PHE position paper on the HOCI and EMG paper "Masks for healthcare workers to mitigate airborne transmission of SARS-CoV-2"

Purpose

The purpose of this paper is to summarise considerations on the HOCI and EMG paper Masks for healthcare workers to mitigate airborne transmission of SARS-CoV-2, and to provide PHE's views and recommendations in relation to the UK (4 Nations) IPC guidance as requested by DHSC.

Background

The paper **Masks for healthcare workers to mitigate airborne transmission of SARS-CoV-2** was published on 23rd April and was written by members of the Hospital Onset COVID-19 Working Group (HOCI) and Environmental Modelling Group (EMG). DHSC Personal Protective Equipment (PPE) policy team has requested a response from the UK (4 Nations) IPC cell on their position following this publication. The paper was discussed at the cell on 28th April.

The current UK (4 Nations) IPC guidance states that *"sessional use of single use PPE/RPE items continues to be minimised and only applies to extended use of facemasks (all pathways) or FFP3 respirators (with eye/ face protection) in the medium and high risk pathway for healthcare workers where AGPs are undertaken for COVID-19 cohorted patients/individuals"* (p4).

The UK IPC guidance relates to health and care settings, including acute, diagnostics, independent sector, mental health and learning disabilities, primary care, care homes, maternity and paediatrics but excludes adult social care in England.

The HOCI/EMG paper was reviewed by IPC, medical and guidance experts within PHE who considered the findings of the paper in the context of the current pandemic landscape (including Variants of Concern) and concluded the following.

Summary of PHE considerations on the paper

The paper has a specific focus on small particle aerosols and the use of specific types of respiratory protective equipment (RPE) by healthcare workers (HCW).

Comments:

- There is acknowledgement that, where an unacceptable risk of transmission remains after rigorous application of the risk assessment process (including application of measures higher in the hierarchy of controls), "it may be necessary to consider the extended use of appropriate RPE (such as FFP3 masks) for patient care in specific situations".
- The decision to implement FFP3 masks for the care of patients with suspected or confirmed COVID-19 should be based on an IPC risk assessment of the care area, supported by effective leadership and with organisational support
- There remain areas of uncertainty in relation to the risk of SARS-CoV-2 acquisition by HCWs within the diversity of health and social care settings. Such diversity means a one-size approach is not suitable.

25/05/21

There is a strong emphasis for HCWs to undertake risk assessments using the hierarchy of controls.

Comments:

- The hierarchy of controls is a system of reducing risk in the workplace, ranking the least to most effective control measures. There is no reference to the hierarchy of controls in the current IPC guidance (though previously this was covered in detail within the guidance), nor instructions on how to undertake a risk assessment.
- The hierarchy of controls are an unfamiliar concept to many HCWs, with limited individual agency to implement these, therefore consideration would need to be given for their implementation across the various health and social care settings.
- There is an absence of any supportive structured risk assessment tool within the current IPC guidance.

The focus of the paper leans towards the acute sector

Comments:

- PHE is aware that individual risk assessment and implementation of hierarchy of control is more challenging for smaller providers, particularly in non-acute settings such as hospices, care homes, domiciliary care and care settings for children and young people.

There is increasing evidence that aerosol transmission can occur outside of AGPs, particularly in areas where there is poor ventilation and other hierarchy of controls have not been or cannot be implemented.

Comments:

- It is acknowledged that good ventilation can minimise the risk of transmission, however defining this is not within the gift of all HCWs in all sectors.
- It may not be always practical and possible to ensure good ventilation in certain areas such as the back of ambulances, poorly ventilated health and care facilities, and during colder weather.

Variants of Concern

Comments:

- There is no reference to variants of concern (VoC) within the main body of the SAGE paper although they are referred to in Appendix 1, which references the UK (4 Nations) IPC cell's position statement produced in December 2020. Since then B.1.617.2 has been declared as a VoC with equal or greater transmissibility to the B.1.1.7 variant.[1] There is currently insufficient

[1] Public Health England. SARS-CoV-2 variants of concern and variants under investigation in England. London: PHE, 2021.

data to assess immune escape. Although the mode of transmission will likely remain the same, whether there is impact from any change in infectious dose or viral load is not yet clear.

PHE's preferred position

1. More explicit guidance is required to support organisations and HCW in undertaking and applying the hierarchy of controls risk assessments in all sectors. Good and poor ventilation needs to be defined within the IPC guidance to support organisations and HCW in this undertaking.
2. The use of respiratory protective equipment (RPE) which includes FRSM and FFP3 masks is part of a package of IPC control measures used to protect staff, including donning, doffing, in-use practice, training, education, and compliance monitoring. It is important that these measures are applied correctly and consistently to help minimise the risk to HCWs. This is already acknowledged within the current IPC guidance and associated resources.
3. Where there remain areas of uncertainty (particularly in relation to Variants of Concern, the exact role of short and long-range aerosols, and transmission dynamics within certain health and social care environments) and until more robust evidence is available, consideration should be given to adopting a more precautionary approach.

Recommendations

Taking the above into account, PHE recommends a more precautionary approach for HCW (including those working within social care) caring for patients who have suspected or confirmed COVID-19 (red or high-risk pathways) in poorly ventilated areas.

Poorly ventilated areas will need to be defined by the organisation or lead individual and be clearly designated and these areas communicated to health and care workers.

Our recommendation is that in this situation, HCW should wear (or have the option of wearing) FFP3 masks, or other appropriate RPE such as ventilated hoods, as part of sessional use.

This does not negate the need the need for health and care workers to be trained and able to undertake a risk assessment using the hierarchy of control.

If a more widespread use of FFP3 masks is agreed, before implementation of this a full assessment of availability, fit testing training, and supply chain logistics should be conducted.

Considerations informing feasibility

We recognise there are implications for:

1. Ventilation
    - Organisations should use health, safety and environmental expertise to support local risk assessment to optimise ventilation and air quality within health and social care buildings and services.
    - Specialist technical, mechanical and engineering input may be required to inform air quality mitigations and improvements where required

- In other workplace settings such as community and home-based care, it may not be possible to influence air quality mitigations to the same degree and employers will need to consider extended use of RPE in this situation in addition to simple measures such as opening windows and doors.

2. Availability and supply of FFP3 masks
    - Current stock and security of supply will need to be confirmed with DHSC and this information used to inform the timeline of implementation
    - Building on recent work to stockpile FFP3s, further demand modelling will need to be undertaken to assess future requirements through winter (confounding factor of other circulating respiratory virus symptoms/third wave)
    - Supply chain logistics will need to be developed and assured for each sector
    - In the event of a supply issue of FFP3 standard respiratory protection, the associated risk: benefit ratio of using FFP2 standard should be assessed and planned for, with input from stakeholders and guidance from Health and Safety Executive.

3. Fit testing and associated training
    - Fit testing supply routes, logistics and training will require further detailed consideration
    - Mitigations such as the use of an FFP2 facemask to enable efficiency in scaled roll out of wider use of FFP respiratory protective equipment may need to be considered.

4. Other sectors
    - Any change in NHS settings will also have implications for social care where staff are providing personal care to residents with suspected or confirmed COVID-19
    - We understand that DHSC is aware of the potential need to increase FFP3 supply and that modelling has been completed on the number of adult social care providers who might require an increase in FFP3s via the DHSC PPE portal. Consideration of costs, funding, delivery and assurance of fit testing of health and social care workers will also need to be undertaken.
    - Equitable access to supply across the health and social care sector will need to be safeguarded and a risk-based strategy defined in the event of supply failure or excessive demand during peak periods.

5. Communications and stakeholder confidence
    - Communication around the change in PHE position in advocating airborne standard of RPE when caring for a COVID positive or suspected patient/client will require comprehensive engagement with stakeholders to protect confidence in government guidance
    - Current IPC guidance states that the red pathway[2] is applicable to any urgent or emergency care facility. UK IPC cell will need to be advised of any guidance change required for wider NHS commissioned services if the PHE recommendation is to be adopted.
    - A clear rationale for why the recommendation change is happening now should acknowledge the anxiety from health and social care workers and their representative bodies. Messaging may need to manage public anxiety around risk

[2] Public Health England COVID-19: Guidance for maintaining services within health and care settings. Infection prevention and control recommendations Jan. 2021

associated with unknown COVID contact in workplaces, education and public settings and current NPIs such as face coverings

- Key elements of communication and implementation strategy should consider the context of an improving landscape of risk to community frontline workers
- A risk-based implementation process would support a phased implementation of building FFP RPE capacity and capability before winter.
- Immediate roll out would be focused to reduce hazard exposure in highest risk settings where either the environment (for example, back of ambulance) or the person factors of severe COVID-19 disease associated with higher viral shed (critical care, high dependency, cohort inpatient facilities) are present
- The emerging prevalence and higher transmissibility potential of VOC, balanced against more people being vaccinated and not requiring hospitalisation necessitates that the second phase of readiness should form part of the flu season and winter preparedness.

In the absence of PHE's preferred option

- There needs to be explicit information in the IPC guidance on the use of the hierarchy of controls and how to undertake a risk assessment (this is currently being drafted).
- Good and poor ventilation needs to be defined within the IPC guidance to support organisations and health and social care workers in undertaking their risk assessment.
- Scenarios where the hierarchy of controls are difficult to implement - such as caring for patients with suspected or confirmed COVID-19 in ambulances, prisons, care settings or increased occupancy (cohorts) - need to be acknowledged as times when unacceptable risk remains and extended use of RPE should be recommended.

Further evidence

The evidence from the Respiratory Evidence Panel that PHE convened, was also presented to the PHE Face Coverings Group on 17th May 2021 and was considered in this response. It was felt that the evidence supported the above position. The Face Covering Group advised sharing the evidence summary and panel recommendations with the UK IPC cell.

End

25/05/21