RE: Request for Evidence under Rule 9 of the Inquiry Rules 2006
Reference for Request - M2/SAGE/01/JXB

1. A brief overview of your qualifications, career history, professional expertise and major publications.
I began as a PhD student at the MRC Biostatistics Unit, University of Cambridge in October 2019; my project focused on improving epidemic transmission models for influenza pandemics. Prior to this, I completed a BA and MEng in Computer Science at the University of Cambridge. I had no scientific publications prior to the pandemic.

2. A list of the groups (i.e. SAGE and/or any of its sub-groups) in which you have been a participant, and the relevant time periods.
I participated in various SPI-M-O meetings from March 2020 until it ceased meeting in 2022. In addition, I participated in SPI-M-O subgroups focused on short-term forecasting and medium-term projections.

3. An overview of your involvement with those groups between January 2020 and February 2022.
I started attending SPI-M-O meetings on short-term forecasting in late March 2020, due to my involvement in producing the Cambridge/PHE short-term forecasts. My role was primarily contributions to these outputs, which later evolved into Cambridge/PHE's contributions to the nowcasting and medium-term projections produced by SPI-M-O. My involvement in this work was gradually phased out over 2021. I do not know the precise number of SPI-M-O (and subgroup) meetings I attended in this time, I attended the majority; I understand the secretariat holds records on attendance at these meetings.

4. A summary of any documents to which you contributed for the purpose of advising SAGE and/or its related subgroups on the Covid-19 pandemic. Please include links to those documents where possible.
The following documents for consideration at SPI-M-O

- Various results related to the nowcasting, forecasting, and projections results previously mentioned. These were normally delivered in a machine-readable format (without any narrative component) to be processed by CrystalCast. Occasionally, reports were produced for discussion at SPI-M-O or its subgroups' meetings.
- "Update on CoVID19 deaths and real time model sensitivity analysis", August 2020. Assessing the impact of the definition of a COVID-19 death (eg: whether within 28 or 60 days of a positive test).
- "Estimates of Rt from the PHE-Cambridge model: what's going on?", January 2021. An explanation of why the nowcasting Rt estimates from the PHE/Cambridge model were outliers compared to other groups.
- "Updated incidence estimates from ONS CIS", April 2021. Explanation of the methodology which we developed in order to derive incidence estimates from the Office for National Statistics's Coronavirus Infection Survey. The Office for National Statistics adopted the methodology and publish estimates weekly here: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/latest
- "Which model predictions are highly dependent on assumptions about parameter values?", September 2020. A discussion of what assumptions in various models

would cause the conclusions to be incorrect. My personal contribution was to the "Value of Information" analysis.

The following documents I had the opportunity to review in advance of their submission to SPI-M-O, and am listed as an author on, but had little overall involvement in:

- "Time series of testing, positive tests, demand for tests across local areas", October 2020. Analyses of demand and delays associated with test and trace.
- "Notes on the new variant", December 2021. Analyses relating to the emergence of the variant now known as Alpha.
- "Variants and vaccination", March 2021. Simple models of the interaction between variants and vaccination.

5. A summary of any articles you have written, interviews and/or evidence you have given regarding the work of the above-mentioned groups and/or the UK's response to the Covid-19 pandemic. Please include links to those documents where possible.

- Reports on estimates of the current state of the epidemic in England, based on the same model used for SPI-M-O contributions. Most are available from: https://www.mrc-bsu.cam.ac.uk/tackling-covid-19/nowcasting-and-forecasting-of-covid-19/ and a scientific article about this work in the first wave: https://royalsocietypublishing.org/doi/full/10.1098/rstb.2020.0279
- Pre-print article evaluating the short-term forecasts of groups contributing to the SPI-M-O consensus: https://www.medrxiv.org/content/10.1101/2020.11.11.20220962v2
- Discussion article on the estimation and use of the reproduction number, and alternative metrics that should be considered: https://rss.org.uk/RSS/media/File-library/Publications/Special%20topic%20meeting/Pellis_Final_Manuscript_JUNIPER.pdf

6. Your views as to whether the work of the above-mentioned groups in responding to the Covid-19 pandemic (or the UK's response more generally) succeeded in its aims.

In my view, during the period in which I was involved, the groups with which I was involved generally succeeded in their aims of providing evidence-based advice to the Government. From my perspective, the major constraint on the quality and quantity of the advice provided was the number of person-hours the groups could draw on, limiting the work they could do while still providing timely advice, and the quality of the data collected and made available to the groups. Some elements appeared to be duplicated across groups, which was inefficient, especially considering these limitations (for example, basic data processing and plotting).

7. Your views as to any lessons that can be learned from the UK's response to the Covid-19 pandemic, in particular relating to the work of the above-mentioned groups. Please describe any changes that have already been made, and set out any recommendations for further changes that you think the Inquiry should consider making.

Consideration of how to rapidly expand the capacity of academic groups to deal with the pandemic and ensure efficient, modern systems are used to distribute data to these groups. Collaboration with industry to understand best practices, especially when operating with speed and scale, would have potential to implement new approaches.

8. A brief description of documentation relating to these matters that you hold (including soft copy material held electronically). Please retain all such material. I am not asking for you to provide us with this material at this stage, but I may request that you do so in due course.

To the best of my recollection, I have:

- Notes taken in meetings attended
- Notes taken in regards to work read and ideas throughout the pandemic
- Code, data, and documentation relating to my work
- Emails and other communication (eg: Teams messages)