



Air Purifiers Could Substantially Reduce the Risk of Airborne SARS-CoV-2 Transmission

Research overview

Virus-containing aerosol droplets are one key route of transmission for the novel coronavirus disease, particularly in closed spaces.

In this study, researchers explored the possibility of using mobile air purifiers to reduce the risk of infection through airborne particles. They placed four air purifiers with high-efficiency particulate air (HEPA) filters in a closed classroom during class and measured the aerosol particle size distribution and concentration in the classroom. They compared their findings with those from a similar classroom with no air purifiers.

The researchers found that the air purifiers reduced aerosol concentration by over 90% in under 30 minutes, in stark contrast to the room without air purifiers.

The researchers also performed calculations to estimate the infection risk from aerosol particles if a highly infectious person spoke in a closed room with and without air purifiers. They found that air purifiers lowered the inhaled dose of aerosols by a factor of 6. The authors of this study also note that instead of running one very large air purifier, it is advantageous to use several smaller ones distributed in the room.

Why is it important?

Studies show, that in indoor settings, aerosol particles produced during breathing and speaking are transported across a room within 2 minutes due to natural air movement. Moreover, particles with core sizes below 10 μm remain airborne for minutes to hours. Finding effective measures to reduce risk of transmission through the airborne route is, thus, crucial to opening up activities in closed spaces such as classrooms, offices, and call centres, among others.

Key takeaway



This study shows that mobile air purifiers with HEPA filters can be a simple and efficient means of reducing virus-containing aerosol particles in closed rooms. The authors also note that while proper ventilation (such as opening windows) is still necessary, air purifiers can effectively improve the air quality in enclosed spaces.

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