

COVID-19 Rapid Evidence Profile #5 (29 April 2020)

Question

What is known about the use of medical masks by essential non-medical workers (e.g., grocery store and other food outlet workers; transportation employees; supply chain workers supporting essential products; and law enforcement) to prevent community transmission of COVID-19?

What we found

Findings related to the question could be split into two areas: 1) evidence on the wearing of medical masks by non-medical essential workers; and 2) evidence related to the implementation of medical-mask use for non-medical essential workers.

We identified seven documents that provide highly relevant evidence to answer the question, including six guidelines from four groups – Centers for Disease Control and Prevention (U.S.), South African College of Medicines, and World Health Organization (WHO), and a group that published an overview of jurisdictional guidance in *The Lancet* – that were developed using some type of evidence synthesis or expert opinion, as well as one primary study.

Key findings from the six highly relevant guidelines that were developed using some type of evidence synthesis and/or expert opinion include:

- [Employees should wear a face mask at all times while in the workplace for 14 days after being in contact with a COVID-19 case](#) (Centers for Disease Control and Prevention, U.S.)
- [Medical masks should be worn by front-line workers, including police and military](#) (Colleges of Medicines of South Africa)
- [Recommendations for face-mask use among the general public in community settings were inconsistent in a comparison of recommendations from different jurisdictions](#) (*The Lancet*)
- [Medical masks may be worn among professions that have close proximity with other people \(e.g.,](#)

Box 1: Our approach

We identified evidence addressing the question by searching the guide to COVID-19 evidence sources on 27-29 April 2020

(www.mcmasterforum.org/find-evidence/guide-to-covid-19-evidence-sources).

We identified experiences with implementation by searching jurisdiction-specific sources of evidence on the same website. Jurisdictions were chosen for one or more of the following reasons: 1) countries with high infection rates (U.S., Spain, Italy and France); 2) countries that have begun to relax some public-health measures that had been put in place to prevent the spread of COVID-19 (China, South Korea and New Zealand); and/or 3) countries that are typical comparators to Canada, given similarities in demographics and health and social systems (U.S., U.K. and New Zealand).

We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews that have been identified as either being conducted or prioritized to be conducted. Single studies were only included if no relevant systematic reviews were identified.

We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. Note that quality appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems or to broader social systems.

[cashiers, police force\) when asymptomatic cases are thought to be high](#) (World Health Organization)

- [Some staff working in points of entry at airports, ports and ground crossing should be wearing medical masks \(e.g., screeners, interviewers, cleaners\)](#) (World Health Organization)
- [Medical/surgical mask should be made available in workplaces for workers developing respiratory symptoms, including prisons and other places of detention](#) (World Health Organization)

One highly relevant study focused on the effectiveness of medical masks conducted in China found that:

- [Medical masks are not fully protective in hospitals, but are useful for use in community settings, and when medical masks are in shortage, homemade masks made of four-layer kitchen paper and layer of polyester cloth should be helpful](#)

We provide in Table 1 (below) an overview of the type and number of documents that were identified. In addition, we provide in Table 2 a listing of each of the documents (organized by document type and sorted by relevance to the question and COVID-19), with the colour gradient used to reflect high (darkest blue) to low (lightest blue) relevance to the question and to COVID-19. We provide in Appendix 2 a list of documents excluded at the final stage of reviewing.

Canadian and international experiences with recommending medical masks for essential non-medical workers

We summarize experiences related to the use of medical masks by essential non-medical workers from Canada and eight other countries (China, France, Germany, Italy, New Zealand, South Korea, U.K., and U.S.) in Table 3.

We found recommendations from three jurisdictions (China, New Zealand and South Korea) related to the question, while the other jurisdictions continue to recommend that medical masks be used for medical workers exclusively. In China, New Zealand and South Korea, the commonality in guidance appears to be to provide medical masks to essential workers who are working in densely populated workplaces (e.g., transit hubs) or are in frequent contact with many people (e.g., policing).

Table 1: Overview of type and number of documents that were identified

Type of document	Evidence on wearing of medical masks by non-medical essential workers	Evidence related to the implementation of medical mask use for non-medical essential workers
Guidelines developed using a robust process (e.g., GRADE)	0	0
Full systematic reviews	3	1
Rapid reviews	0	0
Guidelines developed using some type of evidence synthesis and/or expert opinion	5	3
Protocols for reviews that are underway	2	1
Titles/questions for reviews that are being planned	3	1
Single studies in areas where no reviews were identified	1	0

Table 2: Documents that address the question, organized by document type and sorted by relevance to the question and COVID-19

Type of document	Relevance to question	Focus	Recency or status
Guidelines developed using a robust process (e.g., GRADE)		No guidelines developed using robust processes were found	
Full systematic reviews	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Masks can reduce the risk of infection among non-healthcare workers	Literature last searched March 2020
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Evidence is inconclusive about use of surgical masks in community settings	Literature last searched 1 April 2020
	<ul style="list-style-type: none"> Evidence related to the implementation of medical masks for non-medical essential workers 	Few studies on education and training show no considerable effect on the frequency or correct use of respiratory protective equipment in workers	Literature last searched 16 August 2016
	<ul style="list-style-type: none"> Evidence related to the implementation of medical-mask use 	Cost-effectiveness of physical barriers to reduce spread of respiratory viruses	Literature last searched 19 September 2011

Type of document	Relevance to question	Focus	Recency or status
	for non-medical essential workers		
Rapid reviews		No rapid reviews were found	
Guidelines developed using some type of evidence synthesis and/or expert opinion	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Medical masks may be worn among professions that have close proximity with other people (e.g., cashiers, police force) when asymptomatic cases are thought to be high (WHO technical guidance)	Last updated 8 April 2020
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Some staff working in points of entry at airports, ports and ground crossing should be wearing medical masks (e.g., screeners, interviewers, cleaners) (WHO technical guidance)	Last updated 6 April 2020
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Medical/surgical mask should be made available in workplaces for workers developing respiratory symptoms, including prisons and other places of detention (WHO technical guidance)	Last updated March 2020
	<ul style="list-style-type: none"> Evidence related to the implementation of medical masks for non-medical essential workers 	Recommendations for face-mask use among the general public in community settings were inconsistent in a comparison of recommendations from different jurisdictions (Overview of guidance from multiple jurisdictions)	Last updated 20 March 2020
	<ul style="list-style-type: none"> Evidence on wearing of medical masks by non-medical essential workers 	Employees should wear a face mask at all times while in the workplace for 14 days after being in contact with a COVID-19 case (U.S. CDC)	Last updated 20 April 2020
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Medical masks should be worn by front-line workers including police and military (Colleges of Medicines of South Africa)	Last updated 31 March 2020
	<ul style="list-style-type: none"> Evidence on implementation of medical-mask use for non-medical essential workers 	Medical masks should be reserved for healthcare workers (WHO technical guidance)	Last updated 6 April 2020
	<ul style="list-style-type: none"> Evidence on implementation of 	An ethics prioritization guidance on the use of personal protective	Last updated 25 March 2020

Type of document	Relevance to question	Focus	Recency or status
	medical-mask use for non-medical essential workers	equipment under critical shortages (Ontario Health Bioethics Table)	
Protocols for reviews that are underway	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Evidence of effectiveness of physical interventions, including masks, to reduce the transmission of COVID-19	Anticipated completion 30 June 2020
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Effect of medical masks, respirators and cotton masks to prevent respiratory infections in healthcare and household settings	Anticipated completion date 29 April 2020
Titles/questions for reviews that are being planned	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers Evidence on implementation of medical-mask use for non-medical essential workers 	Effectiveness and unintended consequences of face masks to prevent community transmission, including commercial site settings (Rapid review)	Underway
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Review of guidelines: infection control practices to use in non-healthcare settings relevant to primary care (Rapid review)	Underway
	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Infection control practices in non-healthcare settings relevant to primary care	Question under review
Single studies in areas where no reviews were identified	<ul style="list-style-type: none"> Evidence on the wearing of medical masks by non-medical essential workers 	Medical masks are not fully protective in hospitals, but are useful for use in community settings, and when medical masks are in shortage, homemade masks made of four-layer kitchen paper and layer of polyester cloth should be helpful	Published 31 March 2020

Table 3. Jurisdictional scan on the use of medical masks by essential non-medical workers

Jurisdiction	Statement on whether everyone should wear cloth masks
Canada	<ul style="list-style-type: none"> • Medical masks including surgical, medical procedure masks, and N95 masks are currently being recommended for medical workers
China	<ul style="list-style-type: none"> • Wearing of medical or surgical masks is being recommended for those working in transportation hubs (e.g., train stations, airports, subway stations), supermarkets, restaurants, community policing, prisons, nursing homes, welfare homes, mental health facilities, school classrooms and construction site housing • Those working in high-risk areas, where it is not possible to keep two metres of distance are required to wear a mask that conforms to KN94/N95 and above without an exhalation valve
France	<ul style="list-style-type: none"> • Wearing of medical masks is to be extended to include ambulance drivers, pharmaceutical assistants, radiology technicians, and domestic supports in health facilities • Recommendations on the use of medical masks beyond medical workers has varied based on availability of national supply of personal protective equipment
Germany	<ul style="list-style-type: none"> • All federal states have imposed a duty to wear masks in public transport and in shops, however additional information on the type of masks that are required for employees was not found
Italy	<ul style="list-style-type: none"> • No recommendations were found for the use of medical masks by non-medical essential workers
New Zealand	<ul style="list-style-type: none"> • Medical masks and gloves are recommended for people who are unable to maintain more than one metre contact distance from people with potential COVID-19 symptoms, including, but not limited to, police, prison staff and customs staff
South Korea	<ul style="list-style-type: none"> • Medical masks similar to a KF94 or N95 model are recommended for anyone in public or dense locations, including workers
United Kingdom	<ul style="list-style-type: none"> • Medical masks are currently only recommended to be worn by medical workers
United States	<ul style="list-style-type: none"> • Medical masks are currently only recommended to be worn by medical workers

Waddell K, Gauvin FP, Wilson MG, Moat KA, Mansilla C, Wang Q, Lavis JN. COVID-19 rapid evidence profile #5: What is known about the use of medical masks by essential non-medical workers to prevent community transmission of COVID-19? Hamilton: McMaster Health Forum, 29 April 2020.

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Appendix 1. Abstracts for highly relevant documents

Note that the table below only includes the abstracts for the documents that we identified on page 1 as being highly relevant to the question.

Type of document	Relevance to question	Abstract and link to full text
Primary study	Evidence on the wearing of medical masks by non-medical essential	<p>Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2</p> <p>The surge of patients in the pandemic of COVID-19 caused by the novel coronavirus SARS-CoV-2 may overwhelm the medical systems of many countries. Mask-wearing and handwashing can slow the spread of the virus, but currently, masks are in shortage in many countries, and timely handwashing is often impossible. In this study, the efficacy of three types of masks and instant hand wiping was evaluated using the avian influenza virus to mock the coronavirus. Virus quantification was performed using real-time reverse transcription-polymerase chain reaction. Previous studies on mask-wearing were reviewed. The results showed that instant hand wiping using a wet towel soaked in water containing 1.00% soap powder, 0.05% active chlorine, or 0.25% active chlorine from sodium hypochlorite removed 98.36%, 96.62%, and 99.98% of the virus from hands, respectively. N95 masks, medical masks, and homemade masks made of four-layer kitchen paper and one-layer cloth could block 99.98%, 97.14%, and 95.15% of the virus in aerosols. Medical mask-wearing which was supported by many studies was opposed by other studies possibly due to erroneous judgment. With these data, we propose the approach of mask-wearing plus instant hand hygiene (MIH) to slow the exponential spread of the virus. This MIH approach has been supported by the experiences of seven countries in fighting COVID-19. Collectively, a simple approach to slow the exponential spread of SARS-CoV-2 was proposed with the support of experiments, literature review and control experiences.</p>

Appendix 2: Documents excluded at the final stages of reviewing

Type of document	Focus
Rapid reviews	<ul style="list-style-type: none">• Effectiveness of physical distancing with or without masks and with or without eye protection to prevent COVID-19 transmission between confirmed cases and other people• Effectiveness of wearing masks for the prevention of respiratory infectious diseases
Protocols for reviews that are underway	<ul style="list-style-type: none">• Comparing effectiveness of different respiratory personal protective equipment for contact with respiratory infectious patients