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Report examines medical procedure, cloth mask combinations to block SARS-CoV-2

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Editor's note:*For the latest news on COVID-19 visithttp://bit.ly/AAPNewsCOVID19.*

Ensuring that masks fit tightly can improve how well they reduce exposure to and transmission of SARS-CoV-2, according to a report in *Morbidity and Mortality Weekly Report*.

Throughout the pandemic, health care providers and the public have worn various types of medical procedure masks and cloth masks. However, these masks do not fit as tightly as N95 respirators.

Researchers from the Centers for Disease Control and Prevention (CDC) evaluated two ways to improve the fit and filtration of medical procedure masks. They fitted dummies with a three-ply cotton cloth mask over a three-ply medical procedure mask or knotted the ear loops of a mask and then tucked the extra material close to the face.

The first experiment assessed how effectively various mask combinations reduced particles emitted in a simulated cough (source control): a three-ply medical procedure mask alone, three-ply cotton cloth mask alone and three-ply cloth mask over three-ply medical procedure mask. The second experiment assessed how effectively the two modifications to medical procedure masks reduced exposure to aerosols when breathing and used 10 mask combinations.

Results of the first experiment showed that 42% of cough particles were blocked by the unknotted medical procedure mask, 44% were blocked by the cloth mask and 92.5% were blocked by the double mask.

In the second experiment, the cumulative exposure of the unmasked receiver was reduced by 82% when the source wore a cloth mask over the medical procedure mask and by 63% when the source wore a knotted and tucked medical mask.

Furthermore, when both the source and receiver wore double masks or knotted and tucked masks, the receiver's cumulative exposure was reduced by about 96%.

Study authors acknowledged that several other simple ways exist to help achieve better fit of masks (e.g., solid or elastic mask fitters or sheer nylon hosiery over a cloth mask or medical procedure mask).

They also noted that the findings might not be generalizable to children because of their smaller size. "The findings of these simulations should neither be generalized to the effectiveness of all medical procedure masks or cloth masks nor interpreted as being representative of the effectiveness of these masks when worn in real-world settings," they wrote.

At Wednesday's COVID-19 Response Team briefing, CDC Director Rochelle P. Walensky, M.D., M.P.H., reiterated that the CDC's universal masking recommendation is part of a larger strategy to reduce the spread of virus.

"These experimental data reinforce CDC's prior guidance that everyone 2 years of age or older should wear a mask when in public and around others in their home not living with you," she said. "The bottom line is this — masks work and work best when they have a good fit and are worn correctly."