UK COVID-19 Inquiry: Module 2 - Rule 9 Request to Mr Bill Quilty - Reference: M2/SAGE/01/BQ

Please provide the following information:

1. A brief overview of your qualifications, career history, professional expertise and major publications.

Qualifications:

- PhD (candidate), Infectious Disease Epidemiology, LSHTM (exp. 2023)
- MSc Epidemiology, Imperial College London (2018)
- BSc Biological Sciences, University of Reading (2017)

Career history:

- Research Fellow, LSHTM (2021 -)
- Research Assistant, LSHTM (2018-2021)

Professional expertise:
Epidemiology, mathematical modelling, testing, microbiology, virology

Relevant publications:

- Quilty BJ, Clifford S, Flasche S, Eggo RM. Effectiveness of airport screening at detecting travellers infected with novel coronavirus (2019-nCoV). Eurosurveillance. 2020 Feb 6;25(5):2000080.
- Quilty BJ, Clifford S, Hellewell J, Russell TW, Kucharski AJ, Flasche S, Edmunds WJ, Atkins KE, Foss AM, Waterlow NR, Abbas K. Quarantine and testing strategies in contact tracing for SARS-CoV-2: a modelling study. The Lancet Public Health. 2021 Mar 1;6(3):e175-83.
- Quilty BJ, Diamond C, Liu Y, Gibbs H, Russell TW, Jarvis CI, Prem K, Pearson CA, Clifford S, Flasche S, Klepac P. The effect of travel restrictions on the geographical spread of COVID-19 between large cities in China: a modelling study. BMC medicine. 2020 Dec;18(1):1-0.
- Clifford S, Quilty BJ, Russell TW, Liu Y, Chan YW, Pearson CA, Eggo RM, Endo A, Flasche S, Edmunds WJ, CMMID COVID-19 Working Group. Strategies to reduce the risk of SARS-CoV-2 importation from international travellers: modelling estimations for the United Kingdom, July 2020. Eurosurveillance. 2021 Sep 30;26(39):2001440.

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.

- SPI-M
- NERVTAG
- SAGE

3. An overview of your involvement with those groups between January 2020 and February 2022, including:

a. When and how you came to be a participant;
b. The number of meetings you attended, and your contributions to those meetings;
c. Your role in providing research, information and advice.

I became involved in Summer 2020 as evidence was sought on the effectiveness of contact tracing. I attended: 5 SPI-M meetings from 17/08/2020 to 28/04/2021, one NERVTAG meeting on 13/11/2020 and one SAGE meeting on 16/11/2020 (SAGE 68). I was involved from August 2020 to April 2021 to present on LSHTM modelling of the effectiveness of contact tracing and travel quarantine; the necessary duration of quarantine and isolation; and the benefit of testing (PCR and lateral flow antigen testing) in reducing the duration of, or replacing, quarantine/isolation through one-off or repeated testing.

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.

I contributed to several documents submitted to SPI-M on quarantine and testing for incoming international travellers and for contacts of cases, including assessing the policy of daily contact testing.

CMMID: Strategies to reduce the risk of SARS-CoV-2 re-introduction from international travellers, 23 July 2020 - GOV.UK

Rapid testing strategies for traced contacts: comparing quarantine, quarantine and testing, and daily testing, 16 November 2020 - GOV.UK

CMMID: Daily testing of contacts: adherence, number of tests, speed of tracing, and lateral-flow test sensitivity, 11 March 2021 - GOV.UK

LSHTM: Daily testing of contacts – adherence, number of tests, speed of tracing, and missed tests, 11 March 2021 - GOV.UK

LSHTM and KCL: Reconstructing the secondary case distribution of SARS-CoV-2 from heterogeneity in viral load trajectories and social contacts, 1 June 2021 - GOV.UK

International vaccination: Potential impact on viral evolution and UK public health, 21 July 2021 - GOV.UK

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.

I contributed to several comment pieces and responses to articles on the use of lateral flow testing for control of SARS-CoV-2 transmission. These were concerned with clarifying the evidence on the sensitivity and specificity of the tests, especially when multiple were used in sequence. I also contributed to a comment on the relevance of travel restrictions in the era of SARS-CoV-2 variants.

Re: SARS-CoV-2 antigen lateral flow tests for detecting infectious people: linked data analysis | The BMJ

Travel measures in the SARS-CoV-2 variant era need clear objectives - The Lancet

SARS-CoV-2 antigen testing: weighing the false positives against the costs of failing to control transmission - PMC

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. This may include, but is not limited to, your views on:
a. The composition of the groups and/or their diversity of expertise;
b. The way in which the groups were commissioned to work on the relevant issues;
c. The resources and support that were available;
d. The advice given and/or recommendations that were made;
e. The extent to which the groups worked effectively together;
f. The extent to which applicable structures and policies were utilised and/or complied with and their effectiveness.

The UK benefited from having a scientific advisory framework in place prior to the pandemic. The framework of SAGE with specialised subgroups in SPI-M, SPI-B, and NERVTAG each with their own secretariat meant scientific expertise was available and digestible in consensus statements for policymakers from the outset.

If a particular commission was made, several modelling groups would investigate independently. Each group would assess the available data and produce a model to describe the system at hand based on a series of assumptions. Results would then be presented and compared at the SPI-M main meeting with the assumptions and model structure scrutinised to determine where differences may arise. This system worked well to find scientific consensus.

Issues that arose were largely due to the need to provide advice in data or time-poor situations.
Data required to inform urgent decision-making was often either absent or highly uncertain, requiring strong assumptions to be made and leading to uncertainty in model outputs. Effort was made to address issues of incomplete or biased data through establishing infrastructure to process cases, hospitalisations and deaths data, as well as large studies such as the ONS Infection Survey, REACT, CoMix, and Recovery. The quality of evidence generated in the UK through such initiatives was truly world-leading and came out of discussions in SAGE and its subgroups. As well as setting up critical data streams, the UK was quick to adopt and implement new technologies such as vaccines and lateral flow tests, with the implementation strategy of each informed by modelling backed up by real-world trials.
A lack of time (due to rapid spread of SARS-CoV-2 leading to increases in hospitalisations which would soon overcome NHS capacity) meant there was often little room for iterative improvements of models or to explore additional scenarios. In cases where additional scenarios were requested, this could delay advice as each required rewriting and running the model, writing a report, and producing a slide deck for presentation. This may have led to delays in policy response.

Those on subcommittees were often there voluntarily, and many did not receive funding specifically to work on Covid-19. This meant that those working on the response were under extra pressure due to prior commitments, leading to stress and burnout.

Contact tracing in the UK was too slow and had poor coverage, limiting its effectiveness.

Raised often by both behavioural scientists on SPI-B and modellers in SPI-M was the issue of providing financial support to those asked to quarantine or isolate. Many individuals felt they could not comply with Covid-19 control measures as they could not take time off work or accept loss to their incomes. This was identified as a key limiting factor in adherence and therefore transmission control. A financial support payment was eventually introduced, but many who applied failed to meet the stringent eligibility criteria. Rather than introduce a separate payment, it would be better to simply raise statutory sick pay.

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.

Effort should be made to establish bias-free data streams as quickly as possible during the next pandemic. Tools such as models should be ready to work "out of the box". Infrastructure for these should be in place prior to the outbreak of a pathogen of pandemic potential. Funding should be allocated to establish this infrastructure, and either maintain or quickly redivert personnel to work on the pandemic response. Policy decisions should take into account the costs that arise from a pandemic (and policies to mitigate) other than health, such as economic, social, and financial costs. Statutory sick pay should be raised to the living wage at a minimum.

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.

As well as the public documents on the gov.uk page given above, there are email communications to SPI-M contributors and the secretariat.