Public Health England, 23rd December 2020

The use of FFP3 respirators for all suspected and confirmed COVID-19 patients in non AGP settings

Rationale

This paper provides PHE's recommendation on the use of FFP3 respirators for all suspected and confirmed COVID-19 patients in non-aerosol generating procedure (AGP) settings due to the new variant of concern (VOC-202012/01). The current IPC guidance recommends sessional use of FFP3 masks in medium and high-risk pathways during AGPs and surgical masks for all other settings.

Key concerns

The following concerns/factors should be considered to alter the current PPE recommendations:

- An increase of COVID-19 cases and hospitalisations have been observed in London and the South East of England due to an emergence of a new variant of concern (VOC-202012/01). Health care workers (HCWs) will be more likely to encounter patients infected with this new variant (asymptomatic and symptomatic), particularly across all tier 4 regions.

- The NERVTAG expert committee has concluded with high confidence that this variant is more transmissible than the other SARS-CoV-2 variants currently circulating in the UK[1].

- Early virological studies suggest a decrease in the Cycle threshold (Ct) value of approximately 2, which correlates to higher viral load (a suggested median 0.5 $\log^{10}$ increase with the new variant).[2] As there is increasing evidence for aerosol transmission through coughing, sneezing and speaking loudly in a variety of non-AGP settings, particularly those with poor ventilation[3,4,5], these aerosols could contain more infectious virus.

- There is anecdotal evidence from a variety of NHS trusts in Tier 4, reporting an increase in the number of outbreaks on wards with greater numbers of patients and staff being affected compared to the first wave in March. There is more rapid positivity among patients once an index case has been identified, reflecting increasing transmissibility. In addition, hospitals have reported observing staff clusters on COVID-19 wards where patients were a strongly suspected source, as staff members didn't work the same shifts and did not report a known community contact. Increasing in staff sickness is also a reported concern, for example, one hospital noted 65 staff sickness due to COVID-19 in November, increasing to 170 in

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[1] NERVTAG/SPI-M Extraordinary meeting on SARS-CoV-2 variant of concern 202012/01 (variant B.1.1.7). December 21st 2020 (https://app.box.com/s/3lkcbxepqixkg4mv640dpvvg978ixjtf/file/756964987830)

[2] From Muge Cevik, Virologist and NERVTAG member (https://twitter.com/mugecevik/status/1341094893108781056)

[3] CDC. Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission. October 5th 2020 (https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html)

[4]SAGE. Role of aerosol transmission in COVID-19. July 22nd 2020 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf)

[5]ECDC. Infection prevention and control and preparedness for COVID-19 in healthcare settings. October 6th 2020 (https://www.ecdc.europa.eu/sites/default/files/documents/Infection-prevention-and-control-in-healthcare-settings-COVID-19_5th_update.pdf). Environmental investigations have detected viral RNA in a variety of hospital settings in which COVID-19 patients were admitted in air samples and air outlet fans, therefore inferring the possibility of aerosols. Two studies have detected low concentrations of cultivable SARS-CoV-2 in air samples from a hospital room in which COVID-10 patients resided. In addition, one study was also able to detect viral RNA in a hospital entrance.

December, whilst a community trust reported a daily doubling rate of staff sickness with 5 staff being admitted to ITU.

What is currently known

- The underlying cause of this increased transmissibility remains unclear. However, NERVTAG considered the following factors as possible contributors; the time it takes for infected people to become infectious; the amount of virus they then shed; and the ability of that virus to bind to host[1].

- Rapid analysis by colleagues in NHS England has shown that in areas where the new variant (VOC-202012/01) is prevalent there is no immediate evidence that staff sickness rates are higher than the be expected given the current community rates. However, the clusters of staff sickness on COVID-19 wards have not yet been investigated and genomic data is being currently being collected to investigate this further.

- There is currently no substantive evidence to suggest that the new variant has a different mode of transmission, other then it being more transmissible.

PHE recommendations

- Given these current uncertainties, until more evidence is available it is prudent to adopt a pre-cautionary approach in the absence of evidence, as opposed to waiting for evidence to highlight an increased risk that would need remedied at a later stage.

- We therefore recommend the sessional use of FFP3 masks for staff caring for suspected and confirmed patients in non-AGP settings, where additional controls of hierarchy such as increased ventilation, cannot be immediately improved. This should be in addition to strengthening general IPC measures across all pathways as suggested.

- There should be a weekly review of the available evidence on the new variant (VOC-202012/01) and evaluations of whether increased outbreaks and transmissions reported are due to inadequate use or 'breakthrough' of current PPE, or reflect community population trends to which staff are exposed – this will be coordinated through PHE Genomics cell, HOCI and NHS IPC regional leads.

- Once evidence confirms there is no increased risk to staff, previous PPE recommendations for non-AGP settings can be reviewed.

- If evidence remains unclear, there will be considerably more health care workers vaccinated in the upcoming weeks, which will provide further risk mitigation.

Additional considerations

- The same principle for FFP3 use would apply to staff across community settings and social care, which would need implementation. The effectiveness of FFP3 respirators is highly dependent upon proper fit and use, and additional resource may be required in the

community. In this situation, consideration should be given to using FFP2 respirators as an interim measure to balance the risks, whilst fit testing and supplies can be established.

- There will need to be careful communication and engagement with key stakeholders that this is a precautionary approach in the interim pending more detailed evidence, for example how to mitigate more widespread FFP3 use as a barrier to communication for patient and staff safety[6], or concerns amongst staff, patients and the public about any increase in PPE recommendations.

- The use of a FFP3 alone is difficult to decouple with the use of full AGP PPE in these scenarios, such as full-length gowns; in several studies of SARS among healthcare workers[7], it was unclear whether the use of gloves or gowns was protective, after adjusting for the effect of wearing a face mask. Therefore, the use of a full body gown should be prioritised for staff in AGPs and if there is risk of bodily fluids.

[6] In particular on, how to mitigate against staff safety issues in emergency situations such as trauma calls, operating theatres, cardiac arrests, obstetric emergencies.

[7] ECDC. Infection prevention and control and preparedness for COVID-19 in healthcare settings. October 6th 2020 (https://www.ecdc.europa.eu/sites/default/files/documents/Infection-prevention-and-control-in-healthcare-settings-COVID-19_5th_update.pdf)