

Overview of Mask Use in Healthcare Settings and Recommendations

AND

Use of Rapid Antigen Tests

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CDC Recommendations for Masks Use in Nursing Homes for Prevention

- Everyone in the facility should practice [source control](#).
- Patients and visitors wear cloth face covering (if tolerated). If they do not have a face covering, they should be offered a facemask or cloth face covering, as supplies allow.
 - Patients may remove their cloth face covering when in their rooms, but should put it on when around others (e.g., when visitors enter their room) or leaving their room.
 - Not for young children under age 2, anyone who has trouble breathing, or anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- HCP should wear a facemask at all times while they are in the healthcare facility, **including in breakrooms or other spaces where they might encounter co-workers**.
 - Facemasks are preferred over cloth face coverings for HCP
 - Cloth face coverings should NOT be worn instead of N95 or facemask if needed.
- To reduce the number of times HCP must touch their face and potential risk for self-contamination, HCP should consider continuing to wear the same N95 or facemask ([extended use](#)) throughout their entire work shift.
- Respirators with an exhalation valve are not recommended.
- HCP should remove their respirator or facemask, perform hand hygiene, and put on their cloth face covering when leaving the facility at the end of their shift.
- Educate patients, visitors, and HCP about the importance of performing hand hygiene immediately before and after any contact with their facemask or cloth face covering.

Evidence for Benefits of Mask Use

- Evidence comes from
 - Studies of SARS, MERS, influenza and SARS-CoV-2 (COVID)
 - Randomized trials, outbreak investigations, experimental studies
- Meta-analysis by Liang, et al estimated that medical masks could reduce viral infections by 80% in healthcare settings and 47% in the community.
 - Studies from Asia show greater benefit from medical masks likely due to greater consistency in use.
- Meta-analysis by Chu, et al estimated a possible 85% reduction in transmission with the use of any N95, medical mask, or 12 to 16-layer cotton mask in combined healthcare and non-healthcare settings
 - Lower impact in community settings due to lower compliance
- With consistent use, mask/facial covering use in the community can also be highly effective in preventing COVID-19 prevention (e.g. Hendrix, et al)

Liang M, et al. Travel Med Infect Dis 2020;e101751.

Chu DK, et al. Lancet 2020;395:1973-87.

Hendrix MJ, et al. MMWR 2020;

Iannone P, et al. The need of health policy perspective to protect Healthcare Workers during COVID-19 pandemic. A GRADE rapid review on the N95 respirators effectiveness. PLoS One. 2020 Jun 3;15(6):e0234025. doi: 10.1371/journal.pone.0234025.

Outcomes*	No of participants* (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects**	
				Risk with surgical masks Adjusted	Risk difference with N95 respirators
Clinical respiratory illness	1420 (2 RCTs)	⊕⊕ LOW abs	RR 0.43 (0.29 to 0.64)	128 per 1.000	73 fewer per 1.000 (91 fewer to 46 fewer)
Influenza like illness	3937 (4 RCTs)	⊕ VERY LOW ^{abs}	RR 0.72 (0.38 to 1.37)	42 per 1.000	12 fewer per 1.000 (26 fewer to 16 more)
Laboratory-confirmed respiratory viral infections	1866 (3 RCTs)	⊕ VERY LOW ^{abs}	RR 0.84 (0.52 to 1.34)	46 per 1.000	7 fewer per 1.000 (22 fewer to 16 more)
Laboratory-confirmed bacterial colonization	1420 (2 RCTs)	⊕ VERY LOW ^{abs}	RR 0.41 (0.28 to 0.61)	145 per 1.000	86 fewer per 1.000 (104 fewer to 57 fewer)
Laboratory-confirmed respiratory infection	2792 (2 RCTs)	⊕ VERY LOW ^{abs}	RR 0.73 (0.40 to 1.33)	142 per 1.000	38 fewer per 1.000 (85 fewer to 47 more)
Laboratory-confirmed influenza	3937 (4 RCTs)	⊕ VERY LOW ^{abs}	RR 1.07 (0.83 to 1.39)	69 per 1.000	5 more per 1.000 (12 fewer to 27 more)

Bottom line – benefit of N95 > mask found only for clinical respiratory illness and lab-confirmed bacterial colonization. No RCTs of N95 vs mask for COVID-19.

Examples of Transmission in Healthcare Settings

- Bays, et al. Two cases of community acquired COVID in CA
 - Admitted February & March 2020 – initially not suspected of COVID
 - Among 421 health care workers exposed in total, 8 secondary infections in health care workers.
 - All 8 cases had close contact without sufficient PPE during AGPs
 - Despite multiple aerosol generating procedures, no evidence of airborne transmission, e.g. no other patients even on oncology ward infected
- Wang, et al. J Hosp Infect 2020
 - 0 of 278 HC using N95 got COVID 19 vs 10 of 215 during early days of Wuhan outbreak

Examples of Transmission in Healthcare Settings

- Swiss Med Wkly. 2020 Apr 25;150:w20257. doi: 10.4414/smw.2020.20257.
 - 21 HCP without PPE exposed to COVID patient – none infected based on PCR testing
 - Spouse of patient COVID + 2 days after exposure
- Wong SCY, et al. J Hosp Infect 2020
 - 10 patients exposed on open ward and 7 staff with close contact COVID+ patient
 - All patients and staff PCR negative.
 - Most staff wore N95, one wore surgical mask. Some patients wore surgical masks, only 3 wore mask consistently
- Guo ZD, et al. Emerg Infect Dis July 2020
 - Found PCR positive samples in air, air outlet duct, all over floor, rails, door knobs
 - Virus was not cultured (viability?)
 - No HCP have gotten infected – no unprotected exposures – all wore masks or N95s

Hendrix MJ, et al. MMWR Weekly 2020;69:930-32.

- Cotton facial coverings or masks required in Missouri county.
- Hair stylist (A) developed COVID-19 and infected coworker (B) with whom she took non-mask wearing breaks with between clients.
- A and B stylists wore masks while working with clients, also masked.
- Worked combined 13 person-days with 139 clients while infectious
 - Contributor was delay in test results
- No clients or other stylists developed COVID-19 or COVID-19 symptoms.
- 4 of 4 household contacts of stylist A got COVID-19 infection.
- Thus, someone very infectious to others without a mask, did not cause illness in contacts where masks were worn.



PPE for HCP when caring for a patient with suspected or confirmed COVID-19

COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel

Preferred PPE – Use N95 or Higher Respirator



Acceptable Alternative PPE – Use Facemask

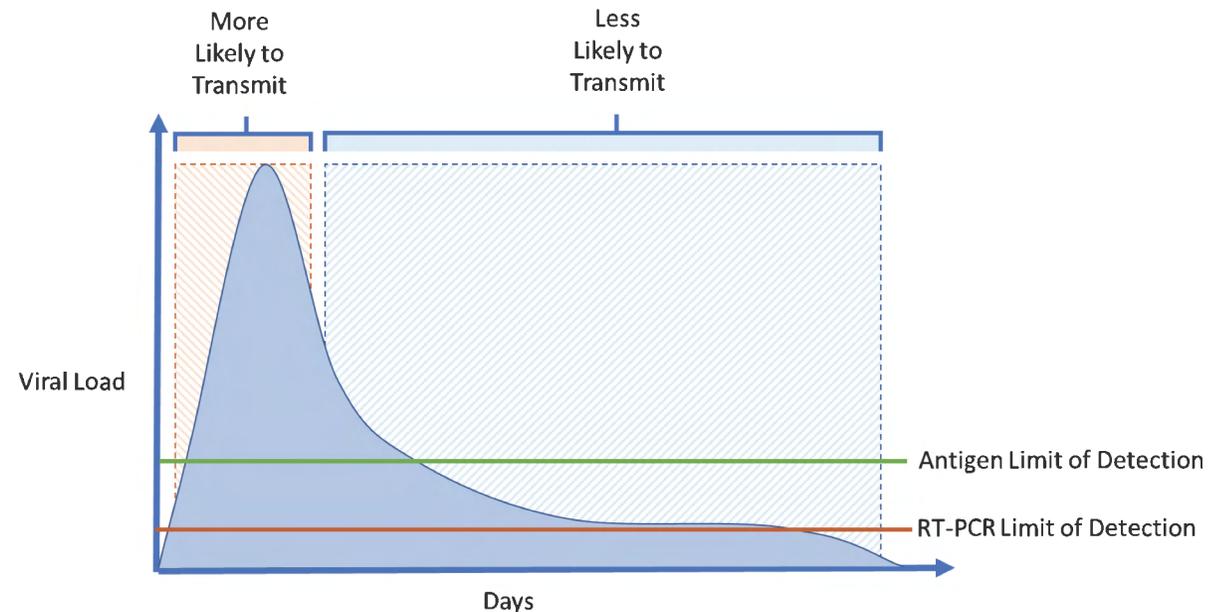


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[cdc.gov/COVID19](https://www.cdc.gov/COVID19)

Idaho Guidance for Use of Rapid Antigen Tests (RAT)

- HHS is distributing Becton-Dickinson and Quidel RAT to NH in U.S.
- Both tests detect the SARS-CoV-2 nucleocapsid protein/antigen
- Benefits – <30 min. for results, CLIA-waived labs, specific (99%)
- Downsides – less sensitive than PCR
- Viral shedding highest early on
 - RAT less likely to identify true positives later in course of illness
 - Less likely for asymptomatic cases
- Positives highly likely true positives
 - Especially during community spread
- Negatives should be followed with PCR if high clinical suspicion.



Idaho Guidance for Use of Rapid Antigen Tests (RAT)

- RAT best used for
 - Persons in first 5 days of symptoms
 - Settings where multiple people have COVID-19-like symptoms and where rapid turn around would benefit clinical and infection control decision-making (e.g. LTCF, correctional facilities)
- PCR preferred for
 - Asymptomatic persons
 - >5 days after symptom onset
 - Hospitalized or more severe illness
 - Where clinical care decision making provides highest sensitivity
- Follow-up RAT negative tests with PCR if high clinical suspicion
- PCR confirmation NOT needed for RAT positive samples
- All tests (positive and negative) should be reported to public health

References on Rapid Antigen Testing

- **Frequently Asked Questions: COVID-19 Testing at Skilled Nursing Facilities/ Nursing Homes.**
<https://www.cms.gov/files/document/covid-faqs-snf-testing.pdf>.
- Idaho Interim Guidance on Use of Rapid Antigen Tests for COVID-19 <https://coronavirus.idaho.gov/wp-content/uploads/2020/08/Rapid-Antigen-Test-Recomendations-FINAL.pdf>.
- APHL. American Public Health Laboratories. Considerations for Implementation of SARS-CoV-2 Rapid Antigen Testing. Version 2, July 6, 2020. www.aphl.org
- CDC. Rapid influenza diagnostic tests. <https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antigen-tests-guidelines.html>. August 16, 2020
- CDC. CDC Decision Memo Regarding Duration of Isolation and Precautions for Adults with COVID-19. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>.
- Kawasuji H, et al. Viral load dynamics in transmissible symptomatic patients with COVID-19. medRxiv preprint at doi.org/10.1101/2020.06.02.20120014.
- FDA. FDA Emergency Use Authorizations. www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covidinvitrodev.