Witness Name:
Professor Andrew Morris
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COVID-19 INQUIRY – MODULE 2

Questionnaire Response – Professor Andrew Morris

1: Overview of qualifications, career history, professional expertise and major publications:

1.1. I became the inaugural Director of Health Data Research UK (HDR UK) in August 2017. HDR UK is the UK's national institute for health data science. Its mission is to unite the UK's health data to improve people's lives and it is supported by 12 funders. I also convened the International Covid-19 Data Alliance (ICODA) supported by the Bill and Melinda Gates Foundation and the Minderoo Foundation.

1.2. I am seconded from my position as Professor of Medicine, and Vice Principal of Data Science, at the University of Edinburgh, having taken up this position in August 2014. Prior to this, I was Professor of Medicine (2006-2014) and Dean of Medicine (2012-2014) at the University of Dundee.

1.3. I was Chief Scientist at the Scottish Government Health Directorate from 2012-2017 and I have served and chaired numerous national and international grant committees and Governmental bodies.

1.4. My research interests span informatics and chronic diseases. I have published over 350 original papers.

1.5. I was previously Governor of the Health Foundation from 2009-2017, a leading UK charity that supports quality improvement in health care, and I chaired the Informatics Board at UCL Partners, London, from 2014-2017. In 2007 I co-founded Aridhia Informatics, which uses high performance computing and analytics in health care.

1.6. I am a Fellow of the Royal Society of Edinburgh and the Academy of Medical Sciences and I received the Royal Society of Edinburgh Royal Medal in 2021.

Publications

1.7. I am a clinical academic who has published ~350 articles in the last 25 years, mainly in the fields of diabetes, clinical pharmacology, genetics and data science in national and international medical journals. Examples of publications include:

1.8. **A D Morris**, DIR Boyle, AD McMahon, SA Greene, TM MacDonald, RW Newton. Adherence to insulin therapy, glycaemic control and ketoacidosis in insulin-dependent diabetes. DARTS/MEMO Collaboration. Lancet, 1997 22; 350(9090):1505-10.

1.9. JMM Evans, LA Donnelly, A Emslie-Smith, DR Alessi, **AD Morris**. Metformin and reduced risk of cancer in diabetic patients. BMJ 2005;330:1304-5.

1.10. Frayling TM, Timpson NJ, Weedon MN, Zeggini E, Freathy RM, Lindgren CM, Perry JR, Elliot KS, Lango H, Rayner NW, Shields B, Harries LW, Barrett JC, Ellard S, Groves CJ, Knight B, Patch AM, Ness AT, Ebrahim S, Lawloe DA, Ring SM, Ben-Sholmo Y, Jarvelin MR, Sovio U, Bennett AJ, Melzer D, Ferrucci L, Loos RJ, Barroso I, Wareham NJ, Karpe F, Owen KR, Cardon LR, Walker M, Hitman Ga, Palmer CN, Doney AS, **Morris AD**, Davey-Smith G, Hattersley AT, McCarthy MI. The Wellcome Trust Case Control Consortium: A common Variant in the FTO Gene is associated with body mass index and predisposes to childhood and adult obesity. Science 2007 11:316(5826):889-94.

1.11. Ibrahim H, Liu X, Zariffa N, **Morris AD**, Denniston AK. Health data poverty: an assailable barrier to equitable digital health care. Lancet Digit Health. 2021 Apr; 3(4) Epub 2021 Mar 4. PMID: 33678589

1.12. Paprica PA, Sydes MR, McGrail KM, **Morris AD**, Schull MJ, Walker R. Prospective data linkage to facilitate COVID-19 trials - A call to action. Int J Popul Data Sci. 2020 Aug 11;5(2):1383.

2: List of groups I participated in and the relevant time period:

2.1. I participated in the following groups:

2.2. **SAGE:** I was a participant and observer from 29 March 2020 (SAGE 20) to 31 January 2022 (SAGE 103). I participated in my roles as Chair of the Scottish Government Chief Medical Officer (CMO) Covid-19 Advisory Group (see below) as well as Director of HDR UK. My understanding at the time, and until recently, was that HDR UK was an expert group, alongside COG-UK, but having recently checked the Go-Science website I note that the expert group designation has since been removed. I do not know when or why this occurred.

2.3. HDR UK worked with other partners including UKRI and NIHR to consider how the UK's data infrastructure could support research relevant to the pandemic, to create new scientific evidence and feed in their consensus conclusions to SAGE. I provided leadership for this activity in my capacity as Director of HDR UK from 21 April 2020 to February 2022.

2.4. **SCOTTISH GOVERNMENT CMO COVID-19 ADVISORY GROUP**: I was Chair of the Covid-19 Advisory Group for the Scottish Government from 26 March 2020 to 3 February 2022: https://www.gov.scot/groups/scottish-government-covid-19-advisory-group/. The group met 60 times between 26 March 2020 and 3 February 2022. I chaired every meeting.

3: Overview of involvement in groups between January 2020 and February 2022:

3.1. **SAGE Participant and Observer:** In total I attended 63 SAGE meetings. I was a participant in 46 meetings (between SAGE 20 and SAGE 79); and an observer in 17 SAGE meetings (between 80 and SAGE 103). I was invited to participate in SAGE by Sir Patrick Vallance following my appointment as Chair of the Scottish Government Covid-19 Advisory Group. The first SAGE meeting I participated in was on 29 March 2020.

3.2. **Health Data Research UK:** HDR UK, as the national institute for health data science, from 14 April 2020 worked with researchers and health data custodians across the UK. Meetings at the start of the pandemic were daily. HDR UK, independent of SAGE, worked, with NIHR and UKRI and other

partners to (i) convene a large, diverse UK interdisciplinary research community with expertise in data science; (ii) make large complex datasets available to enable research studies that were able to inform policymakers and the pandemic response; (iii) work with the public to prioritise research questions relevant to the pandemic response.

3.3. Thus, HDR UK worked with its partners to ensure that the expertise needed to make diverse health data available for research to directly inform the pandemic response was made available as rapidly as possible. Activities included:

3.4. *Bringing together the community* – We held 36 Covid-19 task force calls on Tuesday evenings at 20:00 pm with 183 clinical and research health data leaders invited to each meeting. We also convened weekly/fortnightly Tuesday evening "Community hot topics calls" at 20:00 pm that brought the community together in an informal forum to discuss emergent scientific issues. These lasted for about 30-40 minutes and comprised brief updates on (i) the state of the pandemic; (ii) updates on UK-wide data infrastructure and research studies (the openly published HDR UK SAGE report); (iii) hot scientific topics or guest speakers. These meetings were open, inclusive, involved public representatives and regularly attracted 100 people from across the four nations. Guest speakers included Susan Hopkins, Sir Chris Whitty, Jeremy Farrar and Sir Patrick Vallance

3.5. *Communication*- We set up Slack channels (a cloud-based platform that enables structured collaboration and communication among colleagues from multiple institutions/geographies) for core areas of health data enabled Covid-19 research, which included 1,300 people collaborating on projects and urgent research at certain points during the pandemic.

3.6. *Public and patient involvement and engagement (PPIE) on Covid data research* – We convened a virtual group of 62 members of the public and patients who worked with us on various projects during the pandemic to provide the public's perspectives.

3.7. *Enabling access to health data* – Building on the UK Health Data Research Alliance, we worked with the national data custodians across the four nations

of the UK to accelerate safe and secure access to large scale health data research to inform the Covid-19 response.

3.8. *Collating research questions* – We used an online form for researchers and stakeholders (including members of the public) to submit questions: https://www.hdruk.ac.uk/covid-19/covid19-research-question-form/. This was to facilitate a more coordinated response to the use of health data for Covid-19 research.

3.9. These activities were delivered independently by HDR UK. However, they informed HDR UK's input to SAGE reporting as summarised below:

3.10. An initial paper was presented to SAGE on 14 April 2020 by me, as the Director of HDR UK. This paper outlined the opportunity to enable a national health data research capability to support Covid-19 research questions. Following this paper, HDR UK, working with partners including members of the UK Health Data Research Alliance, British Heart Foundation, Cardiovascular Data Science Centre and CRUK provided weekly updates to SAGE on the progress achieved.

3.11. These reports were initially provided on a weekly and then fortnightly basis, and provided an update on the use of health data research during the pandemic. All 36 reports are listed on HDR UK's website here: https://www.hdruk.ac.uk/covid-19/our-work-to-help-sage/our-previous-reports-to-sage/

3.12. Professor John Aston, who was at the time the Chief Scientific Advisor to the Home Office, was nominated as the SAGE recipient of HDR UK's reports. In addition to direct provision to SAGE, the reports were provided directly to the Medical Research Council and National Institute for Health and Care Research to inform their own pandemic responses.

3.13. Multiple members across HDR UK contributed to each report. This was coordinated and led by:

- Professor Andrew Morris (myself): HDR UK Research Director
- Caroline Cake: HDR UK CEO – who left HDR UK in January 2022
- David Seymour: HDR UK Director of Infrastructure & Services
- Dr Rhoswyn Walker: HDR UK Director of Strategy

3.14. On 11 June 2020 this team was invited to attend SAGE to provide a short progress update and request feedback as to whether HDR UK's activities as summarised in the institute's reports were useful, and where HDR UK could otherwise focus its efforts to best support the pandemic response.

3.15. Following this meeting, HDR UK continued its regular reporting. However, Caroline Cake, David Seymour and Rhoswyn Walker did not attend any further SAGE meetings.

3.16. HDR UK concluded its reports to SAGE on 2 November 2021, but continued to support the UK's scientific response to the pandemic through its joint leadership of the COVID-19 Data & Connectivity National Core Study with the Office for National Statistics (ONS) as part of the wider set of National Core Studies.

3.17. *National Core Studies:* Following a commission from Sir Patrick Vallance on 12 October 2020, HDR UK was formally commissioned to build a national health data research capability to support Covid-19 research questions. This was called the Data and Connectivity Programme of the National Core Studies. Specifically, HDR UK, in partnership with ONS, was tasked to:

- Map the initial high priority Covid-19 data sets required by the National Core Studies.
- Deliver the necessary data infrastructure and services (quality and timely data, ability to link the data and provide access to data for multiple researchers) in five trusted research environments across the UK to allow the high priority research questions to be answered efficiently in a transparent and trustworthy way.
- Deliver a single "shop window" for the Covid-19 National Core Studies to ensure the national data sets for Covid-19 research are findable, accessible and interoperable and reusable (FAIR) by enhancing the capability of the UK Health Data Research Innovation Gateway.

3.18. Reports from this activity were initially provided to SAGE on a weekly basis, and thereafter fortnightly, and now three-monthly basis.

3.19. **Scottish Government Covid-19 CMO advisory group**. I was invited by the Chief Medical Officer for Scotland to chair a "Research Cell" on 16 March 2020.

This was formally constituted as the Scottish Government Covid-19 CMO Advisory Group and met for the first time on 24 March 2020. My role as Chair of this group was to support Scottish Ministers and senior clinical advisers to:

- Interpret SAGE outputs and other emerging scientific evidence in the context of Scotland.
- Provide expert advice spanning the disciplines of public health, clinical advice, epidemiology, virology, behavioural sciences, global health, medicine and statistical modelling.
- Inform NHS and Social Care mobilisation and planning guidance in Scotland.
- Relay relevant information and questions from Scottish Government to SAGE and the Scientific Pandemic Influenza Group on Modelling, Operational sub-group (SPI-M-O).
- Support the Scottish Government Covid-19 Analysis Division headed by the Chief Researcher.
- Advise Scottish Government, SGHSC Directorates, and Covid-19 Corporate Analytical Hub on strategic approach to identifying, accessing and using data to support our understanding and response to Covid-19 in Scotland.
- Develop links with other Scottish Government Covid-19 advisory groups as appropriate.
- Maintain close engagement with SAGE

3.20. These responsibilities were performed in partnership with other Scottish SAGE participants.

4: Summary of documents to which I contributed for the purposes of advising groups:

4.1. HDR UK: As outlined above, I presented an initial paper https://www.hdruk.ac.uk/wp-content/uploads/2020/04/200416-COVID19-Research-Data-Final.pdf to SAGE on 14 April 2020 as the Director of HDR UK. This paper outlined the opportunity to enable a national health data

research capability to support Covid-19 research questions. Following this paper, HDR UK, working with partners including members of the UK Health Data Research Alliance, British Heart Foundation Cardiovascular Data Science Centre and CRUK provided weekly updates to SAGE on the progress achieved.

4.2. HDR UK and its UK wide partners participated in, and presented formally to, SAGE 41 on 11 June 2020. The paper presented to SAGE is available here. It provided summary information on health data research on direct and indirect effects of Covid-19, the availability of data assets and the maturity of data infrastructures to support research availability, particularly where mature research data infrastructures are established (e.g. Wales, CPRD & Discover-NOW). In contrast, in areas without an established approach to making national data available for research (e.g. in social care), progress is slowed as the effort is going into establishing new linkages, collaborations etc.

4.3. *Fortnightly SAGE updates:* In total HDR UK provided 36 updates to SAGE on research data infrastructure and research outcomes relevant to the pandemic. These were all published and made available in real time and placed in the public domain. The reports, dating from 21 April 2020 to 2 November 2021, are all available here.

4.4. As part of the UKRI/NIHR National Core Studies Programme, HDR UK openly published 7 research updates from October 2021 to July 2022. These reports are freely available here. The topics included research outputs on Covid-19 surveillance, clinical trials, longitudinal health and well-being and Covid-19 transmission in relation to the environment and immunity.

4.5. **Scottish Government CMO Advisory Group:** The group met 60 times between 26 March 2020 and 3 February 2022. The minutes of all meetings were published on the Scottish Government's website and are available here. The Group submitted 40 pieces of written advice to the Scottish Government from its own work and sub-group activity in testing, education, care homes and nosocomial infection.

5: Summary of articles, interviews and/or evidence:

5.1. I decided not to undertake media activity despite frequent requests.

5.2. I was invited to give oral evidence at the House of Commons Scottish Affairs Committee for the 21 May 2020 session on *Coronavirus in Scotland* – the transcript is here.

5.3. My academic articles include:

5.4. Data capture and sharing in the COVID-19 pandemic: a cause for concern *Lancet Digital Health October 2022*.: This article describes the need for improved and standardised approached for data access and data sharing internationally to enable research relevant to the pandemic

5.5. Development and evaluation of rapid data-enabled access to routine clinical information to enhance early recruitment to the national clinical platform trial of COVID-19 community treatments *Trials January 2022* :This article describes a novel approach to enable recruitment into Covid-19 clinical trials.

6: Views as to whether the work of the groups in responding to the Covid-19 pandemic succeeded in its aims.

6.1. My role as part of the groups in which I participated was to ensure that scientific advice was "joined up" across the UK, that we avoided duplication and to ensure consistency of the advice. My views are as follows:

The composition of the groups and/or their diversity of expertise

6.2. HDR UK was able to convene, in an open and inclusive way, scientific leaders from across the UK from a whole range of disciplines (including molecular biology, virology, infectious disease epidemiology, behavioural science and clinical care) to inform the data and connectivity work programme.

The way in which the groups were commissioned to work on the relevant issues

6.3. As Director of HDR UK – a national Institute with multiple partners- I was able to use our networks across academia, NHS, policy makers and industry to ensure open and inclusive participation in data research relevant to Covid-19. This ability to convene broadly spanned the four nations.

The resources and support that were available

6.4. There was a need to "pivot" from existing resources to ensure that a rapid and agile response was possible. For example the EAVE II Study in Scotland used patient data to track the Covid-19 pandemic and vaccine effectiveness across the entire country. It provided outstanding insight into the progression of the pandemic, and was supported by the HDR UK BREATHE data research hub ,which is a multi-partner collaboration bringing together data assets relevant to respiratory disease across the UK. Existing resources were therefore necessarily diverted in the time of an international public health emergency.

The advice given and/or recommendations made

6.5. At a time when the pandemic was characterised by uncertainty, volatility and complexity, the recommendations in my view were commensurate with the scientific knowledge at that time.

The extent to which the groups worked effectively together

6.6. The expert stewardship and leadership of Sir Patrick Vallance and Sir Chris Whitty was remarkable. As a SAGE participant, I observed the ability to draw out expertise across a broad section of the community.

The extent to which applicable structures and polices were utilised and/or complied with and their effectiveness

6.7. From my time and participation in SAGE, the support from the Government Office of Science and the support of the SAGE participants was excellent.

7: Lessons that can be learned

7.1. There is an opportunity to look at pandemic preparedness and how we gear up the UK's capability and response. I should declare a conflict as I have been invited by the First Minister of Scotland to convene the Scottish Government Standing Committee on Pandemic Preparedness. As such, we have identified four areas where we feel there is an opportunity for Scotland to contribute to pandemic preparedness as part of the UK and global ecosystem. These are;

- Development of a pandemic preparedness centre.
- Development of a near real time data infrastructure to enable surveillance monitoring and treatment.

- Clarity of the purpose, functions, structures and governance of scientific leadership and scientific advice to the Scottish Government, and how this docks into UK-wide and international structures.
- The opportunity to integrate industrial, academic and NHS expertise into the future development of diagnostics, vaccines and therapeutics.

8: Documents that I hold

8.1. All the materials from the meetings that I chaired in my role as Director of HDR UK and the Scottish Government Chief Medical Officer Covid-19 Advisory Group are already in the public domain. I have in my possession email correspondence, notes of meetings and other correspondence with many members of SAGE and its sub-groups. These are all available if requested.