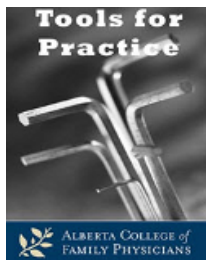


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COVID-19 Rapid Reviews

Along with regular Tools for Practice, the PEER team will be writing rapid reviews to address COVID-19 topics relevant for primary care. The evidence is changing rapidly and it is possible that as you read this, new evidence will already be available. We will try our best to stay in front and keep you up-to-date during these challenging times.



Unmasking the evidence around masks for healthcare workers

Clinical Question: Is there a difference between mask types in preventing viral respiratory infections for healthcare workers?

Bottom Line: In healthcare workers;

- **Surgical masks and respirators (N95) appear to provide similar protection against viral infections, with N95 masks having slightly lower, but not statistically different, infection rates in the wearer (~1-2%).**
- **Cloth masks are less effective than surgical masks (with ~2% more respiratory infections in 4 weeks).**
- **No randomized controlled trials examined transmission from healthcare workers to others and none examined COVID-19.**
- **Masks are just one-part of Personal Protective Equipment and transmission precautions.**

Evidence:

- N95 masks (also called respirators) compared to surgical masks (also called medical) in preventing a wide range of viral respiratory tract infections: 4 systematic reviews with 3-6 Randomized Controlled Trials (RCTs) and 3016-9171 patients (95-100% healthcare workers). Most RCTs 5 weeks, largest 12 weeks.¹⁻⁴
 - Largest Meta-Analysis:¹

Healthcare worker condition	N95 Masks	Surgical Masks	Statistical Difference
Confirmed Influenza	5.9%	6.3%	No
Confirmed Viral Respiratory Tract Infection	5.7%	8.3%	No
Influenza-like Illness	3.4%	5.0%	No

- Other Systematic Reviews found similar.²⁻⁴
 - One RCT (1441 healthcare workers) examined fit-tested N95 versus nonfit-tested N95: No difference.⁵
- Issues: Multiple outcomes, not Covid-19, overall low risk of infection, intervention only used during working hours, did not examine healthcare workers transfer to patients, other staff or family.
- Cloth masks versus surgical masks: One RCT in 1607 healthcare workers in Vietnam for 4 weeks.⁶ Viral infections in the wearer:
 - Clinical Respiratory Infections: 7.6% cloth versus 4.8% surgical masks (borderline statistically different).
 - Influenza-like Illness: 2.3% cloth versus 0.2% surgical masks (statistically different).
 - Laboratory confirmed viral infection: 5.5% cloth versus 3.3% surgical mask (not statistically different).
- Experimental studies:
 - In general, when blocking particles/droplets/microorganisms, N95 are slightly better than surgical masks which are better than cloth masks (which get better with thicker cloth/layers).^{4,7,8}

Context:

- Masks, compared to no masks, do help prevent infections (example ~3.5% reduction in clinical respiratory infections in RCTs).^{3,9}
- Wearing a mask might prevent infected healthcare workers, including asymptomatic individuals, from transmitting the disease to others.
- Masks should not be considered as an isolated intervention and should always be used with other measures such as hand hygiene and depending on interaction and patients seen, eye protection, face shields and gowns.
- Public use of masks will be reviewed in an upcoming Tools for Practice.

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Disclosures:

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References:

1. Long Y, Hu T, Liu L, *et al.* J Evid Based Med. 2020 Mar 13. doi: 10.1111/jebm.12381.
2. Bartoszko JJ, Farooqi MAM, Alhazzani W, *et al.* Influenza Other Respir Viruses. 2020 Apr 4. doi: 10.1111/irv.12745.
3. Offeddu V, Yung CF, Low MSF, *et al.* Clin Infect Dis. 2017 Nov 13; 65:1934-42.
4. Smith JD, MacDougall CC, Johnstone J, *et al.* CMAJ. 2016; 188:567-74.
5. MacIntyre CR, Wang Q, Cauchemez S, *et al.* Influenza Other Respir Viruses. 2011 May; 5(3):170-9.

6. MacIntyre CR, Seale H, Dung TC, *et al.* BMJ Open. 2015; 5: e006577. doi:10.1136/bmjopen-2014-006577
7. Ma QX, Shan H, Zhang HL, *et al.* J Med Virol. 2020 Mar 31. doi: 10.1002/jmv.25805.
8. Davies A, Thompson K, Giri K, *et al.* Disaster Med Public Health Preparedness. 2013; 7: 413-418.
9. Bin-Reza F, Lopez Chavarrias V, Nicoll A, *et al.* Influenza Other Respir Viruses. 2012; 6: 257-67.

Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at <http://bit.ly/signupfortfps>. Archived articles are available on the ACFP website.

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