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From: [REDACTED], Technical Advisory Cell

23 March 2022

**Effectiveness of PPE against SARS-Cov-2**

**Issue**

1. The new NHS England COVID guidance for personal protective equipment (PPE) and infection prevention and control (IPC) due on 30 March may not be fit for purpose. It will treat COVID-19 as a droplet-borne disease, and therefore require droplet PPE, but there is a strong body of evidence to show that transmission is occurring by aerosolised, rather than ballistic, particles.

**Background**

2. At the Chief Scientific Advisers' National Core Study – Transmission Update meeting on 22 March, it was noted that some PPE may be ineffective at filtering aerosols containing viral particles.
3. PPE currently used in healthcare settings is designed to filter out droplets. Droplets also behave ballistically and drop because of gravity, thus reducing the risk of infection.
4. However, fine aerosols bearing SARS-CoV-2 from infectious persons remain suspended in the air and pose a challenge for physical filtration. Testing of filter media shows the most penetrating particle size is typically circa 0.3 µm.
5. Filtering face-piece respirators FFP2 and FFP3 are tested for their ability to block ≥94% and ≥99% of 0.3 µm aerosols respectively. However, even aerosols this small can circumvent poorly-fitting masks and could potentially penetrate some PPE such as surgical masks. In addition, performance under evaluation differed greatly from manufacturers' claims.
6. New guidance is needed to address the requirement for PPE to prevent penetration by fine aerosols. HSE will be working urgently with NHS to address this.