Supplementary Material*

Chou R, Dana T, Jungbauer R. Update alert 7: masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 29 March 2022. [Epub ahead of print]. doi:10.7326/L21-0783

Item	Page
Supplement Table 1. Study characteristics of new randomized controlled trials of mask use – Update Alert #7	2
Supplement Table 2. Study characteristics of new observational studies of mask use – Update Alert #7	3
Supplement Table 3. Quality assessment of new randomized controlled trials of mask use – Update Alert #7	5
Supplement Table 4. Quality assessment of new observational studies of mask use – Update Alert #7	6
Supplement Table 5. Mask use and risk for SARS-CoV-2 infection	7
Supplement Table 6. Masks for prevention of respiratory virus infections evidence map – Update Alert #7	12
References	16

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

Supplement Table 1. Study characteristics of new randomized controlled trials of mask use – Update Alert #7

Author, year Country	Inclusion criteria	Sample size	Interventions and other infection prevention and control measures	Duration of intervention	Age (mean, years)	Female (%)	Smoker	Other population characteristics
Community setting								
Abaluck et al, 2021 (9) Bangladesh	Villages in rural Bangladesh	572 villages (N=342,183)	A. Mask promotion intervention: household mask distribution; communication about the value of mask-wearing; mask promotion; in-person reminders about mask wearing at mosques, markets, and other public places; role-modeling by public officials and community leaders B. Control: no mask promotion intervention	8 weeks	Not reported (cluster RCT)	Not reported (cluster RCT)	Not reported (cluster RCT)	Not reported (cluster RCT)
Healthcare setting								
No new studies								

Supplement Table 2. Study characteristics of new observational studies of mask use – Update Alert #7

Author, year Country Study design	Inclusion criteria	Sample size	Age	Female (%)	Definition of infection
Community setting					
Goncalves et al 2021 (10) Brazil Case-control	Cases (SARS-CoV-2 infection) and controls (no SARS-CoV-2 infection) identified during three seroprevalence surveys	*Total cohort* Cases: 271 Controls: 1,396 *Third seroprevalence survey only* Cases: 229 Controls: 464	*Total cohort* Cases: 46 years Controls: 50 years	*Total cohort* Cases: 56% Controls: 62%	Cases: SARS-CoV-2 infection based on PCR testing Controls: self-report
Lio et al 2021 (11) Macau Case-control	Cases (confirmed diagnosis and hospitalization for COVID-19) and controls (people returning to Macau from high-prevalence countries undergoing mandatory 14-day quarantine)	Cases: 24 Controls: 1,113	Cases: 29 years Controls: 30 years	Cases: 56% Controls: 46%	Self-report
Rebmann et al 2021 (12) United States Cross-sectional	Close contacts of university students with positive SARS-CoV-2 test	378	Not reported; all were university students	71%	SARS-CoV-2 infection based on PCR testing
Sharif et al 2021 (13) Bangladesh Cross-sectional	Residence on one of 8 divisional cities (54 districts) in Bangladesh	1,690	Mean 34 years	45%	Self-report COVID-19 infection
Sugimara et al 2021 (14) Japan	Close contacts of community-dwelling residents with clinically-confirmed COVID-19 diagnosis	820	Mean/median not reported; 14% age 0-19 years, 53% age 20-59 years, 10% age >60	46%	SARS-CoV-2 infection based on PCR testing

Author, year Country Study design	Inclusion criteria	Sample size	Age	Female (%)	Definition of infection
Cross-sectional			years, 23% missing data		
Healthcare setting					
Haller et al, 2021 (8)* Switzerland Cohort	HCWs with patient contact working in healthcare institutions in Switzerland	*Total cohort* 3,259 *Seroconverted subgroup* 2,916	*Total cohort* 39 years *Seroconverted subgroup* Not reported	*Total cohort* 81% *Seroconverted subgroup* Not reported	*Total cohort* Self-report *Seroconverted subgroup* SARS-CoV-2 seropositivity

Abbreviations: HCW=healthcare worker; PCR=polymerase chain reaction; SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2
*Not peer reviewed

Supplement Table 3. Quality assessment of new randomized controlled trials of mask use – Update Alert #7

Author, year	Random-ization	Allocation concealment	Baseline groups comparable	Blinding of study participants	Blinding of outcomes assessment	Attrition and missing data reported	Intention-to-treat analysis	Analysis for adherence	Cluster trials: Adjustment for clustering	Quality rating
Community setting										
Abaluck et al, 2021 (9)	Yes (by cluster)	Unclear	Yes	No	No	Yes	No	Yes	Yes (accounted for during randomization)	Fair
Healthcare setting										
No new studies										

Supplement Table 4. Quality assessment of new observational studies of mask use – Update Alert #7

Author, year	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 or missing data?	Were outcomes pre-specified and defined, and ascertained using accurate methods?	Controlled for confounders?	Quality rating
Community setting								
Goncalves et al 2021 (10)	No (participation rate <50%)	Unclear (potential recall bias)	No	No	No	Yes; ascertainment unclear from controls	Yes	Fair
Lio et al (11)	No (participation rate 61% among controls)	Unclear (potential recall bias)	No	No	No	Yes; ascertainment unclear	Yes	Fair
Rebmann et al 2021 (12)	Unclear	Unclear (potential recall bias)	No	No	No	Yes	Yes	Fair
Sharif et al 2021 (13)	Unclear (inclusion criteria not well-defined and participation rate unclear)	Unclear (potential recall bias)	No	No	No	Yes; ascertainment unclear	Unclear (reports adjusted estimates but unclear what the study adjusted for)	Poor
Sugimara et al 2021 (14)	No (participation rate 57%)	Unclear (potential recall bias)	No	No	No	Yes; ascertainment unclear	Partial (gender and contact type only)	Fair
Healthcare setting								
Haller et al, 2021 (8)*	Unclear	Unclear (potential recall bias)	No	No	Unclear	Yes	Yes	Fair

*Not peer reviewed

Supplement Table 5. Mask use and risk for SARS-CoV-2 infection

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
Community setting - RCTs				
Abaluck et al, 2021 (9) **Added for Update Alert #8**	*Symptomatic SARS-CoV-2 seroprevalence* Mask promotion intervention vs. no intervention: ***adjusted prevalence ratio 0.90 (95% CI 0.82 to 0.995)*** *COVID-19 symptoms, based on WHO criteria* Mask promotion intervention vs. no intervention: ***adjusted prevalence ratio 0.88 (95% CI 0.83 to 0.93)***	*Symptomatic SARS-CoV-2 seroprevalence* Mask promotion intervention vs. no intervention, surgical mask villages: ***adjusted prevalence ratio 0.89 (95% CI 0.78 to 0.997)*** • Age <40 y: 0.97 (95% CI 0.83 to 1.10) • Age 40-49 y: 1.01 (95% CI 0.82 to 1.20) • Age 50-59 y: ***0.77 (95% CI 0.60 to 0.95)*** • Age ≥60 y: ***0.65 (95% CI 0.45 to 0.84)*** Mask promotion intervention vs. no intervention, cloth mask villages: ***adjusted prevalence ratio 0.94 (95% CI 0.78 to 1.10)*** • Age <40 y: 1.06 (95% CI 0.87 to 1.25) • Age 40-49 y: ***0.71 (955 CI 0.46 to 0.97)*** • Age 50-59 y: 0.84 (95% CI 0.52 to 1.15) • Age ≥60 y: 1.08 (95% CI 0.77 to 1.40) *COVID-19 symptoms, based on WHO criteria* Mask promotion intervention vs. no intervention • Surgical mask villages: ***adjusted prevalence ratio 0.87 (95% CI 0.81 to 0.94***) Cloth mask villages: ***adjusted prevalence ratio 0.91 (95% CI 0.82 to 0.99)***	--	--
Bundgaard et al, 2020 (15)	Surgical mask vs. no mask: OR 0.82 (95% CI 0.52 to 1.23)	--	--	--
Community setting – Observational studies				
Doung-Ngern et al, 2020 (17)	Surgical (medical) mask vs. no mask: adjusted OR 0.25 (95% CI 0.12 to 0.53) Cloth (nonmedical) mask vs. no mask: adjusted OR 0.78 (95% CI 0.32 to 1.90) Any mask vs. no mask: adjusted OR 0.46 (95% CI 0.13 to 1.64)	Surgical (medical) mask vs. cloth (nonmedical) mask: OR 1.06 (95% CI 0.63 to 1.79)* Mask type and risk of SARS-CoV-2 infection: p=0.54	Always wearing a mask vs. not wearing a mask: ***adjusted OR 0.23 (95% CI 0.09 to 0.60)*** Sometimes wearing a mask vs. not wearing a mask: adjusted OR 0.87 (95% CI 0.41 to 1.84)	--

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
Goncalves et al 2021 (10) **Added for Update Alert #8**	*Third seroprevalence survey only* Mask use vs. no mask: ***adjusted OR 0.10 (95% CI 0.03 to 0.25)***	--	--	--
Lio et al 2021 (11) **Added for Update Alert #8**	Mask use when outdoors vs. no mask: ***adjusted OR 0.31 (95% CI 0.11 to 0.87)***	--	--	--
Rebmann et al 2021 (12) **Added for Update Alert #8**	Masked exposure to index case vs. not masked: ***adjusted OR 0.20 (95% CI 0.03 to 0.71)***	--	--	--
Sharif et al 2021 (13) **Added for Update Alert #8**	Mask use vs. no mask: ***adjusted OR 0.04 (95% CI 0.02 to 0.43)***	--	--	--
Sugimura et al 2021 (14) **Added for Update Alert #8**	Mask use vs. no mask: ***adjusted RR 0.60 (95% CI 0.30 to 0.90)***	--	--	---
van den Broek-Altenburg et al, 2021 (18)	Mask use outside of work (yes vs. no): OR 2.35 (0.67-8.25)	--	--	-
Wang Y et al, 2002 (16)	Unadjusted OR (95% CI) for household with secondary infection of family member Mask use all the time by: • All family members (including index case) vs. no family members before index case illness onset: 0.20 (0.07 to 0.60)	-	Unadjusted OR (95% CI) for household with secondary infection of family member Primary case or family members wore mask (N95, surgical, or cloth) after index case illness onset:	--

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
	• Some family members vs. no family members: 0.72 (0.30-1.73) • At least one family member (including index case) vs. no family members prior to index case illness onset: 0.22 (0.07-0.69) Adjusted OR (95% CI) for household with secondary infection of family member • Mask use all the time by at least one family member or index case vs. no family members prior to index case illness onset: 0.21 (0.06-0.79)		• All the time vs. never: 0.30 (0.11-0.82) • Sometimes vs. never: 1.15 (0.11-0.82) Mask use after index case symptom onset not included in multivariate model	
Healthcare setting – Observational studies				
Akinbami et al, 2020 (23)	--	--	Always use N95 vs. less than always: ***adjusted OR 0.83 (0.72-0.95)*** Always use surgical mask vs. less than always: ***adjusted OR 0.86 (0.75-0.98)***	--
Chatterjee et al, 2020 (24)	Any mask vs. no mask: ***OR 0.35 (0.22-0.57)****	--	--	--
Davido et al, 2021 (25)	--	--	Systematic use of facemask vs. no systematic use: ***adjusted OR 0.07 (0.003-0.56)***	--
Fletcher et al, 2021 (22)	--	<u>Study Period 1</u> N95 vs. surgical mask: OR 1.25 (0.55-2.85) <u>Study Period 2</u> N95 vs. surgical mask: OR 1.18 (0.86-1.62)	--	--
Haller et al, 2021	--	Mostly FFP2 use vs. mostly surgical mask use: adjusted HR 0.80 (0.64-1.00)	--	--

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
Added for Update Alert #8		○ Restricted to data collected after 1 December 2020: adjusted HR 0.73 (0.55-0.97) ○ Seroconverted subgroup only: adjusted HR 0.73 (0.53-1.00)		
Heinzerling et al, 2020 (26)	--	--	Always facemask (non-N95) during aerosol generating procedures: OR 0.77 (0.03-20.02) Always facemask (non-N95) during non-aerosol generating procedures: OR 1.29 (0.05-30.38)	--
Khalil et al, 2020 (27)	Medical/surgical mask (yes vs. no): 1.40 (0.30-6.42)	--	--	--
Piapan et al, 2020 (19)	Mask (FFP2-3 or surgical) vs. no mask: adjusted OR 1.6 (0.9-2.9)	FFP2 mask vs. surgical mask: ***adjusted OR 7.1 (3.6-13.9)***	--	--
Sims et al, 2020 (20)	Any mask vs. no mask: ***OR 0.58 (0.50-0.66)*** N95 or surgical mask vs. no mask: ***OR 0.57 (0.50-0.66)*** N95 vs. no mask: ***OR 0.54 (0.47-0.62)*** Surgical mask vs. no mask: ***OR 0.71 (0.58-0.86)***	N95 vs. surgical mask: ***OR 0.76 (0.63-0.92)***	--	--
Venugopal et al, 2021 (21)	N95 only (yes vs. no): OR 0.87 (0.50-1.54)* Surgical mask only (yes vs. no): OR 1.70 (1.08-2.69)*	N95 only vs. surgical mask only: OR 0.60 (0.31-1.15)	--	--

Author, Year (Reference)	Mask Use Versus Nonuse	Comparison of Mask Types	Consistency of Mask Use	Multiple Mask Layers Versus Single Layer
	N95 and surgical mask (yes vs. no): OR 0.64 (0.41-1.00)*			
Wang X. et al, 2020 (28)	In department with mask use (no vs. yes): ***adjusted OR 464.82 (97.73– ∞)***	--	--	--

*Variable not included in a multivariate model

Supplement Table 6. Masks for prevention of respiratory virus infections evidence map – Update Alert #7

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 in households with an index case and other community settings • SARS-CoV-2*: 2 RCTs (9, 15) and 8 observational studies (10-14, 16-18) • SARS-CoV-1/MERS-CoV: 3 observational studies (29-31)	◆/●	◆	-
N95§ vs. surgical mask in household contacts and other community settings • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: 1 RCT (32)	-	-	◆
N95§ vs. no mask in household contacts • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: 1 RCT (32)	-	-	◆
Surgical mask vs. no mask in households with an index case and other community settings • SARS-CoV-2*: 2 RCTs (9, 15) and 1 observational study (17) • SARS-CoV-1/MERS-CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: 12 RCTs (32-42)	◆	-	●
Cloth mask vs. no mask in community contacts and other community settings* • SARS-CoV-2: 1 RCT (9) and 1 observational study (17) • SARS-CoV-1/MERS-CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	-	-
Surgical vs. cloth mask in community settings • SARS-CoV-2: 1 RCT (9) and 1 observational study (17) • SARS-CoV-1/MERS-CoV: no studies	◆	-	-

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) ‡
Influenza, influenzalike illness or other viral respiratory illness: No studies			
Healthcare setting – moderate or higher risk (inpatient)			
Any mask vs. no mask • SARS-CoV-2: 2 observational studies (20, 24) • SARS-CoV-1/MERS-CoV: 12 observational studies (43-54) • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	●	-
N95 vs. no mask • SARS-CoV-2: 3 observational studies (20, 21, 28) • SARS-CoV-1/MERS-CoV: 4 observational studies (43, 49-51) • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	◆	-
Surgical mask vs. no mask • SARS-CoV-2: 3 observational studies (20, 21, 27) • SARS-CoV-1/MERS-CoV: 6 observational studies (43, 44, 46, 49, 50, 53) • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	■	-
N95 or surgical mask vs. no mask • SARS-CoV-2: 1 observational study (20) • SARS-CoV-1/MERS/CoV: 1 observational study (54) • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	■	-
N95 and surgical mask vs. no mask • SARS-CoV-2: 1 observational study (21) • SARS-CoV-1/MERS/CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	-	-
Mask (type not specified) vs. no mask • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: 5 observational studies (45, 47, 50, 52, 53)	-	◆	-

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) ‡
• Influenza, influenzalike illness or other viral respiratory illness: no studies			
Cloth mask vs. no mask • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: 3 observational studies) (43, 48, 53) • Influenza, influenzalike illness or other viral respiratory illness: no studies	-	■	-
Consistent/always mask use vs. inconsistent mask use • SARS-CoV-2*: 2 observational studies (23, 25) • SARS-CoV-1/MERS-CoV: 4 observational studies (44, 47, 55, 56) • Influenza, influenzalike illness or other viral respiratory illness: no studies	■	◆	-
N95 vs. surgical mask • SARS-CoV-2*: 5 observational studies (8, 19-22) • SARS-CoV-1/MERS-CoV: 5 observational studies (43, 44, 49, 54, 57) • Influenza, influenzalike illness or other viral respiratory illness: 3 RCTs (58-60)	■	◆	●
N95 or surgical mask vs. cloth mask • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: 3 observational studies (43, 45, 53) • Influenza, influenzalike illness or other viral respiratory illness: no studies	-	■	-
Surgical mask vs. cloth mask • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: no studies • Influenza, influenzalike illness or other viral respiratory illness: 1 RCT (61)	-	-	◆
Healthcare setting – lower risk (outpatient)			
N95 vs. surgical mask • SARS-CoV-2: no studies • SARS-CoV-1/MERS-CoV: no studies	-	-	●

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) ‡
• Influenza, influenzalike illness or other viral respiratory illness: 1 RCT (62)			

* New evidence added for this update
† 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 or too little evidence to determine

References

1. Chou R, Dana T, Jungbauer R, Weeks C, McDonagh MS. 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(7):542-55. Epub 2020/06/25. doi: 10.7326/m20-3213. PubMed PMID: 32579379; PubMed Central PMCID: PMC7322812.
2. Chou R, Dana T, Jungbauer R, Weeks C, McDonagh MS. Update alert: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2020. Epub 2020/07/21. doi: 10.7326/l20-0948. PubMed PMID: 32687391.
3. Chou R, Dana T, Jungbauer R, Weeks C, McDonagh MS. Update alert 2: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2020;173(7):132. Epub 2020/08/28. doi: 10.7326/l20-1067. PubMed PMID: 32853032; PubMed Central PMCID: PMC7472717.
4. Chou R, Dana T, Jungbauer R, Weeks C. Update alert 3: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2020. Epub 2020/10/27. doi: 10.7326/l20-1292. PubMed PMID: 33105095; PubMed Central PMCID: PMC7596736.
5. Chou R, Dana T, Jungbauer R, Weeks C. Update alert 4: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2020. Epub 2020/12/29. doi: 10.7326/l20-1429. PubMed PMID: 33370171; PubMed Central PMCID: PMC7774035.
6. Chou R, Dana T, Jungbauer R, Weeks C. Update alert 5: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2021. Epub 2021/03/09. doi: 10.7326/l21-0116. PubMed PMID: 33683928; PubMed Central PMCID: PMC7974711.
7. Chou R, Dana T, Jungbauer R. Update alert 6: Masks for prevention of respiratory virus infections, including SARS-CoV-2, in health care and community settings. Ann Intern Med. 2021;174(9):W68. Epub 2021/07/13. doi: 10.7326/l21-0393. PubMed PMID: 34251900; PubMed Central PMCID: PMC8280537.
8. Haller S, Güsewell S, Egger T, Scanferla G, Thoma R, Leal-Neto OB, et al. Use of respirator vs. surgical masks in healthcare personnel and its impact on SARS-CoV-2 acquisition – a prospective multicentre cohort study. medRxiv. 2021:2021.05.30.21258080. doi: 10.1101/2021.05.30.21258080.
9. Abaluck J, Kwong LH, Styczynski A, Haque A, Kabir MA, Bates-Jefferys E, et al. Impact of community masking on COVID-19: A cluster-randomized trial in Bangladesh. Science. 2021:eabi9069. Epub 2021/12/03. PubMed PMID: 34855513.
10. Gonçalves MR, Dos Reis RCP, Tólio RP, Pellanda LC, Schmidt MI, Katz N, et al. Social distancing, mask use, and transmission of Severe Acute Respiratory Syndrome Coronavirus 2, Brazil, April-June 2020. Emerg Infect Dis. 2021;27(8):2135-43. Epub 2021/06/05. doi: 10.3201/eid2708.204757. PubMed PMID: 34087090; PubMed Central PMCID: PMC8314805.
11. Lio CF, Cheong HH, Lei CI, Lo IL, Yao L, Lam C, et al. Effectiveness of personal protective health behaviour against COVID-19. BMC Public Health. 2021;21(1):827. Epub 2021/05/01. doi: 10.1186/s12889-021-10680-5. PubMed PMID: 33926406; PubMed Central PMCID: PMC8082215.
12. Rebmann T, Loux TM, Arnold LD, Charney R, Horton D, Gomel A. SARS-CoV-2 transmission to masked and unmasked close contacts of university students with COVID-19 - St.

Louis, Missouri, January-May 2021. MMWR Morb Mortal Wkly Rep. 2021;70(36):1245-8. Epub 2021/09/10. doi: 10.15585/mmwr.mm7036a3. PubMed PMID: 34499631; PubMed Central PMCID: PMC8437055.
13. Sharif N, Alzahrani KJ, Ahmed SN, Opu RR, Ahmed N, Talukder A, et al. Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study. PloS One. 2021;16(11):e0260287. Epub 2021/11/23. doi: 10.1371/journal.pone.0260287. PubMed PMID: 34807962; PubMed Central PMCID: PMC8608304.
14. Sugimura M, Chimed-Ochir O, Yumiya Y, Ohge H, Shime N, Sakaguchi T, et al. The association between wearing a mask and COVID-19. Int J Environ Res Public Health. 2021;18(17). Epub 2021/09/11. doi: 10.3390/ijerph18179131. PubMed PMID: 34501719; PubMed Central PMCID: PMC8431493.
15. Bundgaard H, Bundgaard JS, Raaschou-Pedersen DET, von Buchwald C, Todsen T, Norsk JB, 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. Epub 2020/11/19. doi: 10.7326/m20-6817. PubMed PMID: 33205991.
16. Wang Y, Tian H, Zhang L, Zhang M, Guo D, Wu W, 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 Global Health. 2020;5(5). Epub 2020/05/30. doi: 10.1136/bmjgh-2020-002794. PubMed PMID: 32467353.
17. Doung-Ngern P, Suphanchaimat R, Panjangampatthana A, Janekrongtham C, Ruampoom D, Daochaeng N, et al. Case-control study of use of personal protective measures and risk for severe acute respiratory Syndrome Coronavirus 2 Infection, Thailand. Emerg Infect Dis. 2020;26(11). Epub 2020/09/16. doi: 10.3201/eid2611.203003. PubMed PMID: 32931726.
18. van den Broek-Altenburg EM, Atherly AJ, Diehl SA, Gleason KM, Hart VC, MacLean CD, et al. Jobs, Housing and mask-wearing: A cross-sectional study of risk factors for COVID-19. JMIR Public Health Surveill. 2020. Epub 2020/12/15. doi: 10.2196/24320. PubMed PMID: 33315576.
19. Piapan L, De Michieli P, Ronchese F, Rui F, Mauro M, Peresson M, et al. COVID-19 outbreak in healthcare workers in Trieste hospitals (North-Eastern Italy). J Hospital Infect. 2020. Epub 2020/08/18. doi: 10.1016/j.jhin.2020.08.012. PubMed PMID: 32805309; PubMed Central PMCID: PMC7427613.
20. Sims MD, Maine GN, Childers KL, Podolsky RH, Voss DR, Berkiw-Scenna N, et al. COVID-19 seropositivity and asymptomatic rates in healthcare workers are associated with job function and masking. Clin Infect Dis. 2020. Epub 2020/11/06. doi: 10.1093/cid/ciaa1684. PubMed PMID: 33150375.
21. Venugopal U, Jilani N, Rabah S, Shariff MA, Jawed M, Mendez Batres A, 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;102:63-9. Epub 2020/10/20. doi: 10.1016/j.ijid.2020.10.036. PubMed PMID: 33075539; PubMed Central PMCID: PMC7566823.
22. Fletcher JJ, Feucht EC, Hahn PY, McGoff TN, Dehart DJ, El Mortada ME, et al. Health care acquired COVID-19 is less symptomatic than community acquired disease among healthcare workers. Infect Control Hosp Epidemiol. 2021:1-28. Epub 2021/04/16. doi: 10.1017/ice.2021.167. PubMed PMID: 33853694.

23. Akinbami LJ, Vuong N, Petersen LR, Sami S, Patel A, Lukacs SL, 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(12). Epub 2020/09/22. doi: 10.3201/eid2612.203764. PubMed PMID: 32956614.
24. Chatterjee P, Anand T, Singh KJ, Rasaily R, Singh R, Das S, 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.
25. Davido B, Gautier S, Riom I, Landowski S, Lawrence C, Thiebaut A, et al. The first wave of COVID-19 in hospital staff members of a tertiary care hospital in the greater Paris area: A surveillance and risk factors study. Int J Infect Dis. 2021;105:172-9. Epub 2021/02/20. doi: 10.1016/j.ijid.2021.02.055. PubMed PMID: 33607301; PubMed Central PMCID: PMC7884916.
26. Heinzerling A, Stuckey MJ, Scheuer T, Xu K, Perkins KM, Resseger H, et al. Transmission of COVID-19 to health care personnel during exposures to a hospitalized patient - Solano County, California, February 2020. MMWR Morb Mortal Wkly Rep. 2020;69(15):472-6. Epub 2020/04/17. doi: 10.15585/mmwr.mm6915e5. PubMed PMID: 32298249.
27. Khalil MM, Alam MM, Arefin MK, Chowdhury MR, Huq MR, Chowdhury JA, et al. Role of personal protective measures in prevention of COVID-19 spread among physicians in Bangladesh: a Multicenter Cross-Sectional Comparative Study. SN Comp Clin Med. 2020:1-7. Epub 2020/09/10. doi: 10.1007/s42399-020-00471-1. PubMed PMID: 32904377; PubMed Central PMCID: PMC7454131.
28. 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.
29. Lau JT, Lau M, Kim JH, Tsui HY, Tsang T, Wong TW. 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.
30. Tuan PA, Horby P, Dinh PN, Mai LT, Zambon M, Shah J, 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.
31. Wu J, Xu F, Zhou W, Feikin DR, Lin C-Y, He X, 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.
32. MacIntyre CR, Cauchemez S, Dwyer DE, Seale H, Cheung P, Browne G, 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.
33. Canini L, Andreoletti L, Ferrari P, D'Angelo R, Blanchon T, Lemaitre M, 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.
34. Cowling BJ, Chan KH, Fang VJ, Cheng CK, Fung RO, Wai W, 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.

35. Cowling BJ, Fung RO, Cheng CK, Fang VJ, Chan KH, Seto WH, 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.
36. Larson EL, Ferng YH, Wong-McLoughlin J, Wang S, Haber M, Morse SS. 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.
37. MacIntyre CR, Zhang Y, Chughtai AA, Seale H, Zhang D, Chu Y, 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.
38. Simmerman JM, Suntarattiwong P, Levy J, Jarman RG, Kaewchana S, Gibbons RV, 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.
39. Suess T, Remschmidt C, Schink SB, Schweiger B, Nitsche A, Schroeder K, 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.
40. Aiello AE, Murray GF, Perez V, Coulborn RM, Davis BM, Uddin M, 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.
41. Aiello AE, Perez V, Coulborn RM, Davis BM, Uddin M, Monto AS. 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.
42. Alfelali M, Haworth EA, Barasheed O, Badahdah AM. 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.
43. Liu W, Tang F, Fang L-Q, De Vlas SJ, Ma H-J, Zhou J-P, 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.
44. Loeb M, McGeer A, Henry B, Ofner M, Rose D, Hlywka T, 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.
45. Ma HJ, Wang HW, Fang LQ, Jiang JF, Wei MT, Liu W, 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 = Zhonghua liuxingbingxue zazhi. 2004;25(9):741-4. Epub 2004/11/24. PubMed PMID: 15555351.

46. Nishiura H, Kuratsuji T, Quy T, Phi NC, Van Ban V, Ha LE, 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.
47. Nishiyama A, Wakasugi N, Kirikae T, Quy T, Ha le D, Ban VV, 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.
48. Pei LY, Gao ZC, Yang Z, Wei DG, Wang SX, Ji JM, et al. [Investigation of the influencing factors on severe acute respiratory syndrome among health care workers]. Beijing da xue xue bao Yi xue ban = Journal of Peking University Health sciences. 2006;38(3):271-5. Epub 2006/06/17. PubMed PMID: 16778970.
49. Raboud J, Shigayeva A, McGeer A, Bontovics E, Chapman M, Gravel D, 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.
50. Seto WH, Tsang D, Yung RW, Ching TY, Ng TK, Ho M, 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.
51. Teleman MD, Boudville IC, Heng BH, Zhu D, Leo YS. 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.
52. Wilder-Smith A, Teleman MD, Heng BH, Earnest A, Ling AE, Leo YS. Asymptomatic SARS coronavirus infection among healthcare workers, Singapore. Emerg Infect Dis. 2005;11(7):1142-5. Epub 2005/07/19. doi: 10.3201/eid1107.041165. PubMed PMID: 16022801; PubMed Central PMCID: PMC3371799.
53. Yin WW, Gao LD, Lin WS, Gao LD, Lin WS, Du L, et al. [Effectiveness of personal protective measures in prevention of nosocomial transmission of severe acute respiratory syndrome]. Zhonghua liu xing bing xue za zhi = Zhonghua liuxingbingxue zazhi. 2004;25(1):18-22. Epub 2004/04/06. PubMed PMID: 15061941.
54. Scales DC, Green K, Chan AK, Poutanen SM, Foster D, Nowak K, 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.
55. Alraddadi BM, Al-Salmi HS, Jacobs-Slifka K, Slayton RB, Estivariz CF, Geller AI, 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.
56. Lau JTF, Fung KS, Wong TW, Kim JH, Wong E, Chung S, 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.
57. Caputo KM, Byrick R, Chapman MG, Orser BJ, Orser BA. 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.

58. Loeb M, Dafoe N, Mahony J, John M, Sarabia A, Glavin V, 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.
59. MacIntyre CR, Wang Q, Cauchemez S, Seale H, Dwyer DE, Yang P, 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.
60. MacIntyre CR, Wang Q, Seale H, Yang P, Shi W, Gao Z, 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.
61. MacIntyre CR, Seale H, Dung TC, Hien NT, Nga PT, Chughtai AA, 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.
62. Radonovich LJ, Jr., Simberkoff MS, Bessesen MT, Brown AC, Cummings DAT, Gaydos CA, 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