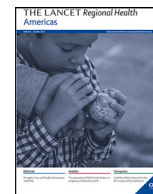


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Health Policy

Health Equity, Schooling Hesitancy, and the Social Determinants of Learning



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ABSTRACT

At least 62 million K-12 students in North America—disproportionately low-income children of color—have been physically out of school for over a year due to the COVID-19 pandemic. These children are at risk of significant academic, social, mental, and physical harm now and in the long-term. We review the literature about school safety and the conditions that shape families' and teachers' choices to return to in-person schooling. We identify four causes of schooling hesitancy in the U.S. even where schools can be safely reopened: high community transmission rates; the politicization of school re-openings; long-term racialized disinvestment in urban districts; and parents' rational calculations about their family's vulnerability due to the social determinants of health. Given the deep interconnections between the social determinants of health and of learning, and between schooling hesitancy and community vulnerability, stark inequities in in-person schooling access and take-up are likely to persist. We recommend that school districts invest in scientifically-based facilities upgrades, increased nursing and counseling staffing, and preparation for schools to serve as pediatric vaccination sites. School districts should also apply lessons from public health about addressing vaccine hesitancy to the challenge of schooling hesitancy by investing time in humble listening to parents and teachers about their concerns.

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1. Introduction

Across North America, at least 62 million elementary- and secondary-school-age children were physically out of school for at least 13 months straight between March 2020 and June 2021; this includes at least 25 million school children in the United States, where school closure policies were highly localized, and 37 million school children in Mexico, where schools were closed nationwide. [1,2] Dozens of the largest districts in the U.S., including Los Angeles Unified (serving 650,000 students), Chicago Public Schools (355,000 students), and Puerto Rico (292,000 students), remained entirely or mostly closed for over a year, and opened school build-

ings only for younger students until the final month or two of the 2021-21 school year. Furthermore, even urban districts that offered in-person education confronted significant numbers of its students choosing to learn from home rather than returning to the physical classroom. Among the 1.1 million students served by New York City's public schools, for instance, about 700,000 remained at home (or in shelters) rather than attending in-person; in Chicago Public Schools, similarly, only 30% of students who were eligible for in-person schooling initially chose to return. [3] Even worse, 10-20% of students in some urban districts—amounting to an estimated 1 to 3 million children nationwide—were simply “lost” by school officials. [4] They neither officially unenrolled, nor showed up in person, nor logged in to remote school. The Mexican Secretary of Education reported similar rates of students simply disappearing from classrooms. [2].

Children in the U.S. who have had no in-person schooling since the start of the SARS-CoV-2 pandemic are disproportionately low-income and students of color. As of December 2020, 64% of low-income students were attending school solely via computer, versus 48% of high-income students. [1] Black (66%) and Hispanic (64%)

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students were almost twice as likely as White (34%) students to be fully remote, and were also twice as likely as White students who are also remote to have no live access to a teacher. [1,5] Stark disparities persisted into the second spring of the pandemic; as of late March 2021, just 2% of majority-White districts offered no in-person schooling while 18% of majority-Black districts and 24% of majority-Hispanic districts remained totally remote. [6] Furthermore, within many districts that offered parents a choice, children from wealthier and whiter neighborhoods resumed in-person schooling at significantly higher rates than children from lower-income neighborhoods and communities of color. When the Washington, D.C., Public Schools increased the number of seats available for in-person learning in the fourth quarter, for instance, barely 1% of the newly-available seats were in the two highest-poverty wards; the lowest-poverty ward, by contrast, was allocated 42% of new in-person seats. [7]

Children have suffered numerous hardships as a result of being physically out of school, including attenuated academic learning and socioemotional development; academic and social regression; food insecurity; increased exposure to family stress; increased risk of depression, anxiety, isolation, and suicidality; reduced access to social, clinical, and therapeutic services; separation from peers and additional caring adults; increased vulnerability to domestic abuse; and reductions in overall wellbeing. [5,8–11] Although children of all backgrounds face these harms, they have also been spread inequitably, with English Language Learners, students with disabilities, children from low-income families, homeless children, and children of color facing higher risk of suffering both more intense versions of, and a greater total number of, these hardships. [5,12,13] It is likely that these real-time traumas will also have long-term effects on many children, and that these will also be inequitably distributed. [10] The social determinants of learning are tightly tied to the social determinants of health; they rise and fall together.

2. What do we know about school safety?

While inequities in school access and the effects of school closures are evident worldwide, the United States was alone among high-income countries for having the majority of its children excluded from in-person schooling for an entire year. [11,14] Mexico was similarly unusual in keeping its schools closed nationwide for so long. [2,14] This is because most countries prioritized school re-openings, particularly as scientific evidence accumulated around the world that schools could reopen safely when infection controls are in place. [12,15]

The CDC has compiled a comprehensive science brief on the current state of knowledge regarding transmission in K-12 schools, drawing on studies in the U.S., Switzerland, Australia, U.K., Norway, Germany, and Israel, amongst others. [16] Evaluating the full body of evidence, CDC concludes that while high levels of community spread influence the risk in schools due to the greater likelihood of a case being introduced, the risk of within-school transmission can be limited with strict and layered risk reduction measures in place.

There are several reports outlining low-cost, evidence-based measures that schools can undertake to reduce the risk of in-school transmission. [17–19] To address airborne transmission, both in the near-field (within six feet) and far-field (within room but beyond six feet), schools should enhance ventilation and filtration, targeting 4–6 air changes per hour. [20] This can be achieved through any combination of opening windows and doors, increasing ventilation rates in mechanically-ventilated buildings, using MERV-13 filters or better, and supplementing with portable air cleaners with HEPA filters. [21] In areas of high community transmission, mask wearing is a key source control measure that can

be instituted quickly. Surface transmission is rare and is best controlled through good hand hygiene. Daily cleaning of surfaces is sufficient in most cases. [17]

Several studies support that these are effective measures. For example, Duke University researchers examined data from nearly 100,000 K-12 students and staff in the U.S. over nine weeks of in-person learning in schools and reported that within-school transmission was “extremely rare,” with zero cases of student to teacher transmission observed. [22] Infection control measures included mask wearing, social distancing, and daily symptom screening; some schools also reported ventilation improvements, although actual ventilation rates were not formally assessed.

Two studies conducted during periods of high community spread show similar low risk of within-school transmission when infection control measures are in place. A study by Johns Hopkins researchers combined over 500,000 responses from the Facebook COVID-19 Symptom Survey with county-level case data. They reported that in-person schooling was associated with greater within-home transmission, but this effect “largely disappeared” when at least seven controls were in place, and there was a “complete absence of increased risk” associated with in-person schooling when 10 controls were in place. [23] A study by the CDC looked at transmission rates in schools in Wisconsin from August 31, 2020, through November 29, 2020, where the primary mitigation measure was mask wearing. They reported that COVID-19 incidence among staff and students was lower than the surrounding community (3,453 versus 5,466 per 100,000), and only seven of 191 cases identified were linked with in-school spread. [24] Masking particularly for young children and their teachers is not cost-free, insofar as it may impede social-emotional learning, language and communication development, and facial recognition; masking should thus not be a default policy under all circumstances, especially where rates of community spread are low and adult vaccination rates are high. [25–27] But it does seem to be highly effective at limiting the spread of SARS-CoV-2 in schools.

There is also evidence that in-person schooling does not influence spread within the community. The CDC examined case data from March through December 2020, and reported that COVID-19 incidence among the general population in counties where K-12 schools offer in-person education (401.2 per 100,000) was similar to that in counties offering only virtual/online education (418.2 per 100,000). [28] And a review by the Technical Advisory Group (TAG) for the World Health Organization European Region concluded in April 2021 that, “even with the wider spread of more infectious variants, there is no evidence that schools contribute in a major way to community transmission.” [29]

The arrival of more highly transmissible variants – alpha and delta – have raised concerns that earlier studies of transmission in schools when the origin strain was dominant may not be valid. Data out of the UK, which experienced alpha and delta waves ahead of North America, may be informative. For alpha, the UK data show a decline in cases for school-aged children from March 2021 through early May 2021. This decline corresponded with lower levels in the community, and occurred despite school-age children not being vaccinated. [30] The delta variant, which now dominates spread in the UK, may pose greater challenges. Data available at the time of this manuscript indicate that cases in school-aged children are rising even while the prevalence in adults is staying flat due to vaccinations. [31]

More highly transmissible variants have the potential to increase school-based transmission, in particular in schools without mitigation measures in place and in areas with low vaccination rates. However, existing evidence has led the CDC also to conclude that “staff-to-student and student-to-student transmission are not the primary means of exposure to SARS-CoV-2 among infected children.” [17] Furthermore, educators and care givers can signifi-

cantly reduce their risk of symptomatic infection in countries such as the United States by getting vaccinated. Where vaccinations are readily available, therefore, the primary safety threat of opening schools is the absolute risk of the virus itself to unvaccinated children.

The most salient feature of this virus is the extreme differences in risk by age group. For adults, the risk of death can be as high as 1% (10^{-2}) for an 85-year old, and one in 10,000 (10^{-4}) for a 40-year old. [32] With regard to school-aged children, three large studies have concluded that the risk of death in children is very low, on the order of one per hundred thousand to one per million (10^{-5} to 10^{-6}). [32–34] Cases of MIS-C in children remain rare, and a study from Columbia University reported that while disease severity was high at case intake, “most inflammatory and cardiac manifestations in our cohort resolved rapidly.” [35] With regard to “long COVID” in children, a study examining 2500 seropositive 6–16 year-olds and matched seronegative controls reported no statistically significant differences in rates of long COVID symptoms in children with COVID versus the seronegative control group. [36]

3. Causes of schooling hesitancy in the U.S

Given the robust evidence that in-person schooling can be safe with the right precautions in place, why have millions of children remained at home in the United States? We identify four key reasons for schooling hesitancy.

First, political choices to keep gyms, restaurants, and other comparatively high-transmission venues open exacerbated community transmission rates to frighteningly high levels in many places, and reinforced the (sometimes accurate) perception that it is unsafe to open schools. Relatedly, the CDC’s February 2021 school reopening guidelines heightened people’s confusion and concerns about community spread by recommending that closed schools remain closed in communities with “substantial” or “high transmission,” which it defined as being 50 or more cases per 100,000 per week. [37] This restrictive metric placed 90% of all communities above the threshold at the time the guidelines were released, despite the fact that community spread metrics do not predict within-school transmission when sufficient controls are in place. [19,22,23] The CDC’s guidelines’ continued promotion through mid-March 2021 of six-foot distancing to the “greatest extent possible” also restricted schools’ capacities to open fully due to space and staffing constraints. [37] Districts that chose to follow the CDC guidance precisely thus ratcheted back reopening plans, keeping schools closed or at best hybrid even when case counts were low. [38–40] The CDC updated its guidance in March 2021, recommending three-foot distancing in elementary schools regardless of level of community spread with additional control measures, and three-foot distancing in middle and high schools except for areas with the highest levels of community spread and where cohorting is not possible. [41,42] The revisions themselves heightened some educators’ and parents’ concerns, however, as they suspected the CDC of caving into political pressure to enable schools to reopen rather than “following the science.”

Second and relatedly, the Trump administration’s advocacy for school reopenings last summer led left-leaning states, cities, districts, parents, and teachers’ unions to mistrust federal guidance, keep schools closed, and keep children out of school buildings that were open. As of June 2020, there was broad, bipartisan consensus among policy makers, educators, and parents that everything should be done to help schools reopen at least for younger children in time for the 2020–21 school year. But in early July, President Trump and Secretary of Education Betsy DeVos each declared that schools should be ordered to open and challenged the CDC’s school safety guidelines as too strict. [43,44] Soon after, the CDC allowed the White House to edit and release a substantially weaker

set of guidelines that came under immediate critical scrutiny by scientists and public health officials. [45]

By late July 2020, therefore, urban districts, teachers’ unions, many Democratic mayors and governors, and parents in these communities had turned against reopening except under highly stringent conditions. This opposition remained strong throughout the fall, particularly as community transmission skyrocketed. As a result, in-person school attendance remained highly partisan throughout the 2020–2021 school year, and large cities and districts—which educate over one-fifth of all U.S. school children, are almost uniformly Democratic-leaning, and generally have the most powerful teachers’ unions—remained disproportionately closed. As of December 2020, “the children of Republican parents...are more likely to have access to (51%) and be participating in (39%) fully in-person instruction than are the children of Democrats (35% and 22%, respectively).” [1] Partisan affiliation—as measured by whether the majority of voters in the school district voted for Biden or for Trump in the 2020 election—remained the strongest predictor of districts’ in-person vs. hybrid or remote offerings. As of April 19, 2021, twice as many majority-Trump districts (58%) as majority-Biden districts (29%) offered fully in-person instruction; similarly, nearly three times as many Biden districts (8%) as Trump districts (3%) offer only remote instruction. [46] Furthermore, over three-quarters of Republican parents who had the option to send their children to in-person school full time chose to do so, while under two-thirds of Democratic parents made the same choice. [1,47]

Third, in large urban districts, families (the majority of whom are low-income families of color), educators (the majority of whom are white and middle-class), and district administrators and policy-makers (also majority white and middle and upper-middle-class) have been mistrustful not only of federal guidance but also of one another due to decades-long histories of disinvestment, institutionalized and systemic racism, and high-stakes surveillance and accountability measures. While these ills far predate COVID, they have played out in particularly ruthless ways during the pandemic.

One-fifth of high-poverty schools lack even a part-time nurse, and nurses in many schools lack isolation rooms for sick children or even running water. [48,49] (In Mexico, similarly, 23 percent of schools in 2019 lacked running water. [2]) Thanks to aging facilities and long-term delayed or neglected maintenance in many high-poverty districts, schools lack windows that can open, have below-minimum ventilation systems, and lack soap, paper towels, and even working toilets. [50,51] When combined with federal failure throughout 2020 to secure and distribute high-quality, low-cost PPE to schools, fraught racial politics, and limited or no money prior to Spring 2021 for testing, evaluating building safety, building upgrades, school nurses, or training school personnel in infection-control practices, it is unsurprising that many low-income parents and families of color are skeptical about the safety of in-person schooling. About 30% of parents nationwide, and 39% of Black parents, express “low to nonexistent” trust in their school districts to keep their children safe; [47] this may also explain why 67% of lower-income families and 69%, 72%, and 80% of Hispanic, Asian, and Black parents, respectively, said in February 2021 that schools should wait to reopen until teachers have been vaccinated, as compared to 52% of upper-income families and 51% of White parents. [52] As one Black parent put it bluntly, “For generations, these public schools have failed us and prepared us for prison, and now it’s like they’re preparing us to pass away.” [53]

Trust is further eroded by a culture of surveillance and high-stakes accountability mechanisms that limit collaboration around children’s learning and well-being. Relationships between teachers’ unions and district leadership have been particularly toxic, with districts like Philadelphia, Chicago, Boston, and Washington, D.C., pulling back days or even hours before schools were due to open

in early 2021 thanks to breakdowns in negotiations with unions. Similarly, dozens of superintendents who tried to open schools in the face of teacher opposition faced (and lost) no-confidence votes by union members in their district.

Fourth, schooling hesitancy by low-income families of color, and embrace of in-person schooling by White and middle- and upper-income families, arguably represents a rational calculation on all sides about individual and community vulnerability, even as it exacerbates inequalities and further entrenches class and racial injustice. Low-income families of color live in denser housing, are more likely to include essential workers who need to keep working in order to earn wages (even in the face of earning worse or no benefits), are more likely to have family members or other close contacts who are medically vulnerable, have worse access to health coverage and to medical care, live in neighborhoods and communities with higher average infection rates, and have poorer outcomes if they do get COVID including increased risk of death as compared to wealthier and White families. [54–59] Because of *de facto* school segregation patterns both across and within districts, their children are also more likely to attend schools with other children living in similar circumstances (and hence who are themselves also more likely to be exposed to COVID outside of school and thus potentially be asymptomatic carriers in school) and to attend schools with few financial resources and located in old buildings that have not been kept up-to-date. Given all of this, it was totally rational even where school districts are open for low-income families of color to choose to keep their children home and for middle- and upper-income White families to choose to send their children to school—even if low-income children also faced heightened risk of harm from staying home (because of lack of access to nutritional and therapeutic services, greater struggle accessing remote learning because of limited internet or hardware access, fewer quiet places to do work, or greater levels of family stress) than did wealthier children on average.

4. Addressing schooling hesitancy and inequities in the social determinants of health and learning over the long term

Although schools can remain open when community spread is high if controls are in place, the most important step remains getting community transmission rates down to low levels through expanded vaccination rates. As vaccinations ramp up and transmission rates reduce in many states, more educators and parents should feel safer about in-person schooling. The change in presidential administration may also persuade those who didn't trust the prior administration's pandemic response that school reopenings can happen.

Thanks to the December 2020 Education Stabilization Funds (ESF) and the March 2021 Elementary and Secondary School Emergency Relief (ESSER) stimulus package as part of the American Rescue Plan, \$181 billion in emergency federal K-12 education funding are becoming available to help many schools reopen and stay open. These funds can enable districts to upgrade school facilities in addition to providing essential educational, nutritional, medical, and social services, after-school and summer programs, and other goods. [60] The American Rescue Plan directs districts in particular to use ESSER monies to fund “activities to address the unique needs of low-income children or students, children with disabilities, English learners, racial and ethnic minorities, students experiencing homelessness, and foster care youth,” commitments which are both promising and necessary. [60] Unfortunately, many districts have determined that they cannot hire additional school nurses, counselors, social workers, or other adults who would normally become permanent staff because of the short window of time during which the stimulus funds must be used. They do not want to (or believe they are permitted to) hire staff whom

they would then have to fire in 2-3 years. Districts also are prevented from using the funds to build healthier buildings from the ground up, and many districts are adopting readily available but unproven ventilation technologies rather than making longer-term investments in facilities upgrades. [61] It is thus unclear whether increased funding will in fact lead to widespread and long-term improvements in schools' supports for student health.

Furthermore, given the deep interconnections between the social determinants of health and of learning, and between schooling hesitancy and community vulnerability, stark inequities in access to and take-up of in-person schooling are likely to persist well into the 2021-22 school year. Racial, socioeconomic, and geographic disparities in adults' and 12-17 year-olds' (and eventually younger children's) vaccination rates may further intensify disparities in families' and educators' feelings of safety—and in their absolute levels of risk—in school districts serving predominantly low-income students of color versus those serving predominantly middle class and white students. [62–64] Data from Massachusetts as of July 15, 2021, for instance, suggests that vaccination rates for both middle and high schoolers (ages 12-19) are up to four times higher in wealthier school districts than in poorer ones. [65] Furthermore, even if pediatric vaccine access and uptake were miraculously identical across all groups once vaccinations for children under 12 are approved, families living in low-income neighborhoods and families of color may remain more hesitant to send their children to school given the differences in pediatric health by race, ethnicity, class, and neighborhood (i.e., given the social determinants of health). [66,67] In this case, we could see higher levels of in-person schooling hesitancy in historically marginalized communities throughout Fall 2021 and even into Spring 2022 as families wait for rollout of vaccines to young children.

It would be tragic for any school-age child to remain physically out of school in the 2021-22 school year if they would thrive better in school; it would be particularly tragic if those children who have been most harmed by long-term, systemic racism and injustice were unable to access the academic, social, emotional, nutritional, and other benefits of in-person schooling due to their parents' and guardians' understandable fears for their safety. The next few months are thus crucial for building a new culture around school safety that takes parents' and educators' schooling hesitancy seriously and responds to it in good faith.

In part, this means that school districts should commit immediately to spending funds on scientifically-based facilities upgrades that will provide benefits during COVID-19 and beyond, and on nursing, counseling, and social work staffing that are adequate to meet families' needs. [21,68] Even if ESSER monies cannot be used directly to expand staffing, districts and states can tap other sources that have been freed up by stimulus funds; they can then work over the next few years to determine how to make these commitments to children's health and well-being permanent. These investments alone would represent a sea change for schools nationwide; they particularly have the potential to transform those schools that, as we discussed above, have been systematically deprived of basic facilities, staffing, and resources to support student health. [69]

We also recommend that schools be set up to serve as community vaccination sites for all ages (currently 12 years and up), including expanding to include pediatric vaccinations for children 11 and under once they are approved and become available. [70] Schools are geographically distributed and often centrally located in communities that lack reliable transportation infrastructure. Families know how to get to their children's schools. Principals and school districts also already have practices in place for opening up their buildings as election precincts, shelters during natural disasters, and community meeting places. By partnering with public health officials to open schools as vaccination sites,

school districts can both contribute to improved vaccination rates in their communities and demonstrate their public health commitments to a potentially skeptical audience of families and educators. [71]

At the same time, it is equally essential for urban districts and schools to work with individuals, organizations, and institutions in the community to listen to families talk about their concerns; districts cannot simply take unilateral action and expect to eliminate schooling hesitancy. Public health and medical workers have come to recognize that vaccine hesitancy is often deeply personal, rooted in experiences of racism, marginalization, and harm, and is best overcome by humble listening and open conversation among trusted equals. [70,72,73] School districts can apply these lessons to addressing the problem of schooling hesitancy by creating spaces for open, democratic conversations and even one-to-one listening sessions to guide responsive action. It may feel inefficient in the moment, but the long-term payoffs of increased mutual trust, changes in school practices that respond to family concerns, and higher rates of in-person student attendance would be entirely worth it.

Finally, in addition to ramping up safe and speedy school reopening now, we must make a long-term commitment to supporting schools as both sites of and contributors to public health, especially in historically marginalized communities. Even after COVID-19 recedes, we must continue to fight alongside these communities for both health equity and educational equity, since each is dependent on the other. This work will be neither easy nor quick, but it is both morally necessary and sound public health strategy.

Contributors

ML conceptualized, outlined, drafted, revised, and edited the manuscript. All three authors discussed each claim in the article and reviewed relevant literature. JGA and ACG reviewed and edited the entire manuscript, and conceptualized a different paper that led to this collaboration. The Lancet COVID-19 Commission Task Force on Safe Work, Safe School, and Safe Travel reviewed and approved of this article. Members of the Task Force: Joseph G. Allen, Meira Levinson, Richard Corsi, Xiaodong Cao, Leslie Cadet, Shelly Miller, Yuguo Li, Nira Pollock, Lidia Morawska, Alasdair Munro, Qingyan Chen, Kelly Grier, John Macomber, David Michaels, Linsey C. Marr.

Declaration of interests

The author have no interests to declare.

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