The Bacteria Between Us: The Connection Between Classrooms, Ventilation, and Airborne Bacteria

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The purpose for this experiment was to prove or disprove whether social distancing via classrooms at school is effective with HVAC units in mind. We hypothesized that if petri dishes are placed under output vents, there will be visible results which will reveal the bacteria that travels between classrooms. To prove our hypothesis, we made a solution of nutrient agar to fill in 9 petri dishes. The dishes were placed in two different rooms connected by an HVAC system and were exposed in each room for two hours over a course of four tests. We incubated the collected bacteria, counted the uncommon bacteria number, and compared their numbers. We found that trials one and three taking place in room #1 were significantly different in the uncommon bacteria count. The same was to be found for trials two and four in room #2. However, we did find that the amount of bacteria collected from room #2 had approximately half the amount of bacteria collected from room #1. Our hypothesis was not confirmed. Due to the differences in CFM outputs of each testing room we discovered results that were unreliable. However, this experiment is still useful as it reveals the many ways in which airborne bacteria can be spread, collected, and killed, as well as which kinds. For further research it would be beneficial to run this experiment after implementing a new air filtration system to conclude how much or the air is contaminated through the ventilation system.

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