Risk Reduction Framework for NHS Staff at risk of COVID-19 infection

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SARS -CoV-2 (COVID-19) is a novel virus whose characteristics and effects are gradually being identified including risk factors for incidence and severity. WHO has classified COVID-19 as an international pandemic. The NHS is grateful for the contribution of its entire workforce at a time when it is confronted with the challenges of such a pandemic. Concerns have recently been raised in the UK due to disproportionately higher rates of COVID-19 in black and minority ethnic health populations (BAME) compared to white populations [1] . This has been particularly apparent amongst health care staff in the UK. The NHS is estimated to employ approximately 1.2-1.5 million staff. Among all staff employed by the NHS, BAME account for approximately 21%, of which approximately 20% among nursing and support staff and 44% among medical staff [2]. In a recent analysis of staff deaths, of the 106 included cases, 98 had patient facing roles, seven did not and this was unclear for one. In 89 cases, the individual had been working during the pandemic.. The characteristics of the cases are presented in the Table[3]. The affected BAME healthcare staff affected were a heterogeneous group. Among the doctors, the specialties were surgery (five cases), general practice (four), emergency medicine and medicine (each two), and one each from histopathology, geriatrics, neurorehabilitation, paediatrics, and psychiatry. There were no anaesthetists or intensivists identified. Among the nursing staff, specialty was not always mentioned, but none were described as intensive care nurses. The relative ages, proportions of either sex and of ethnicity among the main groups of staff are shown in Table 1. Overall in view of the number and heterogeneity of the staff affected, it is difficult to infer further from the data.

Table. Age, gender and ethnicity of those who died from covid-19 among the main health and social care staff groups.
*For comparison, the approximate % of BAME the NHS workforce-[3] is included in the final row.

	Nurses and midwives	Healthcare support workers	Doctors and dentists	Other staff
Number	35	27	19	25
Age;yrs median (IQR [range])	51 (46-57 [23-70])	54 (42-64 [21-84])	62 (54-76 [3679])	51 (34-58 [29-65])
Male; %	39	22	94	55
BAME; %	71	56	94	29
BAME workforce; %*	20	17	44	-

In addition, an emerging finding from systematic reviews and data from the UK is indicating that particular comorbidities such as hypertension, cardiovascular disease and diabetes are more prevalent in people with severe COVID-19 [4, 5]. These comorbidities are also more prevalent in BAME populations and may explain the increased risk of morbidity and mortality in this group [1].

Public Health England has issued guidance which is updated regularly, to ensure implementation of measures to reduce the risk of community based and nosocomial contagion. These measures involve both behavioural instruction and the level of personal protective equipment (PPE) to be worn in different clinical environments. We first of all wish to ensure that the entire NHS workforce adheres to latest PHE recommendations to reduce the risk of acquiring COVID-19. PHE's original guidance also identified 3 factors used to guide managers in supporting conversations with staff about increased vulnerability; age >70year, selected underlying health conditions and pregnancy. Health conditions further divided into those 'extremely vulnerable' to COVID-19 for whom 'shielding' is currently required and those at 'increased risk of severe illness from COVID-19', requiring stringent social distancing (based on conditions previously identified as requiring an annual flu jab). Ethnicity was not identified originally as a risk factor and is now to be included on basis of recent clinical evidence, particularly ICU admissions data and healthcare staff fatalities. As far as we know, evidence for ethnicity as an independent risk factor remains uncertain.

NHS employers guidance was issued recently for "extremely vulnerable" and "at risk" categories[6]. The guidance reiterated that preserving and protecting the health, safety and wellbeing of staff is critical for the NHS and to ensure they are mentally and physically healthy and protect their colleagues, patients and their families. The guidance has already made recommendations for staff who are at high risk of severe illness from COVID-19. Due to the early warning signs of a disparity in outcomes, the NHS has committed to ensure the development of a systematic application of a risk-reduction framework in order to guide employers as to how best protect our workforce.[7]

In this paper we provide a COVID-19 Risk Reduction Framework for healthcare staff. The framework may help employers to supplement risk assessment of their staff, particularly of high risk and vulnerable groups to ensure staff safety. *This Risk Reduction Framework needs to be used in conjunction with the NHS employers Guidance* and can be used as an aid to decision making and may be incorporated into existing risk templates which are already in use in many health care settings.

Method
A consensus group was set up which included a multidisciplinary group of primary and specialist care clinicians, members of equality and inclusions, NHS leadership, public health specialists, occupational health specialists, trust leads and researchers. In view of the unavailability of robust data, the group made consensus recommendations based on the currently published literature and that could help to initiate further research and inform immediate public health and policy decisions to protect and save health care staff. The key aim was to develop a pragmatic simple Risk Reduction Framework that can be implemented in a healthcare setting (Figure). The Framework is based on the best available evidence which is limited, however, in view of the serious and disproportionate impact of COVID-19, there is an urgent need to put in place immediate mitigations to try and minimise further serious consequences.

How to use the Risk Reduction Framework

Employers have a duty of care requiring them, as far as reasonably practicable, to secure the health, safety and welfare of their employees. This includes an equitable approach to effective risk management and risk reduction of potential workplace hazards, for all staff regardless of ethnicity and diversity:

Workplace assessment of potential exposure to SARS-CoV-2 in the workplace, followed by application of an appropriate hierarchy of control measures, including elimination if possible, and reduction by hygiene measures, safe systems of work, including review of use of AGP procedures, selection and correct use of PPE, including necessary training and fit testing.

Workforce assessment to identify those individuals with potentially increased vulnerability to infection or adverse outcomes from COVID-19. Earlier guidance has already identified three categories of vulnerability, specific long term health conditions, sex, older age and pregnancy. Recent evidence suggests that ethnicity, specifically a BAME background and obesity may also be associated with increased vulnerability, particularly in the presence of these risk factors. [8] [9]

Managers should seek to identify locally, in their team or service, those staff who may have increased vulnerability. Age and ethnicity of staff will already be known to managers but not necessarily any underlying health situation.

In normal circumstances it is not appropriate for managers to seek health information from staff beyond functional capabilities. However, in the current situation health assessment by Occupational Health of all staff involved in this exercise will not be practicable and enquiry by managers of the presence of any underlying health condition would not be unreasonable, subject to caution about sensitivity and confidentiality.

It should not necessarily be assumed that staff, even with identified vulnerabilities, working in areas with the highest concentration of COVID-19 patients, such as ICU, will be at the greatest risk. This depends upon the extent to which the risk of exposure is controlled by the measures above, including appropriate PPE.

It is important to consider all aspects including the *workforce, workplace and the individual*. There is a need for supportive conversations between staff and managers which take into account staff concerns and preferences allowing effective decision making about deployment. This should include adjustments in the workplace if appropriate. Some staff, including those who have underlying health conditions or particular concerns and anxieties about their health or work may require further assessment, advice and support through Occupational Health to facilitate decision making and risk reduction.

A Practical Route to Risk Reduction

The COVID-19 Risk Assessment Framework may help managers to make an assessment of workplace and personnel factors which should be considered as part of risk management and reduction. ***We recommend the assessment is completed by a line manager, supervisor, designated senior manager or health and safety representative, in a one to one consultation with their staff in a sensitive manner, taking into consideration staff mental well-being. Employers need to ensure that cultural factors are also taken into consideration so that staff have the confidence to openly discuss and resolve their concerns.***

The framework complements existing guidance and takes into account emerging evidence that co-morbidities combined with ethnicity may be associated with increased vulnerability to COVID-19. The framework assumes that community exposure is lower than in hospital settings, but this may not be the case, for example if PPE is incorrectly used.

Key considerations to be taken into account when making the assessment includes staff location:

- Primary care or community based?

- Hospital based?

- In an environment where Aerosol Generating Procedures (AGPs) are performed?

Individual assessment

Four factors need to be considered:

1. Age

Those aged over 70 have already been identified by PHE as 'clinically vulnerable' and should take particular care to minimise contact with others outside their own household. Most will already be working remotely.

The Framework also identifies that risks of severe COVID-19 increase with age and that adverse outcomes occur at an earlier age in BAME populations.

2. Sex

Data globally and from UK are emerging that COVID-19 disproportionately affects men with UK data showing approximately 60% of people admitted to hospital being male. [9] In addition this same data also showed that female sex was associated with a 20% lower mortality.

3. Underlying health conditions

'Clinically extremely vulnerable' People with health conditions in this group, identified by PHE, should have already received a letter about this or will have been contacted

by their GP. They have been advised that shielding is required but the staff can still continue alternative duties from home. Some may be able to work from their shielded environment if practicable.

'Clinically vulnerable' people are those with underlying health conditions, or co-morbidities which place them at increased risk. Emerging evidence suggests that particular conditions: hypertension, cardiovascular disease, diabetes and chronic kidney disease are especially important risk factors, and these risk factors are increased in those of BAME population. [1] Obesity has now also emerged as an independent risk factor for COVID-19 hospitalisation in the UK setting. [9]

4. Ethnicity

BAME populations appear to be associated with increased risks, particularly in those with co-morbidities who are presenting with adverse outcomes at a younger age.

5. Pregnancy

Existing guidance identifies that pregnant women over 28 weeks should be regarded as at increased risk and recommended to stay at home. [10] For pregnant women with underlying health conditions at any stage of pregnancy a more precautionary approach is required and ethnicity should be included in the consideration and discussion between healthcare staff and managers. Where pregnancy is under 28 weeks gestation working in a patient facing environment should be on the basis that the risk assessment supports this. [11]

Reducing workplace risk

The Risk Reduction Framework may help employers ensure appropriate adjustments are made to mitigate the risk of COVID-19 in high risk NHS staff. Employers will need to take into considerations local circumstances and other structural factors when making decisions in consultation with their staff. This may include redeployment of those deemed at highest risk of adverse outcomes such as redeployment to lower risk environments. In the acute sector, as the NHS begins to focus on the development of green (COVID-19 negative clinical pathways) and blue (potential COVID-19 patient pathways) pathways, organisations will find that potential redeployment opportunities to green pathways will exist either within or across organisations and therefore where an organisation cannot redeploy staff within an organisation, it should consider redeployment across the health system. In primary care, roles which are not directly patient facing are emerging and could be used as redeployment opportunities, or measures such as avoiding direct contact in hot hubs might be appropriate precautions. In the community, higher levels of testing within nursing homes and community settings will identify areas of lower occupational risk. Managers may also consider referral to occupational health for further assessment of risk factors related to underlying health conditions and their management and for psychological support. Staff should also be able to access occupational health, on a self-referral basis. Occupational Health services should include an accredited specialist in occupational medicine.

There is an urgent need for a greater level of understanding as to why workers, and indeed patients including those from a BAME background, appear to have a disproportionately increased morbidity and mortality from COVID-19 infection. A significant research and audit programme is also currently underway. This is the first

attempt to create such a Risk Reduction Framework with currently available evidence and the Tool will be reviewed and updated in light of any evidence. It is however important to acknowledge is this area is continuously evolving and this framework provides a baseline but remains fluid.

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HOW TO USE THE RISK ASSESSMENT TOOL

Employers have a duty of care requiring them , as far as reasonably practicable, to secure the health safety and welfare of their employees. This includes an equitable approach to effective risk management and risk reduction of potential workplace hazards, for all staff which requires:

WORKPLACE ASSESSMENT

› Take into consideration health care setting i.e. Primary, Community or Hospital setting
› Review of AGP procedures
› Potential exposure to SARS-CoV-2 in the workplace
› Application of an appropriate hierarchy of control measures including:
  » Elimination if possible
  » Reduction by hygiene measures,
  » Safe systems of work
  » Election and correct use of PPE including training and fit testing

INDIVIDUAL ASSESSMENT

› Six factors need to be considered:
  1. Age: Those aged over 70 have already been identified clinically vulnerable
  2. Sex
  3. Clinically vulnerable people: Those with underlying health conditions or co-morbidities
  4. Ethnicity: Those of BAME appear to be at increased risks, particularly aged above 55 or have co-morbidities
  5. Pregnancy in particular those who are over 28 weeks or have underlying health conditions
  6. Disabilities identified which may be the subject of reasonable adjustments
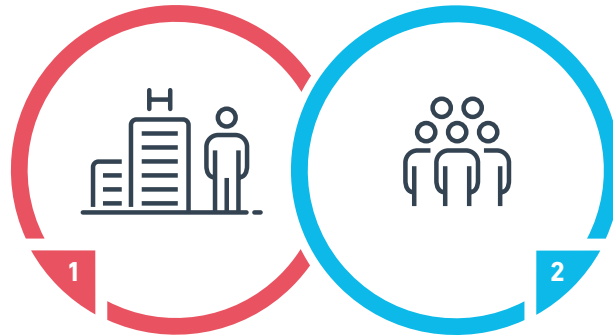
WORKFORCE ASSESSMENT

› Identify those individuals with increased vulnerability to infection or poorer outcomes from COVID-19.
› Guidance has identified three categories of vulnerability:
  » Specific long term health conditions
  » Older age
  » Pregnancy
› Evidence suggests that ethnicity of a BAME background may also be associated with increased vulnerability
› Evidence of Males being at higher risk with UK Data showing approximately 60% of people being admitted to hospital being Male
› Availability of appropriate redeployment options

COVID-19 Risk Reduction Framework for Healthcare Workers

EMPLOYERS TO SCORE HEALTH SAFETY AND WELL-FARE OF EMPLOYEES INCLUDING:

WORKPLACE ASSESSMENT
1

WORKFORCE ASSESSMENT
2

3 **INDIVIDUAL ASSESSMENT**

AGE AND ETHNICITY:

BAME ETHNICITY AGED ABOVE 55, PARTICULARLY IN THOSE WITH CO-MORBIDITIES

WHITE EUROPEAN ETHNICITY AGED OVER 60

SEX:

- Males at higher risk

UNDERLYING HEALTH CONDITIONS INCLUDING:

Clinical vulnerable groups including:

- Hypertension
- Cardiovascular Disease (CVD)
- Diabetes Mellitus (DM)
- Chronic Kidney Disease (CKD)
- Chronic Obstructive Pulmonary Disease(COPD)
- Obesity

PREGNANCY

- All pregnant women should have risk assessment.
- Women > 28 weeks pregnant or have underlying condition should be recommended to stay at home.
- Women < 28 weeks pregnant should only work in patient facing roles where risk assessment supports this.

✓ **EMPLOYERS TO DISCUSS IMPLICATIONS AND TO TAKE APPROPRIATE MEASURES TO MITIGATE RISK OF COVID-19 INFECTION RISK TO NHS STAFF**

A. Risk Reduction Framework needs to be used in conjunction with NHS Employers Guidance
B. Employers need to take into consideration health care setting such as Primary or Community Care, Hospital setting or environment where Aerosol Generating Procedures are performed