

Abstract Submitted
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A Guideline to Limit Indoor Airborne Transmission of COVID-19 MARTIN BAZANT, JOHN BUSH, Massachusetts Institute of Technology MIT — The post-pandemic revival of the world’s economy is being predicated on the social distancing required by the Six-Foot Rule, a guideline that offers little protection from pathogen-bearing droplets sufficiently small to be continuously mixed through an indoor space. The importance of indoor, airborne transmission of COVID-19 is now widely recognized by the epidemiology community; nevertheless, no measures have been proposed to protect against it. We build upon models of airborne disease transmission in order to derive a quantitative safety guideline that would impose an upper bound on the “cumulative exposure time”, the product of the number of occupants and their time in an enclosed space. We demonstrate the manner in which this bound depends on the ventilation rate and dimensions of the room; the breathing rate, respiratory activity and face covering of its occupants; and the infectiousness of the respiratory aerosols, a disease-specific parameter that we estimate from epidemiological data. Specific case studies are considered, and caveats enumerated.

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