

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 for prevention of infection with SARS-CoV-2 (the cause of coronavirus disease 2019 [COVID-19]) and the effectiveness and safety of mask reuse.

Given this rapidly emerging field and the urgent need for answers, the AHRQ Evidence-based Practice Center program is conducting regular surveillance and updating this report on a regular basis. When studies are identified but do not change the conclusions, findings will be summarized in a surveillance report. When studies lead to a change in conclusions, the report will be updated.

This surveillance report documents the yield from an update search based on Version 2 (search end date July 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



Surveillance

Searches were updated from June 2 to July 2, 2020. The same search strategies and inclusion criteria were used as the original review, except that we dropped the search on the medRxiv preprint server and excluded non-peer-reviewed studies. The surveillance search identified 321 citations and identified one additional study for this update (Appendix B). See the review protocol for further details <https://effectivehealthcare.ahrq.gov/products/masks-covid/protocol>.

Table 2. Summary of conclusions and surveillance assessment

Key Question	Conclusions From Last Report Version	Surveillance Findings	Assessment
KQ 1. Effectiveness – SARS-CoV-2	Community settings: No evidence.	1 new observational study on mask use and risk of SARS-CoV-2 infection	Insufficient evidence to determine effects of masks on risk of SARS-CoV-2 in community settings
	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: Mask use is 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: N95 respirators are possibly associated with decreased risk versus surgical masks.	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 vs. no mask.	No new evidence	No change in conclusions

Key Question	Conclusions From Last Report Version	Surveillance Findings	Assessment
	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.	No new evidence	No change in conclusions
	Healthcare settings: N95 respirators and surgical masks are possible 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 mask use in the community and risk of SARS-CoV-2 infection. One new observational study¹ on mask use and risk of SARS-CoV-2 infection in community settings was identified for this surveillance report.

The new study was a retrospective cohort study of 124 households with an index SARS-CoV-2 case and 355 uninfected household contacts.¹ Households in which masks were used by at least one family member (including the index case) prior to the development of symptoms by the index case were associated with decreased risk of incident infections, after adjusting for other hygiene and infection control practices, physical distance to index case, environmental factors, and presence of diarrhea in the index case (adjusted odds ratio 0.21, 95% confidence interval 0.06 to 0.79). There was no association between mask use after illness onset in the index case and risk of SARS-CoV-2 infections in family members. Masks included N95 respirators, surgical masks, or cloth face coverings, and the study did not conduct analyses by specific mask type. The study was susceptible to recall bias; in addition, the analysis used households (rather than exposed individuals) as the unit of analysis and did not analyze mask use by the index case

(“source control”) separately from mask use by household contacts. The applicability of findings to wearing of masks in public is also uncertain. Therefore, the strength of evidence on masks in community settings for prevention of SARS-CoV-2 infection is insufficient.

No new study evaluated the effects of mask use and risk of SARS-CoV-2 infection in healthcare settings or effects of mask use and risk of SARS-CoV-1 infection, MERS-CoV infection (the cause of Middle East Respiratory Syndrome), or influenza/influenzalike illness.



References

1. 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 May;5(5)doi: 10.1136/bmjgh-2020-002794. PMID: 32467353.

Authors

Roger Chou, M.D., FACP
Tracy Dana, M.L.S.
Rebecca Jungbauer, Dr.P.H.
Chandler Weeks, M.P.H.
Marian S. McDonagh, Pharm.D.

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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.

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The information in this report is intended to help health care 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.

Gopal Khanna, M.B.A
Director
Agency for Healthcare Research and Quality

Arlene S. Bierman, M.D., M.S.
Director
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

Stephanie Chang, M.D., M.P.H.
Director
Evidence-based Practice Center Program
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

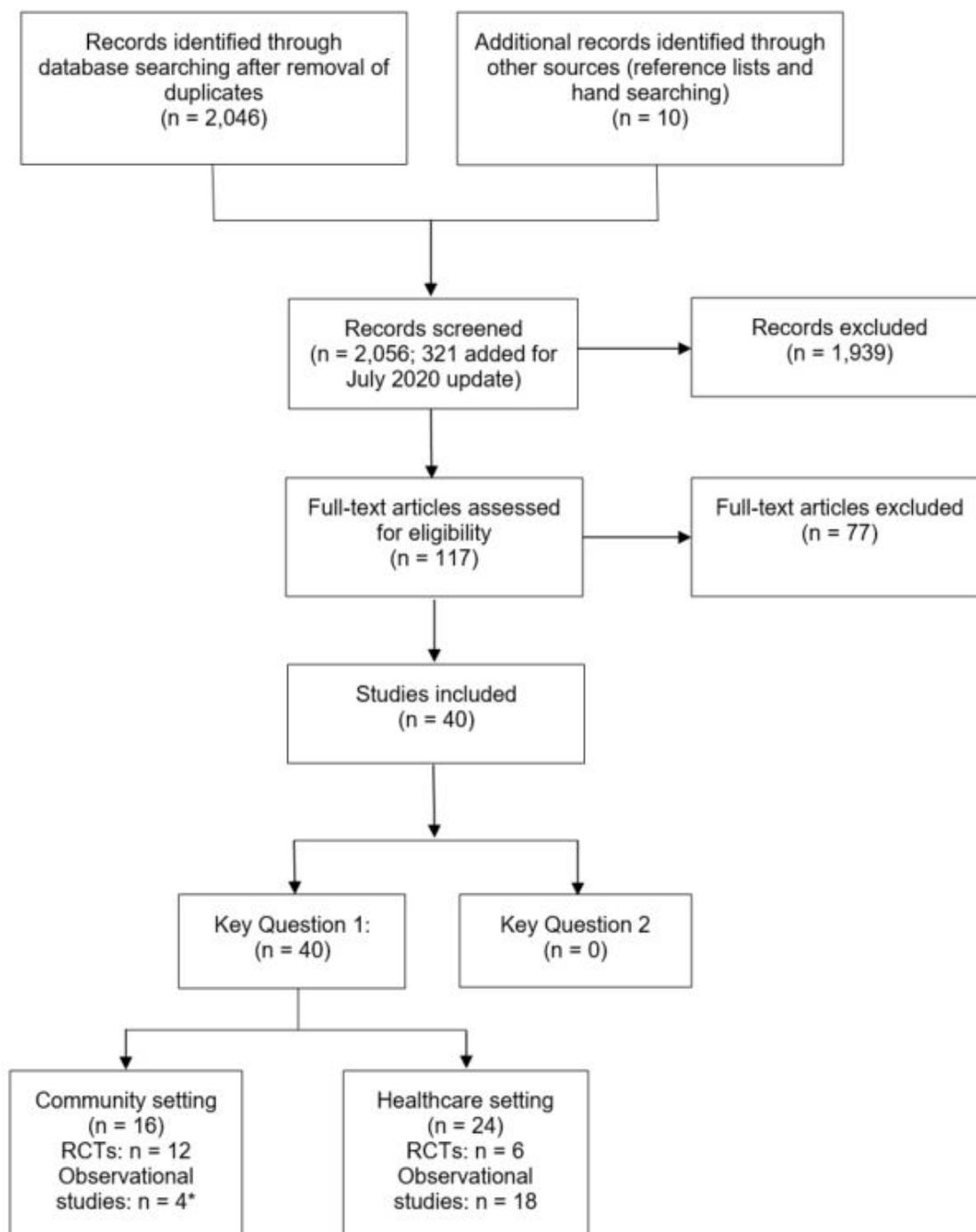
Christine S. Chang, M.D., M.P.H.
Associate Director
Evidence-based Practice Center Program
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

Appendix A. Evidence Tables

See associated Excel[®] files:

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

Appendix B. Literature Flow Diagram



*One new study added