UPDATE ALERT

Update Alert 5: Masks for Prevention of Respiratory Virus Infections, Including SARS-CoV-2, in Health Care and Community Settings

This is the fifth update alert for a living rapid review on the use of masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings (1). The first 3 updates were monthly, and the interval was switched to bimonthly for subsequent updates. Update searches were done from 3 December 2020 to 2 February 2021, using the same search strategies as the original review. The update searches identified 613 citations. Two studies (2, 3) on the use of masks and the prevention of SARS-CoV-2 were added for this update: 1 study (2) was done in a community setting, and the other (3) was done in a health care setting (**Supplement Tables 1** to **3**).

On the basis of evidence from 1 randomized controlled trial (4) and 2 observational studies (5, 6), the strength of evidence for mask use versus nonuse for the prevention of SARS-CoV-2 in community settings was previously assessed as low for a small reduction in risk for infection with any mask use (**Supplement Table 4**). One new cross-sectional study done in Vermont reported an imprecise estimate for the association between wearing a mask (type unspecified) outside of a work environment or not wearing a mask and SARS-CoV-2 infection risk (odds ratio, 2.35 [95% CI, 0.67 to 8.25]) (**Supplement Table 3**) (2). Mask use was not included in multivariable models; in addition, the study had methodological limitations, including potential selection and recall bias and low participation and SARS-CoV-2 testing rates among eligible participants. Therefore, the strength of evidence for any mask use versus nonuse in community settings remains low (**Supplement Table 4**). Other strength-of-evidence ratings related to mask use in community settings were unchanged because of no new evidence.

The evidence on various comparisons of mask use in health care settings and risk for SARS-CoV-2 infection was previously assessed as insufficient on the basis of 5 observational studies with methodological limitations (**Supplement Table 4**) (7–11). One new study done in 500 U.S. hospital workers in a high-prevalence area (SARS-CoV-2 seropositivity, 27%) was added for this update (3). In this study, only 2 hospital workers reported no mask use. Although the study evaluated N95 use only, surgical mask use only, or N95 and surgical mask use, analyses were of limited usefulness because the comparison group was any other mask use, including other types of masks or nonuse (for example, N95 only was compared with the combination of surgical mask only, N95 and surgical mask, or no mask use). In addition, estimates were imprecise, except for N95 and surgical mask use (odds ratio, 0.63 [CI, 0.41 to 1.0]). The comparison of N95 only versus surgical mask only favored the N95, but the difference was not statistically significant (odds ratio, 0.60 [CI, 0.31 to 1.15]). The study had methodological limitations, including no adjustment for confounders and potential recall and selection bias. On the basis of these limitations and because of inconsistent results across studies, evidence for N95 versus surgical mask use and other comparisons involving mask use and risk for SARS-CoV-2 infection in health care settings remains insufficient (**Supplement Table 4**).

No new studies evaluated the effects of mask use and risk for SARS-CoV-1 infection, Middle East respiratory syndrome–CoV infection, or influenza or influenza-like illness. As with prior updates, there were no new studies on the effectiveness and safety of mask reuse or extended use.

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References

1. Chou R, Dana T, Jungbauer R, et al. Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings: a living rapid review. Ann Intern Med. 2020;173:542-555. [PMID: 32579379]. doi:10.7326/M20-3213
2. van den Broek-Altenburg EM, Atherly AJ, Diehl SA, et al. Jobs, housing, and mask wearing: cross-sectional study of risk factors for COVID-19. JMIR Public Health Surveill. 2021;7:e24320. [PMID: 33315576] doi:10.2196/24320
3. Venugopal U, Jilani N, Rabah S, et al. SARS-CoV-2 seroprevalence among health care workers in a New York City hospital: a cross-sectional analysis during the COVID-19 pandemic. Int J Infect Dis. 2021;102:63-69. [PMID: 33075539] doi:10.1016/j.ijid.2020.10.036
4. Bundgaard H, Bundgaard JS, Raaschou-Pedersen DET, et al. Effectiveness of adding a mask recommendation to other public health measures to prevent SARS-CoV-2 infection in Danish mask wearers: a randomized controlled trial. Ann Intern Med. 2020. [PMID: 33205991]. doi:10.7326/M20-6817
5. Wang Y, Tian H, Zhang L, et al. Reduction of secondary transmission of SARS-CoV-2 in households by face mask use, disinfection and social distancing: a cohort study in Beijing, China. BMJ Glob Health. 2020;5. [PMID: 32467353] doi:10.1136/bmjgh-2020-002794
6. Doung-Ngern P, Suphanchaimat R, Panjangampatthana A, et al. Case-control study of use of personal protective measures and risk for SARS-CoV 2 infection, Thailand. Emerg Infect Dis. 2020;26:2607-2616. [PMID: 32931726] doi:10.3201/eid2611.203003
7. Chatterjee P, Anand T, Singh KJ, et al. Healthcare workers & SARS-CoV-2 infection in India: a case-control investigation in the time of COVID-19. Indian J Med Res. 2020;151:459-467. [PMID: 32611916] doi:10.4103/ijmr.IJMR_2234_20
8. Piapan L, De Michieli P, Ronchese F, et al. COVID-19 outbreak in healthcare workers in hospitals in Trieste, North-east Italy. J Hosp Infect. 2020;106:626-628. [PMID: 32805309] doi:10.1016/j.jhin.2020.08.012
9. Khalil MM, Alam MM, Arefin MK, et al. Role of personal protective measures in prevention of COVID-19 spread among physicians in Bangladesh: a multicenter cross-sectional comparative study. SN Compr Clin Med. 2020:1-7. [PMID: 32904377] doi:10.1007/s42399-020-00471-1
10. Akinbami LJ, Vuong N, Petersen LR, et al. SARS-CoV-2 seroprevalence among healthcare, first response, and public safety personnel, Detroit metropolitan area, Michigan, USA, May-June 2020. Emerg Infect Dis. 2020;26:2863-2871. [PMID: 32956614] doi:10.3201/eid2612.203764
11. Sims MD, Maine GN, Childers KL, et al; BLAST COVID-19 Study Group. COVID-19 seropositivity and asymptomatic rates in healthcare workers are associated with job function and masking. Clin Infect Dis. 2020. [PMID: 33150375] doi:10.1093/cid/ciaa1684

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