

Masks for Prevention of COVID-19 in Community and Healthcare Settings: Surveillance Report



Background

This surveillance report summarizes the search and update for the rapid review and living update on the effectiveness and comparative effectiveness of various types of facemasks in the community and in healthcare workers (HCWs) for prevention of infection with SARS-CoV-2 and the effectiveness and safety of mask reuse.

The original review and surveillance reports focus on direct evidence about SARS-CoV-2 and indirect evidence about SARS-CoV-1 and MERS-CoV from randomized trials, cohort studies, and case-control studies of mask use. They did not include indirect evidence from ecological studies, laboratory studies, modeling studies, and studies on mask policies. To complement the evidence described here, decision makers also may consider these other evidence sources to inform decisions regarding mask use. In addition, they may consider other factors such as patient values and preferences, resources, the balance of benefits and harms, and context.

The American College of Physicians will not be updating its practice pointers on this topic. Given this and the changes in practice and policy, the AHRQ EPC Program will not continue routine surveillance on this report.

This surveillance report documents the yield from an update search based on Surveillance 1 (search end date August 2, 2020).

Table 1. Version and update history

Search End Date	Document Type
May 6, 2020	Report Version 1
June 2, 2020	Report Version 2
July 2, 2020	Surveillance 1
August 2, 2020	Surveillance 2





Surveillance

Searches were updated from July 2 to August 2, 2020. The same search strategies and inclusion criteria were used as the prior surveillance (Surveillance 1). The surveillance search identified 286 citations and identified one additional study for this update (Appendix B). The review protocol has further details: <https://effectivehealthcare.ahrq.gov/products/masks-covid/protocol>.

Table 2. Summary of conclusions and surveillance assessment

Key Question (KQ)	Conclusions From Last Surveillance Version	Surveillance Findings	Assessment
KQ 1. Effectiveness – SARS-CoV-2	Community settings: Insufficient evidence to determine effects of masks on risk of SARS-CoV-2 in community settings.	No new evidence	No change in conclusions
	Healthcare settings: No evidence for any mask use versus no use.	1 new observational study	Insufficient direct evidence to determine the effect of any mask use versus no use on risk of SARS-CoV-2 in healthcare settings (see below for conclusions about other viruses)
	Healthcare settings: Insufficient evidence for N95 respirators versus no mask.	No new evidence	No change in conclusions
	Healthcare settings: Insufficient evidence for more consistent mask use versus less consistent use.	No new evidence	No change in conclusions
KQ 1. Effectiveness – SARS-CoV-1 or MERS-CoV	Community settings: Masks (type not specified) are possibly associated with decreased risk versus no masks.	No new evidence	No change in conclusions
	Healthcare settings: N95 respirators are probably associated with decreased risk versus no use.	No new evidence	No change in conclusions
	Healthcare settings: N95 respirators are possibly associated with decreased risk versus surgical masks.	No new evidence	No change in conclusions
	Healthcare settings: Masks (type not specified) are possibly associated with decreased risk versus no mask.	No new evidence	No change in conclusions
	Healthcare settings: More consistent mask use is possibly associated with decreased risk versus less consistent use.	No new evidence	No change in conclusions
	Healthcare settings: Insufficient evidence for N95 respirators or surgical masks versus no masks.	No new evidence	No change in conclusions

Key Question (KQ)	Conclusions From Last Surveillance Version	Surveillance Findings	Assessment
	Healthcare settings: Insufficient evidence for N95 respirators or surgical masks versus cloth mask.	No new evidence	No change in conclusions
	Healthcare settings: Insufficient evidence for surgical masks versus no mask.	No new evidence	No change in conclusions
	Healthcare settings: Insufficient evidence for cloth masks versus no mask.	No new evidence	No change in conclusions
KQ 1. Effectiveness – influenza, influenzalike illness, and other viral respiratory illness (excluding pandemic coronaviruses)	Community settings: Possibly no difference between an N95 respirator or equivalent versus surgical mask.	No new evidence	No change in conclusions
	Community settings: Possibly no difference between an N95 respirator versus no mask.	No new evidence	No change in conclusions
	Community settings: Probably no difference between surgical mask versus no mask.	No new evidence	No change in conclusions
	Healthcare settings: N95 respirators and surgical masks are probably associated with similar risk in moderate or higher risk settings.	No new evidence	No change in conclusions
	Healthcare settings: Surgical masks are possibly associated with decreased risk versus cloth masks in moderate or higher risk settings.	No new evidence	No change in conclusions
	Healthcare settings: N95 respirators and surgical masks are possibly associated with similar risk in lower risk (outpatient) settings.	No new evidence	No change in conclusions
KQ 1. Harms	Limited evidence of no difference in harms by mask type. <ul style="list-style-type: none"> No serious harms reported with N95 respirators and surgical masks in randomized controlled trials. Discomfort, breathing difficulty, and skin issues common with N95 respirators and masks. 	No new evidence	No change in conclusions
KQ 2. Extended or reuse of N95 respirators	No evidence	No new evidence	No evidence



Evidence Summary

No study in the original review evaluated effects of any mask use versus no use in healthcare settings and risk of SARS-CoV-2 infection. One new observational study¹ on mask use and versus no use risk of SARS-CoV-2 infection in healthcare settings was identified for this surveillance report.

The new study was a case-control study conducted in India of 378 SARS-CoV-2 infected healthcare workers and 373 uninfected healthcare worker controls, using data drawn from a national database registry of healthcare workers undergoing SARS-CoV-2 testing.¹ Physicians (29%) and nurses (44%) comprised the majority of cases; 42% were female. The study found any mask use (mask type not specified) was associated with a significantly lower risk of SARS-CoV-2 infection compared with no mask use (unadjusted OR 0.35, 95% CI 0.22 to 0.57). The study was susceptible to recall bias; in addition, 40% of eligible cases were not included in the study. Given these limitations, the strength of evidence on mask use versus no use in healthcare settings for prevention of SARS-CoV-2 infection was assessed as insufficient.

No new study evaluated the effects of mask use and risk of SARS-CoV-2 infection in community settings or effects of mask use and risk of SARS-CoV-1 infection, MERS-CoV infection, or influenza/influenzalike illness.



References

1. 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 May;151(5):459-67. doi: 10.4103/ijmr.IJMR_2234_20. PMID: 32611916.

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Disclaimers

This report is based on research conducted by the Pacific Northwest Evidence-based Practice Center under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. 290-2015-00009-I). The findings and conclusions in this document are those of the authors, who are responsible for its contents; the findings and conclusions do not necessarily represent the views of AHRQ. Therefore, no statement in this report should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help healthcare decision makers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of health care services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

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Afterword

Recognized for excellence in conducting comprehensive systematic reviews, the Agency for Healthcare Research and Quality (AHRQ) Evidence-based Practice Center (EPC) program is developing a range of rapid evidence products to assist end-users in making specific decisions in a limited timeframe.

The AHRQ EPC Program recognizes that people are struggling with urgent questions on how to control the COVID-19 pandemic. To shorten timelines, reviewers make strategic choices about which review processes to abridge. However, the adaptations made for expediency may limit the certainty and generalizability of the findings from the review, particularly in areas with a large literature base. Transparent reporting of the methods used and the resulting limitations of the evidence synthesis are extremely important.

Given the rapidly evolving field, the AHRQ EPC Program will update these reviews on a regular basis to keep the medical community and public up to date as more studies are published through the summer of 2020. If you have comments or have unpublished data to share related to this report, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov and will be considered in the next version of the report.

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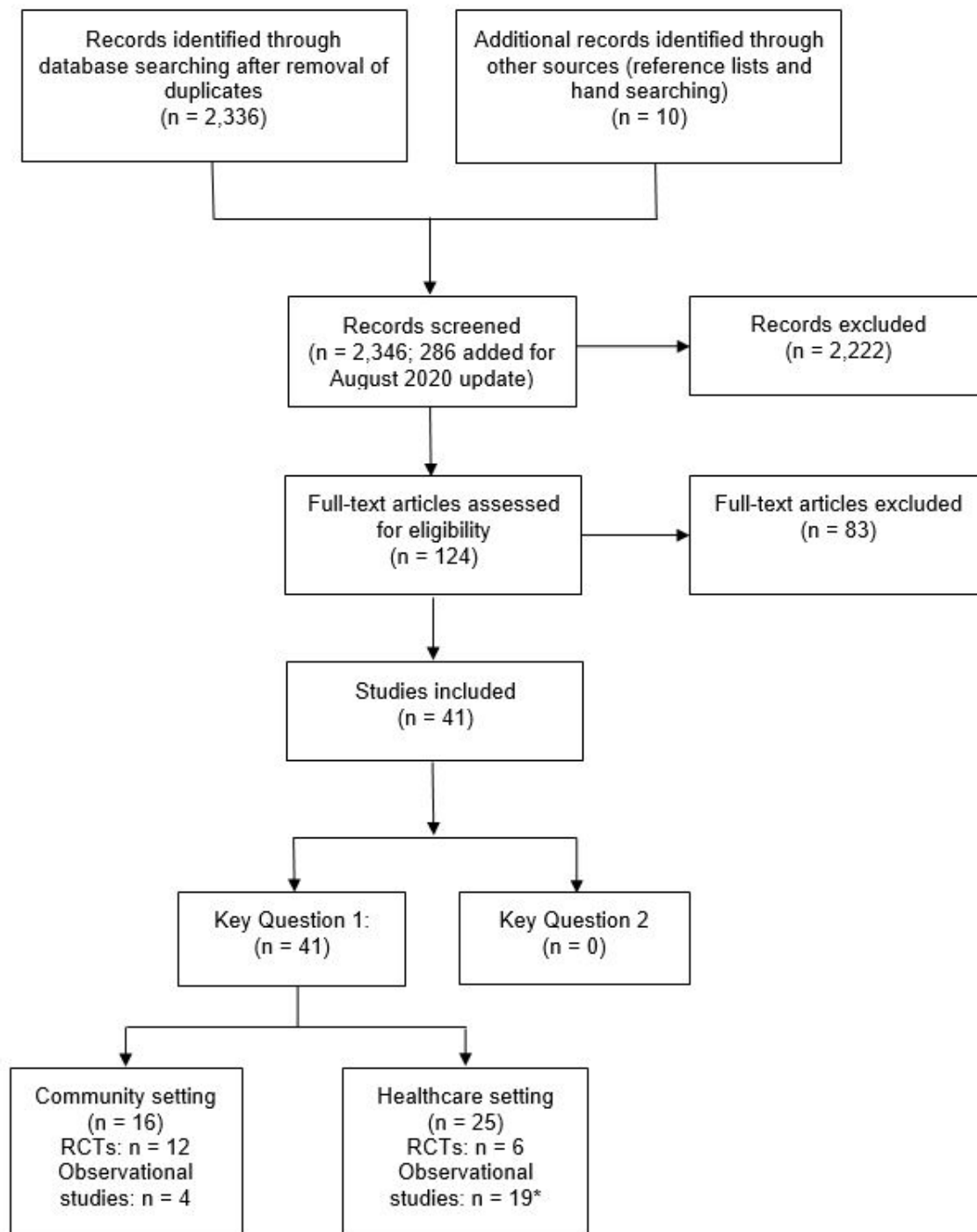
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Appendix A. Evidence Tables

See associated Excel[®] files:

- Table A-1: Randomized controlled trials of mask use
- Table A-2: Observational studies of mask use in community settings
- Table A-3: Observational studies of mask use in healthcare settings: Updated

Appendix B. Literature Flow Diagram



*One new study added