Witness Name: Andrew C Hayward
Statement No.:M1-SAGE-01-AH
Exhibits:6
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UK COVID-19 INQUIRY

WITNESS STATEMENT OF Andrew Hayward

I, Andrew Hayward, will say as follows: -

Professor Andrew Hayward - Qualifications

Year	Qualification
2009	MD Infectious Disease Epidemiology, University College London
2000	Membership of the Faculty of Public Health Medicine
1996	MSc Communicable Disease Epidemiology, London School of hygiene and Tropical Medicine - Distinction
1994	Diploma in Tropical Medicine and Hygiene, Liverpool School of Tropical Medicine and Hygiene
1990	MBBS United Medical and Dental Schools, University of London-Pass
1987	BSc (Hons) Psychology, University of London- 2nd Class Upper Division

Professor Andrew Hayward - Employment History

February 2023-present	UK Health Security Agency National Lead for Inclusion Health (80% WTE), UCL Professor of Infectious Disease Epidemiology and Inclusion Health (20% WTE)

2017- 2023	Director, UCL Institute of Epidemiology and Health Care and Co-Director, UCL Collaborative Centre for Inclusion Health - Professor Infectious Disease Epidemiology and Inclusion Health
2014-2017	Deputy Director, UCL Institute of Health Informatics – Professor Infectious Disease Epidemiology and Inclusion Health
2010-2014	Co-Director, UCL Centre for Infectious Disease Epidemiology, Deputy Head of Department of Infection and Population Health - Reader Infectious Disease Epidemiology
2001-2009	Senior Lecturer Infectious Disease Epidemiology – UCL
1998-2001	Lecturer in Public Health – University of Nottingham
1994-1998	Research Registrar and Public Health Training Rotation - PHLS Communicable Disease Surveillance Centre. Leicester Health Authority – Health Protection, Southern Derbyshire Health Authority - General Public Health, Thames Regional Public Health Offices, Health Protection
1992-1994	Senior House Officer Public Health Training Rotation – Leicestershire Health Authority 1992 Senior House Officer Rheumatology – Leicester Royal Infirmary
1991-1992	Senior House Officer Accident and Emergency – Hereford General Hospital
1990-1991	Junior House Officer - General and Respiratory Medicine - – St Thomas's Hospital London. Junior House Officer – General Surgery – West Suffolk General Hospital

Professor Andrew Hayward - Career Overview

I am qualified in medicine, and following training in public health, became a member of the General Medical Council specialist register in public health. A substantial part of my early public health training (1994-98) was in the Respiratory Infection Section of the Communicable Disease Surveillance Centre working with Professor John Watson. Since my academic training [Master's Degree in Communicable Disease Epidemiology 1996], most of my career has been based in academic posts, first in Nottingham working with Professor Van-Tam and then at UCL. At UCL I co-directed the Centre for Infectious

Disease Epidemiology, was then deputy head of the Department of Infection and Population health, then Deputy Director of the UCL Institute of Health Informatics and most recently Director of the UCL Institute for Epidemiology and Health Care (one of the largest research institutes of its type covering applied health research, epidemiology, public health and behavioural science). I am also co-director of the UCL Collaborative Centre for Inclusion Health, which focusses on the health needs of socially excluded groups including people experiencing homelessness, people who use drugs, vulnerable migrants, sex workers and prisoners. I am UCL Professor of Infectious Disease Epidemiology and Inclusion Health and have a broad range of research in these areas. I have a Master's degree in Communicable Disease Epidemiology, a Diploma in Tropical Medicine and an MD in Infectious Disease Epidemiology. In February 2023 I took up the role of UK Health Security Agency National Lead for Inclusion Health (80% WTE) whilst remaining 20% employed as Professor of Infectious Disease Epidemiology and Inclusion Health at UCL.

Major relevant publications

A major focus of my work has been on epidemiology and control of acute respiratory infections and understanding their transmission, community incidence, risk factors, symptomatology of community cases of infection, immunology, and behaviours related to transmission.

Nursing Home Influenza Research. I led research on Influenza in nursing homes showing that vaccinating staff reduces influenza and associated hospitalisations and deaths in residents and highlighted the very high burden of respiratory infections in nursing homes and the important role of staff in transmitting infections to residents. (AH/1-INQ000147213)

I led a major MRC/Wellcome community cohort of influenza and other respiratory infections from 2006-2011 (Flu Watch) which helped to establish the fact that a high proportion of the population were infected each year, that the majority of these infections were asymptomatic and many did not meet clinical case definitions for influenza so remained undiagnosed. The great majority of cases were mild and did not attend for medical care and only a very small minority of those attending their doctor were picked

up by primary care surveillance. We found that even though the policy in the 2009 pandemic was to treat all those with influenza with antivirals through the 'National Pandemic Flu Service", less than 5% of cases were treated such that the impact of antivirals in the 2009 pandemic was limited. (AH/2-INQ000147214)

Other analyses of Flu Watch focussed on immunity and showed that cross reactive T cells were able to prevent symptoms in those infected, showing the potential value of stimulating T cell responses in vaccines rather than vaccines that just stimulate an antibody response. (AH/3-INQ000147215)

Prior to the pandemic I had also conducted research using whole genome sequencing of influenza in all diagnosed cases in a hospital. This allowed us to establish transmission chains in the hospital and show that spread of influenza in hospitals accounted for many cases highlighting the potential risk of spread of respiratory infection in hospital settings. (AH/4-INQ000147216)

List of government scientific advisory commitees and groups (Date Range 11th June 2009 – 21st Jan 2020)

I was appointed as a full member of Nervtag as an expert in the epidemiology of acute respiratory infections to NervTag in 2014 following a national advert and interview process. According to my diaries and minutes of meetings I attended 8 of the 11 full Nervtag committee meetings held prior to Jan 2020 and was unable to attend 3 meetings due to booked annual leave or family illness. I was also invited to attend a subcommittee on face mask and respirator use in Jan 2016 but was unable to attend due to diary commitments.

Nervtag Meetings held between 11th June 2009 and 21st Jan 2020	Full Nervtag committee date	Attended or Not

19th December 2014	Main Nervtag Committee 1st meeting - attended	Attended
13th March 2015	JCVI/Nervtag committee to advise on pre-pandemic vaccine	Attended
23rd April 2015	JCVI/Nervtag committee to advise on pre-pandemic vaccine	Attended
27th November 2015	Main Nervtag committee	Attended
30th June 2016	Main Nervtag meeting	Apologies sent
2nd December 2016	Main Nervtag meeting	Attended
14th June 2017	Main Nervtag meeting	Apologies Sent
23rd January 2018	Main Nervtag meeting	Attended
21st June 2018	Main Nervtag meeting	Attended
12th December 2018	Main Nervtag meeting	Attended
17th December 2019	Main Nervtag meeting	Apologies sent

In April 2018 I was asked if my name could be added to a SAGE database of experts on pandemic influenza – to which I agreed. I was subsequently invited to SAGE meetings on the 2018 Ebola Pandemic. I attended three of these meetings but as I do not have expertise in viral haemorrhagic fevers my advise was limited to the general importance of obtaining good epidemiological data on community transmission. I was not subsequently invited to be a member of the COVID Sage committee.

In addition to Nervtag and SAGE meetings, during this period I attended one meeting of Spi-M in 2015 to present Flu Watch data on low antiviral usage during the 2009 Influenza pandemic, one meeting of a NHS pandemic planning event (in 2018) where NHS workforce issues were being considered – here I presented information on the high level of presenteeism amongst workers with Influenza and 2 meetings of a group assessing symptom profiles for use in the national pandemic flu service (in 2018). I presented data from Flu Watch on the sensitivity and specificity of symptom profiles for influenza and advised on use of more sensitive case definitions in those at high risk of complications and more specific definitions for those at low risk.

High-level overview of your involvement with those groups

As per the terms of reference of Nervtag members were asked to provide scientific advice to support to development of policies relating to pandemic preparedness but we were not responsible for making policy recommendations. My role in these meetings was as an epidemiologist with expertise in transmission of acute respiratory infections and with specific insight from large scale community studies of acute respiratory infections including influenza and other respiratory viruses. Along with other members of the committee I advised on:-

- regular risk assessments of pandemic threats from existing respiratory infections, these mainly related to threats from Avian Influenza Viruses, MERS Cov 2 and Enterovirus D-68.
- Advice on risk assessment tools used to classify and describe risk of emerging pathogens
- Scientific advice to support decisions on influenza antiviral stockpiling and use in the event of a pandemic.
- Scientific advice to support decisions on maintenance of pre-pandemic vaccine stockpiles
- Scientific advice to support decisions on pre-purchase orders for pandemic specific vaccines
- Scientific advice on research gaps relevant to the above
- Scientific advice on use of personal protective equipment in healthcare settings (through a subcommittee of Nervtag)
- Scientific advice on the management of incidents of Avian Influenza affecting UK domestic birds
- Scientific advice on when to trigger intensification of pandemic preparedness activities

Notable areas relevant to control that Nervtag was not asked to advise on were -

- The potential value of non-pharmaceutical interventions (other than personal protective equipment for healthcare workers) to control pandemic threats (I believe this was largely SPI-M responsibility),

- Horizon scanning for potential pandemic threats beyond existing viruses thought to have pandemic potential (I believe this was the responsibility of the Advisory Committee on Dangerous Pathogens)

Views on the effectiveness of Nervtag

Based on my membership of Nervtag I think the committee had an appropriate range of scientific expertise including id epidemiology, modelling, clinical expertise, virology, immunology and public health to advise on the matters that it was asked to advise on. Members were recruited through national competition which I felt was a good way of doing it. When we identified gaps, such as in animal health, behavioural science or sociology members were recruited to fill these gaps. Nervtag was largely commissioned to provide scientific advice when policy issues were being decided on. For example, we were commissioned to provide scientific advice around influenza antiviral stockpiling, influenza pre-pandemic vaccine stockpiling, advanced purchase orders for pre-pandemic vaccines, decisions on what types of personal protective equipment should be purchased. The committee undertook this work in a planned way assessing the evidence to help decision makers make decisions about these specific issues. Except for the types of personal protective equipment used in healthcare settings, NervTag was never asked to advise on non- pharmaceutical interventions (which I believe was covered by Spi-M) or to horizon scan about potential pandemic threats beyond the main existing viruses with pandemic potential (which I believe was the role of the Advisory Committee on Dangerous Pathogens). Consequently, almost all discussion related to Avian influenza viruses or MERS Cov. Although SARS Cov and MERS Cov were recognised as pandemic threats and the severity and transmissibility of Mers Cov was closely monitored, NervTag was never asked to consider the implications of a highly transmissible coronavirus with appreciable mortality. Also because of the focus on pharmaceutical interventions (which were available for Influenza but not for other respiratory viruses) most of the advice we provided was not highly relevant to the early stages of the Covid pandemic as no such pharmaceutical interventions existed and the early stages of the response were reliant on non pharmaceutical interventions. The group was never asked to take a broader overview or provide scientific input into the overall UK pandemic plan. The one exception to this was when we were asked to provide advice for potential triggers for seeking to

pass emergency pandemic legislation but were not provided with any information on what this legislation would cover. Consequently, the group had no knowledge of what legislative tools were being considered other than potentially allowing retired doctors and nurses to have their professional registration reinstated. This lack of transparency made it difficult for the group to advise appropriately. I think it would help if there were a greater element of committees such as Nervtag being able to set their own agenda as well as responding to specific commissions. Also it would be helpful if there were not such a such demarcation between the groups making policy and the groups providing scientific advice on proposed policy. We worked well with JCVI on advising on vaccines and with the Academy of Medical Sciences advising on antivirals but I never felt at all connected to those who were making policy.

Nervtag was established as a "peacetime" committee rather than an emergency response committee. We were told that in the event of an emergency response the committee would be subsumed into a Health Services Advisory Group that would feed into SAGE. In fact during the pandemic this did not happen, and NervTag continued to provide scientific advice throughout the pandemic. Nervtag did provide timely advice on control of avian influenza circulating in domestic flocks. The general process Nervtag followed was regular committees twice a year to assess threats from respiratory infections with pandemic potential and to discuss specific commissions and follow up meetings where more detailed consideration of specific commissions were needed. The committee would also respond to requests for views by email when no meetings were planned.

Nervtag was well supported by the secretariat and by Public Health England who were very professional in their regular updates and risk assessments of the threats from emerging pathogens. Arguably support around specific commissions was weaker and reliant on the member's existing scientific knowledge rather than on commissioned systematic reviews. However, given the expertise of the group I felt this was largely OK as members kept up to date with advances in the scientific field.

Nervtag stuck closely to it's terms of reference to provide scientific advice to inform policy rather than to make policy recommendations. It was transparent in terms of open advertisement and competitive recruitment for posts and in terms of publication of minutes of meetings. The fact that the members of the group had worked together for many years prior to the pandemic was helpful to the pandemic response as we knew each other's

areas of strength and knowledge and were already functioning well as a group. I felt that these were all advantages that Nervtag had over SAGE during the early stages of the pandemic as SAGE is not a standing peacetime committee, members were not recruited through open composition and in the early stages of the pandemic minutes of meetings were not published.

Nervtag membership was entirely voluntary and un-renumerated. At times this meant that NervTag meetings and work competed with other academic or clinical duties. Whilst members of Nervtag would try to prioritise NervTag over other professional and personal responsibilities, this was not always possible.

Overall views of pandemic preparedness prior to Covid-19

The UKs pandemic planning was focussed on preparing for an Influenza Pandemic with a strong focus on the use of antivirals and vaccines. As these technologies did not exist for other respiratory virus pandemic threats, much of the planning was not relevant to a highly transmissible virus such as COVID where non pharmaceutical interventions were the main approach to control early in the pandemic. I think part of this lack of preparedness for threats other than Influenza relates to the way in which advisory groups are commissioned to advise on very specific aspects of policy rather than to take an overview of the entire response. Similarly, the strict separation between scientific advisory groups and policy making groups was unhelpful. There were insufficient opportunities for the committee to set its own agenda or understand the scope of other groups. There were also insufficient opportunities to consider gaps in pandemic planning.

In light of the above I think it is helpful for all advisory groups to be recruited through open competition, for their terms of reference to be clear but to include an element where groups are encouraged to set their own agendas as well as respond to commissions. Greater dialogue between those providing scientific advice and those making policy would be useful. All pandemic is about preparing for the unexpected but the range of scenarios that were planned for was insufficient. Pandemic planning is largely predicated on emergence of pathogens such as influenza with known pandemic potential. It needs to also incorporate scenarios for new pathogens with different modes of transmission, different levels of transmissibility, different severity, different groups affected and different

availability of pharmaceutical interventions. Overreliance on extrapolating from known pathogens limits the resilience of plans.

From my limited involvement post-pandemic I think that a wider range of scenarios are being considered in future pandemic planning but there is still a tendency to base all scenarios on extrapolations of what has happened in the past rather than more blue-sky thinking of what to do about new pathogens that vary according to the characteristics described above.

Summary of any advisory documents I contributed to.

I contributed to discussions at all the Nervtag meetings listed above. Minutes of all these meetings are available on the Nervtag website. I also contributed to the Nervtag and JCVI subcommittee on pandemic vaccines which produced the following documents (also available on the NervTag website).

- Formal record of two meetings of the joint NERVTAG and JCVI pandemic vaccine sub-
  committee (AH/5-INQ000147217)
- Formal recommendations on the pre-pandemic vaccine stockpile from the joint NERVTAG and JCVI pandemic vaccine sub-committee1, taking into account additional comments from the full NERVTAG committee held on 27th November 2015. (AH/6-INQ000147218)

I did not keep copies of documents produced by the SAGE Ebola meetings or from other non-the other nervtag groups I attended prior to the pandemic.

Summary of key articles or reports, interviews or evidence about UK pandemic planning.

Not applicable - I have not written any key articles or reports or provided interviews or evidence regarding the UK's pandemic planning, preparedness and resilience.

Summary of any other documentation (including soft copy material held electronically).

I have collated all emails where I contributed to Nervtag discussions outside of the main meetings. These include advice on risk assessments for avian influenza, advice on the use of antivirals and the national pandemic flu service and advice on when emergency pandemic legislation should be triggered.

Other information relevant to the scope of module 1 - None

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 without an honest belief of its truth.

Signed: Personal Data

Dated: 09/06/2023