

Assessing the Risk of Music Activities During the COVID-19 Pandemic Leads to a Chance of 1 In 1.9 Million of Contracting COVID-19 In a Music Class

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We believe the International Performing Arts Aerosol Transmission Study is accurate, however every situation has unique elements and decision-makers should consult with their state or local health departments.

Since April 2020 the International Coalition Performing Arts Aerosol Study has worked to determine how aerosol moves through high exhalation music activity such as playing wind instruments and singing and speaking. The study was initiated as the onset of the SARS CoV-2 pandemic was accompanied by a number of super-spreader events including a community choral rehearsal. The study had two primary goals 1) identify aerosol levels from performing arts activities and 2) identify potential mitigations and their effectiveness. The study specifically studied aerosol that could potentially spread COVID-19, but did not study the live virus. The first set of recommendations was released on July 13, 2020, with updates following on August 6, 2020 and November 13, 2020, and provided guidance to thousands of performing arts groups around the world. Current recommended mitigations can be found [here](#). On April 15, 2021, "Measurements and Simulations of Aerosol Released while Singing and Playing Wind Instruments," was released; the paper may be read [here](#). As the study continues, more papers will be released.

A survey was conducted beginning April 28, 2021 to assess the level of spread events that occurred in school-based music programs. Due to the number of United States schools and colleges that did not allow music activities, some assumptions had to be made. According to National Center for Education Statistics (NCES) data there are approximately 30,000 secondary and post-secondary schools, it is estimated that only two-thirds (2/3) had in-person music rehearsals. With the variety of responses to the pandemic, some programs met for the entire school year and others met only a few weeks toward the end of the 2020-2021 academic year. A conservative estimate assumes the average music program (choir, band, orchestra) met for sixteen weeks, with an average of three (3) 30-minute rehearsals each week. This is most likely a low estimate, but it is important to err on the side of caution.

3,000 surveys were returned and analyzed the week of May 24, 2021. The results showed 2,796 of 3,000 respondents used some or all of the aerosol study recommendations. Of the 3,000 returned surveys there were 1,641 programs that reported COVID-19 positive students. Of those 1,641 programs eight (8) programs (5 choir, 2 band, and 1 orchestra) self-identified a potential additional spread of COVID-19 occurring in a music class or rehearsal. Two of the self-reported cases were from schools that did not use any of the study mitigations. Only one of the eight (8) self-reported cases could be classified as spreading beyond one other person, the other seven (7) appear to be one to one transmission. Many questions still exist to verify if potential transmission occurred in the music class or in another place, for instance, in a cafeteria or other unmasked social setting, but for the purpose of this analysis it is assumed they occurred during music activity.

With the estimation of 20,000 programs returning to activity, 4.5 million students were expected to participate in in-person music at some point in the 2020-2021 school year which is an average of 225 students per school. To calculate the risk assessment, the study recommendation of 30-minute rehearsals was used estimating 24 hours of in-person time per student during the 2020-2021 academic year. This estimate totals 108 million hours of in-person rehearsal time. The overall expected chance of getting COVID-19 in a 30-minute rehearsal would be 0.000051% or a chance of one (1) in 1,969,709 per person per half hour at a 95% confident interval. The chances of contracting COVID-19 using most or all of the study mitigations would be one 0.000046% or (1) in 2,192,287. The chances of contracting COVID-19 without using any of the study mitigations would be 0.00037% or one (1) in 273,124. This correlates with risk level 4.57 times higher among programs that used no mitigations compared to those programs that used some or all of the mitigations. With the estimated number of programs and student rehearsal hours being a conservative estimate, the realistic odds of transmitting COVID-19 in music activity are potentially much lower.

Moving beyond the current SARS CoV-2 pandemic, these mitigations for music activity can be used to reduce transmission of many respiratory pathogens such as flu, virus, common cold, measles, tuberculosis, etc.