

When US and State Governments Go Viral: In-person Reopening of Schools during the COVID-19 Pandemic – and Then What? – A Commentary

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Objective: In this commentary I argue that rapid reopening of schools for in-person instruction in the United States is unwise and likely to extend the duration of the COVID-19 pandemic. **Methods:** I review various sources of information and raise issues less frequently and thoroughly addressed in noted plans to expedite school reopening. **Results:** Whereas the focus has been on preparing plans of action for in-person instruction on the first day of school that minimize risk to pupils and school personnel, aspects of these plans are operationally unsound. Additionally, opinions among school personnel and parents for rapid reopening are far from unanimous. Moreover, the potential health impact on teachers, bus drivers, and other school personnel, as well as pupils, and the potential for another shutdown are phenomena with real probability. **Conclusion:** Despite government-led arguments favoring rapid restoration of in-person instruction, I argue that school reopening should take a wiser approach, sustaining remote instruction until pandemic statistics place people at substantially reduced disease risk.

Key words: COVID-19; Coronavirus; school health; virtual instruction; school reopening; occupational health; pandemic
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Most schools in the United States (US) will reopen before the official end of summer 2020, and some already have.¹⁻³ From a public health perspective, how they reopen may be one of the most important decisions at all levels of education in my lifetime. On July 7, 2020, President Donald J. Trump announced that he wanted all schools reopened:⁴ “We want to reopen the schools. Everybody wants it. The moms want it, the dads want it, the kids want it. It’s time to do it...We’re very much going to put pressure on governors and everybody else to open the schools.” President Trump also threatened he “may cut off funding” for schools that do not reopen.⁵ On July 16, 2020, a spokesperson for President Trump, Press Secretary Kayleigh McEnany stated: “The president has said unmistakably that he wants schools to open. And when he says

open, he means open in full, kids being able to attend each and every day at their school...The science should not stand in the way of this...[it is] perfectly safe [to fully reopen all classrooms].”⁶

When high-ranking officials of the government, including Secretary of Education, Elisabeth “Betsy” DeVos, Secretary of Health and Human Services, Alex Azar II, or others remark that children and youth are far less likely to become ill from coronavirus disease 2019 than older people, it takes me back to the 1980s and ‘authoritative statements’ that sexual transmission of what would later become known as HIV or the AIDS virus was something that happened only between gay men – as if the virus could detect the gender and sexual orientation of an immune system. Whatever the truth may be about the susceptibility of children and youth to COVID-19, the subsequent

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course of disease, and its potential transmissibility to others, there is still much knowledge and information that is unknown or evolving. However, as was the case with HIV nearly 4 decades ago, it is naïve to assume that children will not be disease vectors or victims.

On June 25, 2020 the American Academy of Pediatrics (AAP) posted to its website a statement that “the AAP strongly advocates that all policy considerations for the coming school year should start with a goal of having students physically present in school.”⁷ The AAP offers a comprehensive litany of guidelines, recommended practices, and suggested policies to mitigate risk. Whereas the action plan is thorough, I find myself wondering to what extent persons experienced in the daily activities at school find many of the recommended practices to be feasible. The statement hedges only to the extent that “...policymakers should acknowledge that COVID-19 policies are intended to mitigate, not eliminate, risk.”⁷

Similar to the recommendations of the AAP, the US Centers for Disease Control and Prevention’s (CDC) guidelines for reopening schools promote in-person learning, emphasize spacing of students to maintain social distancing, the wearing of cloth masks, the practice of hand hygiene, frequent disinfection, and keeping small groups of students in cohorts/pods throughout the day, among others.⁸ The guidance emphasizes that COVID-19 poses a relatively low risk to school-aged children if preventive steps are undertaken. Dr. Robert Redfield, CDC Director, has even said that he would be “absolutely” comfortable with his school-aged grandchildren returning to school.⁹

Complex, multi-component guidance, although thoughtful and designed around the best intentions, fails certain practical tests. Schools that opt for immediate in-person instruction will have staff members and para-professionals undertaking practices that are new and unfamiliar – for the most part, without a ‘dress rehearsal’ in real time; moreover, even with Herculean efforts for adherence in the days following reopening, persons are unlikely to be able to perform the recommended tasks with foolproof precision or proficiency. Even if they do, will they be able to sustain them indefinitely? According to one national poll, 9 out of 10 teachers are worried about

enforcing just the social distancing aspect of risk mitigation.¹⁰ A photo taken on the first day of school in Woodstock, Georgia showed an entire class of students posing together without masks and without social distancing.³ In Georgia’s largest school district, 1-1/2 hours east from there, 260 school employees tested positive for COVID-19 or were asked to quarantine following exposure just days ahead of the start of in-person learning at school.³ Even ‘well’ individuals who must quarantine, could pose health risks to their family members, as well as disrupt the flow of school activities. Writes a teacher with 23 years of classroom experience: “...opening schools safely is logistically impossible.”¹¹ Dr. David M. Aderhold, Superintendent of Schools, West Windsor-Plainsboro Regional School District and President of the Garden State Coalition of Schools asks: “Who gets to determine the acceptable risk of foreseeable harm, illness, and potentially death in our public schools should we return from virtual instruction to in-person instruction?”¹² To his question, I add: “How many children and youth at a school need to become ill (or worse) before plans must be abandoned and declared a failure? How many school personnel need to become ill (or worse), infect family members, and become unable to perform other functions? How long and how badly will in-person instruction set back recovery from the current pandemic?”

Appearing in an NBC Nightly News segment on July 24, 2020, Dr. Lara Shekerdemian, Chief of Critical Care at Texas Children’s Hospital, said: “Children ages 10 to 19 seem to transmit the virus at least at the same rate as adults.”¹³ She went on to suggest that possibly there was some evidence that the “...youngest children are less likely to transmit it.”¹³ However, a Chicago-based clinical research study released on July 30, 2020¹⁴ reported that children with COVID-19 carry as much or more coronavirus in their nose than adults, suggesting that they could pose a serious infection risk to schools and daycare centers. In fact, the authors of the study, Heald-Sargent et al,¹⁴ noted that children younger than 5 carried the highest viral loads.

Anecdotal reports supporting COVID-19 transmissibility among children were subjects of an

August 1, 2020 NBC Nightly News broadcast.² At YMCA Camp High Harbor in Clayton, Georgia, where 597 people were present, among the 344 persons tested, 260 produced COVID-19-positive results, the vast majority being children.¹⁵ A letter released by the YMCA of Metro Atlanta, the group that operates the camp, stated: “We made every effort to adhere to the best practices outlined by the CDC and the American Camp Association.”²² The statement went on: “The decision to reopen is one we now regret.”²² Follow-up investigation showed that the camp did not adhere to all best practices, perhaps attesting to the practical considerations that guidance from groups such as the APP⁷ and CDC⁸ fail to address realistically. A second story on that same evening news broadcast reported on a child who tested positive on the first day of classes at a junior high school in Greenfield, Indiana.²

Let us consider the President’s assertion that parents want schools to reopen – that “Everybody wants it.”²⁴ To the contrary, the National Opinion Research Center (NORC) at the University of Chicago reported on July 22, 2020 that only about one in 10 Americans believe daycare centers, preschools, or K-12 schools should open without restrictions this fall¹⁶ – presumably, the restrictions outlined in the detailed, but perplexing AAP⁷ and CDC⁸ guidance. In Arizona, some parents are being asked to sign COVID-19 liability waivers before their children come back to school.¹⁷ Of 256 traditional school districts in Arizona, 249 were provided a standard waiver by the Arizona School Risk Retention Trust, the statewide insurance carrier for schools, so that they could be shielded from potential lawsuits connected to coronavirus outbreaks in schools.¹⁷ A CBS News report by Nicole Brown¹⁸ indicates 6 steps that parents can take to protect their children when schools reopen – (1) Have your child wear a mask; (2) Give them disinfectant wipes; (3) Change clothes as soon as they get home; (4) Get washable backpacks; (5) Wash hands; and (6) Keep your child home if they are sick. If part of the rationale for in-person reopening of schools is so that parents can get back to work,¹⁹ it is unlikely they can monitor that each of these steps is followed on a daily basis for a period of time that may have to extend into 2021 and beyond.

Teachers are among America’s most undervalued professionals – yet, in the midst of a pandemic, they may speak with greater knowledge and authority than some of our health experts and politicians about the practical aspects of the school day. In Florida, the Florida Education Association (FEA), in conjunction with the NAACP, named Governor Ron DeSantis (who favors in-person school reopening) in a lawsuit, stating that a school reopening order violates the Florida Constitution, which requires a “uniform, efficient, safe, secure, and high quality system” of public schools.²⁰ According to FEA President, Fedrick C. Ingram: “No one wants to be back in a classroom and reopen our school buildings more than educators. We are teachers...that’s what we live for...but we want to do it safely and we don’t want to put people at risk.”²⁰ Ingram goes on to say that a survey of FEA members found that 90% were opposed to any plan that involved opening traditional schools 5 days a week. He also said that 39% of [Florida] teachers were considering leaving the profession this year, if their only option is returning to the school campus.²⁰ A nationwide poll of teachers places that percentage at a still sizeable 20%.¹⁰ On an NBC Nightly News broadcast of July 24, 2020, Randi Weingarten, President of the American Federation of Teachers (AFT) warned: “If it’s not safe enough for GOP delegates to be hundreds in the convention space [in Jacksonville, FL], then how is it safe enough in Florida for children to be hundreds in a school?”¹³

For some teachers, returning to the classroom versus leaving a profession they love could become a life and death decision – to an even greater extent if they have a compromised immune system.²¹ Even though the average age of US teachers is 43.4 years, 18.8% are ≥ 55 years of age, and in 5 states (Maine, New Hampshire, Vermont, Washington, Wyoming), more than one teacher in 4 is 55 or over.²² Whereas CDC has removed the specific age threshold from the older adult classification for COVID-19 risk, it now warns that among adults, risk increases steadily with age, and it is not just those over the age of 65 who are at increased risk for severe illness.²³

Teachers opting to retire rather than return to the classroom and teachers potentially becoming

ill and forced to quarantine for extended periods notwithstanding, there is already a teacher shortage nationwide and in US territories heading into the 2020-21 school year.²⁴ The prospect of sick teachers does not portend well for a long and successful year of in-person teaching.

However, teachers are not the only school personnel at risk. On a daily basis, some 480,000 school buses transport pupils to and from schools.²⁵ School buses are ridden by more than one-third of US schoolchildren, about 26 million per day.²⁵

Presently, there is both a shortage of school buses²⁶ and of school bus drivers.²⁶⁻³⁰ School buses are an integral portion of the public education infrastructure. According to a report by the American School Bus Council (ASBC)³¹ approximately 346.6 million miles are ‘saved’ daily by students riding school buses; it would require about 17.3 million private vehicles to transport students that now ride school buses; an estimated 3 mid-sized cars would be needed to transport the students on one school bus; and 3.1 billion additional gallons of fuel would be consumed if private vehicles transported students instead of school buses.

In its new guidelines for school reopening, the CDC urges operators to limit students on the bus to as few as one child per every 2 rows, require masks for children and drivers, and provide comprehensive cleaning between rides. One middle school teacher who retired following the 2018-19 school year after 30+ years in the classroom told me: “We had so few buses and so many kids that on buses having bench-style seats designed to hold 2 children on each side of an aisle, we had to find space for 3. I don’t think the guidance is feasible without more buses, more bus drivers, staggered schedules, and a lot of complexity.” According to Mike Martin, CEO of the National Association of Pupil Transportation: “...parents could be scared to put their children back on a bus, as well as the drivers who could be fearful of transporting students due to the potential exposure of COVID-19.”³² Whereas the federal government does not track the age of school bus drivers,³³ many drivers are retirees. In 2013, an investigative report by the CBS News affiliate in Dallas, Texas revealed that the bus company serving Dallas County Public Schools had 53

drivers over 75 years old, 12 of whom were past 80.³⁴ Clearly, if age is a factor in COVID-19 susceptibility and severity, bus drivers are at risk, and certainly not well-positioned to accommodate the safety practices being recommended. As is the case with COVID-19-infected teachers, the prospect of sick bus drivers will impact the longevity of the in-person school year. The 2019 National School Bus Safety Week theme assigned by the ASBC was “My School Bus, The Safest Form of Student Transportation!”³⁵ We should not want the 2020 theme to be: “Ride the Bus – Community Petri Dish for Disease from Home to School and Back.”

School systems have examined different models for delivering the school year – in-person-only 5 days a week, hybrid style with 1-2 days/week of in-person instruction accompanied by online delivery, online delivery-only (e-learning or virtual learning), and home visits by tutors. In some areas, schools have offered parents their choice.³⁶ Whereas offering choice is a democratic approach, trying to perform multiple models concurrently is logistically challenging, and both operationally impractical and inefficient. The AFT estimates it will cost schools an average of \$2.3 million each for masks, hand sanitizer, soap, equipment, and materials for staff to carry out disinfection practices.¹⁰ Education, an already underfunded entity in the US, will struggle to meet the challenge. If the AFT estimate of per school costs is accurate, and given the probable health risks for school personnel, then a conclusion offered by National Education Association President Lily Eskelsen Garcia is justifiable – teachers do not have to go into an unsafe school just because the superintendent, the governor, or the president says they should.³ To put it succinctly, going to school (for anyone) should not have to encompass the daily risk of a jet airplane test pilot or first responder associated with it.

Some urban school districts, such as the Los Angeles Unified School District (LAUSD)¹³ and the Chicago Public Schools³⁷ wisely have declared that they will start the school year with virtual instruction only. Austin Beutner, Superintendent of the LAUSD has indicated that the system will provide access to computers and Internet for every child who needs them, as well

as provide online and in-person tutoring.¹³ The Pinellas County School Board in Florida, that includes cities such as St. Petersburg and Clearwater, agreed to spend \$21 million for 42,000 new laptops and tablets for students this fall, an action allowing every student in fourth through ninth grade to have one for classroom and home use.³⁸ Even smaller, more modestly resourced school systems can adapt to, and afford investment in virtual learning. In Carbondale, Illinois, a university town with a population estimate of 25,376, District 95 School Superintendent Daniel Booth is a former high school health teacher and principal who holds a health education degree. Citing student and staff member safety, the district decided on July 24, 2020 to reopen school on August 19, 2020 in full remote learning mode – with pupils taught off-site, led in instruction by their teachers. Moreover, every student in the district is to be supplied with a Chromebook and home-based Wi-Fi connectivity.³⁹

There are challenges as well as advantages to online learning. Although some children participated in online schools before COVID-19, most had no prior experience. Best practices in online learning enable pupils to go at their own pace, but also foster critical thinking when they go online at the same time to interact with other pupils, their teacher, and the subject matter. Pupils take greater control in an online environment.⁴⁰

Teachers need the right tools, training, guided practice, and other support to teach online. This is not a new issue – just one for which teacher educators, school administrators, and school boards have kicked the can down the road for years – ignoring that the educational style with a teacher in front of the room and pupils seated theater style has changed only modestly since the days of Socrates. Security is also an issue often raised with online learning. However, and ironically, many of the threats to online learning are similar to the ones that impede in-person classroom instruction. There is concern that by not opening schools and relying on e-learning or other online formats instead, that the digital divide between the ‘haves’ and the ‘have nots’ will increase, while also reducing access to some mental and behavioral health services, subsidized food services, and promotion of physical activity, among others. Whereas this is possible, it also may mini-

mize the disparate impact of COVID-19 on the health of the poor and of people of color if they are asked to continue to shelter at home. It also may reduce their exposure to the likes of school-based violence and school-based teasing and bullying, arguably threats in their own right to both emotional health and effective learning. In time, the necessity of adaptation (as demonstrated by remote teaching plans in places like the LAUSD,¹³ Pinellas County, Florida,³⁸ and District 95 in Carbondale, Illinois³⁹) may, in fact, erode some of the disparities in education, decrease the digital divide, and revolutionize public education. As Noguera writes: “If we don’t aim high, we are going to end up right where we were... with deep and persistent disparities in achievement based upon race and class.”⁷⁴¹

Ultimately, the key to ‘normal’ reopening of schools, in the absence of a safe, effective, affordable, and widely-distributed vaccine, or the creation of a cure, is testing and contact tracing that can estimate the level of community transmission and overall COVID-19 positivity rates. As of August 5, 2020, the 7-day positivity rates were 22.7% in Arizona, 21.5% in Mississippi, 19.2% in Florida, 19.1% in Alabama, 17.6% in Idaho, and above 10% in at least 7 other states,⁴² substantially high rates for recommending the crowding of people into schools. Whereas most school reopening plans address the issue of what will be done if a student or staff member becomes symptomatic, it may be too late to control the course of the outbreak if we wait for symptoms to occur. One of the cities with an early school opening, Corinth, Mississippi, a city with a pupil population of approximately 2700, in a state with the second highest 7-day positivity rate, had 116 school attendees quarantined one week into the school year after 6 pupils and one staff member tested positive.⁴³ Paltiel et al⁴⁴ indicate that with colleges and universities opening in August, symptom-based screening alone is insufficient to contain an outbreak, and that “safe reopening of campuses [in fall 2020] may require screening every 2 days, uncompromising vigilance, and continuous attention to good prevention practices.”⁷⁴⁴ Whereas few higher education institutions have the ability to screen so frequently, it is doubtful that public school systems are in any better position to respond. Even if the tools were

in place, with testing taking 5 days or more in some areas to achieve results,^{45,46} the purpose of testing and subsequent contact tracing becomes functionally meaningless.

The pandemic has changed our lives. It also has caused us to rethink education delivery in schools. However, we have to learn from the premature reopening of businesses, restaurants, bars, and beaches during the Memorial Day and July 4th holidays that likely contributed to large spikes in COVID-19 cases and deaths in the subsequent weeks. We have to learn from the valiant, but feeble attempt to reopen Major League Baseball (MLB), and despite the stated player behavior restrictions, to watch the hugs, fist bumps, and high-fives, as well as the intermittent wearing of protective face masks. Little wonder that less than 2 weeks into the delayed start of the MLB season, nearly half of the Miami Marlins team⁴⁷ and at least 13 players and staff of the St. Louis Cardinals⁴⁸ tested positive for COVID-19, resulting in the cancellation of several games, and the quarantining of numerous personnel.

We all want things to be normal. We all want it to be more like early 2019. There are several examples of school districts – large^{13,37,38} and small³⁹ – that are trying to get school reopening right. There are many more than just the few I have mentioned. I want desperately to be wrong about my prediction that reopening schools for ‘normal’ activity, albeit with restrictions, will result in delaying recovery from the pandemic and threatening the health and life of pupils, school staff members, and other innocents alike. This is the first time in 40 years of my trying to contribute to the scholarly literature that I hope what I am writing is incorrect – that these thoughts instead are only the panic-struck musings of a public health educator who stayed in the profession too long.

A quote rightly or wrongly attributed to Winston Churchill goes: “Americans can always be trusted to do the right thing, once all other possibilities have been exhausted.”⁴⁹ Perhaps they will do the right thing – eventually. Many schools indeed will be reopening with in-person, face-to-face instruction. The health and lives of school staff members and pupils should not be the experiment.⁵⁰ I hope my prediction does not come true. But, if it does, then what?

References

1. NBC Nightly News. July 27, 2020. Available at: <https://www.youtube.com/watch?v=7jnBIsL7gE4>. Accessed August 5, 2020.
2. NBC Nightly News. August 1, 2020. Available at: <https://www.nbc.com/nightly-news/video/nbc-nightly-news-aug-1-2020/4190695>. Accessed August 5, 2020.
3. NBC Nightly News. August 4, 2020. Available at: <https://www.nbc.com/nightly-news/video/nbc-nightly-news-aug-4-2020/4208398>. Accessed August 5, 2020.
4. CBS News. July 7, 2020. Trump pushes states to reopen schools this fall amid coronavirus pandemic. Available at: <https://www.cbsnews.com/news/trump-pressuring-states-to-reopen-schools-this-fall-amid-coronavirus-pandemic/>. Accessed August 5, 2020.
5. Gittleson B. Trump threatens to ‘cut off funding’ for schools that don’t reopen amid pandemic. July 9, 2020. Available at: <https://abcnews.go.com/Politics/virus-spreads-trump-threatens-cut-off-funding-schools/story?id=71670167>. Accessed August 5, 2020.
6. Behrmann S. ‘Science should not stand in the way’ of schools reopening, White House Press Secretary Kayleigh McEnany says. July 16, 2020. Available at: <https://www.usatoday.com/story/news/politics/2020/07/16/mcenany-science-should-not-stand-way-schools-reopening/5454168002/>. Accessed August 5, 2020.
7. American Academy of Pediatrics. COVID-19 Planning Considerations: Guidance for School Re-entry. Available at: <https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-planning-considerations-return-to-in-person-education-in-schools/>. Accessed August 5, 2020.
8. US Centers for Disease Control and Prevention. Schools and Childcare Programs. July 24, 2020. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/>. Accessed August 5, 2020.
9. Sherfinski D. CDC director: ‘Absolutely’ comfortable with grandkids returning to school. July 22, 2020. Available at: <https://www.washingtontimes.com/news/2020/jul/22/dr-robert-redfield-cdc-director-absolutely-comfort/>. Accessed August 5, 2020.
10. NBC Nightly News. July 26, 2020. Available at: <https://www.nbcnews.com/nightly-news/video/nightly-news-full-broadcast-july-26th-88322629747/>. Accessed August 5, 2020.
11. Fulton C. Take it from a teacher: rushing to reopen is dangerous. Tampa Bay Times. July 17, 2020. Available at: <https://www.tampabay.com/opinion/2020/07/17/take-it-from-a-teacher-rushing-to-reopen-is-dangerous-column/>. Accessed August 5, 2020.
12. Aderhold DM. We cannot look in the rearview mirror: preparing our school districts for fall 2020. May 25, 2020. Available at: <https://relentlesschoolnurse.com/2020/05/25/the-relentless-school-nurse-91-questions-for-reopening-schools/>. Accessed August 5, 2020.
13. NBC Nightly News. July 24, 2020. Available at: <https://www.bing.com/videos/search?q=NBC+Nightly+News+with+Lester+Holt+July+24%2c+2020&docid=607992654189691663&mid=3342ADB2D6E6283FC30C3342ADB2D6E6283FC30C&view=detail&FORM=VIRE>. Accessed August 5, 2020.

14. Heald-Sargent T, Muller WJ, Zheng X, et al. Age-related differences in nasopharyngeal severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) levels in patients with mild to moderate coronavirus disease 2019 (COVID-19). *JAMA Pediatr.* July 30, 2020. Available at: <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2768952>. Accessed August 5, 2020.
15. Szablewski CM, Chang KT, Brown MM, et al. SARS-CoV-2 transmission and infection among attendees of an overnight camp – Georgia, June 2020. *MMWR Morb Mortal Wkly Rep.* July 31, 2020. Available at: https://www.cdc.gov/mmwr/volumes/69/wr/mm6931e1.htm?s_cid=mm6931e1_w. Accessed August 5, 2020.
16. Gross H. In a new poll, most Americans do not support full school reopenings. July 22, 2020. Available at: <https://www.forbes.com/sites/hannahgross/2020/07/22/in-a-new-poll-most-americans-do-not-support-full-school-reopenings/#4a7708327f18>. Accessed August 5, 2020.
17. Crenshaw C. Arizona parents asked to sign COVID-19 waivers before sending kids back to school. July 28, 2020. Available at: <https://www.abc15.com/news/region-south-east-valley/queen-creek/arizona-parents-asked-to-sign-covid-19-waivers-before-sending-kids-back-to-school>. Accessed August 5, 2020.
18. Brown N. How parents can help protect kids from the coronavirus when schools reopen. July 7, 2020. Available at: <https://www.cbsnews.com/news/schools-reopening-coronavirus-tips/>. Accessed August 5, 2020.
19. Meckler L. Trump pushes schools to open in the fall, downplaying risks as virus spreads. July 7, 2020. Available at: https://www.washingtonpost.com/education/white-house-schools-fall-coronavirus/2020/07/07/e2b1a16e-c059-11ea-9fdd-b7ac6b051dc8_story.html. Accessed August 5, 2020.
20. Kennedy J. As COVID-19 caseload mounts, DeSantis sued by teachers over school reopening plan. July 20, 2020. Available at: <https://www.tallahassee.com/story/news/2020/07/20/covid-19-caseload-mounts-desantis-sued-teachers-over-school-reopening-plan/5474581002/>. Accessed August 5, 2020.
21. Lucas C, Wong P, Klein J, et al. Longitudinal analyses reveal immunological misfiring in severe COVID-19. *Nature.* 2020 July 27. doi: 10.1038/s41586-020-2588-y. [E-pub ahead of print]
22. National Center for Education Statistics. Schools and Staffing Survey (SASS). 2012. Available at: https://nces.ed.gov/surveys/sass/tables/sass1112_2013314_r1s_002.asp. Accessed August 5, 2020.
23. US Centers for Disease Control and Prevention. CDC updates, expands list of people at risk of severe COVID-19 illness. June 25, 2020. Available at: CDC updates, expands list of people at risk of severe COVID-19 illness. Accessed August 5, 2020.
24. US Department of Education. Teacher Shortage Areas. Available at: <https://tsa.ed.gov/#/reports>. Accessed August 5, 2020.
25. Wilson K. Don't let the school bus be COVID-19's next victim. July 10, 2020. Available at: <https://usa.streetsblog.org/2020/07/10/dont-let-the-school-bus-be-covid-19s-next-victim/>. Accessed August 5, 2020.
26. Padilla M. Bus driver shortage hampers school transportation nationwide. November 8, 2019. Available at: <http://carpooltoschool.com/bus-driver-shortage-hampers-school-transportation-nationwide/>. Accessed August 5, 2020.
27. Paige M. School bus driver shortage amid COVID-19 pandemic. July 17, 2020. Available at: <https://www.msn.com/en-us/sports/more-sports/school-bus-driver-shortage-amid-covid-19-pandemic/ar-BB16SL9V?ocid=uxcntrlbingb4load>. Accessed August 5, 2020.
28. Schulte G. Nationwide school bus driver shortage creates headaches for districts. December 23, 2018. Available at: <https://www.nydailynews.com/news/national/ny-news-school-bus-driver-shortage-economy-20181223-story.html>. Accessed August 5, 2020.
29. Osunsami S. School-bus driver shortage across the US sparks growing concern. August 15, 2017. Available at: <https://abcnews.go.com/Lifestyle/school-bus-driver-shortage-us-sparks-growing-concern/story?id=49222961>. Accessed August 5, 2020.
30. Ochieng V. Nationwide shortage of school bus drivers reaches alarming levels. August 21, 2016. Available at: <http://yourblackworld.net/2016/08/21/nationwide-shortage-school-bus-drivers-reaches-alarming-levels/>. Accessed August 5, 2020.
31. American School Bus Council. Hop on the bus. March 1, 2009. Available at: <https://www.asumag.com/facilities-management/transportation-parking/article/20846374/hop-on-the-bus>. Accessed August 5, 2020.
32. Hannon T. National School Bus Associations Discuss 'New Normal' of Post COVID-19 World. April 15, 2020. Available at: <https://stnonline.com/news/national-school-bus-associations-discuss-new-normal-of-post-covid-19-world/>. Accessed August 5, 2020.
33. Morton N. When kids go back to school, who's going to drive the bus? June 24, 2020. Available at: <https://hechingerreport.org/when-kids-go-back-to-school-whos-going-to-drive-the-bus/>. Accessed August 5, 2020.
34. Allen G. What is the age of your child's school bus driver? March 8, 2013. Available at: <https://dfw.cbslocal.com/2013/03/08/how-old-is-your-childs-school-bus-driver/>. Accessed August 5, 2020.
35. American School Bus Council. Initiatives. 2019. Available at: <http://www.americanschoolbuscouncil.org/initiatives/>. Accessed August 5, 2020.
36. Hillsborough County Public Schools. Reopening Plan 2020-2021. Available at: https://hillsboroughschools.org/docs/00/00/27/19/fa_hcps_reopening_plan_r.pdf. Accessed August 5, 2020.
37. NBC Nightly News. August 3, 2020. Available at: <https://www.bing.com/videos/search?q=NBC+Nightly+News+August+3%2c+2020&docid=13895104173725&mid=5BC87F2921697992F1345BC87F2921697992F134&view=detail&FORM=VIRE>. Accessed August 5, 2020.
38. Fox 13 News Tampa Bay. Pinellas County School District to get 42,000 laptops for students. June 24, 2020. Available at: <https://www.fox13news.com/news/pinellas-county-school-district-to-get-42000-laptops-for-students>. Accessed August 5, 2020.
39. Carbondale elementary School District #95. District #95 chooses remote learning option. July 24, 2020. Available at: https://www.ces95.org/news/what_s_new/district_95_chooses_remote_learning_option. Accessed August 5, 2020.
40. Hou C-Y. The advantages and disadvantages of online

- learning during the coronavirus pandemic. July 1, 2010. Available at: <https://thehill.com/changing-america/well-being/prevention-cures/505452-the-advantages-and-disadvantages-of-online>. Accessed August 5, 2020.
41. Noguera P. Reopening schools with a focus on equity. June 30, 2020. Available at: <https://holdsworthcenter.org/blog/reopening-schools-with-focus-on-equity/>. Accessed August 5, 2020.
 42. Woodman C. Coronavirus positivity rates in the U.S.: how Washington ranks. August 5, 2020. Available at: <https://news.yahoo.com/coronavirus-positivity-rates-u-washington-194533137.html>. Accessed August 5, 2020.
 43. Lynch J. Over 100 students quarantined in Mississippi school district after several individuals tested positive for Covid-19. August 5, 2020. Available at: <https://www.cnn.com/2020/08/05/us/mississippi-school-district-coronavirus-trnd/index.html>. Accessed August 5, 2020.
 44. Paltiel AD, Zheng A, Walensky RP. Assessment of SARS-CoV-2 screening strategies to permit the safe reopening of college campuses in the United States. *JAMA Netw Open*. 2020;3(7):e2016818. Available at: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2768923?widget=personalizedcontent&previousarticle=0>. Accessed August 5, 2020.
 45. NBC Nightly News. July 31, 2020. Available at: www.nbcnews.com/nightly-news/video/new-coronavirus-spikes-driven-by-gatherings-of-young-people-authorities-say-89371205827. Accessed August 5, 2020.
 46. Miller NS. Florida COVID-19 test results lag, adding to confusion and worry. July 24, 2020. Available at: <https://www.orlandosentinel.com/coronavirus/os-ne-coronavirus-test-backlogs-20200724-6fpp5iuhhnatbd4p4h4rlr-pqly-story.html>. Accessed August 6, 2020.
 47. Marcovitch M. Marlins players react to week of 'ups and downs' after coronavirus outbreak. August 5, 2020. Available at: <https://www.msn.com/en-us/sports/mlb/marlins-players-react-to-week-of-ups-and-downs-after-coronavirus-outbreak/ar-BB17z2Yw>. Accessed August 5, 2020.
 48. Levenson E, Dotson K. August 4, 2020. Available at: <https://www.msn.com/en-us/sports/mlb/13-st-louis-cardinals-players-and-staff-tested-positive-for-covid-19-mlb-says/ar-BB17wplO>. Accessed August 6, 2020.
 49. The Churchill Project. "Americans will always do the right thing..." November 22, 2016. Available at: <https://winstonchurchill.hillsdale.edu/americans-will-always-right-thing/>. Accessed August 5, 2020.
 50. Patrick SL, Cormier HC. Are our lives the experiment? COVID-19 lessons during a chaotic natural experiment – a commentary. *Health Behav Policy Rev*. 2020;7(2):165-169.