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UK COVID-19 INQUIRY

WITNESS STATEMENT OF DR JONATHAN FLUXMAN on behalf of DOCTORS in UNITE

I, Dr Jonathan Fluxman, **LRCP; MRCS, MRCGP** am the elected Covid Lead at Doctors in Unite, part of Unite The Union of 128 Theobalds Rd, London WC1X 8TN and will say as follows:

1. I am an active member of Doctors in Unite and was elected Covid Lead at our recent AGM. I retired as a GP in October 2019, just before the start of the Covid-19 pandemic. I worked in a deprived part of inner London (Paddington) for 25 years and took an active interest in the social determinants of disease. I have post-graduate diplomas in Anaesthetics, Child Health and Tropical Medicine. My clinical interests included drug dependence, mental health, child health, and anticoagulation services. I was involved in innovative projects to improve service provision in these areas, bringing together local GPs and hospital consultants. I also took an active role in the organisation of local services, sitting on the local Primary Care Group board, GP Federation, and Primary Care Network. I was the Lead GP for Substance Misuse and Mental Health for Westminster PCT for 5 years until 2012.

2. After the government appealed to retired doctors to return to work to help manage the Covid-19 pandemic I returned and joined the Covid Clinical Advice Service (CCAS), part of the 111 service for a year until the service was closed down. Since the onset

of the pandemic I have taken a keen interest in Covid-19, in particular its mode of transmission as this is key to understanding how we should tackle the pandemic. I have extensively studied the literature on this topic and have written numerous articles for Doctors in Unite and others on this and other aspects of the pandemic, including its impact on deprived and Black and Asian communities. I have built up an extensive network while doing this work with other like-minded doctors, nurses, engineers, aerosol scientists and community organisations who have been working on the pandemic and promoting the need for us to tackle airborne transmission to end this pandemic and prepare for future pandemics. I have worked extensively with Health and Safety representatives and National and Regional Officers in trade unions, including the TUC, UNITE, PCS, NASUWT, giving presentations on the pathology, transmission and mitigations needed for Covid-19. I have also worked with the Hazards Campaign, a well-regarded Health and Safety organisation, and with groups of doctors who have Long Covid. I am also on the organising committee of the Covid Safety Pledge campaign which encourages employers, trade unions and others to implement Covid safety measures.

3. Doctors in Unite (DiU) is part of Unite the Union; we have been in existence since 1914 when we were known as the Panel Medical Practitioners' Union. We are the UK's oldest medical trade union. We became part of Unite in 2007 and adopted Doctors in Unite as a working name in 2017. We act as a trade union for our members, offering advice and assistance in employment matters, and work in the area of health policy, researching and writing documents on a range of health and NHS related matters. Our interest is therefore twofold: firstly as a trade union representing the interests of our members, some of whom have been directly impacted personally by the pandemic, and secondly as an organisation of health professionals dealing with the pandemic over the last three years. We also have a keen interest in Public Health, and the state of the Public Health Services in the UK.

Epidemiology and transmission of SARS-CoV-2

4. The Outline of Scope for Module 1 states that the Inquiry will examine "The basic characteristics and epidemiology of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and Coronavirus disease (COVID-19)". The European Centre for Disease Control [JF/1] notes that Coronaviruses (CoVs) were identified as human pathogens in the 1960s. They are enveloped RNA viruses, the surface of which have

a characteristic crown-like appearance that can be seen under the electron microscope, giving these viruses their "Corona" name. Most coronaviruses infect animals (i.e. bats, birds and mammals), which act as reservoirs and intermediate hosts, but they can change host and infect humans. There are currently seven coronaviruses known to infect humans; four of them cause common cold like illnesses, (but may cause severe lower respiratory tract infections among the youngest and oldest age groups). The other three have emerged more recently and can cause much more severe disease, and have pandemic potential: SARS-CoV, responsible for severe acute respiratory syndrome (SARS), which emerged in 2002; MERS-CoV, responsible for Middle East respiratory syndrome (MERS), which emerged in 2012; and SARS-CoV-2, responsible for coronavirus disease 2019 (COVID-19), which was identified in late 2019.

5. SARS-CoV-2 has shown itself to be a highly infectious virus, to a greater extent than SARS1 and MERS Coronaviruses. Its tendency to cause asymptomatic infection and the short time period between infection and becoming infectious to others has contributed to this. It is also a highly mutating virus since the outbreak of the pandemic over three years ago, so much so that the initial Greek letter naming system of different variants has been abandoned since the appearance of the Omicron variant. Different variants within the Omicron "family" have much greater differences in their genetic make-up, than those between the Alpha, Beta and Delta variants for example. Mutations are important because they can and do result in variants which are immune-evasive (which therefore bypass pre-existing immunity from vaccines or earlier infection) and show greater "tropism", i.e. the ability to enter into cells, both of which may lead to more infections and adverse outcomes. The current unmitigated spread of Covid-19 is highly favourable for the emergence of new variants, given that there are billions of viral replications occurring at any one time with our ongoing high rates of infections (the Office of National Statistics estimate that 1.3 million people in England [2.4% of the population] were infected with Covid-19 for the week ending 28 February 2023. Rates in the other nations are similar [JF/2]). Another factor favouring the emergence of immune-evasive variants is the large number of immunocompromised people alive today, mainly due to the global HIV pandemic, but also those on chemotherapy, who have received organ transplants or who are on immunosuppressive drugs for auto-immune disease. People with compromised immune systems are unable to eradicate viruses within their bodies, and viral persistence in an environment of partial immune control can give rise to rapid "multimutational jumps" in viral evolution and worrying new variants [JF/3].

6. In terms of disease caused by the virus, "SARS-CoV-2", is somewhat of a misnomer. Initially thought to be principally a respiratory disease, it is now clear that the virus can cause an array of pathologies, including damage, inflammation and clotting of the vascular system (both within small vessels, called capillaries, and larger blood vessels) anywhere in the body. This leads to oxygen lack in the tissues and organs, and multi-organ damage. It also may cause "dysregulation" of the immune system, i.e. both over- or under-activity, leading to "auto-immune" like pathology, where the immune system attacks the body's own tissues, or inadequate immune responses to other infections, in common with other post-viral states like influenza. This disturbance of immune function may be temporary. SARS-CoV-2 also appears to have a predilection for nerve tissue (the cause of the initially common symptom of loss of smell and taste), damage to which can result in a wide range of neurological symptoms, both in the acute phase of disease like encephalitis and seizures, and cognitive and memory disturbance, fatigue, dizziness, and impaired autonomic nervous function in the longer term, resulting in symptoms such as palpitations, exercise intolerance and low blood pressure. The range of neurological complications can be seen in the Nature Medicine paper, "*Post-acute neurological consequences of COVID-19: an unequal burden*" [JF/4].

7. While government reporting of SARS-CoV-2 infection has concentrated on hospitalisations and deaths, it is increasingly clear that infection with the virus can also lead to much larger numbers of people affected by "long Covid". It is also important to realise that risks of a wide range of complications are significantly raised following SARS-CoV-2 infection, including heart attacks and strokes, as well as kidney, lung, diabetes, brain and musculoskeletal damage. These adverse outcomes are often delayed beyond the acute phase of illness and therefore may not be attributed to Covid-19, but there is little doubt that SARS-CoV-2 infection plays a major role in so called "excess deaths", over and above pre-pandemic levels of mortality, as well as in increased rates of long-term illness from these delayed complications. A seminal study published in late 2022 in Nature Medicine, *"Acute and post-acute sequelae associated with SARS-CoV-2 reinfection"* [JF/5] demonstrated that such risks increase cumulatively with each subsequent re-infection with the virus, which is very concerning given the lack of mitigations in place and ongoing very high rates of infection and reinfection of the population.

8. It is important to include in this brief review of the epidemiology of SARS-CoV-2 the wide disparities in risk from Covid-19 among different parts of the population in the UK, according to socio-economic status and race. These "social determinants of health" are a prominent feature of the great majority of illness and disease in our society, and are particularly stark for Covid-19. Future Modules of the Inquiry will be examining health inequalities in detail, but I feel that it is important to make reference to them here as they are an important part of the epidemiology of Covid-19. As the Inquiry is aware a large number of studies have been conducted on health inequalities due to Covid-19; Doctors in Unite has done original work comparing death rates among essential workers with rates among people with underlying health conditions, as well as a detailed review of racial disparities in Covid-19 deaths and their causes. I would be happy to provide this evidence to the Inquiry in later modules if that would be helpful.

SARS-CoV-2 transmission

9. Disease transmission is a central component of the epidemiology of infectious diseases, and understanding the mode of transmission is key to efforts to contain spread, especially in an epidemic or pandemic. The Inquiry will hear a great deal about the mode of transmission of SARS-CoV-2 in later modules, and measures which were and were not put in place to limit spread following the outbreak of the pandemic here in the UK. In keeping with the cut-off date of 21 January 2020 for Module 1 of the Inquiry, I will summarise the state of knowledge on respiratory virus transmission up to that time, but will need to occasionally refer to subsequent work where relevant. Scientific enquiry is clearly an uninterrupted process and alluding to work done after the cut-off has proved to be occasionally necessary. I will then discuss the implications of this for the preparedness of Infection Prevention and Control (IPC) for the coming SARS-CoV-2 pandemic.

10. Infectious diseases can spread in a variety of ways: direct contact, eg skin-to-skin, kissing or sexual intercourse; droplet spread by means of direct spray produced by coughing or sneezing, before droplets fall to the ground within 1-2 metres; airborne spread by means of virus-containing aerosols, which float in the air like cigarette smoke; spread via vehicles such as food, water or "fomites" (clothing, bedding, objects); and spread by vectors such as mosquitos, fleas or ticks.

11. Respiratory viruses are potentially spread by all of these routes, apart from vector spread. The source of virus is from the respiratory tract from all types of respiratory activities, including breathing, talking, shouting, singing, laughing, coughing or sneezing. Exhaled viruses are not naked in the air, they are contained within fluid particles of various sizes, which have been variously referred to as "aerosols", "droplets", "droplet nuclei" and "respiratory droplets". There has been confusion and lack of consistency in the terminology used to refer to the exhaled fluids of respiratory activities. We will follow the terminology used by aerosol scientists, as we are considering the behaviour of fluid particles through the air, which is the province of the physical sciences, physics and chemistry. "Particle" refers to any localised airborne liquid of whatever size; "aerosol" refers to liquid particles suspended in the air, able to travel through the air and be distributed throughout the air in an indoor space. The laws of physics determine that in order to remain airborne, aerosol particles need to be 100mm (micrometers) or smaller in size. "Droplets" refers to airborne liquid particles greater than 100mm in size; these behave ballistically (like a canon ball), i.e. they are projected from the mouth or nose and quickly fall to the ground in a matter of seconds under the influence of gravity. "Droplet nuclei" and "respiratory droplets" are terms used in infection prevention and control (IPC) documentation; the former equates to aerosols, while the meaning of the latter is poorly defined. These latter two terms will not be used here. Finally on terminology, as the debate has evolved, there is now general acceptance that the term "airborne" means virus-containing aerosols suspended in the air; they behave like cigarette smoke (which consists of microscopic solid particles suspended in the air) does in indoor spaces. "Droplets" on the other hand refers to large liquid particles which quickly drop to the ground. These are the terms we will use here and is the principal distinction between the possible modes of transmission of SARS-CoV-2.

12. A graphic by Professor Linsey Marr, a leading aerosol scientist, which appears as Figure 1 in the paper "*Dismantling myths in the airborne transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)*" by Tang et al in the Journal of Hospital Infection, illustrates this distinction between droplets and aerosols very well [JF/6].

13. It is important to understand that evidence of airborne spread of pathogens goes back very many years. In a recent online webinar, entitled "The long history of airborne infection transmission; why don't we use the knowledge we have", organised by the International Society of Indoor Air Quality (ISIAQ), Professor Lidia Morawska, one of

the world's foremost aerosol scientists, stated "*Scientific understanding of the role and mechanisms of airborne infection transmission was well advanced before the pandemic"* [JF/7]. Professor Morawska was asked by WHO to investigate with others the well-known SARS-COV outbreak in the Amoy Gardens housing complex in Hong Kong in 2003. Airborne transmission within and between blocks of flats was found to be responsible for the outbreak, highlighting the need for a review of indoor air quality and ventilation design in buildings [JF/8]. A PubMed literature search identified 80 scientific papers, some going back several decades, published prior to 2020 [JF/9], on various aspects of the airborne transmission of pathogens, underlining Professor Morawska's point that the science was well established pre-pandemic.

14. Since the onset of the Covid-19 pandemic in early 2020 there has been an explosion in the number of scientific papers on airborne transmission of Covid-19; and there is now overwhelming international scientific consensus [JF/10] that the principal mode of spread of SARS-CoV-2 is by the airborne route.

Superspreading

15. Airborne spread of Covid-19 occurs in two ways, as Professor Marr's diagram [JF/6] shows: so called "near field" spread when people are close together and virus-laden aerosols exhaled from the infected person are inhaled by the person close to them. "Far-field" transmission occurs when infected people are some distance away (several metres or even tens of metres) from others. Virus-laden aerosols from the infected person are also breathed in, potentially by many people sharing the same indoor air. While the concentration of virus inhaled ("viral load") will be greater from close encounters, the infectivity of SARS-CoV-2 is such that smaller viral loads inhaled at a distance are still able to cause infection in other people. The precise behaviour of airborne particles depends on a range of factors, including air turbulence, ventilation, temperature, humidity; Tang's paper has a detailed discussion of these factors [JF/6].

16. Spending time in crowded, poorly ventilated indoor spaces is risky for infection – these are ideal conditions for so-called "superspreading" events, when a much greater number of individuals becomes infected from one index case, than would be expected from the basic transmission rate of the virus. The original SARS-Cov-2 Wuhan variant had a Rt of 2 - 3.6, meaning that on average each infected person infects two to 3.6 other people; as detailed below however, well-documented outbreaks showed

infection rates an order of magnitude greater than this - dozens of people were infected at the same time in the same place by one or two individuals.

17. Epidemiological and modelling studies demonstrate that the great majority of people are infected by a very small number of individuals. A large study involving 575,000 people done in the first 6 months of the pandemic in the Indian states of Tamil Nadu and Andhra Pradesh, which had rigorous contact tracing and testing systems, showed that 5% of infected individuals accounted for 80% of cases [JF/11]. This study also showed another important fact about transmission: most people (over 70%) who were infected did not go on to infect anyone else. Other papers confirm this [JF/12], mirroring the well-known "Pareto principle" were a small number of causes lead to the great majority of outcomes. A US modelling study published in early 2022 involving 100,000 social contacts in 10 cities found 4% of people likely accounted for 80% of secondary infections [JF/13]. This analysis "*connect(ed) the mechanistic understanding of SARS-CoV-2 transmission by aerosols with observed large-scale epidemiological characteristics of COVID-19 outbreaks".* Individual variation in viral load production is well-known, where some people (so-called "superspreaders") produce many more aerosols than others; but the sharing of the same indoor air by many people is still required to produce these large- scale infection events.

18. Linear one to one, or one-to-two or -three person spread does of course frequently occur, within households in particular, and wherever people come into close contact with each other, but given that most infected individuals do not go on to infect others, this does not explain the transmission dynamics of the pandemic. Superspreading explains the explosive, exponential growth of the pandemic far better, where potentially each infected person in one superspreading event could go on to cause their own superspreading cluster in another location a few days later when they become infectious. The central role of superspreading in driving the pandemic is summarised in Althouse et al's paper published in May 2020 [JF/12]:

"The basic reproduction number (R0)*, ….. hides the fact that transmission is stochastic* (random probability outcomes)*, is dominated by a small number of individuals, and is driven by super-spreading events (SSEs). The distinct transmission features, such as high stochasticity under low prevalence, and the central role played by SSEs on transmission dynamics, should not be overlooked. Many explosive SSEs have occurred in indoor settings stoking the pandemic and shaping its spread, such as long-*

term care facilities, prisons, meat-packing plants, fish factories, cruise ships, family gatherings, parties and night clubs…..

Our mental picture should not be that most people transmit to two or three other people, but instead a small number of infections dominate the transmission while most others fail to have secondary infections."

19. Restaurants, bars, workplaces, schools, hospitals and public transport favour superspreading as they bring together large numbers of people within the same shared space at the same time. These events occur in poorly ventilated congregate indoor settings, where many people share the same air, when dozens of individuals may be infected at the same time. There are many well-known epidemiological studies documenting superspreading since the outbreak of the current pandemic, such as the Skagit Choir in Washington (52 out of 61 people were infected by a single index case), and the Seoul call-centre (91 of 216 workers were infected by the index case). Doctors in Unite did a detailed analysis in September 2020 of an important epidemiological study using genetic sequencing of the virus of the Tonnes meat processing plant outbreak in Germany, using the findings to examine the widely reported Greencore sandwich factory outbreak in August 2020 in Northampton here in the UK. I would be happy to provide this evidence too to later Modules of the Inquiry if that is felt to be helpful. The pattern of the very many large outbreaks in workplaces, particularly meat processing plants and production lines reported during 2020 were also indicative of superspreading events driving the pandemic.

20. The above papers are referred to in this submission despite being published after 21 January 2020, in order to illustrate the importance of the science of superspreading transmission to the SARS-CoV-2 pandemic. Superspreading and the Pareto principle were however clearly established during both the SARS-CoV epidemic in 2002/3 and the MERS epidemic in 2015, and in fact, had been documented for several other infectious diseases outbreaks as well, including measles, tuberculosis and Ebola virus, before the current pandemic [JF/14]. During the SARS-CoV epidemic,

"Two factors dominated SARS epidemiology: the presence of super-spreading individuals or events and hospital infections. Epidemiologists found that the majority of individuals with SARS had not communicated the virus to anyone; however, some patients, described as 'super-spreaders,' were especially efficient in transmitting SARS-CoV, especially in favorable circumstances (known as 'super-spreading

events'). The result was a great heterogeneity, or overdisperson, in transmission patterns. During the Singapore epidemic, 103 of the first 201 probable cases were infected by just five people. One flight with a single symptomatic person on board lead to 18 confirmed infections and one death. Another flight with four symptomatic persons on board led to one additional infection……. super-spreaders played a key role in the diffusion of SARS…" [JF/15].

21. A paper published in the Lancet in July 2016, "*Super-spreading Events of MERS- CoV Infection*", by David S Hui, who was a member the joint WHO–Republic of Korea Urgent Mission for the investigation of the outbreak of the Middle East respiratory syndrome in South Korea in 2015, details the five superspreading events in hospital settings which characterised this outbreak [JF/16]. Hui identifies a number of predisposing factors in the biggest of the outbreaks, when one patient infected 82 others from 27-29 May 2015 in the emergency room: failure to isolate patients and quarantine contacts, poor communication between hospitals, overcrowding in the emergency room and inadequate ventilation of only 3 air changes per hour (ACH). He states that at least 6 ACH are required to reduce room contamination from acute respiratory infections and 12 ACH are recommended for new or renovated facilities. Hui further notes that "*Failure in infection control and prevention in health-care facilities has resulted in large numbers of secondary cases of MERS-CoV infection involving health-care workers, existing patients, and visitors in Saudi Arabia and several other countries in the past few years*."

22. The superspreading nature of airborne respiratory viruses is strikingly demonstrated by a graphic reproduced in Science News in December 2015, depicting the clusters of infection during the MERS outbreak in South Korea in 2015 [JF/17]. Five patients infected 186 other people and 38 people died in this outbreak.

23. The superspreading transmission dynamics of coronaviruses also make the hypothesis of droplet spread very unlikely. Droplet theory states that people become infected when infected droplets are sprayed directly onto the mucous membranes of the eyes, nose or mouth of other people, or people transfer the virus with their hands to their eyes, nose or mouth. Exhaustive study of outbreaks like that of the Skagit choir showed that the great majority of infected people came nowhere near the index case, and did not touch any common surfaces [JF/18]. Furthermore, there is no direct evidence of droplet transmission; Jimenez et al undertook a detailed historical analysis of research into disease transmission, and did not find any evidence proving droplet

spread. Their analysis quotes a study published in early 2020 at the start of the pandemic which states: "*Reviewing the literature on large droplet transmission, one can find no direct evidence for large droplets as the route of transmission of any disease*" [JF/19]. Evonne T Curran, an infection control specialist and Honorary Senior Research Fellow at Glasgow Caledonian University, carried out her own detailed review of the evidence for droplet transmission in infection control guidelines from WHO, the CDC in the US, and UK IPC national COVID prevention guidance. The guidelines all stated SARS-CoV-2 was spread by droplets, but none of the quoted references provided evidence for this [JF/20, JF/21].

24. In summary therefore, the basic science of the epidemiology and transmission of respiratory viruses, including SARS-COV and MERS, was well established prior to the onset of the Covid-19 pandemic, and there was every indication that the novel SARS-CoV-2 virus could and would also transmit via the airborne route.

Infection Prevention and Control (IPC) preparedness prior to 21 January 2020

25. Before considering IPC preparedness in January 2020 for the coming pandemic, we need to look at the beliefs and assumptions at the time about the transmission of disease, including those due to respiratory viruses. Jimenez et al's historical analysis of transmission research [JF/19] is very helpful in this regard, and it is worth quoting from the paper at length:

Abstract

The question of whether SARS-CoV-2 is mainly transmitted by droplets or aerosols has been highly controversial. We sought to explain this controversy through a historical analysis of transmission research in other diseases. For most of human history, the dominant paradigm was that many diseases were carried by the air, often over long distances and in a phantasmagorical way. This miasmatic paradigm was challenged in the mid to late 19th century with the rise of germ theory, and as diseases such as cholera, puerperal fever, and malaria were found to actually transmit in other ways. Motivated by his views on the importance of contact/droplet infection, and the resistance he encountered from the remaining influence of miasma theory, prominent public health official Charles Chapin in 1910 helped initiate a successful paradigm shift, deeming airborne transmission most unlikely. This new paradigm became dominant. However, the lack of understanding of aerosols led to systematic errors in the

interpretation of research evidence on transmission pathways. For the next five decades, airborne transmission was considered of negligible or minor importance for all major respiratory diseases, until a demonstration of airborne transmission of tuberculosis (which had been mistakenly thought to be transmitted by droplets) in 1962. The contact/droplet paradigm remained dominant, and only a few diseases were widely accepted as airborne before COVID-19: those that were clearly transmitted to people not in the same room. The acceleration of interdisciplinary research inspired by the COVID-19 pandemic has shown that airborne transmission is a major mode of transmission for this disease, and is likely to be significant for many respiratory infectious diseases.

26. Prior to the Covid-19 pandemic therefore the dominant school of thought within IPC as well as some epidemiologists and public health doctors, was that respiratory infections were droplet spread. Jimenez et al state that the period between 1962 and 2020 was marked by "reluctant acceptance of as little airborne transmission as possible", and is very illuminating (reference links have been left in the extract):

"Despite the stubborn resistance to the idea that airborne transmission had any relevance for natural diseases, W. Wells, Robert Riley, and Cretyl Mills succeeded in demonstrating airborne transmission of tuberculosis (TB) in 1962 through extensive efforts. They routed the air from a tuberculosis ward to 150 guinea pigs for 2 years. About three guinea pigs per month were infected. However, none were infected in a control group where the only difference was that the air was irradiated with germicidal ultraviolet light, killing the TB bacterium.[93, 94] Because of this study, TB was the first important natural disease to be accepted as airborne in modern times.

As this example shows, the standards of evidence were clearly different for different routes of transmission, as many diseases were accepted as "droplet" without any substantive proof—let alone such extensive and time-consuming experiments. The resistance to a larger role for airborne infection continued, with a pattern of accepting airborne transmission on a case-by-case basis for each disease only when the evidence was undeniable—that is, only when all other transmission routes could be ruled out and the evidence was very clear.

For example, there was an obvious case of long-distance airborne transmission of smallpox in Germany in 1970. A report on the outbreak reflected the ongoing thinking, concluding, after ruling out all other plausible infection routes: "The only remaining

route of transmission considered reasonable was airborne spread of a virus-containing aerosol, a possibility against which all of the investigators were initially prejudiced"[27] (emphasis ours)[98]. In addition, the acceptance of airborne transmission was applied mainly to this outbreak, which was described as an unusual event, "a unique exception."[80] Droplet transmission continued to be considered dominant for smallpox. The success of the program to eradicate smallpox was taken as vindication of this view.[80] However, when the actual biophysics of aerosols is correctly taken into account, the ease of infection in close proximity together with some cases of distant infection in shared indoor air with low ventilation is a signature of airborne transmission,[21, 27] and there is evidence that airborne transmission of smallpox was more important than has been accepted so far.[96] In addition, the smallpox incubation period was very precise: virtually 100% of infectious people were symptomatic, and viral shedding and transmission did not occur during the incubation period, but only when patients became symptomatic, at which time they were very sick and did not move around very much. Thus, the track/trace/isolate/quarantine/ring vaccination approach of the eradication program worked well, despite the potential for airborne transmission.[96, 97]

The same pattern of scientific inquiry played out for measles and chickenpox, two extremely contagious diseases, whose airborne character was resisted for seven decades and only finally widely accepted in the 1980s based on multiple superspreading events with long-distance transmission (when the infector and infected were never together in the same room).[86, 98] Importantly, ease of transmission in close proximity was observed for all accepted airborne diseases (hence their original classification as droplet diseases).[86, 99, 100] But despite this overlap, ease of transmission in close proximity continued to be taken as evidence of droplet-only transmission for other diseases. ……

The SARS-CoV-1 epidemics of 2003 brought renewed attention to the issue of airborne transmission. Superspreading was clearly observed.[107] Airborne spread was implicated in several outbreaks in hospitals[108, 109] and also in the large Amoy Gardens outbreak in Hong Kong, both through a building air shaft and possibly by outdoor plumes between the closely packed tall apartment buildings.[110] However, the airborne designation of SARS-CoV-1 was not widely accepted in the infection control world.[111] Although WHO describes SARS-CoV-1 as an airborne virus,[112] a prominent member of the WHO COVID-19 IPC Committee concluded in 2015 that "There is now general consensus that SARS is not airborne."[113] Part of the confusion arises from a

too narrow use of the word "airborne" in which short-range airborne transmission is interpreted as only droplet transmission, and only longer-range airborne transmission is considered really airborne. After the 2003 SARS-CoV-1 outbreaks, intense concern was focused on the impact of "aerosol-generating procedures" (AGPs). These are medical procedures such as bronchoscopy, intubation, and suctioning, which were thought to generate large amounts of aerosols and to have infected some of the medical staff performing them during the SARS-COV-1 outbreaks, although the evidence supporting this association was weak.[114, 115] This line of reasoning also ignores the fact that although AGP may lead to the release of aerosolized viruses as shown, for example, with influenza A,[116] so will other non AGP activities such as coughing or breathing which can lead to a sizeable aerosol dose in the vicinity of an infected patient.[116, 117]

During the last several decades and until the COVID-19 pandemic, with available antibiotics, vaccines, and no major respiratory pandemics, studies further probing the details of droplet vs. airborne transmission had not been a major public health priority. The aftermath of the Oil Crisis and then the Climate Crisis have led to compromises in building standards in favor of energy saving over ventilation and public health.[118] The high standards of ventilation and filtration adopted in many clinical spaces in modern hospitals[119-121] mean that airborne risks have been substantially mitigated in these settings, where many key infection control scientists work. However, this is not the case in all hospital spaces or for older hospitals dependent upon natural ventilation. Adherents of droplet transmission were in control of all key public health institutions, and scientists proposing airborne transmission were typically ignored.[69]

Evidence also points to the importance of airborne transmission for another disease with high pandemic potential: influenza,[122-124] including superspreading in poorly ventilated indoor air,[125, 126] low transmission in well-ventilated environments,[127] exhaled infectious virus[128, 129] and viral[117] detection (of both infectious virus and viral RNA) in room air,[130-132] 100 times smaller dose by inhalation of aerosols vs. intranasal inoculation,[133-136] and airborne transmission in animal models.[137, 138] However, likely due to the same kinds of resistance as described above for other diseases, airborne transmission of influenza virus has not been widely accepted, and it is still described by WHO and CDC on their websites as a droplet/fomite disease, with no mention of airborne transmission.[139, 140]

There is also evidence for airborne transmission of rhinovirus,[141-145] adenovirus,[146] SARS-CoV-1,[110, 147] MERS-CoV,[148, 149] and RSV.[150, 151] Limited data suggest a role of airborne transmission for enteroviruses,[152, 153] filovirus,[154] and other pathogens.[155]

Furthermore, airborne transmission of viruses is well accepted in veterinary medicine including for some coronaviruses and influenza viruses, sometimes over distances of many kilometers. Examples include the foot and mouth virus,[156, 157] porcine reproductive and respiratory syndrome virus (PRRSV),[158, 159] porcine respiratory coronavirus,[160] avian infectious bronchitis virus (also a coronavirus),[161] and equine influenza.[162, 163]

27. I have gone into this level of detail about the mode of transmission of SARS-CoV-2, as well as the scientific controversy and attitudes of infectious diseases specialists, for several reasons. Firstly, because understanding how the pandemic spreads is critical to implementing the right measures to contain it. Secondly, to demonstrate that the science clearly indicated before the start of the pandemic that there was every reason to believe that SARS-CoV-2 would also be an airborne-spread disease, and that airborne precautions were essential in addition to other infection control measures. Thirdly, that there was (and still is) a stubborn scepticism and reluctance to accept airborne transmission on the part of infectious diseases doctors and nurses, despite clear evidence of this mode of spread, and it must be stressed, an absence of evidence of droplet transmission. And fourthly, the controversy over the mode of spread of SARS-CoV-2 has been a major feature of pandemic management since its start in early 2020, and continues to date within infection control, but not it should be emphasised elsewhere, where there is now widespread acceptance of airborne transmission. This issue of airborne vs droplet transmission of Covid-19 will be both a vital and urgent issue for the Inquiry to decide upon, because of the ongoing nature of the pandemic. We very much hope therefore that Baroness Hallett will address this as early as possible in her interim recommendations.

28. Having set the scene then, I can now turn to examine the major guidance documents in place before the start of the pandemic, on which the preparedness of the UK's Infection Prevention and Control was based. This will be done in relation to the mode of transmission and the protections advised to limit spread within the guidance.

29. The foundational document for the management of respiratory pandemics in health care is the 2014 WHO guideline *Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care*, [JF/22]. This guideline is still current. Section 1.3.3 covers "Novel acute respiratory infections with potential for a high public health impact" and states:

    When a new infectious disease is identified, the modes of transmission are not well understood. The epidemiological and microbiological studies needed to determine the modes of transmission and identify possible IPC measures may be protracted. Due to the lack of information on modes of spread, Airborne and Contact Precautions, as well as eye protection, should be added to the routine Standard Precautions whenever possible, to reduce the risk of transmission of a newly emerging agent …… These precautions should be implemented until further studies reveal the mode of transmission.

30. SARS-CoV-2 fits this description to the letter: it was a new pandemic virus and its mode of transmission was not fully understood early on, and therefore precautions needed to be taken against <u>all possible modes of spread</u>. The application of this *precautionary principle* is fundamental in the scientific world, particularly within healthcare. As the European Parliament stated in 2015 "*The precautionary principle enables decision-makers to adopt precautionary measures when scientific evidence about an environmental or human health hazard is uncertain and the stakes are high*" [JF/23].

    It should be noted that the need for precautions against all modes of spread including airborne precautions, when dealing with a novel respiratory virus is repeatedly stated in the WHO guidance document. In the table under section 2.1 the following is stated: *"When a novel ARI is newly identified, the mode of transmission is usually unknown. Implement the highest available level of IPC precautions, until the situation and mode of transmission is clarified."* The warning appears eight times in relation to the need for airborne mitigations, including the use of isolation rooms.

31. The WHO guidance also has specific advice on which type of masks should be used for different modes of transmission (Section A2.2):

"Medical masks are surgical or procedure masks that are flat or pleated (some are like cups); they are affixed to the head with straps. Such masks should be used when caring for patients infected by droplet-transmitted pathogens or as part of facial protection during patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions.

However, medical masks may not offer adequate respiratory protection against small particle aerosols (droplet nuclei). Therefore, particulate respirators are preferable when caring for patients with diseases caused by airborne pathogens (e.g. TB) or a novel ARI (acute respiratory infection*) pathogen for which the route of transmission is not known (208-210). Medical masks are not designed to provide a face seal, and thus do not prevent leakage around the edge of the mask when the user inhales; this is a potential major limitation for protection against droplet nuclei (211)."*

32. The UK IPC authorities, like national IPC authorities all over the world, take their lead from the WHO IPC guidance. Our "IPC Cell" determines policy and issues guidance, which covers health and social care in the UK; this is published through what was Public Health England (PHE) until it became the UK Health Security Agency (UKHSA) on 1 October 2021. The make-up of the IPC Cell, and who it reports to will be important issues for subsequent modules of the Inquiry, in particular Module 3; Doctors in Unite used Freedom of Information requests to ascertain the expertise of its members; information which may be useful to the Inquiry in Module 3.

33. Responding to early reports of the new virus emerging in China, PHE published guidance for the UK on 10 January 2020 "*Wuhan novel coronavirus (WN-CoV) infection prevention and control guidance*", which was later withdrawn when it was updated. (Doctors in Unite obtained a copy of the withdrawn guidance through a Freedom of Information request to UKHSA – see JF/24.)

34. The guidance reflects the prevailing belief at the time within IPC about the dominant mode of spread of respiratory viruses, i.e. they are mainly droplet spread, but it does include the possibility of airborne transmission too: *"Coronaviruses are mainly transmitted by large respiratory droplets and direct or indirect contact with infected*

secretions. They have also been detected in blood, faeces and urine and, under certain circumstances, airborne transmission is thought to have occurred from aerosolised respiratory secretions and faecal material." The guidance does make allowance for, and recommends precautions against airborne transmission, references the MERS outbreaks in the Middle East and South Korea, and clearly recognises the importance of applying the precautionary principle to control the spread of the new virus:

"As WN-CoV has only been recently identified, there is currently limited information about the precise routes of transmission. Therefore, this guidance is based on knowledge gained from experience in responding to coronaviruses with significant epidemic potential such as Middle East Respiratory Syndrome Coronavirus (MERSCoV) and Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV).

This guidance will remain under review as further scientific information is published about WN-CoV.

Information from hospital-related outbreaks of MERS in the Middle East and Republic of Korea demonstrated the potential ease of transmission in the healthcare setting. Emerging information from these experiences has highlighted factors that could increase the risk of nosocomial transmission, such as delayed implementation of appropriate infection prevention and control measures …….

Effective infection prevention and control measures, including transmission-based precautions (airborne, droplet and contact precautions) with the recommended personal protective equipment (PPE) are essential to minimise these risks. The appropriate cleaning and decontamination of the environment is also essential in preventing the spread of this virus."

35. The guidance summary of advice states that specific control measures for inpatients should include "*airborne precautions*" including use of negative pressure isolation or single rooms and the use of FFP3 respirator masks for staff. [As the WHO guidance makes clear, there are important differences in face masks used in healthcare: here in the UK "respirator" masks include FFP2 and FFP3 masks, which are designed to protect the wearer from inhaling airborne pathogens (and prevent infected persons exhaling pathogens into the surrounding air). "Fluid resistant surgical masks (FRSMs)" (also called "medical" or "surgical" masks) on the other hand are designed to protect the wearer from bodily fluid splashes, and not from airborne pathogens. They do

provide some respiratory protection but considerably less than respiratory masks. The use of FFP3 masks therefore can be considered shorthand for individual airborne protection.] The summary also details contact and droplet precautions to be taken for patients. The guidance then goes on to set out various aspects in further detail, including the importance of isolating patients suspected of having the virus and that only essential staff should enter their rooms. Under the section on Personal Protective Equipment (PPE) the guidance states that full PPE (gown, gloves, surgical cap, eye protection and a FFP3 respirator mask) "*must be worn at all times when in the patient's room.*"

Aerosol Generating Procedures (AGPs)

36. Another controversial area within healthcare in relation to risk of SARS-CoV-2 transmission, is that of so called "aerosol generating procedures". AGPs are procedures performed on a small number of patients, which may involve instrumentation of the mouth, nose or upper airway and use of high flow air or oxygen. IPC maintains that there is significant additional risk of airborne spread from these procedures, and is the only circumstance that risk of airborne transmission is consistently acknowledged in healthcare settings within the guidance from both WHO and the UK IPC Cell.

37. However, when one examines the evidence base for AGP risk, it is remarkably weak. The notion of AGPs is based on a systematic review of the scientific literature carried out in 2011 on the risk to healthcare workers of SARS-CoV infection, which is summarised in the 2014 WHO guidance document referred to above [JF/22]. The WHO document states:
All studies included in the review assessed the transmission of SARS-CoV to health-care workers associated with the performance of potentially aerosol-generating procedures while caring for ill patients in hospital or intensive care unit settings during the SARS outbreaks of 2002–2003. The most consistent statistically significant association of an increased risk of SARS transmission to workers was found in tracheal intubation (eight studies) …….. Increased risk of SARS transmission was also reported in non-invasive ventilation (two studies), tracheotomy (one study), and manual ventilation before intubation (one study); however, these findings were identified from a limited number of very low-quality studies, which makes interpretation difficult.

There was no significant difference in the risk of SARS transmission between exposed and unexposed health-care workers for all other procedures evaluated – suction before intubation, suction after intubation, manual ventilation after intubation, bronchoscopy, nebulizer treatment, manipulation of oxygen mask, manipulation of bilevel positive airway pressure (BiPAP) mask, defibrillation, chest compressions, insertion of nasogastric tube, collection of sputum sample, high-frequency oscillatory ventilation, high-flow oxygen, endotracheal aspiration, suction of body fluid, administration of oxygen, chest physiotherapy and mechanical ventilation (Table L.1). All studies were rated very low quality according to GRADE criteria (47).

The findings suggest that some procedures potentially capable of generating aerosols are associated with increased risk of SARS transmission to health-care workers, with the most consistent association being across multiple studies identified with tracheal intubation. Other associations included non-invasive ventilation from two studies, and manual ventilation before intubation and tracheotomy, each from single studies. The authors note that these results must be interpreted in the context of the very low quality of the studies.

38. There has been no other published research demonstrating additional risk from AGPs since 2011; on the contrary, as the Inquiry will hear in subsequent Modules, there have been a number of high-quality studies performed since the onset of the pandemic demonstrating low levels of aerosol production from many AGPs, and much higher levels from common respiratory activities such as coughing and vocalising. Doctors in Unite have analysed and written about these too, and are willing to make this work available to the Inquiry for the purpose of subsequent Modules.

39. Despite the statements in the IPC guidance of 10 January 2020 that coronaviruses are mainly transmitted by droplets and contact spread, and that there are additional risks from AGPs, the guidance would have protected staff and patients adequately from all modes of transmission as it acknowledged airborne risk and implemented the essential precautionary principle. It included detailed advice on airborne protections necessary to protect staff and patients from being infected. It is a tragedy therefore that this guidance was changed soon after the onset of the pandemic so that the vital precautionary principle was abandoned along with airborne protections for patients and staff.

Recommendation

40. Infection Prevention and Control needs to be much more open to scientific evidence from other branches of science, in particular aerosol science and engineering, and to include experts in these fields in its policy making, guideline formulation and implementation of protections against infectious diseases.

Public health preparedness for the pandemic

41. The Outline of Scope for Module 1 provides that the Inquiry will examine the Government structures and specialist bodies concerned with risk management and civil emergency planning, including devolved administrations and their structures, local authorities and private sector bodies, historical changes to such structures and bodies as well as the structures in place as at January 2020, inter-organisation processes and cooperation. The following section of my witness statement will deal with the preparedness of public health for the pandemic. I have been assisted in preparing this section of my witness statement by Steve Watkins, a Vice-President (and former President) of Doctors in UNITE. He is a public health doctor, now retired from paid practice but working voluntarily as a charity trustee as Chair of the Transport & Health Science Group, an international scientific society. He was Director of Public Health for Stockport from 1990 to 2018. He represents UNITE on the Public Health Medicine Consultative Committee and was closely involved during the 2012/2013 reorganisation process in the discussions about funding, free speech and NHS status of public health. He has also served as Chairman of the BMA Public Health Medicine Committee (1992-8), as a member of BMA Council (1991-2017) and as a Vice President of the Faculty of Public Health (2018). Further information can be found in his entry in Debrett's 'People of Today'. I am informed by Steve Watkins and I believe the following paragraphs (42 –81) to be true:

42. The preparedness of public health for the pandemic was seriously affected by a number of processes:
    - A series of confusing reorganisations of the health protection function
    - A steady decline in public health funding
    - A serious decline in relevant areas of local government spending, including youth services, environmental health, community development, and others

- An NHS that is focused on treatment not on prevention
- A failure to unite public health services in a single framework
- A serious diminution in the freedom of public health specialists to advise publicly about threats to health where this advice was unwelcome to their employer
- A diminution in the effectiveness of "telling truth to power" even when it is not done publicly.

43. All of these processes began well before 2009. Indeed, the decline of public health began in 1974. Whilst we appreciate that you are primarily interested in events since 2009, it is not possible to understand those events without setting them in the context of the continuing decline from 1974. We will therefore include some reference to events before 2009 where this is necessary to set the context of continuing decline or to explain the significance of events like the introduction in 2013 of a distinction between "the NHS" and "the statutory comprehensive health service".

Public Health in the Original NHS

44. The NHS is not just a way of paying for health care. It is also a mechanism whereby the health of the people is pursued as a social goal, Nye Bevan's NHS had three wings – family health services (general practice. pharmacy, dentistry and opticians), the hospitals and the Health Depts of local authorities. Since a sharp bureaucratic divide now separates the NHS and local government we often forget that part of Bevan's NHS was run by local authorities and focused on prevention. In its first quarter of a century the NHS cleared the slums, cleaned the air, eradicated polio and diphtheria, and dramatically reduced the incidence of TB, enabling TB hospitals and TB wards to be closed or reused.

The 1974 Redefinition of the NHS

45. These achievements of the early NHS show that the NHS did once emphasise prevention. But since reorganisation in 1974 it has lacked the means to do so. Important elements of public health, such as environmental health, remained with local

government but were no longer seen as part of the NHS, so that addressing the social and environmental determinants of health was no longer within the remit or the capacity of the NHS and no longer under the direction of public health specialists committed to analysing and improving the health of the people. Those specialists were now in the health authorities and were generally redirected away from addressing the determinants of health and towards health service planning. They were separated from public health nursing which moved to the new health districts and came to be seen merely as specialist community nurses.

Communicable Disease Control

46. The mechanisms for protecting the population from large-scale severe infectious disease or environmental hazards were left severely disrupted after 1974, resulting in the disastrous failings that led to the Normansfield Inquiry.(Report of the Committee of Inquiry into Normansfield Hospital [JF/25]. This did lead to improvement and to greater collaboration between the NHS and local government in the specific field of communicable disease control but this has again been consistently downgraded since 2010.

47. The abolition of Government Offices for the Regions was an early act of the coalition government. It removed a tier of regional coordination that had proven effective in severe national emergencies in the 1990s and 2000s. The loss of the emergency planning role, in particular, created a significant deficit. The abolition of regional working changed the organisational capacity for dealing with major emergencies in England dramatically. A two-tier system was adopted with no structured process for cooperation between local resilience fora in place of a straightforward three-tier approach of national, regional and local resilience mechanisms.

48. In a March 2012 revision to the government guide *Emergency Preparedness* (Cabinet Office) [JF/26], it was left entirely to the local fora to decide whether and how to cooperate. This point represents the end of reliable and structured emergency planning for England. In many local areas the 2013 reorganisation of public health saw NHS health protection services transferred entirely to Public Health England. However Public Health England reorganised its resources so as to provide stronger support to health protection services in local government – services which no longer had a

medical or nursing input as that had been transferred to PHE. Replacing this absorbed some of the growth in public health grant and was also inconsistent in its effectiveness.

Public Health Spending and Prioritisation

49. From 1974 to 1997 spending on public health by the NHS and by local government depended entirely on the local priority given to it. Many environmental health departments were run down by their local authority and integrated into a regulatory function in which public health was only one element. Many NHS bodies did not perceive the importance of prevention and saw health visiting, school nursing and community clinics as sources for savings to fund their priorities in the hospital service. On the other hand, many local authorities and NHS bodies did see the importance of public health and where such prioritisation existed on both sides of the NHS/ local government divide vibrant public health programmes could be developed.

50. There was a brief period under the leadership of Barbara Castle that public health had a national priority but she thought it too late to reverse the 1974 changes, perhaps not fully realising their baleful effect, and she survived only through the Wilson Government. There was no significant prioritisation of public health under the Callaghan Government, and the Thatcher Government had an ideological antipathy to public health.

51. The Major Government had a stance of regretting the decline of public health and expressing support for local initiatives but doing nothing to generalise them. Even this limited support changed in 1997. The Health Dept in the Major Government had not prioritised public health but it had permitted it to be prioritised locally. From 1997-2010 prioritisation was centralised and it became more difficult for localities to pursue different priorities. Public health was not a priority of the Blair Government.

52. This changed briefly for the better in 2010. Andrew Lansley is not a hero of ours – he did much to damage the NHS by his unnecessary reorganisation, by his misplaced belief in commercial solutions and by his fundamentally damaging procurement laws. However, in one respect he is to be praised. He stands alongside Barbara Castle as one of only two Health Secretaries to have genuinely prioritised public health.

53. The adverse effects of 1974 could therefore have been reversed in England when public health returned to local government in 2013 but instead the coalition with the Liberal Democrats decided to introduce a distinction between "the statutory comprehensive health service" and the "NHS", with the latter being only a part of the former. Andrew Lansley's vision was that "the NHS" had become too firmly identified with health care and a new public health system needed to be built alongside it and to become the dominant element of the Dept of Health. However, like Barbara Castle, Andrew Lansley was quickly replaced by successors who did not share this vision.

54. Spending on the public health services transferred from the NHS to local government substantially increased in 2013 and notched up slightly more in 2014. But this was only a small part of total public health spending. With "public health" removed to local government the NHS faced even less pressure to prioritise prevention whilst, outside the ring fenced field of "public health", local authorities were subject to severe spending cuts which were eroding environmental health services, youth services, community development and other services central to a public health strategy. A significant part of the new money committed to public health services was used to ease the consequences of those wider local authority cuts. We have already commented on the impact of 2013 on health protection resources.

55. The division introduced in 2013 between "the NHS" and the "statutory comprehensive health service" allowed the 2015 Cameron Government to cut funds for public health in England saying health visiting, school nursing, drug and alcohol services and NHS health checks were no longer part of the NHS. Andrew Lansley's aim in introducing the division might have been to give public health a higher priority but it actually was used in the exact reverse way. The argument was that because "the NHS" had to have protected funding it was important that other areas of DH funding should be squeezed to help find that money. The 2013 and 2014 growth money was taken away and the cuts in public health spending then went further, biting even into the inadequate levels that Lansley had set out to improve.

56. In the devolved nations public health remains part of the NHS but the need to link it also to local government remains a challenge. Public health must work across local government and the NHS and be included within the concept of the NHS, at least for the purpose of the protection that the NHS has for funding.

57. The cuts in "non-NHS" health funding in England had many adverse impacts, including impacts on NHS workforce planning. The cuts in public health spending were like stripping the lead off the roof to make buckets to catch the rain, since failure to prevent created the workload crisis which overwhelms general practice and hospitals. Obesity, alcohol-related diseases and diabetes stoke this crisis. So does unhealthy ageing – if healthy life expectancy had kept up with life expectancy, longer lives would actually reduce demand as people lived longer before becoming heavy users. If the dependency ratio is calculated as the proportion of the population over the age of 65 divided by those of working age it is at its highest ever and will continue to rise. But if it is calculated as the number of people within ten years of life expectancy divided by the total number of people actually working it is actually at its lowest ever [JF/27]. However instead of healthy ageing reducing the burden on the NHS, an inequality emerged in which the poor not only die younger, but also spend longer in illness within their shorter lives (a factor neglected in NHS resource allocation formulae).

58. Public health spending is vital to easing the pressures on the NHS. Indeed, the British Medical Association, speaking for the whole profession, has said, in letters sent to the Secretary of State for Health and the Chancellor of the Exchequer by BMA Chair of Council Hamish Meldrum and then again by his successor Mark Porter that increased public health spending will do more for the NHS than increased NHS spending.

Recommendation

59. We invite you to recommend that the term "the NHS" be applied to the whole of the statutory comprehensive health service, as it was before 2013, including services like environmental health which would have been regarded as part of "the NHS" before 1974. This need not imply substantial reorganisation – local government managed this part of "the NHS" before 1974 so the current organisation need not change, except to strengthen the role of public health specialists as advisers to the NHs as well as the local authority.

60. We invite you to recommend that public health spending should rise each year at more than the rate of growth of NHS spending as a whole until in all districts it had achieved the levels of spending of the best in 2013, after which it should grow by at least the general NHS rate of growth.

61. Outside the field of specific public health funding, we invite you to recommend that the policy of dismantling local government by starving it of funds should cease.

62. Also outside the field of specific public health funding we invite you to recommend that the NHS should place a higher priority on prevention in its targets and objectives.

Public Health Across Government

63. Public health requires action to address the environmental and commercial determinants of health. We need healthy housing, greenspace, healthy transport, good quality work. Asserting freedom to choose unhealthy lifestyles should not imply commercial companies are free to maximise their profits by persuading people to harm themselves. Health is improved by resilient communities, mutually supportive and asserting control over the factors that affect their health. These political and environmental factors, including community empowerment, are central to the public health agenda.

64. In the 1990s a Minister was created in a role initially held by Julia Cumberlege, to address public health. However, the role rapidly became dominated by specific preventive measures in the NHS. The Blair Government came to power committed to develop a cross-Government public health strategy led by a Minister of Public Health. However, this never really happened and after the first holder of the office moved on it was downgraded from Minister of State to Parliamentary Secretary and reverted to the same role as had previously been played by Julia Cumberlege. Under Andrew Lansley a Cabinet Committee was established but after he moved on it ceased to be in any way effective. Recently there has been an ideological antipathy in DHSC to addressing the social, environmental and commercial determinants of health.

Recommendation

65. The Minister for Public Health has never had sufficient cross-Government responsibility. It needs to be a Cabinet level role, joint between DHSC and the department responsible for local government, and with links into all other Government departments. In each Government Dept there should be a Minister responsible for the public health functions of that Dept and links to the Minister for Public Health. In some

departments, such as those responsible for food, for transport, for work, and for social security, that role is sufficiently important to be a full time role and there is a case for it being joint with DHSC. In other cases, it could be part of a wider portfolio. Between these roles a comprehensive public health strategy could be shaped.

66. At the moment, it would be nice to be able to criticise the Government's public health strategy but it would first of all be necessary to find it.

The Independence of Public Health Advice

67. Public health specialists, a medical specialty which also has a non-medical route of entry, are health professionals who treat a population, identifying the threats to its health and acting as change agents to improve it. Their role as change agents and advocates needs recognition and protection.

68. Prior to 1974 the independence of Medical Officers of Health was statutorily protected. Since 1974 this has not been the case. However most public health consultants (including Directors of Public Health) were employed on contracts which guaranteed them freedom of speech. This was stripped away at regional level in the 1990s when regional health authorities were replaced by civil service bodies. It was stripped away at district level from 2013 onwards when the staff of Public Health England became civil servants and when the TUPEd NHS terms and conditions of service gradually ceased to be protected in local government as new staff were recruited and as, especially from 2015, protected terms and conditions began to expire. Neither the civil service nor the Local Government Association has shown any willingness to discuss protected freedom of speech. Until 1997 it was generally acknowledged that the role of the Chief Medical Officer included the telling of truth to power. That began to be eroded under the Blair Government and it has continued to erode. Today, anecdotally, journalists tell us that they do not perceive any official public health source as independent.

69. Many of our members still assert, against increasing difficulties, their duty to act as a health professional treating a population with a duty to give honest advice, if necessary in public. However, the difficulties they face in doing so are such that they fully understand why that role is no longer trusted as it once would have been. This lack of

a source of trusted independent official public health advice had a major adverse impact on communication with the public during the pandemic.

Recommendation

70. Doctors in UNITE has drafted the following clause which we advocate should be included in future health legislation to guarantee the professional standing of Directors of Public Health as health professionals treating a population. We have submitted this suggestion to the Government and a number of other stakeholders, in a number of different ways.

EXPLANATORY NOTE.

Public health provided by the Secretary of State or by local authorities is part of the health service established under the NHS Acts, although s66(4) of the Health & Social Care Act 2012 excludes it from the definition of "the NHS". Directors of Public Health have an important role which does not merely include the management of public health services but also includes an independent advisory function to a wide range of organisations, including an advisory role to the NHS. This clause gives statutory effect to those wider roles. Clause (c) uses the device of a corporation sole (a body corporate consisting of the successive holders of a specific office) to ensure that Directors of Public Health have scope for independent action. Clause (e) makes special arrangements for situations where it may be appropriate for the Crown to take legal action to protect the public health by ensuring that the Attorney-General and Chief Medical Officer are informed of such a situation. Clause (g) ensures public health representation on bodies managing, regulating or commissioning the NHS where Directors of Public Health consider this to be necessary. Clause (h) guarantees the professional independence of the DPH in these wider functions.

NEW CLAUSE

There shall be inserted into s30 of the Health & Social Care Act 2012 after the material specified therein for insertion into the National Health Service Act 2006 the following addition to the insertion

73D The Director of Public Heath shall

(a) be an officer of the local authority and shall have responsibility for its public health functions

(b) be an NHS consultant in public health responsible for giving independent professional public health advice and for promoting public debate on health matters

(c) be a corporation sole and NHS body for working with others to initiate measures to improve the health of the people

(d) be an officer of the Crown responsible for such functions as the Secretary of State may specify

(e) as an officer of the Crown have power to draw the attention of the Chief Medical Officer and the Attorney General to events within the area of the local authority creating circumstances in which it might be appropriate to bring proceedings in the name of the Crown for public health purposes

(f) be an officer of the National Health Service responsible for promoting the provision of services which are outcome-focused, are provided following a proper needs assessment and pay attention to the promotion of health and the prevention of illness

(g) as an officer of the NHS, have power either personally (in the case of a body which primarily serves the population of the local authority which appointed the DPH) or through joint arrangements with other Directors of Public Health (in the case of a body which primarily serves the population of several local authorities) or through a collective arrangement established by the Chief Medical Officer (in the case of a body with a national remit) to appoint, or approve arrangements for the body to appoint, a consultant in public health to serve on the governing body of any NHS body, any NHS Foundation Trust, any of the bodies established under this Act or any of the bodies established under the Health & Social Care Act 2012. For the avoidance of doubt the consultant so appointed may be, but need not be, the Director of Public Health personally.

(h) be contractually required, subject to law, to carry out the functions in subsections b, c, e, f, and g herewith as an independent health professional treating a population as a patient and pursuing the improvement of its health and to be contractually entitled not to be subject to any detriment by the local authority or by the Crown for so doing.

71. The lack of senior public health medicine capacity in the four health departments of the United Kingdom is a major contributory factor to the poor performance of the country in keeping the population safe from COVID-19. Until recently, it was the practice, since the 19th century, that a public health physician occupied the post of Chief Medical Officer (CMO). It is a signal of the decline in the public health functioning of the departments of health that at the beginning of the pandemic, three of the four posts were occupied by clinicians rather than those with training and qualifications in public health medicine. Gabriel Scally, commenting on this in a British Medical Journal paper in 2013 (Scally, G., 2013. Chief medical officers: the need for public health at the heart of government. [JF/28], said that: "The state of global health is such as to indicate clearly that we are in desperate need of passionate public health heroes at the heart of national governments around the world".

72. There is certainly a place amongst the contenders for the office of Chief Medical Officer for clinicians with a background in epidemiology and in public health advocacy, just as there is for public health doctors. To that extent we do not wholly agree with Prof. Scally. But we do agree with him that in England the capacity effectively to advocate public health action has not been the prime attribute sought by Ministers when considering who to appoint to the role. This is not to criticise the holders of the office, but rather to criticise the framework within which they have been appointed and expected to operate.

Recommendation

73. We believe that there needs to be a major strengthening of the office of Chief Medical Officer, of its independence and of its guaranteed role as a health advocate.

Regulatory Agencies

74. We have commented already on the way that environmental health regulation was run down after its separation from NHS public health in 1974. New regulatory agencies with important powers in fields like health and safety at work and the environment were established in 1974 and subsequently. However, from the commencement of austerity in 2010 those organisations (and older ones, like building control and wages

inspectors) have suffered serious loss of funding and have been treated as burdens on the economy.

Recommendation

75. We invite the Inquiry to recommend that regulatory agencies concerned with health and the environment should be protected from funding cuts and deregulatory pressures. There is a case for regarding them as part of the statutory comprehensive health service.

Workplace Health

76. The workplace has been important in the spread of the pandemic in issues ranging from the lack of proper protective equipment in the NHS to inadequate ventilation in a wide range of workplaces.

77. By comparing variance between industries in age/sex standardised mortality and in age/sex/social class standardised mortality, Fox & Adelstein showed in the 1970s that between a quarter and a third of UK social class variance in health was caused by work, rather than by lifestyles, housing, geography or general economic and social conditions. The 20,000 annual UK occupational deaths implied by this was far more than have ever been recognised as occupational deaths, suggesting unrecognised or unquantified work-related causes of common diseases. The study has not been repeated, and some data is no longer routinely collected. In the ensuing four and a half decades a shift from manufacturing to service industries has exported some of the former occupational causes of disease to countries with weaker regulation and weaker trade unions. However new forms of unhealthy work have emerged, whilst trade unions and regulation have both been weakened. The figure may not have changed, especially as the proportion of the variance which it explains by work is similar to the proportion of adult life spent at the workplace.

78. Chronic illness and disability often prevent obtaining such work, or lead to its loss. People with impairments should be employed for their abilities. Punitive 'welfare to work' policies damage health, cause stress and diminish self-respect. Profit-driven economic activity can damage health through pollution, environmental harm, unhealthy products and unhealthy lifestyles.

79. Comprehensive occupational health services provide biological monitoring, employment rehabilitation, workplace clinical services and health promotion. They support workplace health and safety systems, identifying hazards, assessing risk, preventing occupational disease and supportively managing disability and sickness. They should also work with trade union health and safety representatives in the workplace. About a third of the workforce had a comprehensive occupational health service in the 1980s, a third had a partial service and a third had no service. Since 1980, the closure of large sectors of manufacturing and heavy industries, privatisation of nationalised industries, and growth of service industries perceived as less hazardous, has led to outsourcing of most occupational health services to commercial companies. Insecure contracts and separation from the workplace culture mean they have less independence than the old-style services. Comprehensive services as defined in 1980 are now virtually unknown, limited to some especially hazardous and regulated industries like the NHS, nuclear industry and armed forces. The majority of the workforce now have no access to occupational health services. For many who do have access, it is not a direct access.

80. Occupational health services in the UK have never been statutory, but mostly employer-provided services. There have been campaigns to incorporate occupational health into the NHS, but by 1980 this was seen as medicalising the issue. But with no statutory duty on employers, occupational health services declined and were commercialised.

Recommendations

81. Doctors in UNITE (the Medical Practitioners' Union) believes there should be national occupational health services (NOHS) for England and devolved nations. Whilst these proposals may be detailed the failures of occupational health are certainly part of the inadequate preparedness of our nation for the pandemic:

- Cover all workers, paid or unpaid.
- Address occupational, environmental and commercial determinants of health.
- Provide biological monitoring, employment rehabilitation health promotion and support safety management.
- Normally be publicly provided
- Be accountable to Parliament and devolved Assemblies.

- NOHS should be part of the statutory health service.
- Existing national organisations for health and safety and control of pollution should be redesignated as part of the statutory comprehensive health service. This does not imply any suggestion for reorganisation of them.
- Locally, NOHS should be democratically controlled by workers (preferably through their trade unions), the appropriate regulatory agency, consumer representatives and local communities.
- Professional independence is central.
- Funding from general taxation to enhance independence.
- Be provided on a group basis to small and medium-sized enterprises.
- Stress at work must be addressed.
- Certain types of health care should be provided in the workplace.
- Linked to a Work and Health Service taking over DWP's disability functions, as part of the NHS and providing employment-focused rehabilitation.
- Linked to the public health system.
- Have access to all levels of management and of regulation.
- Have specialist support.

82. Whilst this witness statement has focussed on matters contained within the Scope of Module 1, Doctors in Unite has many specialist members who may be able to assist the Inquiry with its work in future Modules. They include Dr Jack Czauderna MB ChB, Dr Jackie Davis and Dr Tony O'Sullivan FRCPCH MRCP DCh:

    Dr Jack Czauderna is a retired Family Doctor who worked as a General Practitioner in the same practice in the east-end Sheffield neighbourhood of Darnall for nearly 30 years. He also worked as a GP with a Special Interest (GPwSI) in Chronic Fatigue in the South Yorkshire and North Derbyshire CFS/ME service. He remains involved with some of the 'seldom heard' communities in Sheffield and during the pandemic, with other medics and public health people, set up Sheffield Community Contact Tracers (SCCT). https://www.communitycontacttracers.com They piloted a neighbourhood based, volunteer trained workforce to support and contact trace in Sheffield and continued to support communities among the seldom heard for the duration. He has continued to work on improving ventilation in community spaces using CO2 monitors as proxy for ventilation levels and assessing the need for simple measures such as opening windows or use of air filters depending on numbers of people, type of activity etc and supporting people with 'Long Covid', again with a focus on seldom

heard communities. He is the Chair of 'The Pioneer Health Foundation' (PHF) which keeps alive the legacy of the famous 'Peckham Experiment'. This showed that people can only be healthy if they live in a healthy context or environment. He does not believe that the UK was a healthy environment before the pandemic, and need to create a healthy context to prepare for the next event.

Dr Jackie Davis is an NHS consultant radiologist, author and BMA council member. She has been a radiologist at Whittington Hospital London since 1981 with special interests in paediatrics, ultrasound and breast imaging. She was called as a witness by the House of Commons Health Committee enquiry into Top-up fees in the NHS in 2009. She is on the board of Dignity in Dying and chairs Healthcare Professionals for Assisted Dying.

Dr Tony O'Sullivan retired as a consultant community paediatrician in 2016. He qualified at Liverpool University Medical School in 1974. His special interest work was in childhood disability in Lewisham where he was a consultant between 1993 and 2016. He was director of services for children and young people at Lewisham & Greenwich NHS Trust across community and hospital children's services 2011-2014. His clinical service innovations include the Lewisham model for multidisciplinary-assessment of children with autism, inter-agency transition team for young adults with disability leaving school and multi-agency planning for care coordination for children with severe or complex disability. He led DH-funded research on inter-agency planning for disabled young adults and collaborated on several research studies on autism. He has been a member of several inter-agency strategic groups in Lewisham during his consultant years. He took part as clinical director for community services in the inter-agency cross-system response to the influenza ('swine flu') pandemic in 2009. He has taken an active interest in many aspects of the pandemic.

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: 13 April 2023

Irrelevant & Sensitive