

APPLICATION NOTE

WHITE PAPER

IT IS TIME TO ADDRESS AIRBORNE TRANSMISSION OF CORONAVIRUS DISEASE 2019 (COVID-19)

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Clinical Infectious Diseases, Volume 71, Issue 9, 1 November 2020, Pages 2311–2313, <https://doi.org/10.1093/cid/ciaa939>

We appeal to the medical community and to the relevant national and international bodies to recognize the potential for airborne spread of coronavirus disease 2019 (COVID-19). There is significant potential for inhalation exposure to viruses in microscopic respiratory droplets (microdroplets) at short to medium distances (up to several meters, or room scale), and we are advocating for the use of preventive measures to mitigate this route of airborne transmission.

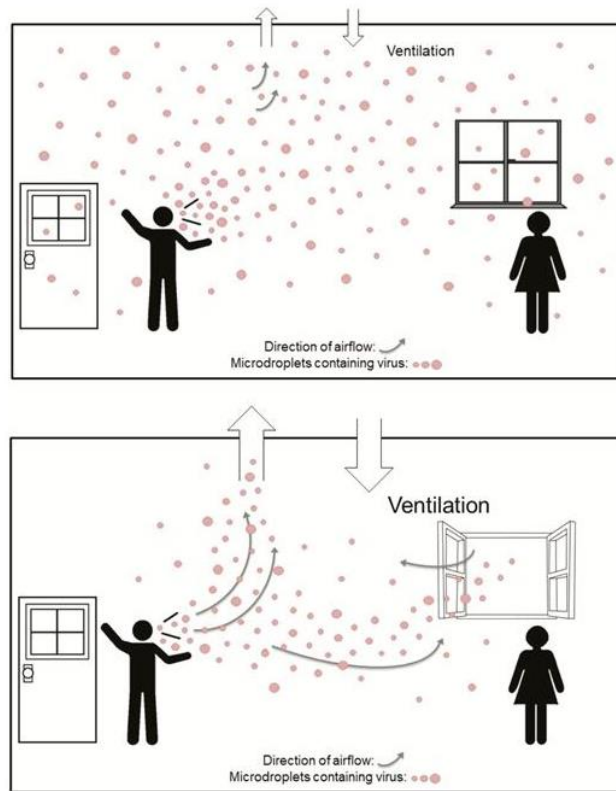
Studies by the signatories and other scientists have demonstrated beyond any reasonable doubt that viruses are released during exhalation, talking, and coughing in microdroplets small enough to remain aloft in air and pose a risk of exposure at distances beyond 1–2 m from an infected individual ([1–4]).

The current guidance from numerous international and national bodies focuses on hand washing, maintaining social distancing, and droplet precautions. Most public health organizations, including the World Health Organization (WHO) [16], do not recognize airborne transmission except for aerosol-generating procedures performed in healthcare settings. Hand washing and social distancing are appropriate but, in our view, insufficient to provide protection from virus-carrying respiratory microdroplets released into the air by infected people. This problem is especially acute in indoor or enclosed environments, particularly those that are crowded and have inadequate ventilation [17] relative to the number of occupants and extended exposure periods (as graphically depicted in Figure 1). For example, airborne transmission appears to be the only plausible explanation for several superspreading events investigated that occurred under such conditions [10], and others where recommended precautions related to direct droplet transmissions were followed.

Distribution of respiratory microdroplets in an indoor environment with (A) inadequate ventilation and (B) adequate ventilation.

The measures that should be taken to mitigate airborne transmission risk include:

Figure 1.



- Provide sufficient and effective ventilation (supply clean outdoor air, minimize recirculating air) particularly in public buildings, workplace environments, schools, hospitals, and aged care homes.
- Supplement general ventilation with airborne infection controls such as local exhaust, high efficiency air filtration, and germicidal ultraviolet lights.
- Avoid overcrowding, particularly in public transport and public buildings.

The following scientists contributed to formulating this commentary. Linsey C. Marr, William Bahnfleth, Jose-Luis Jimenez, Yuguo Li, William W. Nazaroff, Catherine Noakes, Chandra Sekhar, Julian Wei-Tze Tang, Raymond Tellier, Philomena M. Bluysen, Atze Boerstra, Giorgio Buonanno, Junji Cao, Stephanie J. Dancer, Francesco Franchimon, Charles Haworth, Jaap Hogeling, Christina Isaxon, Jarek Kurnitski, Marcel Loomans, Guy B. Marks, Livio Mazzarella, Arsen Krikor Melikov, Shelly Miller, Peter V. Nielsen, Jordan Peccia, Xavier Querol, Olli Seppänen, Shin-ichi Tanabe, Kwok Wai Tham, Pawel Wargocki, Aneta Wierzbicka, Maosheng Yao.

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