandemic Influenza Group on Modelling, Operational sub-group (SPI-M-O) and Scientific Pandemic Insights Group on Behaviours (SPI-B) – members of my team attended both SPI-M-O and SPI-B as government attendees.	To use the discussions at these meetings and the relevant papers to inform Scottish modelling, my team's work on public attitudes, and compliance and any other relevant evidence issues.

The Initial 'lockdown' in March 2020 (March 2020 – 21 May 2020)

13. I became aware of Covid in my official capacity in early March 2020 when SGoRR requested analytical input to their work on Covid. Scottish Government historically had a SGoRR Analytical Pool of trained analysts who could be activated if a civil emergency occurred which needed analytical support. The SGoRR Analytical Pool was activated for COVID-19 using agreed protocols set out as part of SGoRR on 4 March 2020. The pool capacity to undertake initial work lay in my division and two members of staff transferred to support SGoRR.

14. By 10 March I took on the leadership of the SGoRR Analytical Pool pivoting it to become the C-19 Modelling and Analytical Hub (MAH). At the time hubs were being created across the office to cover different aspects of policy response. My role from then until April 2022 was to lead the development, implementation, communication and publication of a range of modelling, data, evidence, analysis and research informing Ministerial and official Covid decision making. I was responsible for ensuring the MAH was appropriately staffed with experts in modelling, scientific briefing, research and statistical data analysis. I worked in collaboration with other analytical heads and key senior policy officials to ensure the outputs of the MAH and the advice offered met policy and decision-making needs.
15. The MAH had an initial programme of work agreed with key Scottish Government Directors consisting of:
- developing population base models based on data from SAGE and SPI-M-O and running queries and scenarios through these models
 - leading on responding to commissions from SGoRR
 - linking with equivalent modelling leads in Department of Health to share assumptions
 - updating, controlling and sharing the central assumptions and parameters that everyone should be working to
 - GIS mapping of populations.
16. Very quickly the demands of the role led me to request the Chief Statistician to join me as a co-director of the hub to provide input on a seven day basis.
17. In line with the stated four nations approach one of the first tasks of the MAH was to agree collaboration and sharing of modelling work across the four nations. By late March a '4 Country Modelling Group' was established which met throughout the pandemic with its secretariat in the Welsh Government before transferring to JBC/UKHSA late in the pandemic. My senior modelling staff were a core part of this group for its lifetime.
18. The importance of understanding public attitudes was recognized at an early stage and we commissioned Ipsos MORI to undertake a Scottish boost in wave 3 of their

coronavirus attitudes survey. This provided information about public wellbeing, anxiety, public behaviours, and attitudes towards the response. The first slide decks from Ipsos MORI were available and circulated from 12/13 March, and further waves of survey were commissioned regularly during this period eventually succeeded by YouGov polling for the duration of the pandemic [AMD/021 INQ000346965], AMD/022 – INQ000346966], AMD/023 INQ000346967], AMD/024 INQ000346968], AMD/025 INQ000346969] AMD/026 INQ000346970], AMD/027 INQ000346971], AMD/028 INQ000346972] and AMD/029 INQ000346973]

19. Recognising the importance of sharing data and evidence across the SG, I established a weekly call where a summary of the latest modelling position and associated evidence and analysis was presented [AMD/030 INQ000346974], AMD/031 – INQ000346975], AMD/032 INQ000346976] and AMD/033 INQ000346977]. Initially this was for the senior analysts in SG, but by the end of May it was for all interested parties and was gradually expanded to include the latest data, evidence and research alongside modelling. The weekly Covid-19 call became a key communication tool for disseminating modelling, evidence and analysis across the SG. It was regularly attended by over 100 people include the Chief Medical Officer, the Chief Scientific Advisor, the National Clinical Director and senior colleagues from a wide range of policy areas. It ensured that everyone has access to a central source of data, could seek clarifications and request new analysis.

20. I oversaw the development of a range of modelling work. For example MAH staff produced and circulated a weekly 'Covid-19: Modelling spread & impact in Scotland' slide pack to Ministers and officials ahead of SGoRR(O) meetings [AMD/034 – INQ000346978]. This material also supported NHS planning. Material generated from the MAH fed into the SG wide and Health Sit Reps. In mid-March the MAH staff took on the role of providing the Cabinet Office with Scotland level data for the Covid-19 XHMG DASHBOARD 7 days a week [AMD/035 INQ000346979]. MAH staff also shared materials with key external stakeholders such as Health Boards and Local Government to facilitate response and planning.

21. At this time expert modelling staff in MAH developed Scottish-specific epidemiological modelling [AMD/005 - INQ000249321]. This modelling was used throughout the

pandemic to estimate the impact of NPIs and mitigations using assumptions drawn from the latest available scientific literature.

22. By late March 2020 staff within MAH had developed a simple tool to provide estimates of cases and hospitalisations for Local Authorities and Health Boards based on central modelling [AMD/036 INQ000346980]. This was circulated by MAH staff to partners including the Chief Executives and Chairs of Health Boards, Directors of Public Health, Chief Officers, Health and Social Care Integrated Joint Boards, and Chief Executives of Local Authorities to assist local systems to mobilise and plan their response in their local areas.
23. This, as with the other core daily products, was updated by MAH staff with the social interventions being put in place across Scotland and the rest of the UK including:
- home isolation of symptomatic cases
 - whole household isolation
 - social distancing for the whole population
 - more significant social distancing for those aged 70 and over
 - more significant social distancing for vulnerable people [people with an underlying health condition] under 70
 - stopping mass gatherings
 - closure of schools and universities.
24. In late March the Communities and Public Services Ministerial Group was established. This was a group chaired by the Deputy First Minister comprising all ministers with broadly social policy portfolios and relevant senior officials. The Chief Social Policy Advisor, Chief Social Researcher, Chief Scientific Advisor, DG Exchequer and communications officials were also invited. My role in this group, along with the Chief Social Policy Advisor was to present on a number of occasions data and evidence around issues of inequalities and other considerations that would eventually form the basis of Harm 3 analysis. The group met twice weekly until July when it changed to weekly until October 2020 when it changed to fortnightly. The last meeting was held 15 March 2021.

Overall reflections

25. This period of the pandemic required speedy responses in a context of continually evolving knowledge, data and evidence. To facilitate decision making there were numerous meetings and discussions involving a wide range of officials, including myself or deputies from MAH, and Ministers, all supported by daily review of the available data and evidence. The daily data and modelling and subsequent polling and research formed one input to a corporate approach to decision making. While influential it sat alongside expert medical, scientific, economic and social policy advice all of which were considered in the process of decision making. Given the early morbidity and mortality data and modelled data from this period, the level of uncertainty regarding transmission routes, the absence of a vaccine and the pressures on the NHS a lockdown appeared to be the most appropriate intervention notwithstanding an acute awareness of the economic and social harms it would potentially cause.

The Route Map (21 May 2020 to October 2020)

26. On 21 May 2020, the SG set out a Route Map [AMD/001 - INQ000131072] for transitioning through and out of the emergency phase of the pandemic. This four-phase Route Map (which was subject to a number of updates over the following months) provided a forward plan for the easing of measures consistent with the principles set out in the Framework for Decision Making and subject to meeting conditions for future easing, based on six criteria set out by the WHO [AMD/002 - INQ000221923 – see Box 4].
27. The publication of the Route Map and the regular reviews of the options with the route map led to the instigation of the 4 harms approach. This continued throughout 2020 and 2021 with the final 4 harms assessment produced for the 7 December 2021 Cabinet Paper.
28. My team and I co-ordinated the evidence to inform the 4 harms approach working with our own modelling, data and analysis and other evidence provided by

colleagues across the SG's analytical function. This 4 harms advice was provided to Ministers via the weekly Cabinet paper packs.

29. I played a key role in the development of the 4 Harms approach and my team, in conjunction with other analytical teams across the Scottish Government, produced the first analytical evidence paper published on 7 May 2020 outlining the evidence underpinning the Covid-19 Framework for Decision Making [AMD/003 - INQ000131027]. This paper set out the factors to be considered under each Harm when making decisions. Other evidence was also published in this period where I had an input; for example, in June the Community Analysis Division published an Equalities and Fairer Scotland Duty assessment of the health and social impacts of Covid-19 [AMD/004 - INQ000182794].
30. I oversaw the production of modelling, statistical analysis, scientific evidence review and public polling and research by members of MAH all contributing to the formal three weekly route map review. I was a core member of the 4 Harms Group and contributed to weekly meetings based on the work produced by my division. At this stage my team started to produce and distribute weekly modelling packs to Ministers and a range of senior officials to set out the estimated impacts of changing NPIs.
31. MAH staff also produced a weekly Public Insights Bulletin [AMD/037 INQ000346981] and a Compliance and Adherence briefing for circulation to Ministers and Officials [AMD/038 INQ000346982]. Members of MAH staff attended the Compliance and Adherence Advisory Group to inform and advise based on this material. The role of the Compliance and Adherence Advisory Group was to lead, promote and encourage the levels of compliance with the health protection measures and guidance across internal government portfolios, business and third sector, and wider society.
32. To keep the public informed of our work I oversaw the publication of weekly modelling outputs with the first edition of Modelling the Epidemic published 21 May 2020 [AMD/005 - INQ000249321]. This continued on a weekly basis until May 2022 when switched to fortnightly. Publication ceased on 22 December 2022 after 115 editions. I also launched a public-facing 4 harms dashboard in May 2020, made

available on the Scottish Government's data.gov.scot website [AMD/006 - INQ000221924]. This presented a variety of indicators covering the 4 harms to enable the public to see some of the key measures considered. This was kept updated until March 2022. On 21 May 2020 C-19 MAH published a report presenting the results of a major online open platform for ideas on handling the pandemic [AMD/007 - INQ000131030]. My team commenced the publication of regular reports on Public Attitudes to coronavirus in May 2020 [AMD/008 - INQ000131029] with the final report published in May 2022.

33. MAH staff commenced scenario planning modelling in July 2020, where three scenarios for a resurgence in COVID-19 were considered. These were intended to explore what could happen, not to forecast what would happen. These initial scenarios looked at the scenario of an August 2020 peak, and a winter 2020/2021 peak. This modelling was refreshed in September 2020 covering two scenarios that for both autumn (more optimistic than previously) and winter (more pessimistic than previously). [AMD/039 INQ000346983].
34. Also during this period travel quarantine restrictions were subject to constant review and MAH provided weekly updates on the situation in other countries drawing on UK and international sources (slides 27-28 [AMD/040 INQ000346984]).
35. MAH remained responsible for reviewing and briefing on the latest evidence available, both scientific and international, to inform model production and options generation. MAH staff continued to attend and report on SPI-M-O and SPI-B meetings, review the minutes of SAGE and attend and brief on various SAGE sub groups and other cross UK fora.
36. In September 2020 MAH staff commenced the production of a weekly internal State of the Epidemic Report, that collated the different sources of evidence and data about the epidemic to summarise the current situation, why we were at that place, and what was likely to happen next. The first edition of the State of the Epidemic Report that was made publicly available was on 4 January 2021 [AMD/009 - INQ000249322]. This continued on a weekly basis until April 2022 when they switched to fortnightly.

37. At this time, MAH staff worked with analysts in other parts of the SG to support a range of policy developments, for example, to develop options for a new benefit, the Self Isolation Support Grant (SISG), to support those on low incomes that were unable to work due to Covid, with forecasts of the number of virus cases allowing us to model potential costs of the scheme.
38. In October 2020 the MAH drafted the first ad hoc evidence paper to support the specific NPIs in place around hospitality [AMD/010 - INQ000131038].
39. During this period on a daily basis, the MAH continued to provide Scottish input to the CCS COVID-19 Digital Dashboard [AMD/041 INQ000346985]. This was a spreadsheet of detailed data on health, education and justice data provided on a daily basis to the Cabinet Office. A member of MAH staff was also part of the Cabinet Office editorial team. Eventually responsibility for this task shifted to health analytical colleagues.
40. MAH staff also provided data for the SGoRR daily sitrep informing the Permanent Secretary and Ministers of the latest position.
41. Given the major impact of the pandemic on children and education, a SCAG advisory sub-group on education and children's issues was established in June 2020 by SG education colleagues. It met around 43 times in the period to 8 March 2022. I or one of my deputies attended each meeting to present Scottish-specific modelling and data and to participate in discussions around Harm 3 based on the SG polling and research evidence base.

Overall reflections

42. During this period of the pandemic scientific and other evidence was emerging rapidly through SAGE and its associated sub groups, international sources and academics. This evidence was used by MAH staff to inform modelling assumptions and the 4 Harms process feeding into Ministerial advice. This was a constantly evolving situation so advice prepared for senior officials and Ministers was iterative,

i.e. it built on previous advice provided. The structure and rhythm of analytical work evolved into a pattern organised around decision making processes and timetables. The 4 harms approach provided a framework to enable senior officials and advisors from all areas of government to discuss the holistic impacts of proposed NPIs. Alongside formal meetings there were many discussions around individual NPIs seeking to minimise transmission while mitigating Harms 3 and 4 in particular as much as possible. Indeed by 29 May 2020 the first easings of lockdown were announced with a move to Phase 1 informed by the evidence, analysis and expert advice provided to Ministers including that provided by MAH. This was the start of a gradual lifting of NPIs using the framework set out in the route map. However by the autumn a gradual reimposition of restrictions in local areas was necessary as prevalence increased. Again MAH provided modelling and data to inform these decisions.

The Levels Approach (November 2020 – August 2021)

43. With the intention of providing a more flexible and clear approach to using NPIs to manage the pandemic in Scotland, an approach based on five 'protection levels' of measures (numbered Levels 0 to 4) was published on **30 October 2020** in the first *COVID-19 Strategic Framework* document [AMD/011 - INQ000249320]. This approach superseded bespoke arrangements for measures that had been applied first in Aberdeen in **August 2020** (in response to an outbreak focussed around hospitality settings) and then, from **September 2020**, across the Central Belt and later across the rest of the country – including what became known as a 'circuit break' or 'reset' in **October 2020** – as the virus regained hold to different degrees across much of Scotland.
44. This new approach required the production of a new set of reports and indicators to monitor the virus at local authority level and to support decision making about the placement of each local authority within the most appropriate level. MAH staff developed an approach to local monitoring and on 28 October 2020 initial documentation was published:
- An analytical paper setting out the levels approach [AMD/012 - INQ000249324].

- A slide pack explaining the five indicators used [AMD/013 - INQ000249325].

45. From then on, MAH staff produced and published a weekly levels analysis report to inform decisions about the level allocation of each local authority [AMD/042 – INQ000346986], AMD/043 [INQ000346987], AMD/044 – INQ000232674, AMD/045 – INQ000346988, AMD/046 [INQ000346989], AMD/047 [INQ000346990], AMD/048 - INQ000078391 and AMD/049 [INQ000346991].

46. I co-authored a further detailed paper on the implementation of the 4 Harms approach which was published in December 2020 [AMD/014 [INQ000346962]].

47. In the lead up to Christmas 2020, evidence emerged of the presence of a new more transmissible variant. Cases began to rise across the country and all the relevant evidence pointed to the need to take action to control this new upturn.

48. The *State of the Epidemic* evidence paper that was published 4 January 2021 [cited above: AMD/009 - INQ000249322] clearly outlined the position the country was in and formed part of the evidence used to return the country to lockdown on 4 January [AMD/015 - INQ000221925].

49. In **January 2021** I assumed sole responsibility for the MAH. I relinquished my role as Deputy Director in charge of the Communities Analysis Division but retained my role as Chief Social Researcher. The latter role ensured that I was easily able to liaise with colleagues in all areas of the Scottish Government to obtain data and evidence to continue to inform 4 harms, particularly Harm 3 advice.

50. Supported by the now well established suite of weekly evidence, modelling and analysis from MAH, the levels approach was gradually reinstated over spring 2021 until the whole of Scotland moved to level 0 on 19th July.

51. In **May 2021** a SCAG advisory sub-group on Universities and Colleges was established. It met regularly until June 2022. I or one of my deputies attended each meeting to present Scottish-specific modelling and data and to participate in discussions around Harm 3 based on the SG polling and research evidence base.

52. Across the duration of the epidemic I regularly reviewed and revised the work undertaken by the MAH to ensure it remained relevant. During this phase of the Pandemic I oversaw the production of a wide range of modelling, data, evidence and research summarized below:

Modelling

- epidemiological COVID-19 modelling for Scotland to provide the basic metrics of the pandemic as published on a weekly basis in the Modelling the Epidemic report
 - operational modelling to underpin NHS planning for beds, equipment, vaccination and booster rollout, testing etc.
 - contact pattern modelling and survey work and, wastewater modelling to contribute to epidemiological modelling and to sub-national level and cross demographic insight
 - modelling to increase understanding about Long Covid
 - short and medium term policy modelling to estimate the impact of various different policy propositions and longer term scenarios based on the 4 worlds for COVID-19 and RSV, influenza and norovirus.
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- Looking ahead the MAH developed a set of 4 scenarios – the 4 worlds scenario modelling [AMD/050: INQ000346992] – to assist in developing policy for the future by setting out 4 potential futures (). This was shared widely in a number of different forums including:
 - within SG for a number of different areas
 - with Ministers as part of the usual modelling publication cycle
 - with policy colleagues to aid policy planning
 - with health colleagues to aid NHS workforce absence planning
 - with universities/colleges
 - with PHS for use in their whole systems modelling
 - with NHS boards for planning purposes
 - with colleagues in the other administrations of the UK
 - publicly via our modelling publications.

Reporting

53. Reporting work undertaken by MAH staff consisted of the production of a suite of weekly reports for publication and internal use including:

- the weekly published State of the Epidemic report and a more detailed associated internal slide pack.
- the weekly full watchlist and mid-week updates, on a daily basis at times to monitor the levels indicators at local authority level [AMD/051: INQ000346993].
- Various weekly slides packs for use by senior clinicians and policy makers in external engagement with stakeholders. On occasion on request I attended such meetings, for example with business stakeholders, to brief on the evidence and modelling.
- providing data to cross UK requests.
- Providing weekly local analysis of cases across the Common Travel Area [AMD/052: INQ000346994].
- managing Scotland's input to the ONS Covid-19 Infection Survey.
- Managing multiple ad-hoc requests for analysis and data from policy teams across the office.

54. The MAH also developed a programme of social research organised around Covid-19 response and recovery, Harm 3 and wellbeing including:

- Continuing to providing insight into the public mood, attitudes and behaviours particularly as they relate to improving adherence. Using this data to advise the Compliance Board, to provide weekly briefing for the Chief Social Policy Adviser on attitudes, wellbeing and on specific issues such as working from home and to contribute to Harm 3 as part of the regular 4 Harm assessments on policy options.
- an online open response survey, available publicly on the SG website from **4-18 December 2020**, was set up to capture people's experiences and attitudes towards coronavirus restrictions [AMD/053 – INQ000302515].
- four online focus groups held between **December 2020** and February 2021 with individuals connected with third sector organisations that support people

whose lives are affected by disadvantage, and in particular food poverty [AMD/054 - INQ000131033].

- **February 2021**, qualitative research was commissioned to investigate why the wellbeing of five subgroups in the Scottish population was disproportionately impacted by the COVID-19 pandemic. The five subgroups identified were women, young adults, those living in the lowest quintile SIMD areas (SIMD 1), disabled people, and those whose employment was threatened by the pandemic [AMD/055 - INQ000131034].
- contributing to the cross-office analytical work on COVID-19 learning and evaluation and the COVID-19 Recovery Strategy.

55. The MAH Science and Evidence team remained responsible for reviewing and briefing on the latest scientific evidence available, including SAGE papers, to:

- inform model production.
- provide quick response to ad-hoc queries from CMO and a range of other colleagues.
- support a variety of policy teams in NPI development and stakeholder communications.
- Act as Secretariat for the SG Chiefs Group.

Overall reflection

56. This was a very challenging time for all involved. Having to impose severe restrictions over Christmas and lockdown in January 2021 was difficult. The evidence supported this course of action, particularly the presence of a new variant. Choosing the exact date to impose lockdown and then reverse required a balance of considerations, the social and economic harms grew more severe as their duration grew, public mood was despondent and the impacts of a lockdown over winter was particularly difficult to mitigate. Cross SG meetings that took place at this time were very mindful of the impact of lockdown on different groups in society and 4 Harms advice reflected such discussions. However the rollout of vaccination provided a way forward so there was more of a sense of progress.

Baseline Measures (August 2021 – December 2021)

57. In August 2021, as Scotland progressed beyond the Levels approach to managing the pandemic, a number of protective 'baseline measures' were retained as they were considered both necessary and proportionate to achieve the strategic intent of suppressing the virus to a level consistent with alleviating the broader harms of the crisis.
58. By November 2021 while other Covid hubs across the Scottish Government stood down the MAH converted to a permanent division. Much of the work of the division continued as described in previous phases of the pandemic.
59. During this time vaccine certification was introduced and the division produced and published two major evidence papers on vaccine certification [AMD/016 - INQ000131041 and AMD/017 - INQ000131042].
60. Divisional staff continued to update the 4 worlds scenario modelling to inform autumn/winter 2021/2022 planning (Autumn and Winter 2021-22 Covid Scenarios 2021-12-02.pdf). The combined impacts of Covid-19, Influenza, and RSV, using data provided by PHS were included [AMD/056 INQ000346995 and AMD/057 – INQ000346996]. These scenarios were continually refreshed throughout 2021 and 2022. When available, these scenarios were compared to and aligned with scenario planning provided by academic groups, or other institutions, e.g. SAGE [AMD/058 INQ000346997]. This information was also included as part of the slide pack presented by Divisional staff during the weekly Covid-19 modelling, reporting, and science and international epidemiology internal meeting.
61. My Science and Evidence Unit produced a range of outputs in this time period which were widely circulated internally to inform future planning. Papers on the risk of variants, on waning immunity and on the impact of face masks and other NPIs which provided a summary of estimated percentage reduction in R from various studies. The latter was kept updated to January 2022. [AMD/059 – INQ000346998, AMD/060 INQ000346999, AMD/061 INQ000347000 and AMD/062 – INQ000347001].

Overall reflections

62. Work during this period was intense with a widening range of products, analysis and publications. I, along with my senior staff, attended a wide range of internal and external meetings to present and discuss our work. The volume of requests for analysis from other parts of the SG was significant so my workload and that of my staff was continually evolving to meet needs. Over the period the Division increasingly focused on the longer-term with an emphasis on forward planning using modelling scenarios and reviews of scientific evidence, which by this stage was extensive. I was not directly engaged in developing Covid public health communications; instead SG communications experts accessed the products of the Division to support their work.

Targeted and temporary response to the Omicron variant (December 2021 – April 2022)

63. During December 2021, the advent of the Omicron, and the prospect of a dominant variant with even higher transmissibility, led to the temporary imposition, in stages, of a number of targeted measures in Scotland. These included both the reintroduction of international travel measures and stricter guidance on isolation, on social interaction and for particular settings. Various regulatory requirements were reintroduced for hospitality settings to reduce transmission and certain settings (e.g. those serving as dancing venues) were temporarily required to close. Restrictions on attendance capacity at large events were also reintroduced. Targeted financial support was provided. These measures were subsequently lifted in stages from January 2022.

64. At this stage the need for the same level of evidence and briefing was winding down. Some examples of evidence provided to officials and Ministers in this period include:

- Evidence collated about the European epidemiological situation on 25 November 2021 [AMD/063 INQ000347002].
- Evidence about the emerging Omicron situation in South Africa on 3 December 2021 [AMD/064 INQ000347003] and updated regularly throughout the Omicron wave, evidence on Omicron in Europe on 7 December 2021 (Annex L, page 65, in [AMD/065 - INQ000078503]).

- The last major ad-hoc publication from the Division in December 2021 covering the impact of Omicron in Scotland [AMD/018 - INQ000078506].
- Analysis was produced for the CMO in early 2022 on, for example, BA1 vs BA2 severity [AMD/066 INQ000347004].
- A paper on the efficacy of wastewater based epidemiology surveillance systems circulated widely on the 26 May 2022 to inform decisions about the retention of this element of surveillance [AMD/067 INQ000347005]. Some final internal analysis was produced by the division on the susceptible pool and population immunity during late 2022 [AMD/068 INQ000347006].

65. The Division produced a final evidence paper to support the Strategic Framework update in February 2022. This paper presented the four harms situation at that point and looked forward to the evidence needs of a different, calmer phase of the Pandemic. [AMD/069 INQ000347007].

66. The final formal 4 Harms assessments informed by the Division were produced in December 2021. The Division stood down the 4 Harms dashboard in March 2022, the Education and Children's sub group ended in March 2022 and the Universities and Colleges sub group ended in June 2022 negating the need for weekly analysis and attendance to support these sub-groups. The final version of the State of the Epidemic was published in April 2022 although Modelling the Epidemic continued until December 2022.

67. My role and that of my division gradually pivoted to providing advice on planning for the future.

Overall reflection

68. Across the two years from March 2020 to April 2022, my role and that of my division was to provide a constant source of modelling, data, evidence and research to inform all aspects of the pandemic response. We published, provided internal briefings and attended numerous external and internal meetings. It is not possible to identify each meeting and the exact subject of discussion given the volume of work undertaken and the intensity of the work. Staff, including myself, worked very long hours throughout.

The Division's publications provide a good overview of the range of topics discussed. We drew heavily on a wide range of sources including key UK sources such as SAGE for our work. We liaised regularly with our colleagues in UK Government departments, the other administrations and academia. Overall the level of joint working and co-operation was good.

Divergence

69. In my view the SG focused on developing and applying an approach that best suited Scottish conditions informed by the evidence. I do not think it is possible to say that divergence as a point of principle commenced on a particular date. At all times what mattered and what was discussed by Ministers and officials was how best to respond to the situation in Scotland. Attention was paid to underlying differences in the health status of the population, demographics, geography and practical issues such as differences in the timing of school holidays. The virus did not spread across the entire UK simultaneously and it was important to be able to evidence and react to local patterns of transmission taking account of all 4 harms. Tailoring measures to local circumstances was appropriate and regular polling indicated that the public supported the Scottish Government's approach.

70. Given the differences noted above I do not believe that a more centralised approach would have been appropriate.

Key Challenges and lessons learned

71. On 29 September 2021 the Scottish Government published a paper on vaccine certification drafted by my team which was used at a meeting of the COVID-19 Recovery Committee on 30 September as part of their evidence gathering on vaccine certification [AMD/019 - INQ000221926].

72. I also attended the COVID-19 Recovery Committee of the Scottish Parliament on 30 June 2022 alongside Professor Linda Bauld and Professor Jason Leitch (Scottish Government) and Maree Todd (Minister for Public Health, Women's Health and Sport)

to give evidence to the Communication of Public Health Information Inquiry [AMD/020 - INQ000221927].

73. There are a number of programmes of work underway to consider lessons learned and future planning, including the following groups of which I am a member:

- Coronavirus (COVID-19): Learning and Evaluation Oversight Group
- Standing Committee on Pandemic Preparedness.

The work of both of these groups is ongoing.

Statement of Truth

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

Personal Data

Signed: _____

Dated: _____ 16 November 2023 _____