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COVID 19 in the UK and occupational health and safety - predictable but not inevitable failures: what can we do now?

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The physician, pathologist and social epidemiologist, Rudolf Virchow in the nineteenth century observed that medicine was a social science and politics was nothing more than medicine on a grand scale. Tackling epidemics of occupational disease in this context is therefore as much about the politics and economics of occupational health and its organisation as it is about the science.

The public health precautionary approach and related "prudent pessimist" philosophy which is geared to preventive actions on occupational hazards seems most likely to succeed in curtailing old epidemics and preventing new ones occurring. Its emphasis is far less on defining occupational diseases and far more on identifying hazards and ensuring their removal or the introduction of very large control measures to control potential risks from hazards. Yet the UK system currently relies on tracking outcomes - occupational diseases - rather than risks. (Watterson 1999. Why we still have old epidemics and endemics in occupational health.)

"Based on other countries' experiences, health care workers have been among the bulk of positive COVID-19 cases. We need to protect all of our health care workers, especially those at the frontline, because losing any of them means many COVID-19 patients will not receive the care they critically need. Protecting our health care workers means giving them the tools and gear they need to fight the virus. Losing any lives to the pandemic is devastating and society will be put at greater risk of losing more if we unnecessarily sacrifice health care workers lives by not given them the protection they need". (Dr Bianca Frogner 2020 in USA)

Executive summary

Across the world dedicated health and social care professionals, emergency workers, key support workers, service and other workers in our societies put their lives at risk to combat the COVID-19 pandemic. Nothing should distract from their efforts. For these workers to be effective it is vital to protect their health and safety now and not in the unspecified future and in unspecified ways. Failure to do so is ethically and morally wrong and will already have had repercussions for society with increased morbidity and mortality. The threat to worker health and safety has not been theoretical since December 2019 and so there has been and is no justification for inaction now.

Numerous lessons will be learnt, too late in many cases, about how we managed the UK COVID-19 pandemic and frequently ignored both early warning and early guidance. These are not new lessons. Solutions to the hazards have been known and advocated in global and national agencies and by NGOs for many years. We can plan for military activities over decades, spend many billions of pounds on military equipment and training and launch huge expensive vanity projects in the UK. It should therefore be unproblematic to spend just millions of pounds planning in advance for a specific pandemic 'war' by addressing occupational health and safety needs for health and other workers through effective resources, staffing, training, procedures and stored equipment. Adequate supplies of personal protective equipment (PPE), early and proper planning, risk assessment and management to protect worker health and safety and the public health and are comparatively cheap as is basic regulation and inspection.

The UK pandemic is also occurring against a background of years of cuts in the health and social care sectors and decades of cuts specifically in the occupational and environmental health and safety sector. In all parts of the UK in late March 2020 there are still major challenges to protect all workers from COVID-19. These ongoing health and safety challenges, some deep rooted and others easily fixed quickly, include the need for better occupational health surveillance, more and extensive testing, tracking and tracing along with the 'shutdown' measure now belatedly in force. They also require politicians and scientific civil servants to act openly and urgently.

Many press conferences in March 2020 held by UK and devolved governments, when frequent and difficult questions have been asked about the numbers of health and other workers who contracted COVD-19 during work or work-related activities, often elicited no answers at all. Questions have been asked about PPE supply, provision and suitability for key workers, and in early March non-specific answers were given with no clear time-lines. Daily stories of UK health and emergency workers making their own PPE, buying PPE from chain stores and sourcing their own sanitisers provided a damning indictment of the state of occupational health and safety across this country.

This paper examines the occupational health and safety issues faced by all workers in a pandemic; the state of knowledge about coronavirus in the context of the health and safety responses from international agencies; and how UK politicians, government bodies, health professional bodies, employers, non-governmental organisations & trade unions responded & should now respond. International agencies have done better than the UK government & many scientific civil servants. Some UK professional bodies have produced extensive health and safety advice and called for improved PPE, others have been less active. NGOs and trade unions have generally been a very good source of information on pandemic risks and acted early in analysing what was needed and why.

Introduction

This paper examines in a rapid review a range of the occupational health and safety issues raised by COVID-19 drawing on global and UK reports and guidance, technical investigations available up to March 31 2020. It additionally offers a snapshot of web-based grey literature produced in the same period by or commenting on key organisations. The link between worker health and public health is unescapable now (Berkowitz 2020).

Many of the general precautions needed to protect workers from pandemics like COVID-19 were identified after the flu pandemics in the 2000s and the Ebola outbreak in 2018. There has been a widespread global recognition that a pandemic like COVID-19 would emerge but precisely what it would entail and when it would happen was not known. Although there have been multiple global problems and global failures in dealing with pandemics, important advice from international bodies and important lessons from other countries in the frontline of the COVID 19 epidemic have still been ignored and decisive action delayed by countries within the UK for reasons that are currently not entirely clear.

Recognition of any virus and its gene mapping are obviously critical to testing which in turn is critical to screening which is critical to identifying and implementing effective occupational health and safety measures as well as selecting and sourcing sufficient and suitable personal protective equipment. These things are inter-twined . However, in the public domain questions of testing and tracing are sometimes viewed as public health matters alone and may not be recognised as major occupational health and safety influences. The occupational health and safety of health workers, emergency workers and other key workers involved in dealing with the pandemic has not been as well served as it should have been. It is still not. This paper focusses only on the occupational health and safety and related dimensions of the pandemic.

The impact of COVID 19 has been unprecedented but not at all unexpected in several respects and planning and responses have frequently varied from country to country. Corona viruses were first isolated in 1937 in birds and in the 1960s there was evidence of human coronaviruses (Medical News Today nd). By 2019, the US Centre for Disease Control was monitoring the outbreak of COVID-19 in Wuhan, China. The first reported COVID case from a person infected in the UK was on February 29th 2020 (BBC 2020 February 29th) The exact timing and type of pandemic would not have been known but the pandemic warnings came in 2019 and were acted upon relatively quickly in China, Taiwan, South Korea and Hong Kong in ways that reduced the public health mortality and morbidity figures at that stage especially in the latter two countries. The response to the COVID-19 pandemic threat in parts of Europe and the USA was far tardier. Reflecting on the failures of dealing with the Ebola outbreak, in the context now of Covid 19, two US researchers observed the following. " We don't need another set of 'lessons learned.' We know what needs to be done. To fail to act is not only an act of negligence; it is blood on our hands" (Diamond and Woskie March 2020) . The UK actions we still need to take on protecting the health and safety of all workers from COVID are equally clear and at present look far short of being adequately realised.

There are suggestions that we are 'all in this together' and that no one is responsible for the pandemic impacts and related health and safety failings. Both statements are untrue. The distribution of risks from COVID-19 is not equal across UK society. In addition to the high risks faced by health and social care professionals in acute, primary care and community settings, evidence is emerging for example that low-paid women in the UK are also at high risk of COVID-19 exposure (Booth 2020) along with low paid workers elsewhere in our gig economy. The UK government has called for all its citizens to act responsibly to stem the mortality from the pandemic.

After the pandemic has ended, it will be important to examine why the UK government did not behave responsibly in planning and preparing for the pandemic that was globally predicted. The argument has been made by the UK politicians and their chief medical and scientific advisors that decisions about pandemic policy and their slow responses have been made solely on the basis of 'the accepted science'. This argument was readily accepted and repeated by the politicians leading the three devolved administrations. Whether this was always and consistently evidence-based policy-making or at times policy-based evidence presentation reflecting special policy advisor and non-scientific views will become clear over time. What is certainly the case is that decisions about containment, testing and tracing had a profound effect on the health and safety of key staff and on mortality and morbidity of the public in March 2020. Dither and delay has proved lethal and by the third week in March, the expert UK view from those who were researching pandemics was that we had lost at least nine weeks to prepare more fully for the public health outbreak (Sridhar 2020).

Preparations for the pandemic in the UK

It is already clear that UK government policy did not draw on and use the global empirical data and WHO advice available from January 2020 onwards about both virulence, spread and control of COVID-19 and information about best practice on PPE and other health and safety issues (Horton 2020: Sridhar 2020; Diamond and Woskie 2020). This does not of course mean that all the COVID-19 answers were available early in 2020. At the same time, there was no consensus in the scientific community about the best approach to the pandemic and UK and NHS policy and occupational health and safety practice has been changing regularly in March 2020 depending it would seem on these different scientific approaches, the pressure from health and emergency staff faced with the realities of failing government policy and public and media pressure. On occasions the UK government bowed to this pressure. The timeline table below identifies the extent of the UK delays on early warnings. German researchers had developed a test to identify the virus within weeks in early 2020 and tested many before the UK even started to get its act together and the Chinese government had apparently worked out a very effective strategy to contain the virus. Testing and containment of course are also highly effective mechanisms for preventing occupational health and safety problems as well as protecting public health: the two things go hand in hand.

Until the disease emerged in China, the exact type of coronavirus was not known. However, planners and researchers had identified the coronavirus group as a likely source of a future pandemic. Dealing with flu and coronavirus hazards requires certain basic health and safety equipment. Particular groups of workers may require a variety of personal protective equipment (PPE) – respirators, masks, shields, gowns, gloves and so on depending on the job they do and the level of contact they have with patients and the wider public. Immediately questions then arise about the supply, suitability, availability, maintenance, storage and replacement of PPE. Such questions are standard ones faced on a daily basis by occupational health and safety practitioners. Not all but many answers are currently available although China has not yet resolved the merits of various types of PPE for health staff when they found evidence for effectiveness lacking (Wang Q et al 2020). Different standards for PPE also apply in different countries (Holland et al 2020).

In 2009 and 2015, researchers looked at the potential demand for and type of PPE needed including respirators and surgical masks during a hypothetical influenza pandemic (Hashijura M et al 2009 ; Carias et al 2015). They were clear respirators were an important component of the infection control strategy and there were major logistical challenges in producing the numbers of respirators and masks needed. Again, this is an early warning of what sort of planning and preparation on the PPE front for health workers and others was needed. In March 2020 in the UK, months after the pandemic appeared in China, it is self-evident that the lessons have not been learnt.

Table: COVID-19 timeline of events with early warnings relevant to UK health and safety planning

Date	Reported subject
1937	Coronaviruses identified in animals
1960s	Coronaviruses identified in humans
2005	International Health Regulations (2005) bound every country to prioritize & dedicate domestic resources & recurrent spending for pandemic preparedness
2009	H1NI influenza pandemic
2009	Pandemic flu planning reports for PPE in main US medical journal
2009	UK swine flu outbreak killed hundreds of people
2011	UK flu preparation plans tested and found wanting
2012	UK flu preparation plans tested and found wanting
2014-2016	Ebola outbreak
2014	UK flu preparation plans tested and found wanting
2015	Challenges of obtaining PPE in a pandemic flagged in US by major research group
2016	UK flu pandemic test revealed major problems with hospitals unprepared and ventilation issues projected for patients
2017	UK Govnt rejected advice to give PPE to all frontline NHS staff in a flu epidemic
10/2019	Global Preparedness Monitoring Board flagged global lack of preparedness for emergencies including respiratory pandemics
10/2019	Global problems of obtaining PPE in a respiratory pandemic identified by Johns Hopkins report
17/11/2019	First human case of COVID in China reported in December 2020
13/02/2020	First COVID case outside China in Thailand reported
11/01/2020	First COVID death reported in China
30/01/2020	WHO declares a global public-health emergency over COVID
05/02/2020	First COVID death outside China reported in Philippines
09/02/2020	First COVID case contracted and reported in UK
20/01/2020	First COVID case in US reported
1/2020	First COVID case reported in UK
10/02/2020	BMJ reports lack of access to PPE and staff testing for NHS staff
11/02/2020	WHO announces that the new coronavirus disease will be called "COVID-19".
11/02/2020	Reports of UK rushing to secure COVID-19 PPE for nurses
15/02/2020	First COVID death in France from a different place of infection
21/02/2020	First Italian COVID outbreak occurs
21/02/2020	First 3 COVID cases detected in France and reported in France
21/02/2020	UK GPs unable to get hold of Covid-19 PPE and BMA calls for action
25/02/2020	First confirmed COVID case in France
03/03/2020	WHO flags shortage of PPE for health workers endangers healthcare workers
08/03/2020	Reports of UK hospitals beginning to run out of PPE for medical staff
21/03/2020	Multiple reports of NHS staff protection 'short of WHO guidelines' and lacking
21/03/2020	Hand hygiene & hand sanitiser access and uses in Scottish hospitals – OHS issues
25/03/2020	Health staff continue to report PPE supply problems
28/03/2020	Continued shortage of PPE for social care staff
28/03/2020	Scottish police report federation members providing their own hand sanitisers
28/03/2020	Italian doctors' association reports the death of 50 doctors from COVID
28/03/2020	First UK surgeon reported to have died from COVID contracted in UK hospital
28/03/2020	UK's first 'front line' doctor died after contracting COVID

{ sources cited in paper plus Eurosurveillance 2020 report, Businesessinsider.com)

On the evidence currently available, it is difficult to dispute the conclusions of Dr Richard Horton in the Lancet about the pandemic. He observed the Chief Medical Officer, the Chief Executive Officer of the NHS in England, and the Chief Scientific Adviser in England had a duty in January " to immediately put the NHS and British public on high alert. February should have been used to expand coronavirus testing capacity, ensure the distribution of WHO-approved PPE, and establish training programmes and guidelines to protect NHS staff. They didn't take any of those actions. The result has been chaos and panic across the NHS. Patients will die unnecessarily. NHS staff will die unnecessarily. It is, indeed, as one health worker wrote last week, "a national scandal". The gravity of that scandal has yet to be understood" (Horton 2020: The pandemic is likely to prove one of the worst failures ever to protect the occupational health and safety of health, emergency, social care, service and other workers across the UK.

COVID transmission may occur by multiple routes. Research from China showed the virus could be transmitted through the touching of contaminated surfaces, viral aerosolization in a confined space, and contact with infected people who had no symptoms (University of Minnesota 2020). Knowledge of these routes should have informed decisions weeks ago in the UK about occupational health and safety precautions, availability of sanitisers, what PPE was needed, by whom and in what settings. Information from Italy has provided further information about the occupational health and safety risks run not just by health workers but many other key workers such as the police and support workers in different settings. In the USA, researchers are noting that pre-pandemic training and occupational health capacity in nursing facilities, long term care, prisons and home care where transmission will occur was abysmal. UK readiness has been claimed but not evidenced.

It is entirely predictable that multiple work locations would be hit by the pandemic in the UK and it is important to re-assess the pandemic planning currently in place as well as to carry out reviews after the pandemic has ended. This is because evidence has emerged in the last month that health and safety procedures and equipment across the UK in these non-hospital/ primary care settings has been inadequate. Health and safety shortcomings have not been picked up by governments or regulators across the UK but for example by workers and their unions UNISON, and GMB in Scotland in social care settings with regard to risk assessments and suitability of PPE. Up to March 31 across the UK , there has been confusion about testing capacity and timetables: problems with PPE availability, distribution and suitability for acute and primary care workers; and serious concerns about appropriate PPE and supply of sanitisers for social care workers.

The occupational health and safety responses to COVID-19 and earlier flu epidemics from international and UK organisations

Occupational health and safety is too often viewed as a cost and a burden on industry not an investment because the human and economic costs of failures to protect workers can be offloaded on the victims, their communities and the NHS. The costs are externalised and so we all pay for bad employer and bad business practices. Health and safety is frequently hidden away or sometimes used by governments to mount ideological and not evidence-based attacks on so-called red tape – elf and safety parodies. It can be considered marginal, primarily affecting industrial and construction workers. Ignoring workplace health and safety and cutting budgets of those agencies who deal with workplace health and safety has ironically been frequently viewed as a 'safe' option because few people would be affected by such cuts. This was never the case because poor occupational health and safety through disease and injury adds to NHS treatment costs and patient numbers.

The COVID pandemic has made the links between occupational health and safety and wider public health very stark indeed. It has also highlighted the fact that not only the health and safety of health, social and emergency workers is critical to fighting the pandemic but so too is the health and safety of key workers in the service, retail , transport, distribution and manufacturing sectors.

Pandemics inevitably raise important questions about the role of global agencies such as the WHO and ILO and national governments and their agencies in terms of regulating, reducing or ending movement of peoples during a pandemic and at what stage such decisions should be taken drawing on what information. UK professional bodies, employer groups, trade unions and non-governmental organisations have also explored what should and could be done about COVID-19 health and safety. This section therefore briefly outlines and examines some of the work of these bodies on the subject.

International Agencies

International agencies have a key role to play in disseminating information. Their work is usually based on careful study of past problems and likely future threats to global health. These agencies themselves may be seriously under-staffed, under-funded and under-resourced which limits what they can do and there may be other problems relating to their effectiveness (Ladou et al 2018). Nevertheless, they still produce the most comprehensive and practical advice about the best public health policies for nations to adopt when faced with pandemics and did so on COVID-19.

1.The World Health Organization (WHO)
The WHO has been able to disseminate valuable COVID information, based on its earlier work as well as the Chinese and South Korean experiences, to many other countries in 2020. Along with other international agencies it identified a range of appropriate measures necessary to deal pandemics involving planning and equipping health staff with suitable health and safety equipment.

Prior to 2019, it produced a manual, the Health Wise Action Manual: Work Improvement in Health Services, to guide health workers on a range of topics including the control of occupational hazards and improving workplace safety (WHO 2014). Reports from a number of UK workplaces in 2020 would seem to indicate UK COVID practices fell short of this WHO guidance.

In 2018, the WHO with the ILO, produced a manual specifically addressing occupational safety and health in public health emergencies and the steps needed to protect health workers and responders (WHO 2018). It included guidance for employers on their rights and duties and information for workers on their rights. One chapter was devoted to occupational health and safety in communicable disease outbreaks including Ebola and contained information about hand hygiene, risk assessment for the appropriate use of PPE; cleaning and disinfection of the patient environment and patient-care equipment; laundry and waste management; and respiratory hygiene. Again, in the UK reports on COVID that have emerged from a wide number of workplaces including hospitals and primary care practices show such advice, procedures and information available from WHO at the time were not always used and followed.

By January 2020 the WHO was producing documentation and checklists for all countries on risk communication and community engagement readiness and response to the 2019 COVID pandemic . This was relevant to ensuring the health and safety of communities and health workers (WHO 2020i). In February 2020 WHO produced guidance on getting workplaces ready for COVID-19 (WHO 2020ii). As WHO indicated " Employers should start doing these things now, even if COVID-19 has not arrived in the communities where they operate. They can already reduce working days lost due to illness and stop or slow the spread of COVID-19 if it arrives at one of your workplaces".

Basic information about ensuring workplaces were clean and hygienic, promoting regular and thorough hand-washing by employees, contractors and customers and pitting sanitizing hand rub dispensers in prominent places around the workplace was listed. In the UK in March 2020 it was clear that in many workplaces including hospitals, these basic steps had not been taken and there appeared to be little sign of inspection and action by regulators to improve conditions to protect workers faced with COVID-19 threats.

The WHO also produced COVID-19 pandemic guidance on the rights, roles and responsibilities of health workers, including key considerations for occupational safety and health (WHO ndi) . The WHO indicated " health worker rights include that employers and managers in health facilities: assume overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks; provide information, instruction and training on occupational safety and health, including; refresher training on infection prevention and control (IPC); and use, putting on, taking off and disposal of personal protective equipment (PPE); provide adequate IPC and PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to healthcare or other staff caring for suspected or confirmed COVID patients. ….. consult with health workers on occupational safety and health aspects of their work and notify the labour inspectorate of cases of occupational diseases; not be required to return to a work situation where there is continuing or serious danger to life or health, until the employer has taken any necessary remedial action; allow workers to exercise the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their life or health. When a health worker exercises this right, they shall be protected from any undue consequences." Accounts from UK health professionals, paramedics and emergency workers dealing with known and suspect COVID patients through much of March 2020 reveal that many of these WHO-listed workers' rights were not observed and are still not being observed by some health and social care employers.

An open distance learning course was then developed by WHO to provide a general introduction to COVID-19 and emerging respiratory viruses for public health professionals, incident managers and personnel working for the United Nations, international organizations and NGOs. The course included hazards, risks and preventing and responding to the viruses with information about PPE (WHO ndii). By 2020, WHO provided further technical guidance on COVID-19 with regard to infection prevention and control (WHO ndiii). This contained the health worker exposure risk assessment and management tool relevant to COVID. The tool looked at PPE use, had hygiene and general procedures. Additional information was provided on PPE, advice on masks and other related matters. It is quite clear in the UK from numerous reports that this WHO advice and guidance was not followed in a range of hospitals and health care settings and for a range of workers.

Finally the WHO/World Bank Global Preparedness Monitoring Board reports (GPMB nd; GPMB 2019; Johns Hopkins 2019) all raised the lack of global preparedness for a respiratory global pandemic. Issues around PPE for health workers were specifically touched up. The 2019 report was widely covered in the UK press. These WHO reports and earlier ones were therefore less a case of the writing was on the wall about pandemic threats, rather they show they were on multiple big screens everywhere illuminated not for months but years. Yet the UK government still did not act upon them appropriately.

2.The International Labour Organization (ILO)

The ILO, a tripartite body of employers, employees and governments, has the global lead to produce conventions on working conditions including occupational health and safety and to produce reports on these topics.

Some of this work has been done with other international bodies such as the WHO and is discussed in the section above. If you do not protect the workforce in a pandemic you do not protect the public. The ILO Decent Work and Fair work agendas argue for both effective health and safety standards for workers and decent wages and conditions including sick pay and social welfare support. In the UK, the top down economic measures initially produced by the government in response to COVID-19 neglected the most vulnerable low paid workers, the precariat, on zero hours contracts in the gig economy. These workers , without an economic safety net, are forced to continue working often in hazardous conditions and without proper protection in a COVID-19 pandemic. The ILO has a bottom up approach and has been working on social welfare proposals to help the precariat during the pandemic.

In 2019, the ILO published guidelines on decent work in public emergency services (ILO 2019). The guidelines are relevant to UK emergency workers such as paramedics, ambulance crews, police and firefighters dealing with COVID. For the ILO ensuring decent work for these employees meant addressing PPE needs properly along with reducing such factors as occupational stress. Yet in March 2020, there have been a swathe of reports from UK emergency workers indicating these type guidelines have not been fully met.

By March 18 2020, ILO was assessing the effects of COVID on global labour markets especially for more vulnerable workers (ILO 2020). They noted : " unprotected workers, including the self-employed, casual and gig workers, are likely to be disproportionately hit by the virus as they do not have access to paid or sick leave mechanisms, and are less protected by conventional social protection mechanisms and other forms of income smoothing. Migrant workers are particularly vulnerable to the impact of the COVID-19 crisis, which will constrain both their ability to access their places of work in destination countries and return to their families". In the UK significant numbers of workers still fall into these groups. The ILO was unequivocal in calling for policy responses that firstly made sure :" workers and employers and their families should be protected from the health risks of COVID-19. Protective measures at the workplace and across communities should be introduced and strengthened, requiring large-scale public support and investment" (ILO 2020). There is some considerable way to go before the UK can be said to have achieved this first policy objective. The second objective of effective economic support for workers affected by COVID-19 is even further away.

<u>UK Government policy</u>

The UK government determines the national health, social care and workplace health and safety policies and related infrastructure and other spending. Its priorities and projects provide both the frame and main engine within which we need to assess the impact of COVID on our society. The Government, through its policies, determines what health and safety laws and regulations we have and hence the funding and direction of the regulators who deal with occupational health and safety. It is difficult to escape the conclusion that such policies are ideologically driven and are neither evidence-based nor evidence-informed. Successive governments have run down the budget of regulators and implemented a deregulatory and reduced regulation approaches to workplace health and safety openly and also covertly(Watterson and O'Neill 2012).

A range of legislation exists in the UK to protect the health and safety of workers including the 1974 Health and Safety at Work Act through specific measures such as the Control of Substances Hazardous Health Regulations revised and amended over the years Specific regulations give safety representatives in unions or as employee representatives rights to information and training, time off for inspections and investigating workplace incidents, injuries and diseases.

Critically safety reps have rights to be consulted and rights to sit on safety committees. This is where pandemic plans by employers should have been brought for scrutiny from and input by workers. In addition the UK still has a suite of European Union Directives in force as regulations relating to managing health and safety, controlling working hours and dealing with PPE and other equipment. These and other regulations, codes and guidance notes provide a framework for the Health and Safety Executive in Great Britain to inform, advise and enforce GB health and safety laws in most large workplaces and hospitals, and local authorities and monitor , inspect and if necessary issue improvement and enforcement notices and prosecute employers who breach the law. Local authority-based inspectors may enforce health and safety laws in smaller workplaces. Some leisure and shops etc.

Issues of NHS preparedness to deal with UK health needs generally and a pandemic in particular have long been raised. Problems including provision of PPE have occurred over the last four or five years (Merrick 2020, Sridhar 2020) and significant problems relating to health and safety as well as public health protection emerged in the 2010s. In addition the evidence from the US and elsewhere about the need for respirators and other equipment to deal with pandemics appears to have been ignored in the UK. Evidence that cost rather than public health and workers' health and safety dominated decisions not to purchase PPE for health workers has emerged. On March 28th it was reported that an urgent letter had been sent to the English Minister of Health by the Local Government Association and the Association of Directors of Adult Social Services (ADASS) requiring sufficient supplies of good quality personal protective equipment (PPE) immediately amid growing concern for staff who have worked closely with suspected Covid-19 patients (Busby 2020) .

England's Deputy Chief Medical Officer, Dr Jenny Harries, said on March 20, 2020: "The country has a perfectly adequate supply of PPE." To quote the Lancet, " she claimed that supply pressures had now been "completely resolved. I am sure Dr Harries believed what she said. But she was wrong and she should apologise to the thousands of health workers who still have no access to WHO-standard PPE. I receive examples daily of doctors having to assess patients with respiratory symptoms but who do so without the necessary PPE to complete their jobs safely. Health workers are challenged if they ask for face masks. Even where there is PPE, there may be no training. WHO standards are not being met. Proper testing of masks is being omitted. Stickers with new expiry dates are being put on PPE that expired in 2016. Doctors have been forced to go to hardware stores to buy their own face masks. Patients with suspected COVID-19 are mixing with non-COVID-19 patients. The situation is so dire that staff are frequently breaking down in tears. As one physician wrote, "The utter failure of sound clinical leadership will lead to an absolute explosion of nosocomial COVID-19 infection." Front-line staff are already contracting and dying from the disease. (Richard Horton Lancet 28 March 2020]

Dr Harries, on March 26 at a press conference covered by BBC TV was not in a position to state how many doctors and other health care staff were either sick or self-isolating due to COVD- 19. She also stated that testing and other equipment had been ordered and planned for ahead but due to the global pandemic, several countries including the UK were having difficult sourcing equipment. In which case the planning had failed in terms of PPE, testing, tracing and containment whereas in Taiwan and South Korea, faced with the pandemic weeks and months earlier than the UK, testing and containment had been introduced at the start and has apparently proved more effective.

In Northern Ireland, it has been reported that PPE from China had been ordered for front line workers but not yet delivered. No detail was available on how much had been ordered or when it would arrive and when it would be available for us by those front-line workers (BBC March 28th 2020) .

In Scotland over 630 police officers had already received PPE by March 27th including FFP3 masks, gloves, boot covers and goggles. Other Scottish front-line officers were expected to get PPE from 30th March onwards (Press Association March 27th 2020).

However, the Scottish Police Federation reported on 28th March that the Federation itself and not the Scottish Government was providing hand sanitisers to all its members (BBC Radio Scotland)

UK government agencies

1.The Health and Safety Executive (HSE)
HSE has responsibility for regulating workplace health and safety in England, Wales and Scotland including hospital and many other workplaces where COVID-19 may be a threat to health and safety directly and indirectly through staffing levels, stress and fatigue. There is a separate body for workplace health and safety in Northern Ireland - HSENI. All the general provisions of health and safety legislation would apply to identifying, monitoring and controlling the risks that flow from any pandemic hazards in the workplace. HSE also produces extensive information on the web and standard guides to managing health and safety and carrying out risk assessments which are easy to follow although they may be harder for some employers to implement (HSE 2013: HSE 2014 rev 2019). These laws and guidance should have ensured many of the easily remedied health and safety problems of reducing COVID exposures, so visible every night on UK TV, were addressed but they were not. For example pictures of call centre and production workers in close proximity or health workers without any or any effective PPE were shown. What HSE has been doing, could do, should do and will be doing to protect workers from COVID-19 during the epidemic merit urgent investigation now.

HSE has provided limited information on COVID-19 itself and refers workers to Public Health England guidance and guidance from the various health departments across the UK with regard to detailed information on PPE for health workers (HSE nd).

The major action of HSE that has been publicised during the pandemic appears to be an exemption permitting the manufacture and supply of biocidal hand sanitiser products in the UK using various chemicals (HSE 2020) . This was due to the great demand for biocidal hand sanitiser product. What else HSE has done specifically to protect workers from COVID would seem to be unknown. It has certainly not been widely publicized at the moment. HSE remarkably appears to date to have 'gone missing' during the COVID-19 pandemic beyond a little information on drivers and a little information on health surveillance guided it would seem by PHE . Yet interventions on ensuring suitable PPE is available to staff and ensuring health and safety standards and good practice are being observed for COVID in all workplaces could not be more critical for health and other workers, patients and the public.

2.Public Health England (PHE) and the English Department of Health and Social Care (DHSC) . PHE has the de facto lead for COVID including , it appears, on occupational health and safety for health professionals. Hence HSE on its COVID web page refers to PHE material and links (PHE 202) . PHE has produced guidance for health professional since January 2020 and in addition it has produced a series of guides on PPE including fitting and use (PHE nd). This advice has at times been queried by clinicians in the field and revised at times for reasons that have not yet fully emerged but were considered to be lower PPE standards than those in WHO guidelines. There is likely to be considerable debate and scrutiny after the pandemic has ended about HSE ceding effective oversight of COVID occupational health and safety for health professionals to PHE and what did or did not work well in protecting all health workers from COVID.

This follows the reports from clinicians that " Doctors are angry about Public Health England's new advice issued last week which reduces the level of the PPE that staff need to wear. Medics believe the change in advice was driven by the lack of equipment rather than a change in the clinical evidence about the risks from the virus " (Campbell and Busby 16 March 2020).

The HSE should have an active role at the moment in disseminating authoritative COVID information about PPE and wider health and safety matters to all workers in all sectors across the UK. This will allow them to check that all is well and hence re-assure workers who may be worried and, where there are problems, to identify remedies. This will complement positive actions on COVID and not delay them.

3.Health Protection Scotland (HPS)
HPS has issued a range of guidance on COVID. This includes generally information and specific guidance covering health protection teams, primary and secondary care workers, those employed in pharmacies, working as opticians and optometrists . Some specific PPE information and references to aerosol generating procedures are also included (HPS 2020).

4. The NHS.
The NHS in England, Scotland and Wales at all levels has relied on PHE for advice about PPE but all parts of the NHS are still covered by UK health and safety legislation and subject to inspection, monitoring and enforcement by HSE. Throughout the early part of 2020 and up to March 31 2020, there have been numerous reports of problems with the lack of PPE, the distribution of PPE and suitability. These are 'live' issues and matters that require urgent action but despite assurances by UK government and devolved government ministers and advisors that these PPE problems have been resolved, they persist. There are reports from a range of sources at the end of March that frontline doctors treating COVID-19 patients and some GPs have been gagged from speaking about PPE shortages with some claiming managers have threatened their careers (Lintern 2020). NHS England has acknowledged that it was controlling media communications to ensure the public received "clear and consistent information". As the chair of the UK Doctors' Association, Dr Rinesh Parmar observed " we are seeing draconian measures used to gag doctors and nurses on the frontline. The NHS will only benefit if we learn from each other's experience. If we are unable to share our learning then patients will be put at risk" (Lintern 2020). After the pandemic all the policies and practices of all levels of the NHS with regard to their health and safety practice, procedures and policies will need to be examined including their impact on patient care and public health.

5. Local authorities across the UK and their environmental health officers should have a role to play in addressing COVID health and safety issues but these are not discussed in detail here.

<u>Trade unions and professional bodies</u>

Trade unions frame many of their responses to workplace hazards in terms of the need for employees to have decent work and fair work So, the hazards of COVID-19 are viewed as preventable. Where workers are affected, their employment rights, job security and access to sick pay and support should be protected and applied. Some of the information and advice available on COVID occupational health and safety from major trade union and professional bodies are briefly reviewed below. All raise concerns that may range from major to minor but the overall picture that emerges for the unions is one of flawed government, NHS and employer policies, long delays, run down services, limited or non-existent resources that individually or together have seriously impacted on the health and safety not just of front-line clinical staff but also workers in a wide range of other sectors and occupations.

1.TUC.
The TUC has produced a range of information on COVID including planning advice, health and safety information, employment rights and links to resources including standard government advice (TUC 2020). Case studies on workplace hygiene are provided along with detailed information on PPE.

The organisation also flags up the need for specific precautions relating to 'public-facing workers' , a group that has been neglected both by employers and sometimes governments in terms of risk assessments and PPE. As the TUC notes: "Workers in public-facing roles will also be on the front-line of responding to COVID-19 and helping to limit its public health impact. Specific risk assessments under Control of Substances Hazardous to Health Regulations 2002 (COSHH) should be performed in such workplaces".

2. STUC
The STUC approach to COVID has been to work with government to press for measures which will protect public health, to support unions and non-unionised workers to avoid unnecessary risk and unfair detriment and to ensure that employers face up to their responsibilities (STUC 2020). They also want measures put in place by the Scottish Government on pay, sick pay, hours, and paid care for those affected by COVID. They have consistently flagged the occupational health and safety threats that Scottish workers continue to face when dealing with COVID-19 especially PPE issues.

3.GMB.
The GMB represents members for example in the health sector, social care, local authorities , manufacturing and services where there are numerous COVID-related occupational health and safety issues. They will advise and represent members in these locations and have produced a detailed briefing for members on COVID-19 (GMB 2020). This provides information on the law and worker rights, on symptoms, transmission, precautions and risks. There is specific information about what PPE should be supplied, what face masks in addition to other actions their employer should take to protect their health and safety. GMB have catalogued some of the many wholly avoidable health and safety problems that workers have faced when faced with possible coronavirus exposure. These have included access to PPE for hospital porters, lack of protective clothing and sanitisers for hospital workers, ambulance workers left with no hand sanitisers , wipes and masks and faulty testing gear, airport staff with no gloves or sanitisers and gig workers abandoned and penniless when faced with coronavirus threats. At the end of March, 500 ASOS workers walked out over what the GMB alleged were failures by the company to properly implement COVID-19 social distancing measures or to provide workers at its site in Grimethorpe, South Yorkshire, with protective masks and hand sanitiser (Chapman 2020)

4.Unite.
Unite has members in a very wide range of sectors including health and public service, labs, construction, manufacturing, transport and service industries. It has produced some of the most detailed guidance and checklists for trade unionists, open to all on its web pages. It covers for example those in clinical and non-clinical settings, critical workers. For its officials and representatives and others needing information on COVID-19 it details health and safety requirements that apply under the Health and Safety at Work Act 1974, the Control of Substances Hazardous to Health Regulations 2002 (COSHH) and provisions relating to biological and infectious agents and their risk assessment. (Unite 2020). There are sections on PPE, cleaning, canteens and welfare facilities, home working, lone working, transport working, international working

5.Fire Brigades Union (FBU).
The emergency services like the police, fire and ambulance services have a critical role to play during the pandemic. The FBU has produced generic guidance on COVID-19 for its members (FBU 2020i) and has also flagged the problems of the lack of testing which is needed to determine which of their members who are or have been self-isolating have COVID-19.

Failure to test people for COVID-19 has seriously affected staffing levels in the brigades. This jeopardises the health and safety of its members in operational settings (FBU 2020ii). Similar problems will exist in the other emergency services. The issues faced by the police service and raised by the various police federations are discussed elsewhere in this paper.

6. British Medical Association(BMA).
The BMA and its leadership have raised numerous health and safety issues relating to COVID-19 that their members have faced during March 2020. These have often focussed on serious PPE problems in terms of supply and suitability (BMA 2020) but have also included risk management, health and safety procedures, staffing, wider resource issues and stress and fatigue. Some of these are immediate and direct health and safety issues, others affect health and safety indirectly. Staffing levels, fatigue and stress relate to the large numbers of staff self-isolating or already ill from treating patients with COVID. Hence the lack of past priority testing of hospital and primary care staff has already had a damaging effect on the health and safety of the remaining workforce and on patients and relatives. Many BMA members have echoed or pre-empted the concerns raised by Richard Horton in the Lancet (Horton 2020) about COVID-19 policies, procedures, resources and delayed and ineffective actions at national level in England and Scotland

7.Society of Occupational Medicine (SOM), British Occupational Hygiene Society (BOHS), Faculty of Occupational Medicine of Royal College of Physicians (FOM).
FOM has produced a variety of guidance on COVID sometimes with other professional bodies and societies such as the British Occupational Hygiene Society (BOHS) and the Society of Occupational Medline (SOM). SOM, BOHS and other groups have pressed for COVID testing of all key workers and have called for an investigation of the supply of suitable PPE for health professionals (SOM 2020). Occupational hygienists are a key group in working out what is the best form of PPE to use for COVID in various settings and in assessing effectiveness. One of the most useful and up to date guides to PPE for COVID, also a source of other more detailed information on the topic, has been produced in a journal editorial by occupational hygienists. They fill a gap that HSE does not yet seem to have addressed (Semple and Cherrie 2020).

8.Royal College of Nursing (RCN)
The RCN position is to argue for “priority Covid-19 testing for all health care professionals, access to adequate supplies of personal protective equipment and hand sanitiser for all nursing, midwifery, social care and student nurse staff for use at the point of care, full occupational sick pay paid from day 1 for all our members, with no detriment, regardless of where they work, Provision from government and employers to ensure all nursing staff can care for their children without a loss of income. Clarity on the measures taken to protect pregnant and vulnerable nursing staff. Stringent measures in place to ensure the health, safety and wellbeing of staff by addressing fatigue, hydration and issues of abuse towards staff “(RCN 2020).

9. Institution of Safety and Health (IOSH)
IOSH is the professional body for health and safety practitioners who function in the public and private sectors as advisors on health and safety matters They have produced an information sheet and have web links to a range of other sources on COVD-19. The organisation draws on WHO as well as UK sources and covers preventive measures, emergency planning, managing occupational safety resources and occupational risks to workers (IOSH 2020 nd).

Non-Governmental Organisations

1.Hazards Campaign.
This is a group that has a long history of campaigning for occupational health and safety in the UK. It has drawn attention to the cuts in occupational health and safety regulation, monitoring, inspection and enforcement over a several decades. Such cuts are now a major explanation for several of the problems emerging with worker health and safety during the pandemic. The Campaign has provided excellent, accessible and clear information on COVID-19 that is much more detailed than that available from many employers (Hazards Campaign 2020). Risk assessment, risk management, healthy and safe working practices and procedures, occupational health surveillance, provision of suitable and sufficient PPE etc that have all been highlighted by Hazards Campaign do not appear to have been applied in many health and social care settings and other workplaces where exposure to Coronavirus could occur. Its focus has been on what employers should do to prevent transmission in workplaces and how employees can get employers to act using such regulations as the Safety Representatives and safety Committee Regulations, the 1974 Health and Safety at Work . It also provides details about conditions needed get the best prevention measures in places including wider employment protection for workers on pay and sickness absence linked to COVID impacts. Finally it provides sources of additional information including guides and mutual aid groups.

2.Hazards magazine
This magazine has been examining the occupational health and safety policies and practices of employers and government regulators again over many decades. It has produced an incisive, accessible and readable analysis of the COVID failures in the UK and extensive sources of information for workers on the pandemic from a health and safety perspective (Hazards 2020). The analysis stresses that the pandemic could persist " because public health was a low priority and workers did not have the sick pay and job protection necessary to survive". It also details the need for PPE to protect workers worldwide from COVID-19 and describes some of the interventions from the WHO and ITUC.

Employers

Large and medium sized employers will have their own health and safety advisors as do bodies like the CBI and will have worked out plans for dealing with COVID. Much of bespoke employer information available focusses on economic and financial impacts of COVID and not on the occupational health and safety threats to employees. The British Chambers of Commerce has put up a web page that draws on UK Government official guidance but does not appear to have specific occupational health and safety information of their own on the web page (British Chambers of Commerce 2020). The Federation of Small Businesses has a dedicated Covid web page and highlights mental health issues (FSB 2020). How successful employer plans have been in protecting employees will be a matter for careful scrutiny after the pandemic has ended but already it is clear there have been major failings by some employers in protecting their staff from exposure to the virus with extensive media footage of workplaces showing employees closely packed and lacking suitable protection and PPE where it should have been available.

In January 2020 researchers were flagging the need for companies to update their pandemic plans (Koonin 2020). Evidence in March 2020 in the UK indicates many companies had failed to develop and implement effective health and safety procedures and provide appropriate equipment to protect staff. The CBI in UK has little specific information relevant to occupational health and safety on its COVID web page although it has working groups looking at people redeployment, keeping the nation healthy and supporting families in hardship which may impact on health and safety. In addition it provides an assessment of what UK business can learn from the actions of the Chinese government to deal with COVID-19 (CBI 2020)

The media

The mainstream media in the form of the press, TV and radio have probed and investigated a range of COVID-19 occupational health and safety problems with some rigour, at some depth and with considerable persistence. They have frequently proved more accurate and certainly more up to date and often more informative than both government and scientific civil servants. The broadsheets like the Guardian and Independent have been particularly diligent and illuminating in investigating PPE and related problems immediately facing health workers, emergency workers and other groups of workers too. Social media has contained accounts from these workers but has also spread inaccurate statements primarily about fake COVID-19 treatments and useless equipment.

Conclusions

The paper has documented a catalogue of missed opportunities and failures by various government bodies, agencies and organisations, and employers to plan for the pandemic and to equip staff with the necessary health and safety equipment and procedures to protect themselves and the public from COVID-19. It has also documented a wealth of material including reports from international agencies, foreign governments, researchers, trade unions and NGOs that did not simply provide early warning about the pandemic but offered important guidance on solutions to mitigate its impacts on workers and hence wider society. The consequences of not planning, preparing including regulating, monitoring and inspecting and acting earlier on COVID-19 will be enormous in terms of human suffering and economic damage.

In terms of the big picture, the precautionary principle is a key principle to adopt in both public health and occupational health and safety along with using up to date and accessible information. When faced with a possible pandemic, the precautionary principle should be the main principle to guide decision-making. One of the most influential sources on the precautionary principle from the European Environment Agency refers to late lessons from early warnings about hazards and their risks. With COVID-19, we have had early warnings and even more important early guidance but failed to learn the lessons again and again.

Many of the occupational health and safety threats in the UK are ongoing and unresolved months after the pandemic started. The emergency planning that occurred in the UK in the late 2000s and 2010s has de facto proved insufficient and NHS England and PHE now accept there have been problems with PPE supply that have been obvious to health care professionals and other workers for several weeks. Attempts have been made across the UK in recent weeks to address lack of suitable PPE provision to a range of groups. However, at the end of March 2020 there are still shortfalls with supply and distribution to these groups and doctors treating COVID are dying and other health professionals falling ill (Booth, Campbell and Weaver 2020).

Those most affected by the hazards and risks presented by COVID 19 and their representatives, and often but not always with the most limited resources, have analysed the threats best, foreseen the hazards and advocated the right risk assessments and risk management strategies at an early date. UK Governments and their scientific civil servants, with significant resources and staff, have manifestly failed to act quickly or quickly enough on the pandemic.

Yet the UK plans decades ahead for military scenarios and spends billions of pounds on equipment and systems just in case of conflict. There is therefore no reason why governments cannot choose to plan ahead for pandemics and spend much smaller sums on equipping health care and other workers with the equipment and systems they need to protect the public which requires we protect their health and safety. We owe it them and the government owes it to us.

A recent Lancet editorial on protecting health workers noted: " Health-care systems globally could be operating at more than maximum capacity for many months. But health-care workers, unlike ventilators or wards, cannot be urgently manufactured or run at 100% occupancy for long periods. It is vital that governments see workers not simply as pawns to be deployed, but as human individuals. In the global response, the safety of health-care workers must be ensured" (Lancet 2020). However, it is not just health care workers that need protection, the health and safety of all emergency workers, care workers and key workers still in services, shops, offices, delivery, maintenance and other sectors require effective health and safety protection that in places in the UK not only remains minimal but non-existent. If we can't protect workers, we cannot protect ourselves.

The occupational health and safety of workers, and in pandemic settings especially health, emergency and key workers, is influenced not just by direct health and safety measures, procedures and equipment but also by 'indirect actions'. These include addressing staffing levels, training, resources and so on that ensure there are sufficient staff neither overloaded nor overwhelmed, stressed and fatigued by a pandemic. Ending cuts in the economy and addressing these structural problems will improve worker health and safety. Operating containment policies and testing and tracing effectively will also reduce workplace morbidity and mortality. The UK government - and many of their scientific civil servants have been complicit in the process – has remained silent on these big picture issues and even used the pandemic to mount further attacks on regulation and to defend companies with records of significant public health damage.

To date there are no UK estimates for health care worker or any other group of workers' morbidity and mortality from COVID-19 but efforts are being made to collect such data globally. Only occasional press reports list possible deaths of doctors from COVID. In the US, there has been some attempt made to assess the likely numbers of health care workers contracting COVID for a whole range of health and social care workers (Frogner 2020). Similar work should begin quickly in the UK and widened to include those workers in other occupations where exposure might have occurred.

Actions needed now and in the near future on occupational health and safety and related matters due to COVID-19

1. Active UK and devolved administration interventions are now necessary using properly staffed and resourced regulators to protect worker health and safety in the pandemic. This requires HSE to provide up to date PPE and other information not simply to rely on PHE and HPS to do so.
2. A pre-occupation with better regulation and running down regulatory capacity in areas critical to worker health and public health has proved disastrous and should be reversed quickly. HSE and other regulators in local authorities should for example already have been

checking, prior to the pandemic, health care PPE and ensuring that PPE and health and safety procedures for social care staff and workers in social care, shops, warehouses and transport are available. fit for purpose and applied. It is not clear from information in the public domain that they did so.

3. Reversal of the many cuts in health and other public services over the last decade or more that impact on pandemic planning and worker health and safety should occur. This does not mean simply reversing the cuts of the last few years. These services and the staff within them - in adequate numbers - need to be properly resourced. That will protect their health and safety and ensure they can then protect our public health. The two elements are inextricably linked. COVID-19 has shown us exactly why the cuts should be reversed.
4. Regular governmental and agency updates should be provided by the NHS, PHE and HSE on how many workers, and in what sectors, have either contracted COVID-19 in the course of their work or have work-related COVID-19. These updates should be accompanied by information on the actions that the government, regulators and the employers have taken and will take to raise health and safety standards.
5. Interventions by regulators now to rectify workplace health and safety failings will also immediately raise public health performance during the pandemic because work health is public health. The morbidity and mortality of health, social care and other key workers through poor health and safety standards can only increase the pandemic toll on the wider public
6. Effective consultation between employers and their workforces about pandemic planning and working conditions is critical. It is already clear that in some workplaces, there has been no or no adequate implementation of healthy and safe workplace planning, procedures, equipment and staffing. There have been major failures in terms of social distance, screening, provision of PPE and hand sanitisers – in service and manufacturing sectors and for a whole range of emergency and transport workers.
7. Greater improvement upstream by government and employers on early pandemic planning must happen measured against the WHO guidelines and good practice that has emerged in other countries affected by the COVID-19 pandemic earlier.
8. Ensuring that all vulnerable and precarious workers in our gig economy have adequate economic support if they must stop work is essential. Not to provide this will increase the possibility that they will be at risk from continuing to work in hazardous settings because they need to obtain food and pay their bills.
9. Governments and employers should support and facilitate the work of the trade unions and NGOs who have reached employees in many workplaces with some of the best and most up to date advice and support on COVID-19 occupational health and safety. This has been done on very limited budgets but with great effect.
10. Full information should be provided to the public and workers as soon as it is available from government and employers about the timetable for provision of PPE and other equipment that influences occupational and safety and not vague references with unspecified dates.
11. There is an urgent need to provide clear information about what are the essential occupations and sectors along with more detailed health and safety at work guidance for employees. There has already been confusion in England especially about the operation of construction sites during the COVID-19 pandemic
12. In due course there will need to be a thorough analysis of the national and regional performance of the UK and devolved governments during the pandemic, why some decisions and actions varied between them and with what effect on employee health and safety across society.

Also the wisdom of the devolved administrations accepting initial UK Government policy and agency assessments of pandemic risks should be scrutinised . The first UK timetable for actions rather than those of the WHO with its extensive evidence-based reports on pandemics was seriously flawed. The implications for occupational health and safety were considerable. How well reserved agencies served devolved administrations needs to be part of that analysis.

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