SARS-CoV-2 Superspread in Fitness Center, Hong Kong, China, March 2021

Linsey C. Marr

Author affiliation: Virginia Polytechnic Institute and State University, Blacksburg, Virginia, USA

DOI: https://doi.org/10.3201/eid2709.211177

To the Editors: I read with interest the article by Chu et al. (*1*), which concluded that poor ventilation might have contributed to a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) superspreading event at a fitness center in Hong Kong, China. As an example of SARS-CoV-2 not spreading in a converse environment, I report the absence of apparent transmission at a gym in Montgomery County, Virginia, USA, that emphasized ventilation as part of its coronavirus disease (COVID-19) precautions upon reopening in June 2020. The gym (Appendix Figure 1, https://wwwnc.cdc.gov/EID/article/27/9/21-1177-App1.pdf) increased ventilation by opening 10 exterior doors and keeping them open even during cold or inclement weather. The gym also limited class sizes, stressed hygiene, and required ≥10 feet of distancing. Masks were not worn.

With the doors closed, the air change rate was estimated to be 0.07 air changes/hour, corresponding to a ventilation rate of 7.6 L/second/person (L/s/p) on the basis of an occupancy of 10 persons, below the 10 L/s/p minimum recommended by ASHRAE (American Society of Heating and Air-Conditioning Engineers) for health clubs (*2*). With the doors open, these values were estimated to be 2.4 air changes/hour and 240 L/s/p (Appendix).

On September 24, 2020, an instructor at the gym developed upper respiratory symptoms and lost his sense of smell and taste. He was tested for SARS-CoV-2 infection and received a positive result on September 28, 2020. That day, the gym owner contacted 50 persons who had attended ≥1 of the instructor's classes during September 21–25, 2020 to notify them of potential exposure. During subsequent follow-up, none of these 50 persons reported any COVID-19 symptoms, and 5 people who got tested received negative results (Appendix Figure 2). It is likely that increasing ventilation greatly mitigated the risk of transmission (*3*). Subsequently, the gym acquired a CO_2 sensor and kept the CO_2 level, an indicator of respiratory emissions, well below 600 ppm (*4*) by adjusting the number of open doors.

Acknowledgments

Thanks to Kyle T. Bernstein, John T. Brooks, and Velvet Minnick for their assistance with this investigation.

This work was supported by the Virginia Tech Center for Emerging, Zoonotic, and Arthropod-borne Pathogens.

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Address for correspondence: Linsey C. Marr, Civil and Environmental Engineering, Virginia Tech, 1145 Perry St, Durham 411, Blacksburg, VA 24061, USA; email: lmarr@vt.edu

Fecal Excretion of *Mycobacterium leprae*, Burkina Faso

Ajay Vir Singh, Rajbala Yadav, Harpreet Singh Pawar, Devendra Singh Chauhan

Author affiliation: ICMR–National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Agra, India

DOI: https://doi.org/10.3201/eid2709.211262

To the Editor: Millogo et al. (*1*) documented presence of *Mycobacterium leprae* in a fecal sample from a patient in Burkina Faso, raising questions about the role of fecal excretion of *M. leprae* in the natural history and diagnosis of leprosy. They speculated that *M. leprae* were swallowed by the patient along with blood

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Appendix

Ventilation calculations

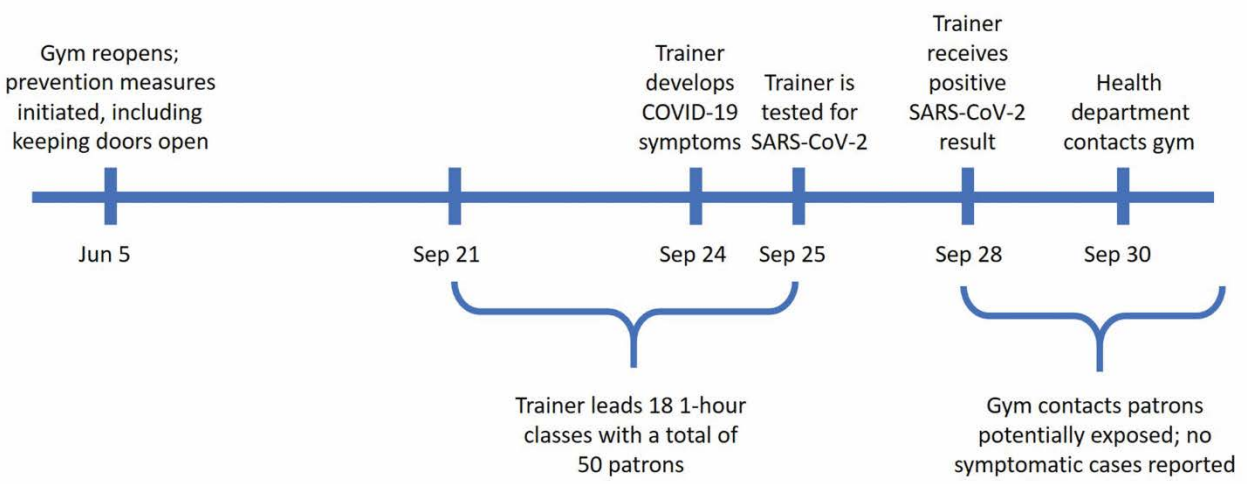
The gym is a standalone building measuring 100 ft × 50 ft with an inclined, peaked ceiling 11.25 ft–19.75 ft high. The gym has 4 sets of double doors, 3 single doors, and 3 garage doors (Appendix Figure 1). The air change rate with the doors closed was estimated by the tracer gas concentration decay method when the gym was unoccupied, on the basis of measurements of CO_2. The ventilation rate was then calculated by multiplying the air change rate by the volume of the gym (3,593 m^3). The volume flow rate through the gym with the doors open was estimated conservatively on the basis of the area through which air was exchanged by cross-ventilation through 4 single doors (total opening area 7.8 m^2) on one side of the building and additional doors on the opposite side of the building, with a wind speed of 0.3 m/s, corresponding to the lowest average daily wind speed during January–May 2020. The tracer gas decay method could not be used to estimate the air change rate with the doors open because the building could not be left unoccupied with the doors open for the required duration of $\geq$2 h. The direction of flow through the gym varied with the direction of the wind.

Timeline of events

On September 24, 2020, an instructor at the gym developed upper respiratory symptoms and lost his sense of smell and taste (Appendix Figure 2). On September 25, 2020, he was tested for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 infection) by real-time reverse transcription PCR and received a positive result on September 28, 2020. He reported contact prior to illness onset with an acquaintance, who along with some of her roommates had also recently tested positive. During September 21–25, 2020, the instructor had led eighteen 1-hr classes potentially exposing a total of 50 class participants. At the beginning of each class, the

trainer spent several minutes explaining the workout and then led the class through various exercises, voicing instructions loudly and walking throughout the space. The day the trainer received his positive test result, the gym owner contacted the 50 class participants to notify them of their potential exposure. The health department communicated with the gym owner 2 d later, on September 30, 2020, and did not initiate tracing because those exposed did not meet the definition of close contacts (≤6 ft for ≥15 min). During subsequent follow-up by the gym owner for 14 d after the last exposure, none of these 50 persons reported any coronavirus disease (COVID-19) symptoms. Five elected to get tested for SARS-CoV-2 ≤7 d of notification and tested negative by real-time reverse transcription PCR.

Appendix Figure 1. Diagram of interior of gym space that was part of investigation. Green lines indicate conventional and overhead garage doors that were at least partially open; red boxes indicate athlete workout stations.



Appendix Figure 2. Timeline of events related to investigation of potential transmission of SARS-CoV-2 at a gym, Montgomery County, Virginia, USA, September 2020.