Witness Name: David Lalloo

Statement No.: 1

Exhibits: DL/1 – DL/9

Dated: 14 April 2023

Ref: M1/SAGE/01/DL

UK COVID-19 INQUIRY

WITNESS STATEMENT OF PROFESSOR DAVID LALLOO

I, **PROFESSOR DAVID LALLOO**, of the Liverpool School of Tropical Medicine, Pembrook Place, Liverpool, L3 5QA, will say as follows: -

1. **Introduction**:

1.1. I make this statement pursuant to the Covid-19 Inquiry's Rule 9 request of 20 January 2023.

1.2. The matters I set out within this statement are within my own knowledge save where I state otherwise. Where I refer to facts that are not within my own knowledge, I will give the source of my knowledge of those facts. The contents of this statement are true to the best of my knowledge and belief.

Background

1.3. I am Director and Professor of Tropical Medicine at the Liverpool School of Tropical Medicine (the "**LSTM**"), posts which I have held since January 2008 and January 2019 respectively.

1.4. I am an academic clinician in Tropical Medicine and Infectious Diseases with a longstanding research interest in clinical trials and multidisciplinary research, particularly in HIV and associated infections, malaria and envenoming. I have worked extensively in the UK, Africa (Malawi, Uganda, Kenya and South Africa) and Asia (Sri Lanka, Vietnam and Papua New Guinea).

1.5. My research has generated new knowledge with over 250 publications including in journals such *PLOS Medicine*, *Lancet Infectious Diseases, the NEJM* and *Science* and my work has influenced international guidelines and policy.

1.6. I have had significant roles in supporting high quality science and UK global health policy through positions on a number of scientific funding panels and advisory bodies such as the MRC Global Health Group and chair the NIHR Global Health Advisory Group. I have given advice to the Department for International Development (now the Foreign, Commonwealth and Development Office), chaired the Public Health England ("**PHE**") Advisory Committee on Malaria and was a member of UK SAGE for Ebola and the pre-SAGE for Zika. My expertise is in understanding and managing infectious diseases in many different settings, including in the UK.

1.7. I am currently an Honorary Consultant Physician at Liverpool University Foundation Hospitals, a position I have held since 1999.

1.8. My previous roles include:

1.8.1. Dean of Clinical Sciences and International Public Health, LSTM (2012 to 2018)

1.8.2. Director, Wellcome Trust Liverpool Glasgow Centre for Global Heath Research (2009-2018)

1.8.3. Director, Wellcome Trust Clinical PhD Programme (2009-2018)

1.8.4. Clinical Lead and Director, Diagnostic Laboratory, Liverpool School of Tropical Medicine, (2001-2019)

1.9. My education and qualifications are as follows:

Institution	**Qualification**	**Date**
Royal College of Physicians and Surgeons	FFTM RCPS (Glasg)	July 2006
Royal College of Physicians	FRCP	February 2001

Joint Committee on Higher Medical Training	CCT in Tropical Medicine, Infectious Diseases and General (Internal) Medicine	September 1997
University of Newcastle upon Tyne	MD (with commendation)	July 1994
Royal College of Physicians	MRCP (UK)	February 1987
University of Newcastle upon Tyne	MB BS with Honours (2nd class) Stage I Part II (Distinction) Stage I Part I (Distinction	June 1984 June 1981 June 1980

1.10. Illustrative publications, from a total of 253:

1.10.1. Single-Dose Liposomal Amphotericin B Treatment for Cryptococcal Meningitis. Jarvis JN, Lawrence DS, Meya DB et al , (**Lalloo DG** 40th of 42 authors).N Engl J Med. 2022 Mar 24;386(12):1109-1120. doi: 10.1056/NEJMoa2111904.

1.10.2. Walker PGT, Whittaker C, Watson OJ et al (**Lalloo DG** 47th of 49 authors). Ferguson NM, Ghani AC. The impact of COVID-19 and strategies for mitigation and suppression in low- and middle-income countries. *Science*. 2020 Jul 24;369(6502):413-422. doi: 10.1126/science.abc0035. Epub 2020 Jun 12.

1.10.3. Molloy SF, Kanyama C, Heyderman RS et al (**Lalloo DG** 32nd of 37 authors). Antifungal Combinations for Treatment of Cryptococcal Meningitis in Africa. *N Engl J Med.* 2018 Mar 15;378(11):1004-1017. doi: 10.1056/NEJMoa1710922.

1.10.4. Kasturiratne A, Pathmeswaran A, Wickremasinghe AR, Jayamanne SF, Dawson A,.Isbister GK, de Silva HJ, **Lalloo DG**. The socio-economic burden of snakebite in Sri Lanka. *PLoS Negl Trop Dis.* 2017 Jul 6;11(7):e0005647.

1.10.5. Wall EC, Mukaka M, Scarborough M, Ajdukiewicz KM, Cartwright KE, Nyirenda M, Denis B, Allain TJ, Faragher B, **Lalloo DG***, Heyderman RS*. (* joint senior author). Prediction of outcome from adult bacterial meningitis in a high HIV seroprevalence, resource-poor setting using the Malawi Adult Meningitis Score (MAMS). *Clin Infect Dis*. 2016 Dec.

1.10.6. Beardsley J, Wolbers M, Kibengo FM et al, (**Lalloo DG** 31st of 32 authors). Adjunctive Dexamethasone in HIV-Associated Cryptococcal Meningitis. *New England Journal of Medicine*. 2016 Feb 11;374(6):542-554

1.10.7. MacPherson P, **Lalloo DG**, Webb EL, Maheswaran H, Choko AT, Makombe SD, Butterworth AE, van Oosterhout JJ, Desmond N, Thindwa D, *et al*. Effect of optional home initiation of HIV care following HIV self-testing on antiretroviral therapy initiation among adults in Malawi: a randomized clinical trial. *JAMA*. 2014 Jul 23-30;312(4):372-9

1.10.8. Day JN, Chau TT, Wolbers M, Mai PP, Dung NT, Mai NH, Phu NH, Nghia HD, Phong ND, Thai CQ, Thai le H, Chuong LV, Sinh DX, Duong VA, Hoang TN, Diep PT, Campbell JI, Sieu TP, Baker SG, Chau NV, Hien TT, *et al* (**Lalloo DG** joint senior author). Combination antifungal therapy for cryptococcal meningitis. *New England Journal of Medicine*. 2013 Apr 4;368(14):1291-30

1.10.9. Parkes-Ratanshi R, Wakeham K, Levin J, Namusoke D, Whitworth J, Coutinho A, Kenya Mugisha N, Grosskurth H , Kamali A, **Lalloo DG**. Primary prophylaxis of cryptococcal disease using fluconazole in HIV positive Ugandan adults - a double blind, randomised, placebo controlled trial. *Lancet Infectious Diseases*. 2011 Dec;11(12):933-41

1.10.10. De Silva HA, Pathmeswaran A, Jayamanne S *et al* (**Lalloo DG** 12th out of 13 authors). Promethazine, hydrocortisone, and low-dose adrenaline (alone and in combination) in the prevention of acute adverse reactions to antivenom following snakebite: a randomised, double blind, placebo-controlled trial. *PLOS Medicine*. 2011 May; 8(5):e1000435

1.10.11. Ajdukiewicz KM, Cartwright KE, Scarborough M, Mwambene JB, Goodson P, Molyneux ME, Zijlstra EE, French N, Whitty CJ, **Lalloo DG**. Glycerol adjuvant therapy in adults with bacterial meningitis in a high HIV seroprevalence setting in Malawi: a double-blind, randomised controlled trial. *Lancet Infectious Diseases*. 2011 Apr;11(4):293-300

1.10.12. Kasturiratne A, Wickremasinghe AR, de Silva N, Gunawardena NK, Pathmeswaran A, Premaratna R, Savioli L, **Lalloo DG,** de Silva HJ. The global burden of snakebite: a literature analysis and modelling based on regional estimates of envenoming and deaths. *PLoS Med*. 2008 Nov 4;5 (11):e218. doi:10.1371/journal.pmed.0050218

2. Governmental scientific advisory committees and groups

2.1. Between 11 June 2009 and 21 January 2020, I participated in the following governmental scientific advisory committees or groups:

National advisory roles and committee memberships

2.1.1. Chair: NIHR Global Health Research (GHR) Independent Scientific Advisory Group (since 2018)

2.1.2. Chair: PHE Advisory Committee on Malaria Prevention (2010- 2019)

2.1.3. Medical Research Council Global Health Advisory Group (2010- 2020)

2.1.4. Chief Medical Officer Scientific Advisory Group on Zika (2016)

2.1.5. Chief Medical Officer Scientific Advisory Group on Emergencies (SAGE) for Ebola (2014- 5)

2.1.6. PHE Expert Advisory Group on Anti-venoms, (since 2010)

2.1.7. Honorary Consultant Advisor for Tropical Medicine for the British Army (since 2021)

2.1.8. National Poisons Service Advisor on Envenoming (since 2011)

2.1.9. Joint Committee on Vaccination and Immunisation Travel Sub-group (2010-2019)

2.1.10. Scottish Malaria Advisory Group (2010 - 2015)

2.1.11. Steering Committee of the National Travel Health Network and Centre (NATHNAC) (2003 -2021)

2.1.12. MRC Ethics, Regulation and Public Involvement Committee (2006 to 2010)

Science Funding Panel Memberships

2.1.13. Chair: Wellcome Trust/MRC/DfID/DH Clinical Trials Panel (2016- 2019, member since 2009)

2.1.14. Wellcome Trust Science Interview Panel (2015-2019)

2.1.15. MRC/DFID African Research Leader Panel (since 2010)

2.1.16. NIHR Global Health Research Groups and Unit Panel (2016- 2020)

2.1.17. Wellcome Trust Panel on Ebola Interventions (2014- 2015)

2.1.18. MRC Infection and Immunity Board (2010- 2015)

2.1.19. Meningitis Research Foundation Scientific panel (2008- 2016)

2.1.20. Wellcome Trust Tropical and Clinical Immunology and Infectious Diseases Committee, (2004- 2007).

2.1.21. Wellcome Trust Site Reviews:

SE Asia Unit (2005)

Africa Centre (Chair) (2016)

2.1.22. MRC Site Reviews:

MRC Clinical Trial Unit (2015)

MRC/UVRI Uganda Research Unit on AIDS (2016)

2.2. Of the above groups, those relevant to Module 1 would be membership of SAGE for Ebola (2.1.5) and Precautionary SAGE for Zika (2.1.4).

2.3. The Wellcome panel on Ebola interventions purely addressed research projects and therefore is not relevant to Module 1. Although I have been a member of JCVI over the period in question, I was only a member of the Travel vaccine sub-group. This simply addressed the choice of vaccines for travellers and did not include any work relevant to emerging infections or pandemics, nor did it address vaccine procurement or manufacture and therefore I have not considered this further. None of the other advisory groups which I have been a member of specifically addressed issues of preparedness for pandemics in the UK or contemplated civil emergencies more generally and I have not been involved directly in pandemic planning within either PHE, or the Department of Health and Social Care.

2.4. None of these relevant organisations involved working with any of the devolved administrations. Therefore, I am unable to comment on the preparedness or resilience of the Scottish Government, Welsh Government or Northern Ireland Executive.

SAGE for Ebola

2.5. I was invited to a CMO Ebola Scientific Assessment and Response Group (ESARG) meeting on 19 September 2014 to discuss the emerging epidemic and, subsequently, as a member of SAGE (DL/1 – INQ000148149). The first formal SAGE meeting I attended was on 16 October 2014 (DL/2 – INQ000147816) and I attended two subsequent meetings on 29 October 2014 (DL/3 – INQ000147817) and 08 December 2014 (DL/4 – INQ000147818). I also attended a CMO Health Advisory Committee on 28 October 2014 (DL/5 – INQ000148450).

2.6. I am not aware of the process or mechanism by which members were selected, but I was clearly able to contribute as both a UK infectious disease expert and as an expert in disease transmission in low resource settings. There was an appropriate mix of individuals which was changed as different needs emerged.

2.7. All participation was voluntary and substantial time commitment was made by many of the non- governmental scientific members of the committee without remuneration. I did not provide any specific information to the SAGE meetings but, where appropriate, commented on the potential approach to control in both the UK and Sierra Leone. Given the passage of time since meetings, I am unable to give any details of these comments. A number of commissioned documents and reports were examined at each meeting and documents circulated by email in between meetings. I have requested copies of these documents in order to make them available to the Inquiry if so required, though they were made available to all members.

2.8. Sub-groups were established to deal with specific issues and were critical to our decision making. Ebola SAGE had appropriate expertise and dealt well with the balance of UK and overseas activity. To the best of my recollection, I was impressed with the process of making consensus recommendations which were carefully thought through, appropriate to the scenario and balanced the need to intervene is West Africa and protect the UK population.

Precautionary SAGE for Zika virus

2.9. I attended the pre-SAGE meetings for Zika on 03 February 2016 (DL/6 – INQ000147819), 23 February 2016 (DL/7 – INQ000147820), 07 March 2016 (DL/8 – INQ000147821) and 08 June 2016 (DL/9 – INQ000147822). I understand there was also a meeting on 06 June 2016, but I did not attend this.

2.10. Zika represented a very different scenario compared to both Ebola and Covid-19. Zika is a vector-borne disease that is spread by certain species of mosquitoes which are not generally found in the UK, so it was very unlikely that Zika would be transmitted from person to person in the UK. In addition, unlike in the West African Ebola scenario, there was no UK military or humanitarian deployment to the areas of risk and therefore there was far less focus on either protecting those deployed or screening those returning to the UK.

2.11. The focus of SAGE was therefore, appropriately, on; preventing infected mosquitoes getting to UK, preventing extremely rare transmission events (such as blood transfusion), providing advice on travel for UK citizens and advice and precautions for UK citizens who might be exposed to the disease in South America.

2.12. As with SAGE for Ebola, I am not aware of the process or mechanism by which members are selected. There was appropriate (unremunerated) scientific expertise

on vector biology and transmission, modelling and clinical and public health aspects of infection relevant to Zika.

3. Lessons learned and not learned

Ebola

3.1. Ebola certainly made the UK government recognise that an epidemic overseas could affect UK public health and the importance of both trying to support other countries in their responses and protecting our borders.

3.2. SAGE had two main roles in the Ebola epidemic, although these roles were related and overlapped. The primary role was to protect public health in the UK and many activities of SAGE focused on how best that could be done. This was complicated by the deployment of large numbers of MOD personnel and volunteers from the UK to West Africa to support clinical and public health systems.

3.3. The second role was to support the reduction of caseloads in West Africa, particularly in Sierra Leone. It is highly likely that the activities of the UK and others in controlling the infection in the region minimised the chance of expansion of the epidemic, thus reducing the consequent risk to UK health.

3.4. This latter issue was very different to the scenario in respect of Covid-19, given that intervention or support in China was clearly not possible.

3.5. Modelling of different scenarios was invaluable in the Ebola epidemic. Scenarios modelling the potential spread of the epidemic were presented along with the effect of potential interventions at each SAGE meeting. I believe this helped SAGE to make appropriate decisions on interventions. I suspect this lesson was learnt as modelling scenarios were again presented to SAGE members during the Covid-19 pandemic which helped to inform its advice.

3.6. We saw challenges with Ebola testing early on because of a desire for tight central control by PHE, with most of the testing being performed in one location initially. This restricted turn-around and response times. Those lessons were certainly not learnt as this was also a major issue during the Covid-19 pandemic; central control reduces capacity and adds to delays and was a fundamental factor, in my opinion, leading to the failure of case detection in Covid-19. We cannot make this mistake again.

3.7. The Ebola epidemic emphasised the importance of understanding behavioural elements of a population; for example, understanding and managing cultural beliefs around burial (where transmission can occur) was important in recognising what prevention measures may be helpful. Understanding behaviour was clearly important during the Covid-19 pandemic.

3.8. Co-ordination between central PHE and teams on the ground was initially problematic in some of the airport screening done for Ebola, with uncertainty about which staff were doing the screening and unclear protocols and processes for screening. This coordination improved slightly during the Covid-19 pandemic in respect of airport screening, but the communication between central PHE and staff implementing procedures was still problematic at times such as during the transfer of 83 British cruise ship passengers to quarantine in Arrowe Park. I observed poor communication between central PHE and local public health and clinical authorities, with the result that screening procedures were not in place at the time of the arrival of those passengers nor were there plans in place for managing their healthcare needs should they become unwell.

3.9. PPE standardisation and availability was an initial issue during Ebola. This was clearly a major issue for Covid-19, and I think opportunities to learn seem to have been lost here; the loss of focus on maintaining adequate supplies when there is no apparent threat was a problem.

3.10. The High Consequence Infectious Diseases network was established in 2015/2016 at least in part due to the need established during Ebola for specialised facilities around the UK where patients with highly infectious or transmissible diseases could be treated. In the initial stages of Covid-19, with limited case numbers and limited understanding of the disease, having such facilities and a network to manage these cases was extremely useful. This was also demonstrated in the early phase of the Monkeypox outbreak.

Zika virus

3.11. There were far fewer direct lessons from Zika because there was never any substantial threat to UK public health as the disease could not be transmitted easily in the UK. I am not aware of any way in which this directly affected pandemic planning. However, the way that the pre-SAGE was established and run (similarly to the way that Ebola SAGE had been set up) did demonstrate to me that the process of getting appropriate scientific advice for such public health emergencies

was robust. DHSC and PHE staff did appear to value and listen to scientific opinions that were expressed.

4. Pandemic planning, preparedness and resilience

4.1. I have been asked for my views on the general state of the UK's pandemic planning, preparedness and resilience, the work of the above groups in that context, things which were done adequately or which could have been done better, and decisions that should have been made differently. Given the limited nature of my involvement it is difficult for me to comment on this on the basis of my direct experience, but I would make the following general observations:

4.1.1. Public health pandemic preparedness has not been properly funded during the Module 1 date range. Increasing this funding will inevitably mean a degree of redundancy and excess cost in the public health system (for example in stocking PPE) when there is no crisis, but it is impossible to ramp up a response rapidly when a crisis occurs if there has been inadequate preparation. I refer back to paragraph 3.9. The public health system has also not been adequately funded during the Module 1 date range and has been subject to excessive reorganisation. The repeated changes in the system, cuts to staff over the last twenty years and increased fragmentation, with local authorities now responsible for many public health activities, mean that response to pandemics are much more difficult to coordinate and that the system is less resilient to shock such as Covid-19.

4.1.2. Tight central control of pathogen testing, tracing cases and similar matters simply does not work. Such control limits volume of testing and increases turn-around time, ultimately meaning that fewer people can be tested rapidly. This is an example of an instance where the centre needs to set broad principles and protocols but then allow all the local expertise to implement those principles and protocols. Given that Covid testing was initially carried out centrally, it would seem that, in this respect, the lessons from Ebola did not appear to have been learnt. I refer back to paragraph 3.6.

4.1.3. Coordination between the NHS, PHE (now the UK Health Security Agency), social care providers and local authorities in a pandemic needs to be improved. I refer back to paragraph 3.8.

5. Articles, interviews, report and evidence and other documentation

5.1. I did not contribute to any specific documents for Zika or Ebola SAGE. I have not written any articles on this topic. I have also given no interviews and produced no reports relating to the same.

5.2. The only documents that I hold are those provided to all members at meetings. They include agenda and action lists, consensus statements, reports and technical papers. The minutes have been exhibited to this statement.

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: 14th April 2023