

Supplementary Material*

Chou R, Dana T, Jungbauer R, et al. Update Alert 2: masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. *Ann Intern Med.* 27 August 2020. [Epub ahead of print]. doi:10.7326/L20-1067

Supplement Table 1. Study characteristics of observational studies of mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Supplement Table 2. Mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Supplement Table 3. Quality assessment of observational studies of mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Supplement Table 4. Masks for prevention of respiratory virus infections evidence map – Update Alert #2

References

*This supplementary material was provided by the authors to give readers further details on their article. The material was reviewed but not copyedited.

Supplement Table 1. Study characteristics of observational studies of mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Author, year Country Study design	Inclusion criteria	Sample size	Age (mean, years)	Female (%)	Definition of infection
Chatterjee et al, 2020 (2) India Case-control	Healthcare workers undergoing SARS-CoV-2 testing between April week 1 and May week 1, 2020	378 healthcare worker cases and 373 healthcare worker controls	35 (cases)	42% (cases)	SARS-CoV-2 infection (PCR)

Supplement Table 2. Mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
SARS-CoV-2				
Chatterjee et al, 2020 (2) India Case-control	Any mask vs. no mask: OR, 0.35 (0.22-0.57)	-	-	-

Supplement Table 3. Quality assessment of observational studies of mask use and risk of SARS-CoV-2 infection in healthcare settings – Update Alert #2

Author, year Country	Did the study attempt to enroll all (or a random sample of) patients meeting inclusion criteria (inception cohort)?	Did the study use accurate methods for ascertaining exposures and potential confounders?	Were outcome assessors and/or data analysts blinded to exposure being studied?	Did the article report attrition or missing data?	Is there high attrition?	Were outcomes pre-specified and defined, and ascertained using accurate methods?	Other sources of potential bias	Quality rating
Chatterjee et al, 2020 (2)	No	Unclear (self-report)	No	No	Unclear	Yes	Potential recall bias; 40% of eligible cases were not included in the study	Poor

Supplement Table 4. Masks for prevention of respiratory virus infections evidence map – Update Alert #2

Comparison (intervention A vs. intervention B)	SARS-CoV-2 infection*	SARS-CoV-1 or MERS-CoV infection*	Influenza, influenzalike illness, and other viral respiratory illness (excluding pandemic coronaviruses) †
Community setting			
Mask (type not specified) vs. no mask (k=4 observational studies) (3-6)	■	◆	-
N95‡ vs. surgical mask in household contacts (k=1 RCT) (7)	-	-	◆
N95‡ vs. no mask in household contacts (k=1 RCT) (7)	-	-	◆
Surgical mask vs. no mask in households with an index case and other community settings (k=12 RCTs) (7-18)	-	-	●
Healthcare setting – moderate or higher risk (inpatient)			
Any mask vs. no mask (k=13 observational studies) (2, 19-30)	■	●	-
N95 vs. no mask (k=5 observational studies) (19, 25-27, 31)	■	◆	-
Surgical mask vs. no mask (k=6 observational studies) (19, 20, 22, 25, 26, 29)	-	■	-
N95 or surgical mask vs. no mask (k=1 observational study) (30)	-	■	-
Mask (type not specified) vs. no mask (k=5 observational studies) (21, 23, 26, 28, 29)	-	◆	-
Cloth mask vs. no mask (k=3 observational studies) (19, 24, 29)	-	■	-
Consistent/always mask use vs. inconsistent mask use (k=5 observational studies) (20, 23, 32, 33)	■	◆	-
N95 vs. surgical mask (k=3 RCTs and 5 observational studies) (19, 20, 25, 30, 34-37)	-	◆	●
N95 or surgical mask vs. cloth mask (k=3 observational studies) (19, 21, 29)	-	■	-
Surgical mask vs. cloth mask (k=1 RCT) (38)	-	-	◆
Healthcare setting – lower risk (outpatient)			
N95 vs. surgical mask (k=1 RCT) (39)	-	-	●

* Only observational evidence was included for these infections

† Only RCT evidence was included for these infections

‡ N95 or equivalent (e.g. P2 mask)

Strength of evidence

- Moderate
- ◆ Low
- Insufficient
- No evidence

Direction of effect

- | | |
|--|------------------------------------|
| | Favors intervention A |
| | Effects similar or no difference |
| | No evidence or unable to determine |

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. Epub 2020/06/25. doi: 10.7326/m20-3213. PubMed PMID: 32579379; PubMed Central PMCID: PMC7322812.
2. 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(5):459-67. Epub 2020/07/03. doi: 10.4103/ijmr.IJMR_2234_20. PubMed PMID: 32611916.
3. 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(5). Epub 2020/05/30. doi: 10.1136/bmjgh-2020-002794. PubMed PMID: 32467353.
4. Lau JT, Lau M, Kim JH, et al. Probable secondary infections in households of SARS patients in Hong Kong. *Emerg Infect Dis.* 2004c;10(2):235-43. Epub 2004/03/20. doi: 10.3201/eid1002.030626. PubMed PMID: 15030689; PubMed Central PMCID: PMC3322902.
5. Tuan PA, Horby P, Dinh PN, et al. SARS transmission in Vietnam outside of the health-care setting. *Epidemiol Infect.* 2007;135(3):392-401. Epub 2006/07/28. doi: 10.1017/s0950268806006996. PubMed PMID: 16870029; PubMed Central PMCID: PMC2870589.
6. Wu J, Xu F, Zhou W, et al. Risk factors for SARS among persons without known contact with SARS patients, Beijing, China. *Emerg Infect Dis.* 2004;10(2):210-6. doi: 10.3201/eid1002.030730. PubMed PMID: 15030685.
7. MacIntyre CR, Cauchemez S, Dwyer DE, et al. Face mask use and control of respiratory virus transmission in households. *Emerg Infect Dis.* 2009;15(2):233-41. Epub 2009/02/06. doi: 10.3201/eid1502.081167. PubMed PMID: 19193267; PubMed Central PMCID: PMC2662657.
8. Canini L, Andreatti L, Ferrari P, et al. Surgical mask to prevent influenza transmission in households: a cluster randomized trial. *PLoS One.* 2010;5(11):e13998. Epub 2010/11/26. doi: 10.1371/journal.pone.0013998. PubMed PMID: 21103330; PubMed Central PMCID: PMC2984432.
9. Cowling BJ, Chan KH, Fang VJ, et al. Facemasks and hand hygiene to prevent influenza transmission in households: a cluster randomized trial. *Ann Intern Med.* 2009;151(7):437-46. Epub 2009/08/05. doi: 10.7326/0003-4819-151-7-200910060-00142. PubMed PMID: 19652172.
10. Cowling BJ, Fung RO, Cheng CK, et al. Preliminary findings of a randomized trial of non-pharmaceutical interventions to prevent influenza transmission in households. *PLoS One.* 2008;3(5):e2101. Epub 2008/05/08. doi: 10.1371/journal.pone.0002101. PubMed PMID: 18461182; PubMed Central PMCID: PMC2364646.
11. Larson EL, Ferng YH, Wong-McLoughlin J, et al. Impact of non-pharmaceutical interventions on URIs and influenza in crowded, urban households. *Public Health Rep.* 2010;125(2):178-91. Epub 2010/03/20. doi: 10.1177/003335491012500206. PubMed PMID: 20297744; PubMed Central PMCID: PMC2821845.
12. MacIntyre CR, Zhang Y, Chughtai AA, et al. Cluster randomised controlled trial to examine medical mask use as source control for people with respiratory illness. *BMJ Open.* 2016;6(12):e012330. Epub 2017/01/01. doi: 10.1136/bmjopen-2016-012330. PubMed PMID: 28039289; PubMed Central PMCID: PMC5223715.

13. Simmerman JM, Suntarattiwong P, Levy J, et al. Findings from a household randomized controlled trial of hand washing and face masks to reduce influenza transmission in Bangkok, Thailand. *Influenza Other Respir Viruses*. 2011;5(4):256-67. Epub 2011/06/10. doi: 10.1111/j.1750-2659.2011.00205.x. PubMed PMID: 21651736; PubMed Central PMCID: PMC4634545.
14. Suess T, Remschmidt C, Schink SB, et al. The role of facemasks and hand hygiene in the prevention of influenza transmission in households: results from a cluster randomised trial; Berlin, Germany, 2009-2011. *BMC Infect Dis*. 2012;12:26. Epub 2012/01/28. doi: 10.1186/1471-2334-12-26. PubMed PMID: 22280120; PubMed Central PMCID: PMC3285078.
15. Aiello AE, Murray GF, Perez V, et al. Mask use, hand hygiene, and seasonal influenza-like illness among young adults: a randomized intervention trial. *J Infect Dis*. 2010;201(4):491-8. Epub 2010/01/22. doi: 10.1086/650396. PubMed PMID: 20088690.
16. Aiello AE, Perez V, Coulborn RM, et al. Facemasks, hand hygiene, and influenza among young adults: a randomized intervention trial. *PLoS One*. 2012;7(1):e29744. Epub 2012/02/02. doi: 10.1371/journal.pone.0029744. PubMed PMID: 22295066; PubMed Central PMCID: PMC3266257.
17. Alfelali M, Haworth EA, Barasheed O, et al. Facemask versus no facemask in preventing viral respiratory infections during Hajj: a cluster randomised open label trial March 8, 2019. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3349234.
18. Barasheed O, Almasri N, Badahdah AM, et al. Pilot randomised controlled trial to test effectiveness of facemasks in preventing influenza-like illness transmission among Australian Hajj pilgrims in 2011. *Infect Disord Drug Targets*. 2014;14(2):110-6. Epub 2014/10/23. doi: 10.2174/1871526514666141021112855. PubMed PMID: 25336079.
19. Liu W, Tang F, Fang L-Q, et al. Risk factors for SARS infection among hospital healthcare workers in Beijing: a case control study. *Trop Med Int Health*. 2009;14(s1):52-9. doi: 10.1111/j.1365-3156.2009.02255.x.
20. Loeb M, McGeer A, Henry B, et al. SARS among critical care nurses, Toronto. *Emerg Infect Dis*. 2004;10(2):251-5. Epub 2004/03/20. doi: 10.3201/eid1002.030838. PubMed PMID: 15030692; PubMed Central PMCID: PMC3322898.
21. Ma HJ, Wang HW, Fang LQ, et al. [A case-control study on the risk factors of severe acute respiratory syndromes among health care workers]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2004;25(9):741-4. Epub 2004/11/24. PubMed PMID: 15555351.
22. Nishiura H, Kuratsuji T, Quy T, et al. Rapid awareness and transmission of severe acute respiratory syndrome in Hanoi French Hospital, Vietnam. *Am J Trop Med Hyg*. 2005;73(1):17-25. Epub 2005/07/15. PubMed PMID: 16014825.
23. Nishiyama A, Wakasugi N, Kirikae T, et al. Risk factors for SARS infection within hospitals in Hanoi, Vietnam. *Jpn J Infect Dis*. 2008;61(5):388-90. Epub 2008/09/23. PubMed PMID: 18806349.
24. Pei LY, Gao ZC, Yang Z, et al. [Investigation of the influencing factors on severe acute respiratory syndrome among health care workers]. *Beijing Da Xue Xue Bao Yi Xue Ban*. 2006;38(3):271-5. Epub 2006/06/17. PubMed PMID: 16778970.
25. Raboud J, Shigayeva A, McGeer A, et al. Risk factors for SARS transmission from patients requiring intubation: a multicentre investigation in Toronto, Canada. *PLoS One*. 2010;5(5):e10717. Epub 2010/05/27. doi: 10.1371/journal.pone.0010717. PubMed PMID: 20502660; PubMed Central PMCID: PMC2873403.

26. Seto WH, Tsang D, Yung RW, et al. Effectiveness of precautions against droplets and contact in prevention of nosocomial transmission of severe acute respiratory syndrome (SARS). *Lancet*. 2003;361(9368):1519-20. Epub 2003/05/10. doi: 10.1016/s0140-6736(03)13168-6. PubMed PMID: 12737864; PubMed Central PMCID: PMC7112437.
27. Teleman MD, Boudville IC, Heng BH, et al. Factors associated with transmission of severe acute respiratory syndrome among health-care workers in Singapore. *Epidemiol Infect*. 2004;132(5):797-803. Epub 2004/10/12. doi: 10.1017/s0950268804002766. PubMed PMID: 15473141; PubMed Central PMCID: PMC2870165.
28. Wilder-Smith A, Teleman MD, Heng BH, et al. Asymptomatic SARS coronavirus infection among healthcare workers, Singapore. *Emerging infectious diseases*. 2005;11(7):1142-5. Epub 2005/07/19. doi: 10.3201/eid1107.041165. PubMed PMID: 16022801; PubMed Central PMCID: PMC3371799.
29. Yin WW, Gao LD, Lin WS, et al. [Effectiveness of personal protective measures in prevention of nosocomial transmission of severe acute respiratory syndrome]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2004;25(1):18-22. Epub 2004/04/06. PubMed PMID: 15061941.
30. Scales DC, Green K, Chan AK, et al. Illness in intensive care staff after brief exposure to severe acute respiratory syndrome. *Emerg Infect Dis*. 2003;9(10):1205-10. Epub 2003/11/12. doi: 10.3201/eid0910.030525. PubMed PMID: 14609453; PubMed Central PMCID: PMC3033076.
31. Wang X, Pan Z, Cheng Z. Association between 2019-nCoV transmission and N95 respirator use. *J Hosp Infect*. 2020(March 3). doi: 10.1016/j.jhin.2020.02.021.
32. Alraddadi BM, Al-Salmi HS, Jacobs-Slifka K, et al. Risk factors for Middle East respiratory syndrome coronavirus infection among healthcare personnel. *Emerg Infect Dis*. 2016;22(11):1915-20. Epub 2016/10/22. doi: 10.3201/eid2211.160920. PubMed PMID: 27767011; PubMed Central PMCID: PMC5088034.
33. Lau JTF, Fung KS, Wong TW, et al. SARS transmission among hospital workers in Hong Kong. *Emerg Infect Dis*. 2004b;10(2):280-6. doi: 10.3201/eid1002.030534. PubMed PMID: 15030698.
34. Loeb M, Dafoe N, Mahony J, et al. Surgical mask vs N95 respirator for preventing influenza among health care workers: a randomized trial. *JAMA*. 2009;302(17):1865-71. Epub 2009/10/03. doi: 10.1001/jama.2009.1466. PubMed PMID: 19797474.
35. MacIntyre CR, Wang Q, Cauchemez S, et al. A cluster randomized clinical trial comparing fit-tested and non-fit-tested N95 respirators to medical masks to prevent respiratory virus infection in health care workers. *Influenza Other Respir Viruses*. 2011;5(3):170-9. Epub 2011/04/12. doi: 10.1111/j.1750-2659.2011.00198.x. PubMed PMID: 21477136; PubMed Central PMCID: PMC4941587.
36. MacIntyre CR, Wang Q, Seale H, et al. A randomized clinical trial of three options for N95 respirators and medical masks in health workers. *Am J Respir Crit Care Med*. 2013;187(9):960-6. Epub 2013/02/16. doi: 10.1164/rccm.201207-1164OC. PubMed PMID: 23413265.
37. Caputo KM, Byrick R, Chapman MG, et al. Intubation of SARS patients: infection and perspectives of healthcare workers. *Can J Anaesth*. 2006;53(2):122-9. Epub 2006/01/26. doi: 10.1007/bf03021815. PubMed PMID: 16434750.
38. MacIntyre CR, Seale H, Dung TC, et al. A cluster randomised trial of cloth masks compared with medical masks in healthcare workers. *BMJ Open*. 2015;5(4):e006577. Epub

2015/04/24. doi: 10.1136/bmjopen-2014-006577. PubMed PMID: 25903751; PubMed Central PMCID: PMC4420971.

39. Radonovich LJ, Jr., Simberkoff MS, Bessesen MT, et al. N95 Respirators vs medical masks for preventing influenza among health care personnel: a randomized clinical trial. *JAMA*. 2019;322(9):824-33. Epub 2019/09/04. doi: 10.1001/jama.2019.11645. PubMed PMID: 31479137; PubMed Central PMCID: PMC6724169