COVID-19 should change how hospitals reduce respiratory virus risk

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A review of COVID-19 transmission prevention studies found that many health care facility infection control policies are based on outdated models of how respiratory viruses are transmitted. Based on current best understanding of transmission, infection prevention methods should be revised. A narrative review including potential policy revisions is published in *Annals of Internal Medicine*.

Traditional teaching suggests that most respiratory viruses are spread through droplets. These are larger particles that are heavy enough that they will rapidly fall to the ground within one to two meters of an infected person. Public health agencies have traditionally advised healthcare workers to wear surgical masks to protect themselves from droplet organisms. The one exception has been for patients undergoing so-called, "aerosol-generating procedures" in which case higher levels of respiratory protection, such as N95 respirators, are recommended.

Researchers from Harvard Medical School, Harvard Pilgrim Healthcare Institute, and the University of Maryland reviewed published studies looking at SARS-CoV-2 transmission and infection control policies. They found that the traditional model of how respiratory viruses are spread may be incorrect. Most studies now suggest that respiratory viruses are primarily transmitted by aerosols. These are smaller respiratory particles that can remain suspended in the air for long periods of time, can travel beyond 2 meters from the source patient and, most importantly, can bypass surgical masks. People routinely generate aerosols whenever they exhale, particularly when speaking loudly, breathing heavily, or coughing. Most so-called "aerosol generating procedures" by contrast do not meaningfully increase aerosol generation relative to talking and heavy breathing.

These insights suggest that researchers and public health specialists should reexamine recommended transmission prevention methods. The authors suggest a uniform set of respiratory precautions for all

respiratory pathogens and high-risk interactions rather than differentiating between different kinds of viruses and procedures. The authors recommend the creation of graded, risk-based approaches to prevent transmission in healthcare facilities that take into consideration the amount of disease in the community, patient factors, and care factors that better predict transmission risk.

More information: Michael Klompas et al, Current Insights Into Respiratory Virus Transmission and Potential Implications for Infection Control Programs, *Annals of Internal Medicine* (2021). DOI: 10.7326/M21-2780

Tara N. Palmore et al, Preventing Transmission of Respiratory Viruses in the Health Care Setting, *Annals of Internal Medicine* (2021). DOI: 10.7326/M21-4026

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