

## The effectiveness of PPE in reducing the transmission of COVID-19 in health and social care settings: December 2021 update – Main messages

All results in this briefing relate to variants earlier than Omicron, and most studies contributing to the evidence-base are in less extensively vaccinated populations than UK care home residents and staff.

### *Masks:*

- There is consistent and robust evidence for the association between mask use and decreased infection risk from SARS-CoV-2
- The factors determining mask effectiveness are filter efficiency, facemask fit and consistent proper use.
- Cloth masks provide marginal protection (penetration 97%), medical masks offer 30-50% against particles meeting aerosol definition (penetration 44%). N95 masks provide better protection (penetration <0.01%); but effectiveness is still dependent on fit and proper use.
- N95 (FFP2) masks are associated with decreased risk compared with surgical masks (ORs in the region of 0.75 in most cases)
- As most environments and contacts are in conditions of low viral abundance, surgical masks are effective, but virus rich environments require masks with greater filtering/barrier properties such as N95/FFP2. HSE guidelines require use of FFP3 respirators during AGPs (alongside other PPE).
- Consistent use of masks provide better protection than inconsistent use, (e.g. this includes use in staff break rooms as well as when with residents).
- A cluster RCT in Bangladesh demonstrated that compared to no face covering, face coverings reduce the spread of COVID-19 in the community, medical/surgical masks are more effective than cloth face covering and especially so in those aged 60+ <sup>1</sup>.
- Another study demonstrated contacts of primary cases were less likely to develop COVID-19 if either or both wore a face covering.
- Overall masks are particularly effective in combination with other IPC measures. Emphasise filter, fit and consistency.

### *PPE:*

- Full PPE use (gloves, mask, gown, and eye protection) is associated with decreased risk of infection compared to partial or no PPE use
- Face shields (visors) should not be used for respiratory protection, much less replace it. They should be used simultaneously with other PPE and IPC measures (i.e. including masks).
- Proper doffing and donning and general IPC measures should be promoted in tandem with PPE use.
- More needs to be done to ensure social care staff are properly trained in PPE and IPC measures.

### *Handwashing:*

- Handwashing recommendations should be applied across the board. Hand hygiene “five moments for hand hygiene” recommend cleaning hands 1) before touching a resident; 2) before clean/aseptic procedures; 3) after body fluid exposure/risk; 4) after touching a resident; and 5) after touching resident surroundings.

### *Multiple levels of intervention:*

- Meta-analyses revealed lower COVID-19 positivity estimates in workplace settings that implemented combined measures compared with settings that applied single measures. Combinations of PPE, timely and thorough outbreak investigation (contact tracing and isolation), syndromic surveillance and testing, and staff zoning emerge as important considerations. These measures should be paired with improved building ventilation and indoor air quality. While vaccination offers protection it will not suffice on its own and should be paired with these other IPC measures.

### *Conclusion:*

- Along with vaccination and testing with LFD and PCR, it is highly likely that the use of masks, gloves, gowns and other PPE together with behavioural infection control measures, e.g. hand washing, will result in decreased risk of coronavirus transmission in social care. To be effective these procedures must be properly instigated (including donning, doffing, and disposal of used PPE) and consistently followed. More PPE and IPC training is required in social care.
- Evidence suggests that exposure to COVID-19 in a household or private setting is associated with increased risk of infection in health care workers; household or private setting exposure is a stronger risk factor than work exposure.

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<sup>1</sup> The authors of this large cluster RCT estimate that an increase from 0% to 100% of people wearing face coverings over the nose and mouth would be associated with 32% decrease in symptomatic COVID-19 seroprevalence.