

The pseudoscience behind the right-wing drive to force schools to open

Part two

Benjamin Mateus
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Children and COVID-19: are they contagious?

In the UK study, the authors estimated that the infectivity of children and adolescents was 50 percent compared to adults, though they admit the data is sparse on this question. The CDC has placed the best estimate for asymptomatic COVID-19 cases at 40 percent and infectivity of 75 percent, yet this does not clarify if there is a difference in infectivity among different asymptomatic age groups. The exact value is dependent on multiple variables, but, as other studies have documented, the capacity for children to be vectors for the transmission of the infection had been indirectly established, and they have become a growing component of COVID-19 cases, accounting for over 9 percent of all cases in the US.

It needs to be affirmed that early during the pandemic, the immediate school closures isolated and protected children, and therefore this age group represented a comparatively small proportion of infections. This contributed to illusions that children were impervious to the contagion. However, as the lockdowns were lifted and social interactions became more frequent, the number of infections attributed to children climbed rapidly. It is worrisome that the COVID-19 test positivity rate of children and young adults under the age of 18 is almost twice that of adults, implying that testing among this group is insufficient and infected children most likely represent a larger number than has been reported. What has been reported is that with more infections, the number of hospitalizations among children has also risen.

It was a study published August 7 by the CDC in their Morbidity and Mortality Weekly Report that provided the necessary proof of the capacity for children to infect. The report drew media attention during the height of the summer months when an upsurge of infections in the sunbelt states had demonstrated the calamitous character of the initiative to reopen businesses and social venues. At the same time, governors and local officials were strong-arming school districts and teachers to begin readying for in-person classes. The conclusions of the study confirmed what teachers and parents already profoundly feared.

The study was triggered by an outbreak in Georgia. On June 21, some 621 campers and staff members participated in an overnight camp. All attendees had supposedly adhered to the mandate to have documented negative SARS-CoV-2 testing within 12 days before arriving at camp. Though specific preventive measures were enacted, campers did not wear masks, and windows and doors were not opened in cabins to increase ventilation. According to the camp administration, attendees engaged in indoor and outdoor activities that included singing and cheering.

On June 23, a teenage staff member left camp after developing flu-like symptoms. The following day her test confirmed COVID-19 infection. Camp officials began sending children home, and the Georgia Department

of Public Health was notified and commenced an investigation on June 25. The camp was closed on June 27.

A total of 597 Georgia residents had attended the camp. The median age of the campers was 12 years, while that of staff members was 17 years. Test results were available for 344 attendees, of which 260, or a staggering 76 percent, were positive. Test results for 253 people were not available.

What surprised the authors most was their finding that the attack rate was highest among those 6 to 10 years of age. The CDC wrote, “Asymptomatic infection was common and potentially contributed to undetected transmission, as has been previously reported. This investigation adds to the body of evidence demonstrating that children of all ages are susceptible to SARS-CoV-2 infection and, contrary to early reports, might play an important role in transmission.” This was the most succinct demonstration of the ability for young children to be vectors for the transmission of COVID-19, contradicting the prior view that they were effectively “immune” and considered an insignificant factor in the transmission of the virus.

Around the same time as the publication of the CDC report, a contact tracing study was conducted in the province of Trento, Italy. During March and April, 6,690 contacts were linked to 2,812 cases of COVID-19. Out of these contacts, 890 developed symptoms of COVID-19 for an attack rate of 13.3 percent. Though there were only 14 children with COVID-19 under 15 years of age, 11 of their 49 contacts became secondary cases, for an attack rate of 22.4 percent, the highest rate of any age group.

The authors also reported that nasal swabs submitted to the Charité laboratory in Berlin showed that the viral load in children was similar to adults. They concluded, “This greater risk of spread resulting from contact with an infected child that emerged from our analysis might be explained by the different nature of interactions between adults and children. While the positive adult would be likely to be more adherent with isolation precautions, it may be more difficult to truly isolate children, resulting in continuing contact with parents and siblings. *Overall, our data are, therefore in support of a policy of maximum caution with respect to the reopening of children’s communities and primary schools.* [emphasis added].”

Another study that corroborated the conclusions reached by the Italian research came from South Korea. Overall, the researchers detected COVID-19 in 11.8 percent of all household contacts, but rates were higher for contacts of children than adults. The highest attack rate, 18.6 percent, was among school-aged children 10 to 19. They, however, found it was lowest for those children under the age of 10. These findings led Michael Osterholm, an infectious diseases expert at the University of Minnesota, to state, “I fear that there has been this sense that kids just won’t get infected

or don't get infected in the same way as adults and that, therefore, they're almost like a bubbled population. There will be transmission. What we have to do is accept that now and include that in our plans."

Lastly, a study published in *JAMA Pediatrics* on July 30 compared viral loads in children and adults at a pediatric tertiary medical center in Chicago, Illinois, and provided the evidence that young symptomatic children had viral loads that were equivalent to or higher than those found in adults. These authors, too, cautioned that young children's behavioral habits and close interaction in schools and daycare settings would potentially amplify the transmission once restrictions were eased.

Is airborne transmission (aerosolization) the primary route of transmission?

On July 6, in the journal *Clinical Infectious Diseases*, lead authors Lidia Morawska, Ph.D., MSc, International Laboratory for Air Quality and Health, Queensland University of Technology, and Donald Milton, MD, DrPH, Institute for Applied Environmental Health, University of Maryland School of Public Health, along with 31 contributing authors and 206 signatories, published an open letter titled, "It is Time to Address Airborne Transmission of COVID-19 ." This was an appeal to medical communities and relevant international organizations to recognize the potential for airborne spread of COVID-19, also understood as aerosolization. The World Health Organization has yet to adopt these recommendations.

Both the CDC and the WHO have emphasized that the spread of the virus to others occurs through two dominant routes—surface contamination and respiratory droplets. The basis for these conceptions can be traced back to the work done by Dr. Charles Chapin, a public health researcher, in his seminal work from 1910, *The Sources and Modes of Infection*. He wrote in his preface, "We know now that direct contact with the sick, or with healthy carriers of disease germs, is an exceedingly frequent mode of transmission, and that infection by means of the air, or from infected articles, is not nearly as common as was formerly believed." Lacking technology to measure aerosols, his construct for the transmission of diseases dominated among infectious disease experts and epidemiologists until recently and most significantly with the COVID-19 pandemic.

Aerosols are like bits of fluid so small they can linger in the air. The human hair is 80 microns and aerosols smaller than 50 microns can spend enough time in the air to be inhaled. By comparison, the SARS-CoV-2 virus is only 0.1 microns, allowing plenty of volume to contain numerous particles. It has also been shown that viruses can survive in these aerosol droplets.

A recent presentation by Dr. Jose-Luis Jimenez, professor of chemistry at the University of Colorado at Boulder and a Fellow of the American Association for Aerosol Research, summarized evidence in favor of and against various routes of SARS-CoV-2 transmission.

Specifically, Dr. Jimenez notes that indoor settings are the dominant location for infections. Super-spreading events where the growth factor (R0) of the virus can be as high as 20 occurred in restaurants, choir rehearsals, churches, etc. Poor ventilation aids in transmission. SARS-CoV-1, influenza, and MERS all transmit via aerosol. Viruses stay infective in aerosol forms. Dr. Jimenez writes, "COVID-19 is likely a lower-contagiousness aerosol-driven disease. It infects best at close proximity, also at the room-scale if we 'help it along' (indoors, low ventilation, long time, no masks). And it has trouble infecting at long range."

A compelling case study from January published by the Chinese CDC involved a restaurant in Guangzhou, China, where a person with

COVID-19 infected members from three families sitting at neighboring tables. None of the waiters or 68 patrons at the remaining 15 tables became infected. A video record of the day in question annotated the location of infected individuals. Using experimental tracer gas measurements and computational fluid-dynamic simulations, the study concluded that the air currents created by the air conditioning units blew virus-laden aerosols from the infected person to the nearby tables.

Earlier in the month, in a study from the University of Florida, a team of virologists and aerosol scientists were able to prove that respiratory droplets from COVID-19 patients contained the infectious virus. Live viruses were collected from seven to 16 feet from patients hospitalized with the virus. The sequences of the viral genetics from the aerosols matched that of newly admitted symptomatic patients to their rooms.

Both the Harvard T.H. Chan Schools of Public Health and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Epidemic Task Force have provided guidelines for updating school buildings and their heating and air conditioning units to ensure a typical classroom's air is exchanged at least four to six times each hour. This includes designs for modification of rooms with window fans, central air purifiers and MERV13 HVAC filters that can remove a large portion of the airborne particles.

However, according to a report published by the US Government Accountability Office in June, more than "half of the public school districts need to update or replace multiple building systems or features in their school ... an estimated 41 percent of districts need to update or replace heating, ventilation, and air conditioning (HVAC) systems in at least half their schools, representing about 36,000 schools nationwide."

Additional areas of concern raised by the report in their national survey from August to October 2019 include improving security (92 percent), expanding access to technology (87 percent), and monitoring health hazards (78 percent). In other words, even without COVID-19, public schools across the nation have significant needs for funding to bring them up to necessary standards.

Conclusion

The tenets of public health have been proven time and time again. Social distancing, the wearing of face masks that are correctly and tightly fitted, hand-washing, cleaning surfaces, and proper ventilation and air exchange: all these practices can protect people from becoming infected or passing an infection to others.

More importantly, community spread can be mitigated through the establishment of a public health infrastructure that can efficiently and expeditiously test suspects and quickly trace and isolate contacts. The break in the transmission of the disease is the essential factor in bringing the virus under control. Additionally, those infected need to be isolated and provided medical observation, care, and treatment. This is the first pandemic in which human society has at its disposal the technological and scientific capacity to halt the virus.

Offsetting this, however, is the fundamental relationship between the community and the local, state, and federal governments whose primary job is the security and wellbeing of the citizens. In the present instant, the utter failure on the part of the political establishment is not that they are inept, stupid, or unable to comprehend scientific data (although that may describe some).

Rather, the political system and government administration work as directed by definite socioeconomic pressures that compel them to assure the health of the economy, i.e., the super-rich and giant corporations, at any cost. Behind the inability to ramp up testing, the utter failure to build

a cadre of contact tracers, the never-ending changes in policy and guidelines, each worse than the one before, amount to the state asserting a policy of herd immunity for the sake of the financial markets. Teachers, parents, and all workers have the science behind them, but they must act on it and assert their own interests, preparing to conduct a general strike against the murderous policy of the state.

The author also recommends :

Mounting evidence of COVID-19 reinfection

[31 August 2020]

The origins and evolution of the SARS-CoV-2 virus

[24 August 2020]



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