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Ventilation should be part of the conversation on school reopening. Why isn't it?

By Alexandra FeathersAug. 5, 2020



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Like every other parent with a school-age child, I want schools to reopen

in the fall — including the one I’m attending.

On the best of days, my son can be described as “spirited.” After four months of being cared for by his grandparents, he is practically feral. He needs the physical and social outlet that school provides, and I need the anatomy lab to reopen because human dissection is an irreplaceable part of my medical education.

But I am also an epidemiologist, and after reading the Centers for Disease Control and Prevention’s [guidelines for school reopening](#) and the various accompanying news coverage and think-pieces, I can’t convince myself that following its rules will keep my family — or yours — safe.

Why? Because the primary way Covid-19 is transmitted is through [respiratory droplets](#) that careen through the air, and yet the capricious nature of air circulation and the lack of filtration systems in our already underfunded public school systems is absent from the conversation.

Since New York state started reopening, I have received emails from my medical school’s working group about the plan to bring us back to campus. Its plan is to follow the basic script seen in school reopening strategies all over the country: frequently sanitized high-touch surfaces, 6-foot distances, unidirectional hallways, reduced capacity elevators and classrooms, health questionnaires, and contact-free temperature checks upon entry (more on that in a minute).

My school is not negligent, but like many other educational institutions, its efforts are dangerously misdirected. We are collectively engaging in what Derek Thompson describes in the Atlantic as [“hygiene theater,”](#) in which organizations looking to reopen focus intensively on arduous

decontamination strategies to mitigate surface transmission — even though that is [not the primary route for Covid-19 transmission](#), and some scientists [argue](#) that there is no direct evidence the virus spreads this way at all. I'd also like to add temperature checks to the hygiene theater playbill, as they too [fail to successfully screen](#) potential Covid-19 carriers, but have somehow made their way onto every screening list I've seen.

Why is this happening? The CDC is [supposed to determine](#) the national priorities for American health.

Of the eight bullet points in its [“staff safety” section](#), four address surface transmission. The three bullet points dedicated to respiratory droplets warn people to stay 6 feet away from each other, cough into their elbows, and wear a mask.

The current CDC guidance [about ventilation](#) is as follows, “Ensure ventilation systems operate properly and increase circulation of outdoor air as much as possible, for example by opening windows and doors.” But if opening windows or doors increases the risk of asthma, or falling out the window, the guidelines go on to advise that they should be closed. That is *all* the guidance has to say. It does not mention air filtration, or the fact that we have pretty good data to suggest that without addressing air filtration and circulation, the 6-foot rule [does not prevent transmission indoors](#).

Here are the things that caught my attention as an epidemiologist as schools played Tetris with classroom furniture and agonized over hybrid schedules.

On May 6, Erin Bromage, a microbiologist at the University of

Massachusetts at Dartmouth, published a [widely read article](#) detailing the role of air circulation at three major indoor transmission events: a [call center](#) in South Korea, a [restaurant](#) in Guangzhou, China, and the infamous [choir practice](#) in Washington state. Each of these events taught us that transmission happens when you spend significant time indoors. Being 50 feet apart with “a low dose of the virus in the air, over a sustained period, was enough to cause infection and in some cases, death.” This happens because infectious particles from individuals are pushed by the ventilation system to the other side of the room. Bromage’s post appeared 127 days before the first day of school in New York City.

HEPA filters are able to effectively capture particles [the size of SARS-CoV-2](#). The CDC currently recommends their use for this purpose [in hospitals](#), but their capacity to prevent the spread of Covid-19 in other public buildings remains under-explored. Though the CDC has stayed silent on the use of HEPA filters outside hospitals, on May 25 a group of ENT doctors [made the case](#) for installing them in doctors’ offices where “aerosol generating procedures” are being performed, because of evidence they can help prevent the spread other infections such as [SARS-CoV-1, measles, and influenza](#). That was published 108 days before the first day of school in New York City.

On May 27, a group of 36 scientists from around the world in a variety of fields [penned an article](#) in the journal Environment International titled, “How can airborne transmission of Covid-19 indoors be minimised?” As they wrote, “Here, in the face of such uncertainty, we argue that the benefits of an effective ventilation system, possibly enhanced by particle filtration and air disinfection, for contributing to an overall reduction in the indoor airborne infection risk, are obvious.” It’s obvious to me as well, and deserves to be our primary concern in

reopening schools, far more urgently than distance or Lysol. That was 106 days before the first day of school in New York City.

McKinsey & Company reviewed research regarding airborne spread of SARS-CoV-2 and on July 9 [posted an article](#) suggesting possible upgrades to existing heating, ventilation, and air conditioning (HVAC) systems. A key recommended change was to increase the number of times HVAC systems exchange air per hour, which would push the infectious particles outside and prevent them from being blown across the room. This article appeared 63 days before the first day of school in New York City.

When I mentioned these possibilities to a friend who teaches in the New York City schools, she replied, “Don’t worry about our HVAC systems. They’re all broken.”

Instead of using limited time and funding to engage in hygiene theater, we should be investigating how to address ventilation. Or at the very least, be honest with the public about some institutions’ inability to make interior spaces safe.

As a result of months of misapplied focus on surface disinfection, the importance of air circulation and the potential use of filtration is missing from the national debate on school reopening. My son’s school and mine are both concerned with delivering our education safely. My son’s preschool director was worried sick about not being able to adequately decontaminate on a daily basis because she loves both the kids and her school.

It shouldn’t be her responsibility to research ventilation theory and filtration techniques and air flow patterns. It’s not my job as a medical

student to Google these things trying to get enough information to decide what to do about my son's school, and mine, starting imminently. And it's not up to the administrators at my school, who I know have been working around the clock these last few months, to figure this out.

This is supposed to be done by the CDC. Here we are, about a month before public schools are supposed to begin, and the CDC is still failing to signal the crucial importance of addressing ventilation.

We need to include air circulation patterns and filtration options in the conversation. If we're not willing or able to fund necessary upgrades to school ventilation systems, let's admit that. Until we have that public discussion, I am not comfortable exposing my family to schools. Because if I can't trust that the people making these decisions are reading the literature, how can I trust them with my family's health?

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