

REOPENING SCHOOLS IN THE COVID-19 ERA



June 30th, 2020

A SUMMARY OF THE CURRENT COVID-19 LANDSCAPE

The emergence of the COVID-19 has altered nearly every aspect of society as we work to contain the spread. In most parts of the country restaurants have been shuttered, events cancelled, and face masks became a part of daily wardrobes. Yet despite collective efforts, confirmed cases of the virus have continued to grow with more than 10.2mm global infections and 2.6mm, or almost 26%, of the infections occurring in the United States (the actual number is likely much higher with many countries suspected of either accidentally or purposefully underreporting case numbers). It's certain that the coronavirus will continue affecting our communities until we develop a vaccine, which is expected no sooner than early 2021 according to experts in the community.

In the meantime, businesses and organizations need to continue adjusting behavior and environments to combat the virus while maintaining essential activities. To accomplish this, testing is widely recognized as a necessity, and the country has made significant progress in our nationwide testing capabilities. In June the U.S. as a whole is finally consistently testing 500,000 people per day, the lowest acceptable capacity for containment according to public health experts, compared to average testing of 200,000 per day in April. However, individual states have not all adequately increased their testing as they continue to combat supply shortages, lab capacity constraints, and unexpected surges in new cases (Arizona having the largest statewide testing shortages). Testing is essential for getting control of the pandemic as it allows monitoring of outbreaks, contact-tracing, isolation of the sick and quarantining of the exposed. As various parts of our communities look to reopen, we need clear and comprehensive guidelines and improved implementation on a range of activities including social interactions, protective wear, and testing to ensure a minimum level of safety in our environments.

PUBLIC EDUCATION SYSTEMS AND COVID-19

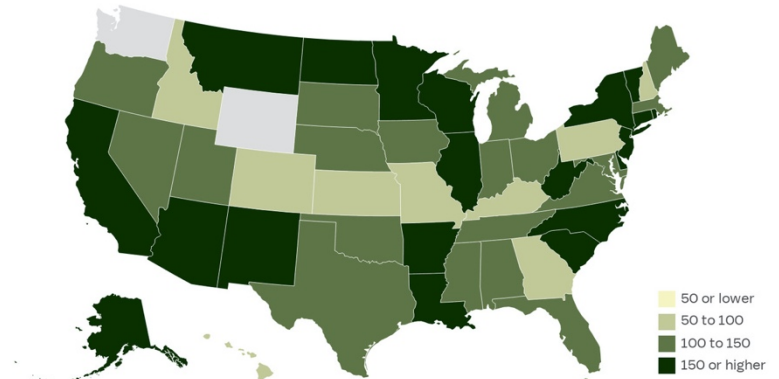
The education systems in the U.S. have a uniquely high number of obstacles to consider before re-opening. More than 77 million students are enrolled in US schools, amounting to almost 25% of the population, and it is a necessity that they return to classes in the Fall. To accomplish this, school systems will require carefully planned operational precautions, budgetary considerations, and a huge effort by administrators and teachers to adjust their teaching methods. In particular, the K-12 public education systems face a confluence of challenges. Since early February, our institutions have taken swift and necessary action including completely shuttering the majority of buildings in March and transitioning to remote learning, passing federal funding through the CARES act, and reducing standardized testing

requirements for the 2019-20 school year through the Board of Education. However, many challenges remain before schools can safely reopen in the Fall.

The CDC has issued detailed [guidance](#) for schools that outlines many parameters for safely reopening. The guidelines focus on safe behaviors (social distancing, wearing face masks) and safe procedures (cleaning, transportation, remote learning options) while clearly leaving choice and implementation to the local school systems. Complete adherence to these guidelines will require both high operational sophistication and high costs for the schools. In particular, the American Federation of Teachers has estimated that schools will need \$116.5 billion, or almost 20% more than budgeted, for additional staff and supplies to safely reopen all K-12 public schools. Furthermore, teachers' unions across the country are demanding states meet various incremental safety hurdles. Although the CARES act designated funding to the education system, it has totaled just \$23bn across K-12 and higher education amounting to only \$272 per student. In addition, many school systems are facing uncertain state funding as the majority of systems rely on decreasing sales and income tax revenue. As a result, school systems are debating how far they may have to stray from CDC guidance due to efficiency and budget limitations. Simultaneously they're calling for increased state and federal funding, and they're requesting solutions from the public and private sectors to ensure their students' safety.

Most states still don't have enough testing per capita

Daily new coronavirus tests were mostly below 150 per 100,000 people as of June 22



Note: Covid-19 test counts are based on the seven-day moving average of daily new coronavirus tests.

Source: Covid Tracking Project and Census Bureau

Vox

PUBLIC SCHOOL SYSTEMS PLANS FOR REOPENING

In the United States, school systems have mainly utilized the CDC's guidelines, published on May 19, 2020, to plan for the reopening of schools in the Fall. There is a large emphasis on social distancing, face masks, and staggered starts, however, each approach differs in some respects. The CDC guidance and plans published by states' Boards of Education offer guidance to school systems while avoiding specific operational steps to combat the virus in schools. Illinois's State Board of Education recently distributed [its plan](#) to reopen schools in the Fall. Illinois's plan mirrors much of the CDC's guidance, requiring face masks, social distancing when possible, symptom screenings, temperature checks, and an increase in schoolwide cleaning. Similarly, California published a [guidebook](#) for reopening proposing different strategies depending on how the pandemic evolves (see insert). Each plan has a different approach to staggered class times, offering the school system flexibility, while maintaining an emphasis on hygiene, social distancing, and face coverings. California will conduct "active screening" for students and staff entering campuses, consisting of visual wellness checks and no-touch thermometer checks. Many states are still compiling data to develop comprehensive

plans to reopen schools for the Fall. New York State has not yet announced a reopening plan, but has [hinted](#) at staggered starts and partial remote learning. Mayor Bill de Blasio suggested it was unlikely that New York City's students would return full-time in the Fall.

Because the virus spreads at different rates across the world, some other countries have already begun opening schools for the summer and have implemented early plans to make schools safe. Like the United States, Germany has been developing plans at the state level while taking into account guidance from the federal government. Many states follow similar guidelines propagated by the CDC, however, strategies vary significantly. Relying upon the fact that the virus is less likely to affect the young and upon space restrictions, Saxony, in northern Germany, has overridden social distancing rules and face covering requirements. Other German states have begun to innovate by testing staggered class times and digital learning. In Neustrelitz, a nearby biotechnology company is offering the local high school free testing twice a week which would normally cost \$44 a test.

After experiencing a decline in new COVID-19 cases due to heavy testing and contact tracing, South Korea decided to reopen its K-12 schools on May 19th. This opening occurred after being delayed five times, highlighting the difficulty of timing the reopening. Their strategy for reopening relies heavily on remote learning, with only students in their final academic year attending school in person every day. Schools will begin with staggered starts by grade, extracurriculars are cancelled, and schools will shut down if there is a single infection amongst the students or staff. Additionally, all students will have their temperatures checked before being allowed to enter campuses. If symptoms appear, the student will be isolated and then rushed to hospital to be tested. Schools in the United States have incorporated some of the tactics used by schools overseas that have already opened and should pay close attention to their efficacy.

California's 4 Scheduling Options:

Two-Day Rotation Blended

Students attend in person classes on two designated days depending on grade level. Two other days would include attending various school programs on site or with community partners.

A/B Week Blended

For the first four days of the week, half of the student body attends in person classes while the other half engages in distance learning. On Friday, all students would engage in distance learning.

Looping Structure

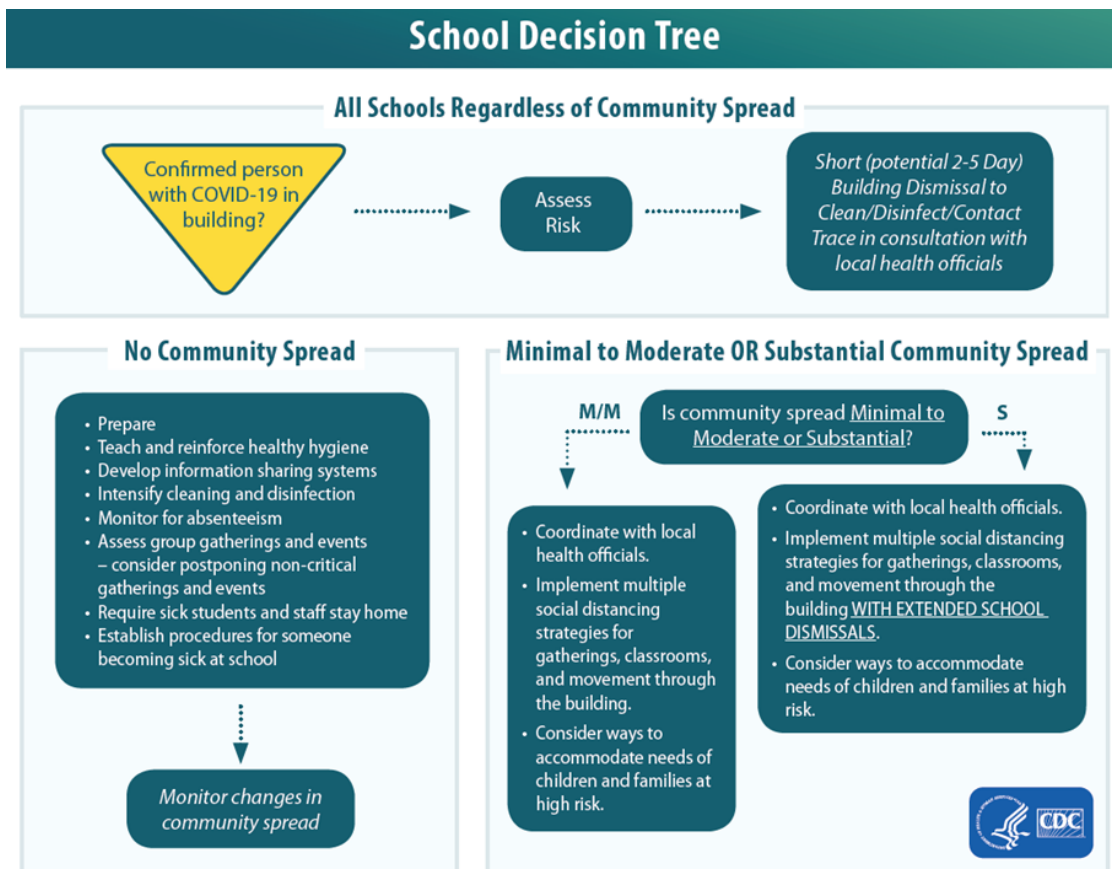
Students would stay with the same teacher and cohort for multiple grades thereby increasing learning rates and building a better understanding of health and safety.

Early/Late Staggered Schedule

Each grade would have a staggered start and dismissal time such as an AM/PM rotation. Additionally, there would be multiple recesses and lunch breaks to accommodate social distancing.

WHAT HAPPENS IF SOMEONE TESTS POSITIVE?

Some schools have established robust and detailed plans for when a student or member of staff gets sick. Following CDC guidelines, the first step required is to shut down any building that the student/staff entered. Upon the discovery of sick person, they should be isolated away from the student body until an ambulance can take them to a nearby hospital. After waiting for 24 hours as suggested by the CDC, the building should be cleaned and disinfected, and classes can resume. As schools experience isolated cases, they will be able to better adapt their plans to be more effective.



It is impossible to predict the frequency of positive cases at schools, however, if there are constant disruptions to the academic year, it will be clear that this framework is unsustainable. The issue lies in that because only symptom screening is being conducted, it is hard to detect the presence of the virus during its incubation stage during which carriers are already contagious. The information lag creates an opportunity for the virus to spread undetected both at the school and at home. Following the CDC’s guidelines would be almost impossible for many school districts as it suggests social distancing which would cut class sizes in half and recommends face masks for even young students which educators deem unrealistic. Remote learning or a hybrid approach have their own difficulties as they require parents to be home to supervise young children. These problems are still yet to be addressed by many school districts who aim to have their schools reopen in under two months.

TESTING PLANS ACROSS THE EDUCATION SYSTEM

Guidance for reopening schools at both the federal and state level has been very specific around ideal target behaviors and procedures, but it has been light on actual implementation to date. This leaves schools to contend with which safeguards to institute and in what ways. However, across the public K-12 system guidance and implementation of testing has been noticeably absent from discussion. The CDC guidelines outline steps that a school may take for someone who has tested positive, however, it appears they leave the responsibility for testing symptomatic or asymptomatic individuals upon the students and families

This is starkly different from the testing approach many other institutions are taking, such as corporations or universities that are responsible for group environments and believe testing is crucial to containing the virus. Of more than 1,000 colleges that have reported plans for the Fall, 63% are going to return to on campus in-person instruction. Across those schools, a number of testing approaches are being considered. Notably, Boston University has released plans for building their own testing capacity for 5,000 tests per day and requiring testing upon re-entry to campus and intermittently throughout the year. The university stated, "We consider in-house COVID-19 testing an essential public health step...as we resume the activities that make up the traditional residential college experience."

Similarly, members of the Virginia University system (including UVA, Virginia Tech, and Virginia Commonwealth University) are requesting \$200mm in state funding to cover testing procedures to ensure students can safely return and remain on campus. While they have not detailed exact testing frequencies for various campus groups, they expect testing across the system to be up to nearly 20,000 tests a day, or 2x the current daily testing statewide, as staff and students re-enter campus life. While many universities have not yet publicly revealed their testing approach, Brown University president Christina Paxson aptly summarized the growing belief across campuses in a [NY Times op-ed](#), "Testing is an absolute prerequisite. All campuses must be able to conduct rapid testing for the coronavirus for all students, when they first arrive on campus and at regular intervals throughout the year.". Undoubtedly a residential college experience has unique challenges, however, testing considerations should be thoroughly analyzed before proceeding with reopening any group environment.

TESTING CONSIDERATIONS FOR PUBLIC K-12 SCHOOLS

Testing is crucial for containment but testing recommendations and capabilities differ broadly across communities. In the public K-12 system testing will have to be carried out by a third-party laboratory system (given schools' lack of infrastructure and expertise) and schools will have control over their level of involvement. School systems may elect 'high involvement' that includes potentially contracting with a vetted private laboratory to ensure testing capacity, pricing, and target testing volumes (i.e. weekly, monthly, or intermittently as needed). They may elect 'no involvement' that relies entirely on individual students obtaining testing from public health systems or private providers as needed. Or they can create a hybrid 'moderate involvement' approach with clearly outlined procedures, limited capabilities, and student monitoring.

Schools' decisions on testing involvement will depend upon many factors. Certainly, the various budget constraints across public education will force systems to assess a range of testing possibilities with different cost structures. In addition, local lab testing capacity and school administrators' comfort-level with coronavirus spread and containment plans in their

communities will inform their decision-making. The optimal procedure of testing and capabilities for each school varies widely, making a thoroughly analyzed plan a necessity.

FUTURE CONSIDERATIONS

It is essential that schools access or create testing capabilities in order to monitor outbreaks, perform contact-tracing, and isolate sick and exposed individuals effectively. Decision makers and school boards should consider various strategies, risks, and technical solutions while devising their plan. Surveillance testing, pooled testing, rapid response testing, point of care testing, and testing frequency should all be considered when devising a community testing strategy. Schools and administrations should make themselves aware of confidentiality requirements, results reporting procedures, and HIPPA compliance in order to develop compliant post-analytical procedures and best practices. Further, it is paramount that testing partners should be assessed on technical vectors such as proficiency, quality, specificity, turnaround time, EUA and/or FDA approval, collection methods, and results reporting interfaces. Administrations who are able to understand and actively monitor these considerations as strategies are developed will be able to determine the right partners and methods while mitigating risk and understanding trade-offs. This is required for a nimble, considered response that will allow the resumption of essential activities.

ABOUT NICHOLS MANAGEMENT GROUP

The Nichols Management Group, Ltd. (NMG) is a consulting firm focused on clinical/anatomic laboratory advisory and management services. NMG has proven systems, management techniques and expertise to facilitate effective laboratory related decision-making, strategy, and operations.



NMG has been the driving force behind many of the most successful ventures in laboratory management. Since 1988, NMG has become the recognized leader in strategic development operations, efficiency, and management services. We have developed strong relationships with a geographically diverse and loyal clientele. Our average client relationship spans more than three years; many of our client relationships span more than ten years. We excel at developing business growth for many diagnostic organizations, ultimately improving the overall quality of care.

Most recently, NMG has provided advisory services and management services to laboratories and health systems as it relates to COVID-19 testing capabilities. NMG has a deep level of expertise in the pre-analytical, analytical, and post-analytical considerations required to perform high-quality, cost-effective, and high throughput selected testing.

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