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Letter to the Editor

## Transmission of SARS-CoV-2 through the air




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Dear Editor,

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) causes a respiratory illness called COVID-19 (Corona Virus Disease-19).<sup>1</sup> The symptoms of COVID-19 are sore throat, cough, fever, chills, difficulty in breathing, repeated rigors with chills, muscle pain, headache, and loss of taste or smell. The coronavirus remains active on the surface in the range of hours to days depending on the type of surface. The mode of the spread of SARS-CoV-2 is minute droplets called aerosols that get released into the air while sneezing, coughing, and contact with surfaces containing active infectious coronavirus.<sup>2,3</sup> The bio-aerosol particles generated have a diameter in the range of 0.3  $\mu\text{m}$ –100  $\mu\text{m}$ . The smaller particles 1.0  $\mu\text{m}$ –5.0  $\mu\text{m}$  remain suspended in the air and the larger particles tend to settle down on the nearby surfaces.<sup>4</sup>

There is very limited data available on the transmission of COVID-19 through the air. The researchers have found that aerosol-generating procedures (AGPs), stools, conjunctival secretions except for sweat from the infected individuals increase the risk of the spread of COVID-19.<sup>3</sup> The World Health Organization (WHO)<sup>5</sup> says that there could be chances of respiratory infection if the diameter of the droplet particles is  $>5$ – $10$   $\mu\text{m}$  which are called respiratory droplets. If the diameter  $<5$   $\mu\text{m}$  they are called droplet nuclei.<sup>5</sup> It has been defined by WHO that airborne transmission can occur if the droplet nuclei suspend in the air for longer periods of time and distance.<sup>6</sup> The virus can remain active in the air for 3 hours and it can be said that COVID-19 might transmit through the air.<sup>7</sup> The maximum distance of transmission for SARS-CoV-2 could be 4 m in the hospital settings.<sup>8</sup> However, in some other studies, the maximum distance travelled has also been observed to be 8 m.<sup>9,10</sup> In support of it, WHO states that airborne transmission of COVID-19 might be possible if there are procedures involved in generating aerosols in the clinical settings.<sup>5</sup> There has been a study conducted in which a person tested positive for infection who used to cross the door of the confirmed patient with doors opened with some garbage near the door, while going up and down the building.<sup>11</sup> The four clinical laboratory technicians who had no direct contact with the confirmed patients were found to be positive with COVID-19.<sup>12</sup> In a study conducted in Wuhan, it has

been proved that SARS-CoV-2 can exist as aerosols and the transmission can't be negligible.<sup>13</sup>

To conclude, it can be said that there is a possibility that SARS-CoV can transmit through the air, which needs to be verified by experiments under different experimental settings to figure out the conditions which increase the potential of airborne transmission. If there is a possibility of airborne transmission of COVID-19, then maintaining a 6ft (~1.8 m) social distance may not be sufficient to mitigate the infection. Therefore, increasing the distance and improving the ventilation may prevent the spread of the infectious virus.<sup>14</sup>

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### Declaration of competing interest

The author declares no conflict of interest.

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