Taking Back Control
A Resetting of America's Response to Covid-19

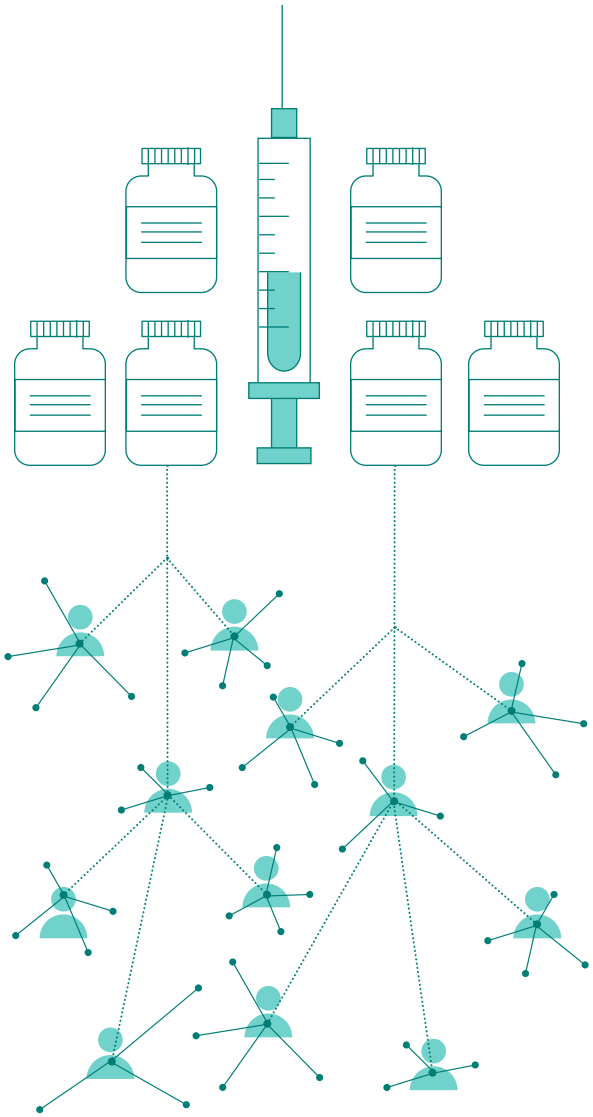
The ROCKEFELLER FOUNDATION

Embargoed until 12:01am ET
Wednesday, December 16, 2020

Executive Summary

The end is in sight. Yet there is a long way to go.

We need to continue to ramp up Covid-19 testing and put in place policies that recognize the cascading benefits of getting back to work, going back to school and taking back control of our lives.



Covid-19 vaccines have arrived, with enough supply to vaccinate as many as 50 million people by the end of January.[1] But these initial doses will do little in the short term to arrest an epidemic that is raging out of control. The United States is now reporting more than one million new coronavirus cases every week, hospitals are nearing capacities, and daily death tolls are at record levels.[2] More Americans are now *dying every day* from Covid-19 than died in the terrorist attacks of 9/11 — a rate of nearly 100,000 people per month.[3]

Meanwhile, American families have reached the end of their endurance, the economy may be sliding into another slowdown, and many children have lost nearly a year of schooling.[4] The country cannot afford another six months of paralysis with schools and businesses widely shuttered while vaccines are manufactured and distributed.

Indeed, there is a challenge in setting vaccination priorities — supporting those most at risk of illness and death like health care workers and nursing home residents — and the need to reopen schools, manufacturing facilities, businesses and other public venues. Many of the country's most important economic actors, including teachers, may not receive vaccines until at least the second wave of vaccinations, which is unlikely to occur until spring or later. Students will likely have to wait until the third or fourth waves, which may not arrive until fall.

In the meantime, far more must be done to slow the catastrophic spread of Covid-19, including fixing and augmenting the nation's testing system — still plagued by supply constraints and delays. Such problems are the main reasons tests continue to be used mostly in people with symptoms or those in recent contact with someone with Covid-19. That is not enough. Instead of being reactive, testing must become a proactive tool to find asymptomatic and pre-symptomatic infected individuals before they pass along their infections to others.

In the coming months, we expect an avalanche of pooled, rapid and point-of-care Covid-19 tests that will help allow this type of proactive testing to routinely take place. By the end of January, the country will likely be able to conduct more than 70 million tests *each week*, a number that is expected to double to 200 million by April. The latter is enough to offer protections to almost every individual at increased risk of infection, and along with vaccinations and other safety measures, begin to stamp out Covid-19's virulent spread. In addition, substantially greater capacity is feasible: a timely federal action plan could increase this capacity by an additional 100 million per week within the next several months.

In ramping up testing, the country must choose what parts of the economy are reopened first and work to protect them from being victimized by or causing outbreaks. There are four key questions that must guide the next several months: Who is likely to become infected? Who is likely to spread infections? Who is most likely to die? And what workers are most needed to bring the nation's economy back to normal?

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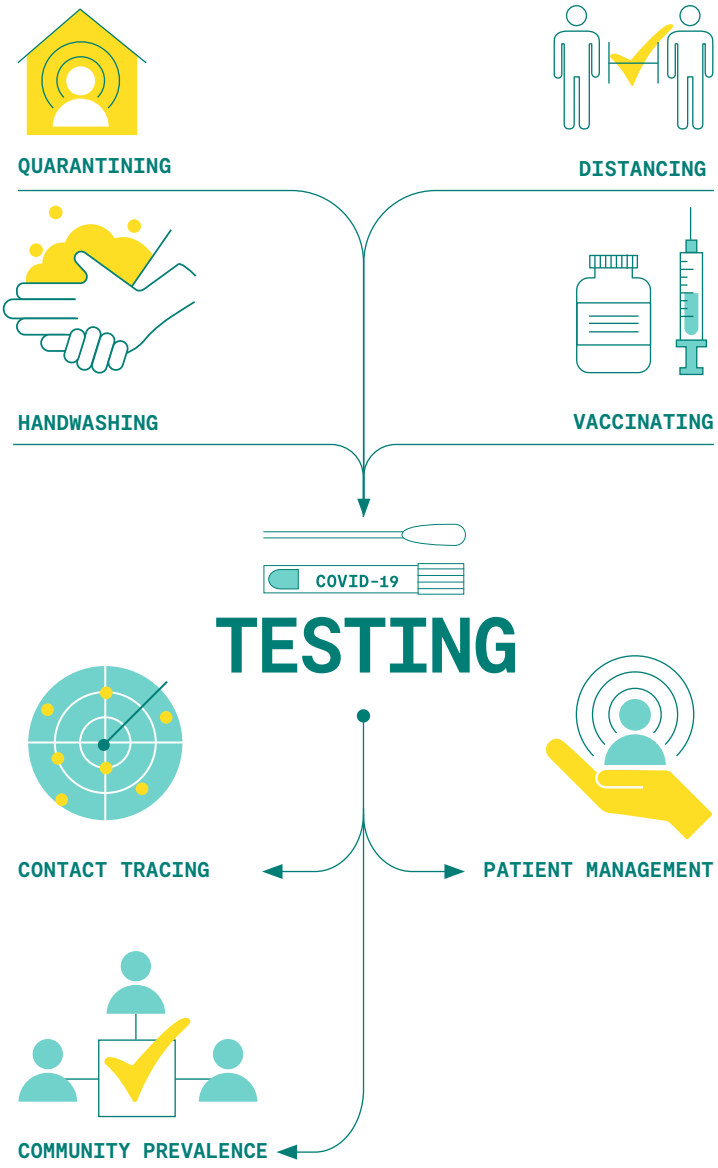
Using this framework, priorities should include places like nursing homes and other elderly living facilities, hospitals and clinics, police stations and firehouses, prisons and shelters, food processing and manufacturing facilities, and schools.

Each has a claim to be at the top of the list, but for the sheer range of its benefits to society and the economy, as well as what is now proven to be a low risk of transmission among school children,[5] we prioritize schools. One reason for this choice is that vaccines will, within weeks, offer considerable protection to the nation's most vulnerable cohort, nursing home residents. Such a shield in nursing homes means some testing can be redirected to protect the other end of the age spectrum.



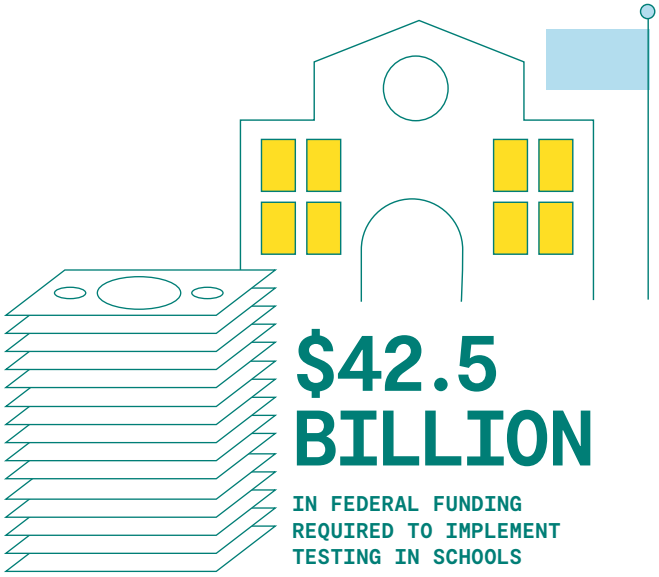
Why Schools Are Critical

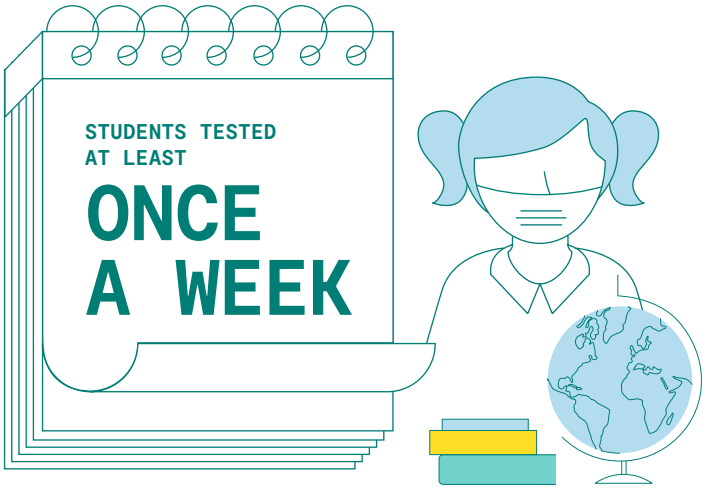
School closures result in massive and long-term costs both to society and individuals. The education schools provide is essential to our country's future. Studies have shown that diminished instruction for even a year can negatively impact students' success throughout their careers.[6] Functioning schools are central economic players not only because of their educational benefits but also because tens of millions of adults cannot work effectively, or at all, until their children are back in the classroom. School closures are eating into our nation's wellbeing now and will do so well after the vaccine has allowed us to resume our normal rounds.

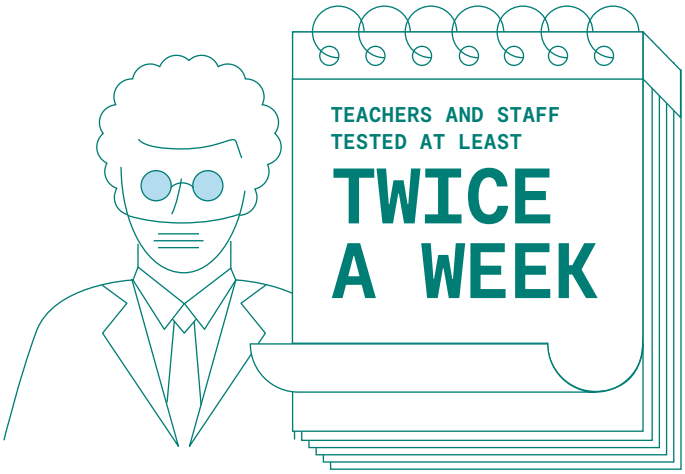
A commitment to public education has since its earliest days been a defining feature of American democracy and a central tool for achieving equity. Schools are often at the geographic heart of communities and protecting children is a primary moral obligation. A fully reopened K-12 school system should be the hallmark of the American return to social and economic health.

Young children appear to be at far lower risk from Covid-19 than adults, and there is a growing body of scientific evidence that children and adults can be kept safe in indoor environments with the rigorous deployment of appropriate measures like masking, hand-washing, physical distancing, improved ventilation and routine testing.[7] The last of these has never been available in anything approaching the numbers needed. Until now.

With this testing, schools should plan to reopen in waves as testing capacity comes online, which will also allow districts to solve the logistical challenges in standing up routine testing programs. Students should be tested at least once a week — every week. Adults, including teachers and all in-classroom personnel as well as outside of classroom staff including administrators, bus drivers, cleaning and maintenance teams, technical staff and any others, should be tested at least twice a week — every week. To ensure that all schools can reopen with sufficient testing support, the federal government should implement a plan to provide dedicated testing capacity and implementation support to all schools that wish to use it.







The first wave should prioritize reopening of all of the nation's 56,000 public elementary schools by February 1.[8] With about 20 million students, elementary schools will need at least 85 million tests per month. While more data should be collected, there has not been a community outbreak traced to an elementary school, and contact tracing studies have found that children are almost never the source in infection clusters.

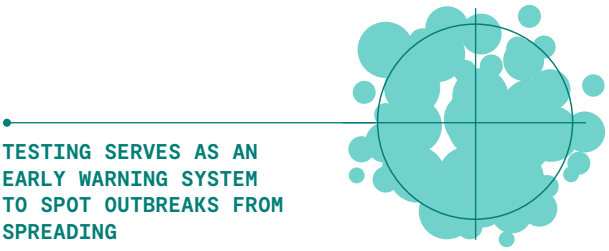
Several weeks later, the nation's 18,000 middle schools could have enough tests to reopen or remain open safely. With more than 15 million students, these schools will need approximately 70 million tests per month.

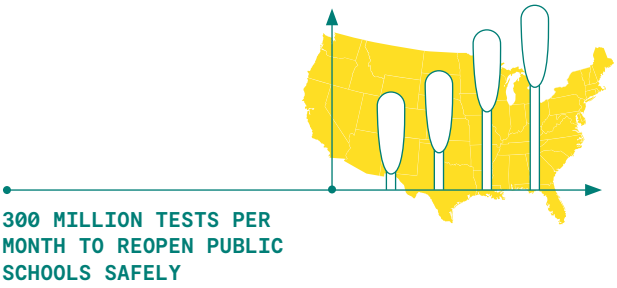
By March 1, we believe that we will have sufficient capacity for the nation's almost 25,000 high schools with more than 15 million students. Every public high school should then be able to reopen or remain open safely as well, allowing every one of the nation's nearly 100,000 public schools to operate in-school classes for the final months of this school year.[9]

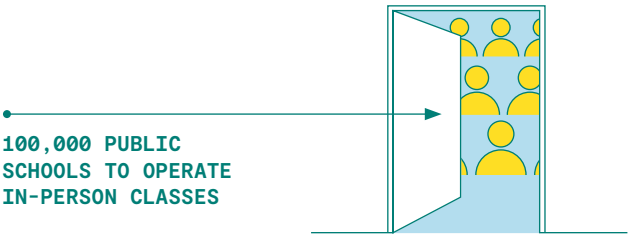
Critically important for all of this school testing is regular, twice weekly testing for all of the almost 9 million teachers and staff throughout the nation.

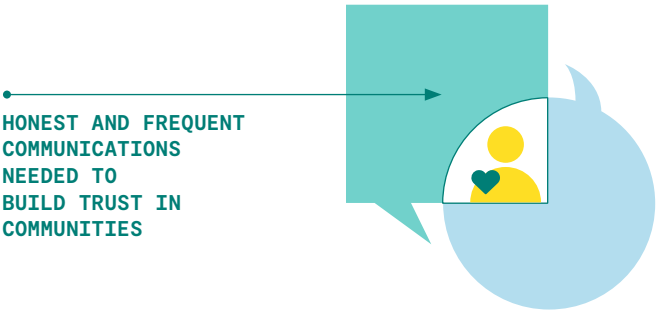
The best tests are the ones school districts can reliably supply that provide results within 24 hours. But if they have an array of choices, administrators should select individual polymerase chain reaction (PCR) tests, still considered the gold standard. To reduce costs and turn-around times, pooled PCR tests — in which samples from multiple people are initially combined — should be considered. Antigen tests, while less sensitive, are nearly as good at identifying those most likely to transmit infections to others. Their nearly instant results, modest costs and wide availability make them a good choice to measure infectivity.

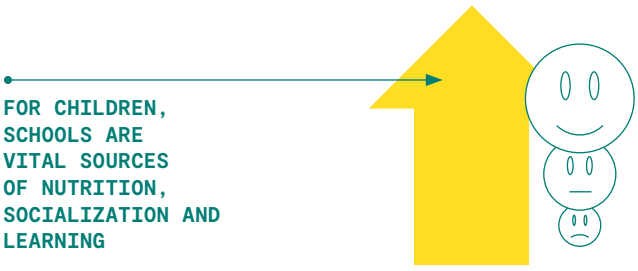
But testing programs, while crucial, are far from the only tools that the nation's 13,000 school districts will need to safely and sustainably reopen on such an aggressive timetable.[10] All will need Covid-19 "ambassadors" and extra staff, clear and understandable protocols, spaces to administer tests, masks and sanitizer, new class schedules to minimize crowded transitions, transportation changes, and ventilation improvements or in-class











air filters. Critically, there needs to be a reservoir of trust with teachers and parents that can only be built with honest and frequent communication. With state budgets already strained, the federal government must provide not only a rapid infusion of funds but also plans, experts, and messaging. The protocols, guidelines, and best practices learned from routine school testing can also be utilized for other high-priority settings, and can continue to increase public understanding of the importance of routine testing.

Altogether, K-12 schools, their students, teachers and staff, will need approximately 300 million Covid-19 tests performed each month from February through June. Since the most realistic and effective protocol is testing students at least once a week and teachers and staff twice a week, the fastest and most effective way to ensure results within 24 hours is through pooled PCR testing followed by retesting any positive groups with individual diagnostic tests. The initial pooled test itself will cost between $10 and $15 and necessary personal protective equipment (PPE), logistics and related software will be approximately $10 per test resulting in a cost of $25 per initial pooled test. For positive PCR pools or positive antigen tests, the additional follow-up testing would cost approximately $60 per test. These costs are a substantial discount to the current market costs as a result of the large volume of testing with a small number of providers that we would recommend for this dedicated school testing program. The total testing costs will be approximately $8.5 billion a month for the rest of the school year. By next fall, this price should drop more as pooling protocols proliferate and newer technologies are introduced.

Beyond funding for individual tests, in order to implement this testing, the federal government needs to fund the creation of a series of regional laboratories that would copy the efficiency of the Broad Institute's and other lab's pooling testing model. With an investment of $100 million, 6-10 such regional labs could be established within approximately six to eight weeks.

The federal government should allocate $42.5 billion for testing alone for the rest of this school year. This is in addition to the staffing, building fixes and other supplies needed. The American Federation of Teachers has estimated these additional costs for a safe opening would be $116.5 billion pay for extra staff, PPE, enhanced cleaning, and other safety measures, excluding testing and building upgrades.[11] This money will not only rescue millions of children from learning deficits they may never overcome, but it will create the nation's first widespread testing of asymptomatic people. The cases uncovered through school testing will help lower community infection rates and potentially save thousands of lives. This is a small investment given that economists estimate an additional $354 billion in GDP gains would be added once caregivers returned to work.[12]

The current administration and Congress can take steps now toward implementing this plan, and the incoming Biden administration must be prepared to undertake a series of bold, unprecedented actions in its first days for this plan to succeed. Only an accelerated vaccination schedule is more important than expanding access to timely testing nationwide, especially to schools, along with masking, social distancing, and disinfecting.

The stakes could hardly be higher. For children, schools are vital sources of nutrition, socialization and learning but only about a third are attending any in-person classes today.[13] Remote learning increases attainment gaps between white students and their Black and Hispanic peers. Students in many urban districts are failing at unprecedented rates, deficits that could lead to significant reductions in lifetime earnings. Closures have resulted in greater risks of child abuse, neglect, and mental and physical health problems. Every day of closure adds to these tolls.

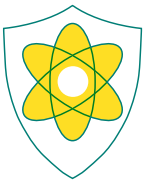
The politics of some of these measures will be fraught. Testing and other mitigation measures cannot eliminate the risks of infection entirely. But the evidence is clear that schools can be made safe by any reasonable definition of that word. The risks that remain are worth everyone shouldering because of the vast, devastating and widely recognized costs of most schools remaining closed. Too many will suffer or fail to reach their potential unless dramatic measures are taken now. There will not be one perfect path for everyone and every stakeholder. Doing nothing is also a decision and it is not an option, given the low risk of transmission and the devasting effects we are seeing in our children from school closures.

Executive Actions

Test Supplies and Conditions

1.

Centralize procurement and payment for all tests and test supplies for schools, and have the federal government expand and utilize The Rockefeller Foundation's State and Territory Alliance for Testing (STAT) to distribute tests and supplies to states in accordance with needs as defined by states and territories. This will enable school districts to receive adequate supplies in order to reopen with testing protocols that ensure teacher and student safety.

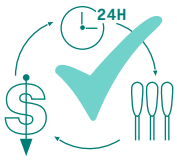


2.

Use information on supply bottlenecks, additional purchasing contracts, and the Defense Production Act as needed to expand the capacity of molecular labs especially for PCR tests, and the manufacturing of lab supplies like plastic pipette tips, test tubes, and swabs that, nine months into the pandemic, remain in critically short supply. These unforgivable market failures can and must be corrected immediately in order to reduce time from test to results in under 24 hours.

3.

Issue an executive order streamlining requirements preventing many school districts and businesses from offering tests, including the need for a prescription, a CLIA waiver, HIPAA compliance, and the presence of a certified healthcare professional. There should be a clear and straightforward process that all districts can follow to implement testing. Ensure ease of use of a data system to report results to health authorities and lift burdensome federal requirements on reporting.



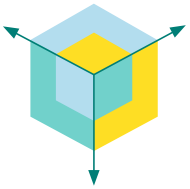
4.

Issue an executive order that clarifies liability protections for those who make good faith efforts to provide reliable testing. The order should support effective strategies for antigen and pooled-PCR testing in screening infections in asymptomatic individuals.

Funding and Incentives

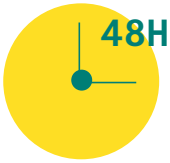
1.

Labs should be paid directly for pooled PCR tests for surveillance/ screening purposes from designated high-risk settings. Since such tests are given to people that have no specific reason to believe they are infected, HHS has clarified that insurers are not required to cover these tests under the CARES Act. Direct payment will allow the government to negotiate lower rates and increase efficiency in billing.



2.

Invest in expansion of PCR lab throughput throughout the country by building or expanding 6 to 10 very high throughput regional labs and equip them to ensure 24 hour or less turnaround time.



3.

Reduce or deny payment for Covid-19 tests that deliver results more than 48 hours after sampling, since such tests are a waste of precious resources. Note: The goal for turnaround will be 24 hours.

4.

Create a national dashboard of Covid-19 lab capacities and turn-around times to correct chronic disconnects between supply and demand and encourage faster results.

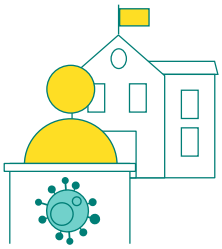
Staffing and Teaching Support

1.

Deploy the U.S. Public Health Service's Commissioned Corps and provide financial support for rapid training and deployment of the work-force needed to support proactive testing. The corps should offer in-per-son guidance and coordination for the nation's 13,000 school districts. The largest districts should have several; the smallest should share one.

2.

Provide funding to states to use public health workers (for example, contact tracers when caseloads are high) to assist with in-school Covid test administration, education, and support where necessary. Contact tracers, along with the National Guard, first responders, and others can be deployed, and additional public health workers trained if necessary, to help schools reopen.



3.

Appoint teachers within each school to become Covid-19 ambassadors. It is important for students to have teachers that they know and trust to help educate and maximize confi-dence in this testing regimen. It will be important to train and add com-pensation for these teacher leaders.

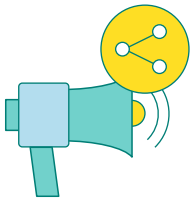
4.

Ensure that teachers are prioritized in receiving vaccines in the second wave of vaccinations, which will occur after the nation's nursing home population and front-line healthcare workers get their doses.

Communications and Public Trust

1.

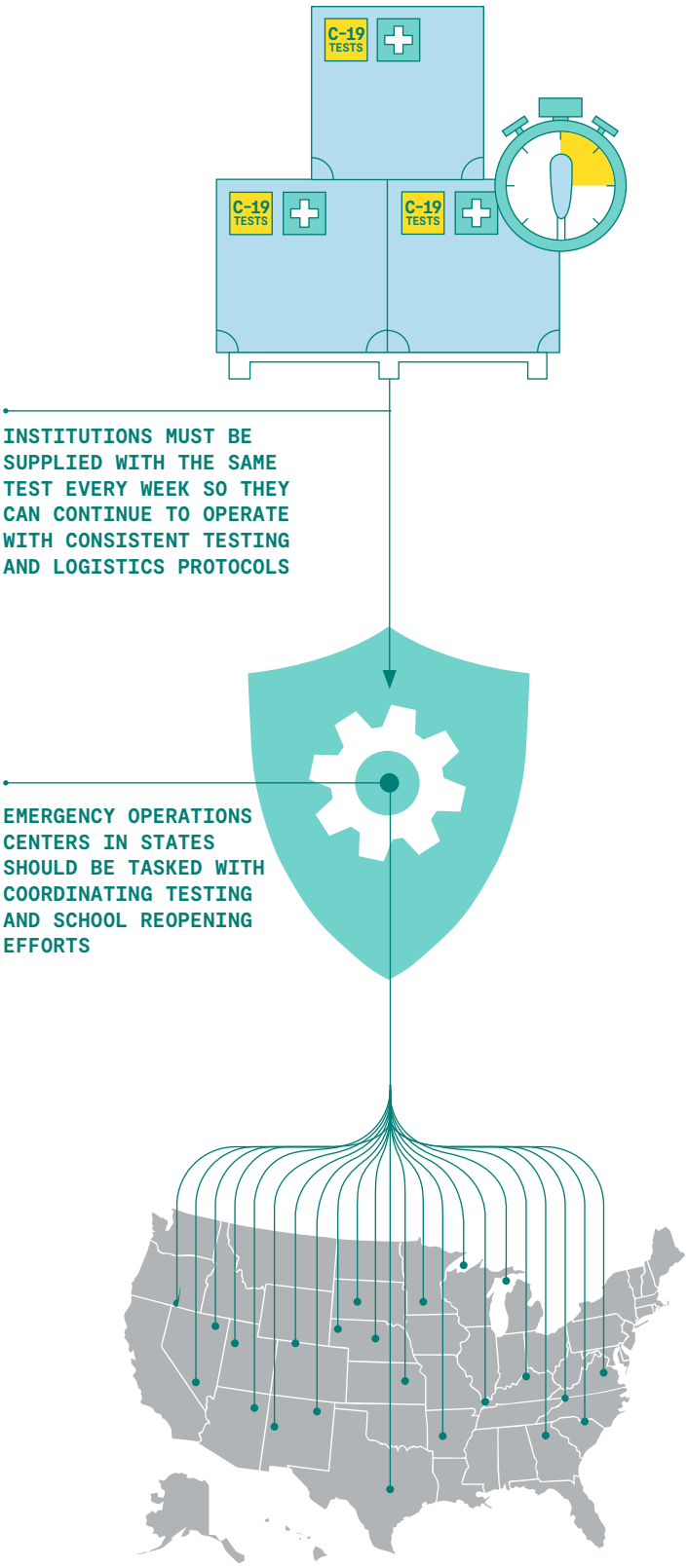
Offer a daily briefing on the pandemic with the President's Covid-19 taskforce to increase the accuracy of media coverage and give media more access to the best scientific advisers. The day's message should be delivered by experienced healthcare professionals and reflect the consensus of scientific opinion, address changes in response efforts as the pandemic evolves, and be repeated in every forum available.



2.

Call on social platforms to step up their responsibility for managing mis- and disinformation given their growing role and influence for news and information.

The Plan in Detail



We are running out of time. The administration's actions and messaging must be accompanied with a profound change in mindset among leaders, regulatory agencies and scientists. We now know enough to make a reasonable risk-benefit analysis and must not let perfect be the enemy of good, nor can we wait for all the evidence to come in before we act. This doesn't make evidence generation and pilot studies any less important, but it means that we must act now with the best information at hand while being prepared for that advice to change over time as more data comes in. Policy decisions and evidence generation must also be grounded in scalability and easing logistical challenges. Proven strategies must be operationalized by existing institutions. When institutions are trained on a particular test and have created an operational protocol, those institutions must be supplied with the same test every week so they can continue to operate with consistent testing and logistics protocols.

To rapidly ramp up testing efforts that work, public health agencies' capacities must be dramatically expanded by those of federal emergency managers and responders who are experienced in getting resources and plans underway in emergency situations. FEMA and state Emergency Operations Centers need to play a stronger role coordinating testing and school reopening efforts in conjunction with the State and Territory Alliance for Testing and state education departments, with health officials serving in advisory roles.

By March 1, those most vulnerable to illness and death from Covid-19 should have achieved a level of immunity via vaccines, significantly reducing the consequences of a Covid-19 infection to an individual's health. At that point, new risk assessments can be made, particularly after more information is available on the effect of vaccines on transmission of the virus, and allow test priorities to be reevaluated.

Finally, the administration must make clear that antigen tests are valuable tools for proactively screening asymptomatic individuals in routine, repeated programs, and ensure that there is research and evidence generated to end the widespread uncertainty about the utility of these important instruments in stopping spread of Covid-19.

Asymptomatic Screening Works

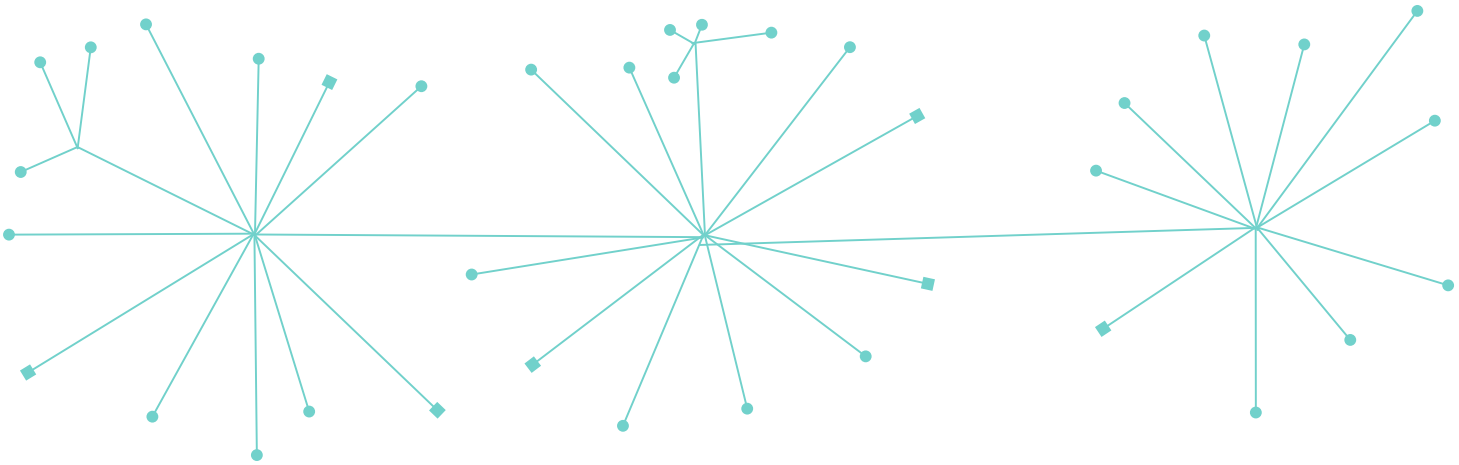
Evidence is continuing to emerge that suggests asymptomatic testing in the form of surveillance or screening programs can be a major lever to facilitate the safe reopening of schools by reducing transmission and isolating potentially infected individuals. Studies have shown that 30-60% of Covid-19 cases are asymptomatic and therefore an overwhelming number of individuals may be unknowingly transmitting the virus. Catching asymptomatic people early and often is not only beneficial, but pivotal, to curbing the spread of the virus.[14] The case studies below highlight the importance and impact of testing in schools.

Duke University's Surveillance Program Reduced Covid-19 Spread[15]

Earlier this year, Duke University conducted a 10-week surveillance program, during which 10,265 students were tested. Residential undergraduates were tested twice weekly, off-campus undergraduates tested one to two times per week, and graduate students tested approximately once weekly. The results of the pilot were telling — of the identified 84 positive cases, 51% were people with no symptoms of the virus. Additionally, testing that was conducted as an output of contact tracing efforts identified 27.4% of infections. The high rate of asymptomatic infections that may have otherwise gone undetected demonstrates the importance of not only widespread asymptomatic testing programs for congregate communities, but also illustrates the benefits of integrated testing solutions.

Voluntary Saliva Screening Testing in La Grange K-8 District in Illinois[16]

At La Grange District in Illinois, K-8 schools have been running a voluntary screening program deploying saliva tests aimed at catching asymptomatic children. For over three months in the fall semester, 81% of students and staff opted into the program, which returned test results within 24 hours so that no student returned to class the next morning without knowing their results. School officials believe this program has helped contain potential outbreaks; during the first week of December, only 11 out of more than 3,000 tests returned a "possible clinical significance". The program's success has been so influential and encouraging that nearby school districts are also adopting saliva testing programs.



Schools Are Vital

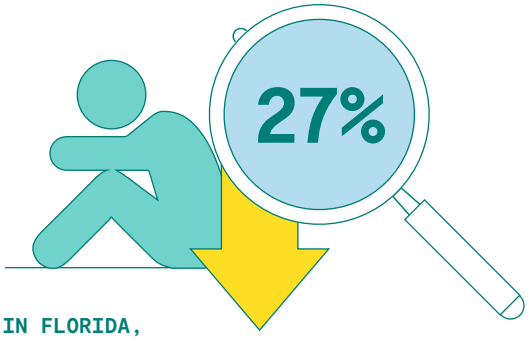
Perhaps no institution in American life is more important to the present and future functioning of society than its K-12 school system. For children, the schools provide not only instruction but also meals, access to health service, social and emotional development and a pathway to future success. For more than 41 million American parents, they provide the basic childcare necessary for their work to occur or for their careers to proceed.[17] Those who cannot afford any alternate arrangements suffer disproportionately. Without schools, the deep and abiding inequities of American life calcify and worsen across generations.

As of early December, two thirds of the nation's students were not currently taking any classes in person.[18] Many have seen the inside of a classroom only fitfully, depriving tens of millions of American children a significant portion of their normal educational experience. As infection rates soar, more schools are shutting down and more students are finding themselves locked out of classrooms. With schools shut, parents cannot go back to their workplace. Not only is this a challenge for employers, it disproportionally impacts women who are more likely to stay home.

Remote learning has also been a disaster for many students and particularly students of color, with some falling far behind educationally and others suffering loneliness, anxiety and even mental illness. Schools have long served as a refuge from dysfunctional family situations. With that sanctuary closed off from them, many children are reaching their breaking points. These deficits and problems may take years to resolve, and some students will never recover the lost ground.

One of the signal failures of the first months of the pandemic was that schools often seemed to be among the first institutions to close, instead of being the last. Bars, restaurants, gyms, retail stores and a host of other businesses and institutions that do far more to drive infection rates while being less essential to society should have closed before and reopened after schools.

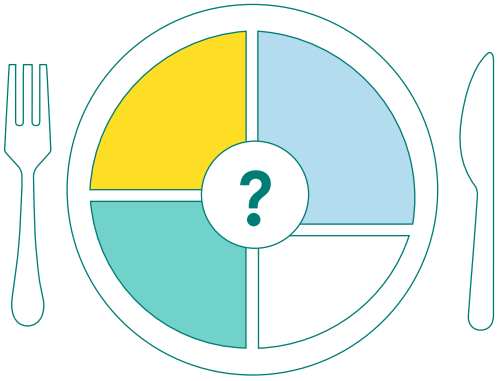
LEARNING LOSS AND LACK OF SOCIAL SERVICES HAVE THE LARGEST EFFECTS ON MINORITY AND MARGINALIZED POPULATIONS



IN FLORIDA,

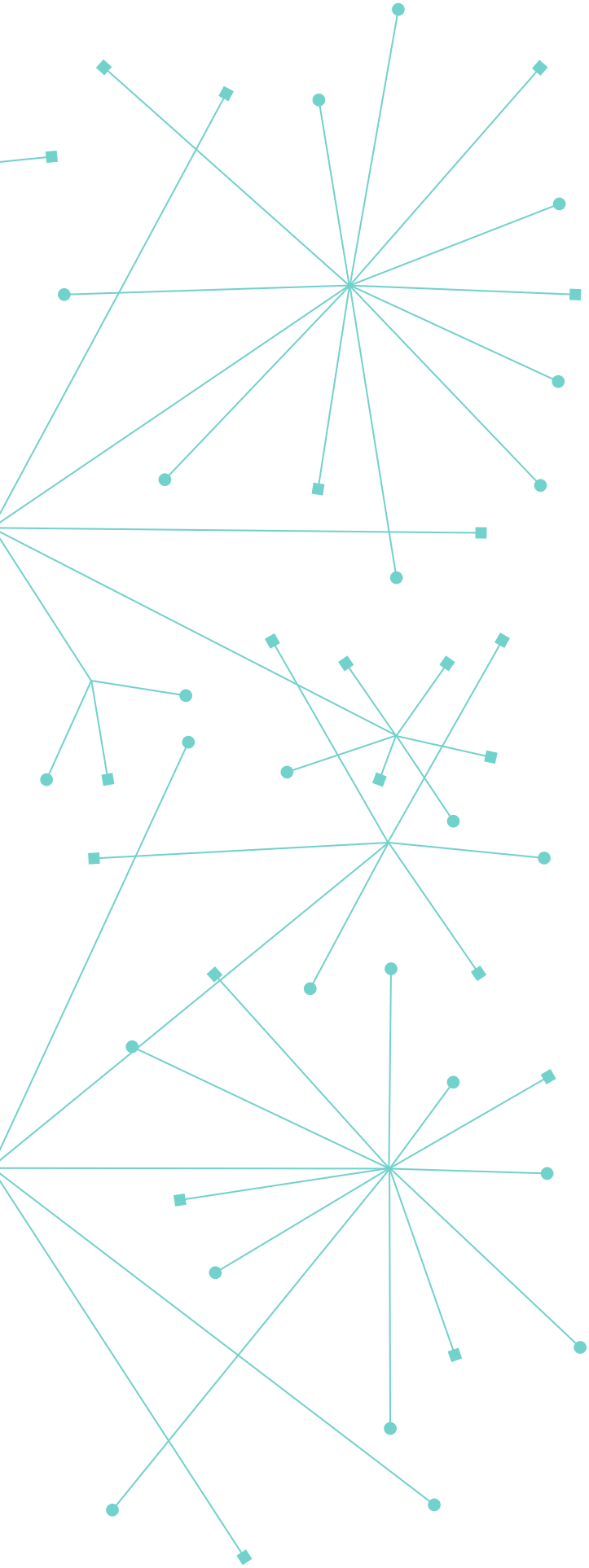
THE NUMBER OF REPORTED CHILD MALTREATMENT CASES DROPPED 27%

IN MARCH & APRIL AND WAS LARGELY DRIVEN BY SCHOOL CLOSURES AS TEACHERS AND SCHOOL PERSONNEL ARE ONE OF THE LARGEST GROUPS TO REPORT CHILD ABUSE[19]



1.15 BILLION SCHOOL MEALS MISSED

AS A RESULT OF SCHOOL CLOSURES DURING THE 9-WEEK PERIOD FROM MARCH TO MAY[20]



Nonetheless, school closures were in many localities prudent measures to protect teachers and students when appropriate mitigation measures were impossible. Studies have found that about half of infected children never show symptoms.[21]

Without mitigation measures in place, schools were initially considered high-risk environments for transmission due to close and prolonged contact among large numbers of people in poorly ventilated indoor environments with many high-touch surfaces. More recent studies have found that infection rates in schools have been very low, and generally far below the overall community rates — about 0.14 percent for students and 0.36 percent for teachers and staff.[22] Even in communities with intensive outbreaks, infection rates among teachers and staff hovered around 1 percent. Importantly, there has been no evidence of outbreaks linked to schools.[23]

Experience in schools and universities that have instituted regular rapid turnaround testing, coupled with mandatory mask usage and social distancing, shows that transmission rates within these institutions are extremely low to non-existent.[24] And it is the transmission rate, of course, that determines the safety of an environment for opening.

Still, teachers are not first responders or police or firefighters. They did not go into the profession with the understanding that they would put themselves or their families at risk for the sake of others. Their insistence on protections against the risks of infection has been reasonable. For some, strong mitigation measures like mask-wearing, six-feet distancing, improved ventilation and symptomatic screening has been enough. Others have insisted that testing be used proactively to find asymptomatic and pre-symptomatic staff and students who may be silently spreading infections in school buildings.[25] Until very recently, such insistence ensured that closures remained in effect since the tools to conduct routine and widespread screening were difficult and, in the majority of cases, impossible to sustainably secure.

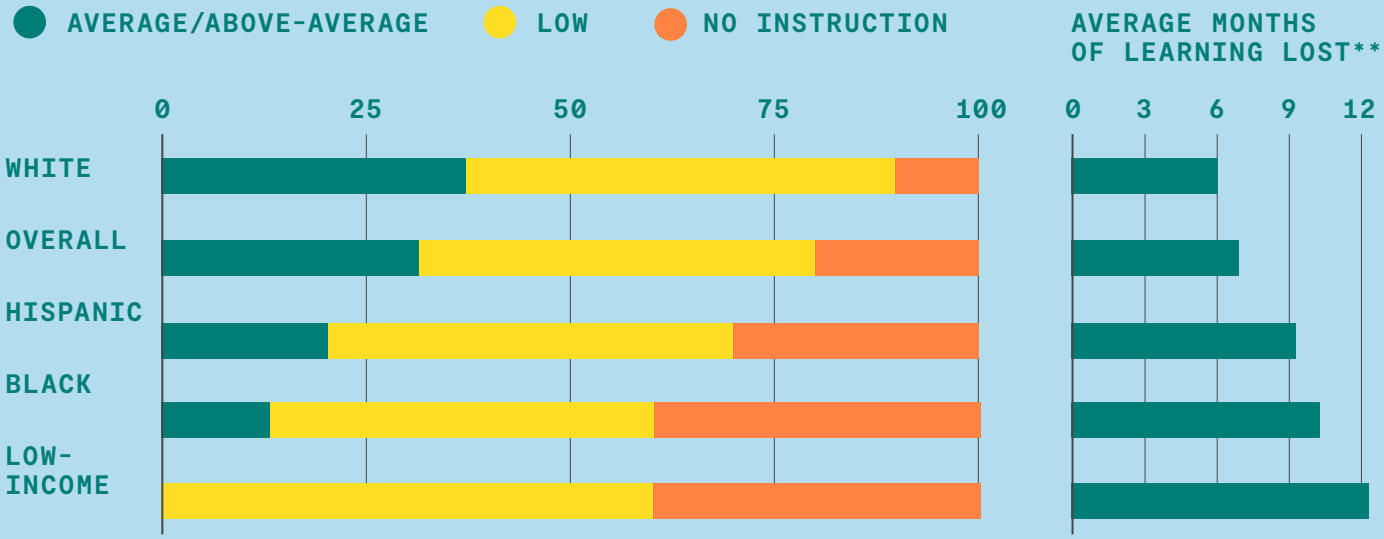
Learning Losses and Importance of Reopening Schools

According to a recent McKinsey report,[26] the prolonged period of remote learning dramatically affects educators, parents and teachers, from rising rates of depression and anxiety to the loss of student learning. Like with other facets of the pandemic, the impact has been especially burdensome for Black, Hispanic and indigenous communities. Multiple polls show that students in urban areas and large school districts, especially of Black and Hispanic backgrounds, are less likely to attend in-person classes, likely because of ripple effects of the pandemic on those communities.

The learning loss of this year is proving to be significant — with students on an aggregate basis likely to lose an average of five to nine months of learning by the end of this school year in mathematics. Students of color could be six to 12 months behind in mathematics, compared with four to eight months for white students.[27] Additionally, the pandemic has not just forced schools to remain remote; it has also prompted some students to leave the school system altogether. An NPR survey of more than 60 school districts across 20 states found that kindergarten enrollment is down an average of 16% this year, which can have a profound effect on children's skill development and long-term academic progress.[28]

LESSONS LOST

United States, quality of remote instruction
% of K-12* students, March-May 2020



* Kindergarten to 12th grade
**Compared with in-room learning

Testing capacity and needs

Come January, with testing capacity rising rapidly and the potential to augment PCR capacity much further, all of that can change. So even in the midst of a prairie fire of Covid-19 infections, schools that undertake mitigation measures can not only offer refuge, sustenance, learning and a future to students but provide teachers with one of the safest public spaces available to them while providing communities with important tools to suppress local infection rates.

A well-executed testing plan can not only make infection control more effective, but it will provide teachers and parents alike tangible evidence that their concerns are being addressed and that they and their children's safety are being prioritized. Tests engender knowledge and trust not only in those being tested but in the wider community.

While these testing programs will be made available to all schools, they should begin with elementary schools. Providing education and care for society's youngest children is vital.

Student and teacher populations at each level of schooling by the Numbers

	ELEMENTARY	MIDDLE	HIGH	TOTAL
Public Schools	56,086[29]	18,282[30]	23,789[31]	**98,157**
Students	19,800,000[32]	15,500,000[33]	15,400,000[34]	**50,700,000**
Teachers and Staff				**8,600,000**[35]

Estimated Monthly Capacity of All Tests by the Millions

This report is intended to offer a basic analysis of whether schools will have the tools to reopen safely early next year. The first part of that analysis is a survey of expected Covid-19 testing capacity in each of the first six months of 2021. This table shows those capacities.

TEST TYPE	SEP-20	DEC-20	JAN-21	FEB-21	MAR-21	APR-21	MAY-21	JUN-21
Antigen Point of Care EUA Today	36	95	100	135	146	156	170	190
Molecular Point of Care EUA Today	5	7	15	21	24	24	25	27
Total POC & Home EUA Today	**41**	**102**	**115**	**157**	**170**	**180**	**195**	**217**
Antigen Point of Care EUA Future*	0	10	44	85	110	145	187	215
Home DIY EUA Future	0	0	3	34	86	118	144	162
Molecular Point of Care EUA Future	0	0	1	3	6	8	9	10
Total POC & Home Future	**0**	**10**	**48**	**122**	**202**	**271**	**340**	**387**
Subtotal POC & Home	**41**	**112**	**163**	**279**	**372**	**451**	**535**	**604**
Antigen Central Lab EUA Future	0	0	3	32	51	59	60	73
Lab Based PCR	75	100	100	105	115	125	125	130
Additional Lab Based PCR with Pooling	0	0	25	38	173	250	469	488
Grand Total	**116**	**212**	**291**	**453**	**710**	**885**	**1,188**	**1,294**

*Assumes December EUAs
Source: Health Catalyst Group

Transmission Rates in School

Currently, available data suggests that general infection rates in high schools mirror the prevalence of Covid-19 in the surrounding community.[36] While case rates among school staff and high school students appear to be similar to the general population, case rates among elementary and middle school students are lower than the rate for the general population, which is consistent with the understanding of lower disease rate in younger ages.[37]

Precautionary measures such as masking, distancing, and handwashing are recommended by the U.S. Centers for Disease Control and Prevention (C.D.C.) to reduce the risks of transmission among students, teachers, and staff in school.[38] Evidence shows that children in U.S. schools are at no higher risk for transmission of Covid-19 while in the classroom when multi-modal mitigation measures, such as masking, distancing, and limited in-person density precautions are in place. In many cases the data shows that even one of these mitigation measures can reduce the case count in schools.[39]

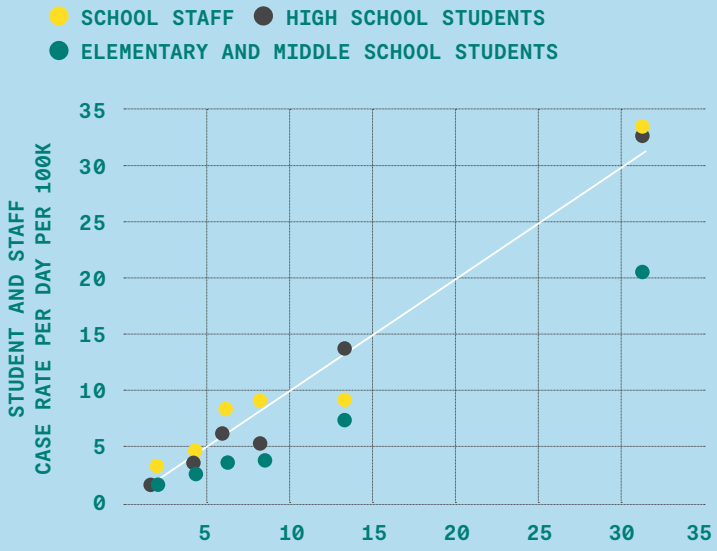
CASE COUNTS IN SCHOOLS WITH AND WITHOUT STUDENT MASK POLICY[40]

Schools with mask wearing policies experienced overwhelmingly lower case rates than schools that didn't require masks for both students and staff.

(Community Case Rate <10/100k)

STUDENT AND STAFF CASE RATE[41]

Early evidence indicates U.S. schools pose no higher risk for Covid-19 transmission when precautions such as masking, screening, and distancing are in place. The case rate among school staff and high school students is similar to the population, elementary and middle school students is lower than the rate for the general population.



The beginning of this report offered a series of recommendations for immediate executive actions that could make testing far easier to provide to schools. These suggestions spring from months of discussions in the State & Territory Alliance for Testing (STAT), the Testing Solutions Group and others who have participated in conversations and meetings organized by The Rockefeller Foundation.

Centralizing the purchase and distribution of tests is an important mechanism to limit prices, set purchase expectations for manufacturers, secure sustainable and predictable supply, and ensure that tests are reliably available to schools based on risk rather than personal connections and ability to pay.

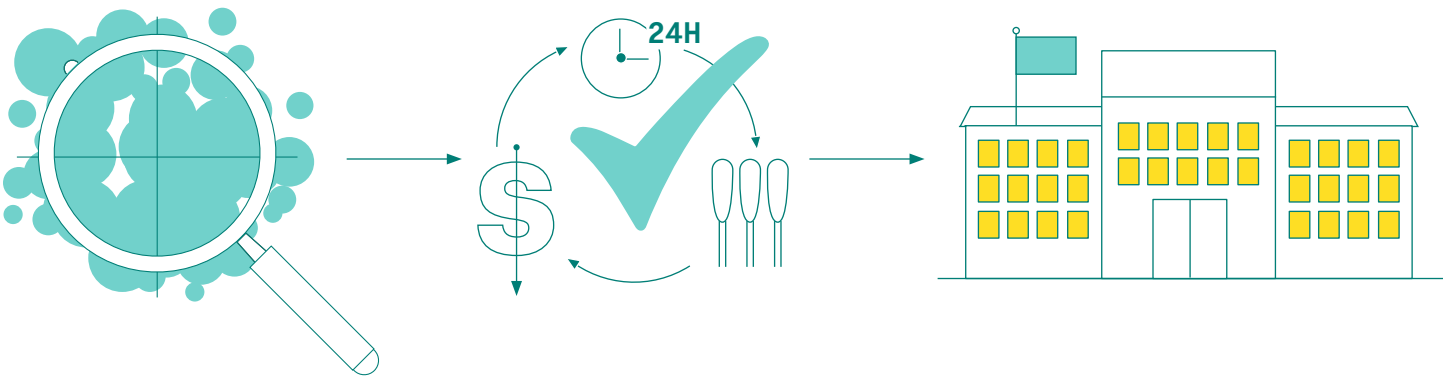
In conjunction with federal procurement and support, local or state public health officials would guide the implementation of school testing plans. Widespread concerns about liability exposure and the perceived accuracy of antigen tests need to be allayed first by a liability waiver and second by an unequivocal endorsement of the value of pooled PCR and antigen tests, including for asymptomatic individuals.

Another barrier has been a process to get waivers from the Clinical Laboratory Improvement Amendments (CLIA) that is not clear and straightforward for schools and other screening settings.[42] Some state governors have issued blanket CLIA waivers, but the waivers have flummoxed a variety of school and private sector players in other states. If states want to require that testers undergo some form of certification, they can do that.

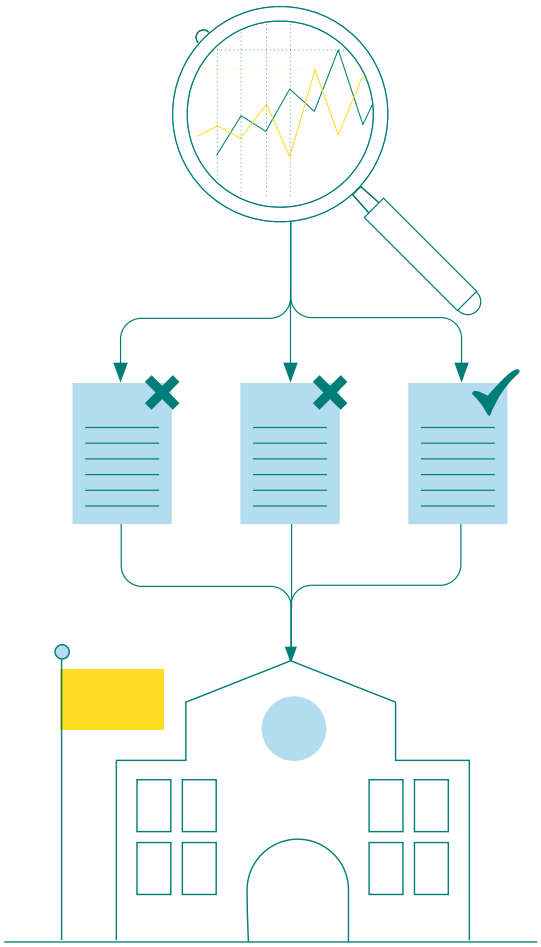
But the federal government needs to quickly create a streamlined regulatory process for Covid-19 testing, including support for states and local governments to implement it.

In addition, the federal government must invest in expanding capacity in six to 10 regional PCR labs, either private or public, to substantially increase testing capacity and ensure 24-hour or less turnaround time for results – with school reopening as the first priority for use of the additional testing capacity. This can take as little as six to eight weeks with proper investment and coordination. As infection rates go down, schools may require less frequent testing for children and capacity could be freed for rapid testing analysis at businesses and for other frontline workers.

Finally, since the beginning of the pandemic, federal health regulators have required that test results be reported to health authorities and comply with HIPAA privacy rules. These were prudent measures intended to track the scale and location of outbreaks so mitigation measures could be quickly deployed. And since the earliest tests were both lab-based and largely intended for diagnostic purposes, the requirement was fairly easy to fulfill.



But as testing moves from labs to tents to homes and from diagnosis to screening and surveillance, the reporting requirements have created unnecessary burdens, particularly for schools. And they aren't working: already, only a fraction of the nearly 50 million antigen assays used have had their results reported. And while the privacy of student information at schools has long been a priority, adding the force of law to keeping student Covid-19 test results confidential as HIPAA does has frustrated many school administrators.



Data and privacy are important but certainly not at the expense of saving lives. We should modify the reporting and HIPAA requirements to focus only on updating positivity rates (to support surveillance) and to enable timely but non-burdensome reporting of positive cases. Electronic reporting tools linked to laboratories performing the tests could support this effort. Much of the required data are less important now, considering the widespread nature of the infection rate. Wastewater treatment surveillance and hospital case rates provide at least partially adequate measures of local peril.

The federal government must also provide much more financial support for screening and surveillance testing. Such tests are primarily economic tools, not solely healthcare ones. Congress must authorize additional funding for this type of testing in high-risk settings, including schools.

Another measure that is featured in some current legislative proposals and should be considered is federal funding to provide financial relief to essential workers who test positive for Covid-19 or are required to quarantine and do not have paid leave.

The only way to stamp out an infectious disease is to ensure that everyone is able to quarantine themselves upon learning that they are infectious. But for low-income families, coronavirus infections — even if they do not lead to illness — can spell economic ruin with weeks-long quarantines that prevent breadwinners from working. A payment would ease such strains and offer some incentives for working families to report positive test results and undertake resulting quarantines.

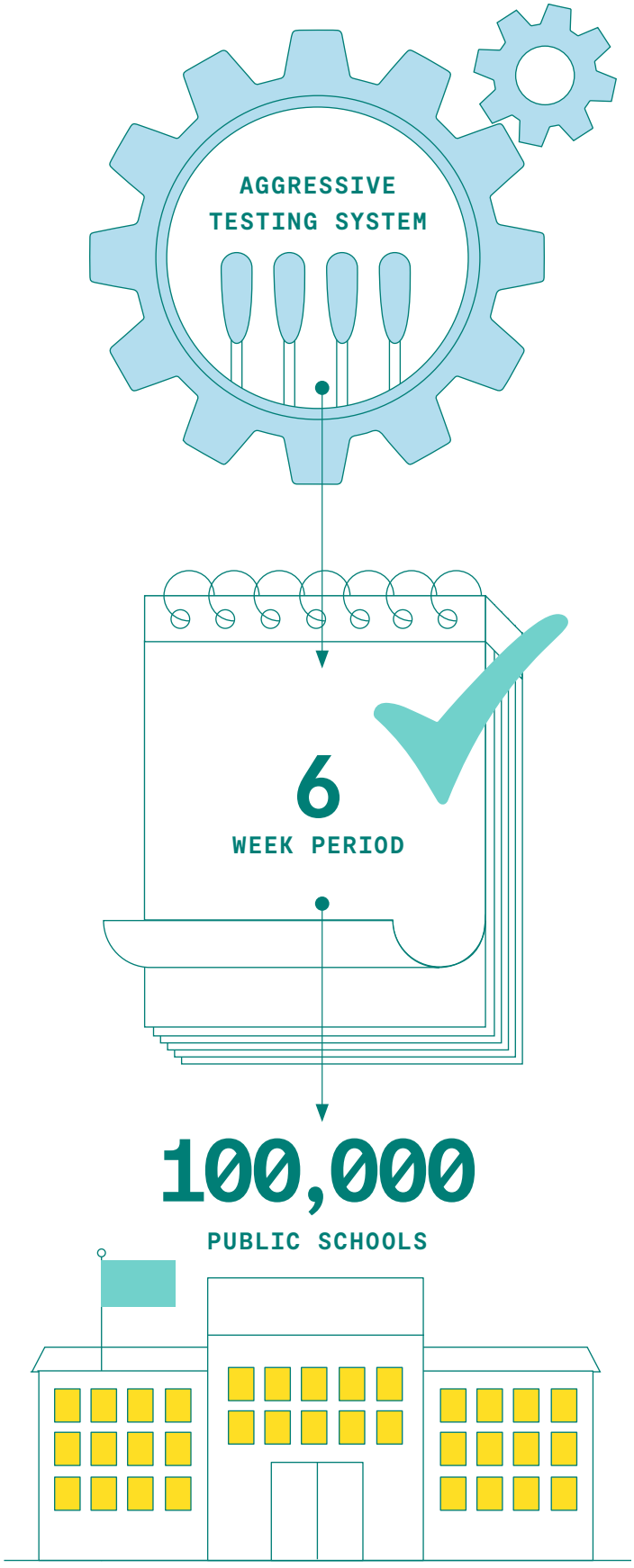
Testing Protocols and Other Mitigation Measures

Nearly two months ago, The Rockefeller Foundation along with the Duke Margolis Center for Health Policy and the Johns Hopkins Center for Health Security released a detailed report describing testing protocols to arrest Covid-19 transmission in K-12 schools. The report offered an array of testing protocols depending upon community transmission rates and types of tests.

The explosive growth in infections has since made choosing a testing protocol simple. With every corner of the country at high risk, schools must choose between an intensive and a very intensive testing plan. Teachers and staff — who are most likely to become infected and suffer illness — must be tested twice weekly. But that is possible and can be made easier.

Districts should use testing among students to help with surveillance in conjunction with other measures like masks, distancing, ventilation, frequent handwashing, and other measures to mitigate spread. Under this approach, all students should be tested once a week. The more limited demands necessary for opening elementary schools is one reason we have recommended they be the first opened.

Mounting such an aggressive testing system in every one of the nation's nearly 100,000 public schools over a six-week period will be the most herculean task the American educational system has ever tackled. It will require that everyone involved in education and school administration be committed to success. For many teachers, unions have become their most trusted advocate for workplace safety during the pandemic. No reopening plan will be successful in the face of decided union opposition, so getting their consent and agreement is crucial.



Best Practices on Testing

Over the past several months, a number of states have introduced and established innovative, effective testing programs that have mitigated spread in their communities and provided their residents increased security and confidence.

COVIDCheck Colorado has Provided Timely, Low-cost, and Rapid Turnaround Time Testing to its Constituents to Support Reopening and Instill Confidence[43,44,45]

COVIDCheck Colorado was introduced by Gary Community Investments to provide Coloradans access to convenient, affordable, reliable tests with results delivered in 36 hours on average. With dozens of testing sites located across the state, COVIDCheck Colorado provides testing to both asymptomatic and symptomatic participants, while offering individuals with positive test results a telehealth consultation from a certified clinician at no additional cost. The program has been effectively utilized within the education space — regular asymptomatic testing is provided to teachers every two weeks. Since its inception, more than 100,000 tests have been administered to teachers with about a 0.5% positivity rate and immaterial levels of transmission. Over 40% of the positives identified via COVIDCheck Colorado testing were asymptomatic at the time of their test, meaning that this testing regime has prevented thousands of outbreaks since August. COVIDCheck Colorado ultimately aspires to provide resources to support opening schools to protect the state's kids, families and teachers. All signs point to a bright path forward, as early next year. COVIDCheck Colorado plans to partner with Yale's Saliva Direct to provide even more convenient testing to schools and districts aiming to reopen in January.

Studies Performed by Commonwealth of Massachusetts Highlight Abbott BinaxNOW Strong Performance Compared to PCR tests[46,47]

Massachusetts recently published the results of a pivotal validation study of the Abbott BinaxNOW Rapid Antigen Test. Conducted at a High-throughput drive-through Community Testing Site, the study paired BinaxNOW and PCR tests for 1,613 symptomatic and asymptomatic participants. This real-world evaluation demonstrated that BinaxNOW has very high specificity in both adults and children and very high sensitivity in newly symptomatic adults. While Massachusetts plans to further study the test's sensitivity for symptomatic and asymptomatic children, the results have been welcomed by states seeking formal validation of the test's specificity and sensitivity.

University of Illinois and SHIELD T3 Partner to Offer Leading Testing Solutions to Help Open Campuses Across the State and Country[48,49]

The University of Illinois and SHIELD T3 are collaborating to offer an integrated testing solution featuring highly accurate, low-cost, and convenient saliva-based Covid-19 testing to universities across the state and the country. In addition to rapid response rates, targeted testing based on risk-based surveys, and app-enabled exposure notification, this program emphasizes tracing and quarantining as part of its comprehensive solution. Between July and December, over 980,000 tests were run on students, faculty, and staff, with results generally available within three to 12 hours with a positivity rate that generally remained <0.5%. As a result of the program, universities across the state were comfortable and successful in reopening and remaining open, promoting continued learning and research productivity, and mental health among students. SHIELD T3 is now working with over 50 colleges and universities nationwide with the goal of helping stand up variants of this integrated testing solution for the Spring 2021 semester.

Staffing

Transitioning from in-class to remote learning has been a monumental effort that school administrators, staff and teachers have managed with remarkable speed. There have been glitches and misses to be sure, but these committed public servants deserve enormous praise for pivoting so quickly to a new and unproven way to educate students.

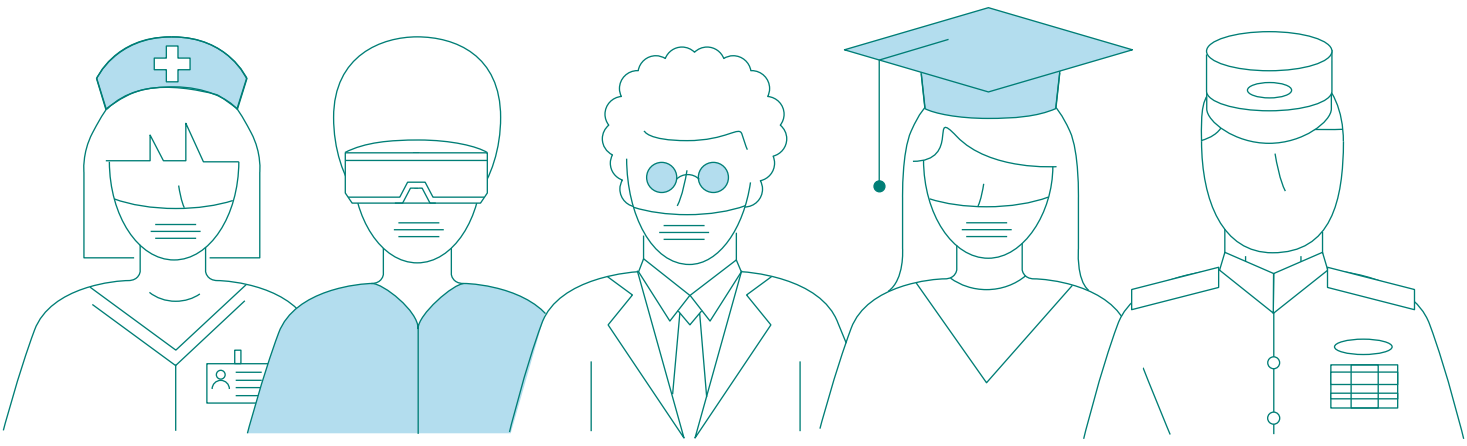
Asking those same administrators to create sophisticated new Covid-19 screening operations in weeks without considerable extra staffing would be neither realistic nor just. They need help.

Thankfully, one of the nation's seven uniformed services was created for precisely such a purpose. The U.S. Public Health Commissioned Corps are the deployable health experts to guide responses to public health emergencies. Foreseeing their need in a pandemic, the administration of President George W. Bush made considerable efforts to make this corps nimbler. Since the attacks on 9/11, corps members have understood they could be deployed to a public health emergency at a moment's notice.

That moment has arrived.

The corps has 6,000+ members,[50] and we believe another 1,000 could be quickly recruited from the civilian ranks of the U.S. Centers for Disease Control and Prevention (C.D.C.), state public health departments, schools of public health and medical centers around the country. States have also used National Guard members, first responders, and scaled-up local public health workforces to respond to surge needs in the pandemic. The C.D.C. and the Commissioned Corps could provide training and support for the effective deployment of the testing implementation workforce.

In the next several months, however, the best use of both the active Commissioned Corps and a supporting testing workforce is to help school district superintendents get testing off the ground.

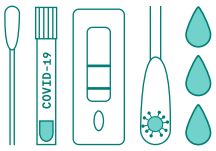


Facilities and Other Supplies

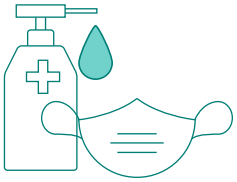
Covid-19 testing will require adaptability, especially during winter. Schools will need to set up orderly mechanisms for routine testing, for example by sample collection on a rotating basis when staff or students arrive, or through other designated mechanisms. Thankfully, there are now many examples of how such collection can occur. For all schools to do so, they will need the federal support we have described.

Masks, plastic barriers and sanitation supplies must also be provided to teachers and staff on a predictable and routine basis. This is not only clearly necessary for protections but the reliability of supply will prevent hoarding. Everyone in schools needs to be told and to actually believe that they will receive a care package of essential supplies every other week. Social distancing must be enforced, and ventilation assessments and improvements made and communicated.

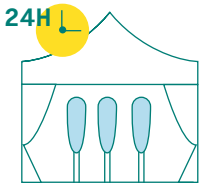
HERE IS THE CHECK LIST OF SCHOOLS' MOST CRUCIAL COVID-19 NEEDS:



1. **Adequate supply of PCR, pooled PCR and/or antigen tests.**

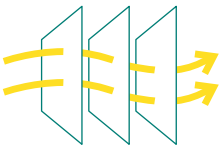


2. **Masks, sanitizer, soap and other hygiene tools.**

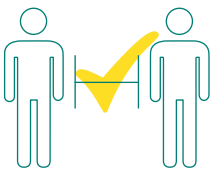


3. **Tents, trailers or other facilities needed to conduct tests daily.**

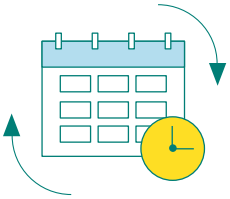
4. **Staff for testing and mitigation education and morale building.**



5. **Improved ventilation through the use of centralized air conditioning, air filters for each room, open windows and fans in temperate climates or some other method.**



6. **Rearranged interiors so that classroom desks are separated by at least three feet, cafeterias reorganized and hallways taped off to allow movement only in certain directions.**



7. **Re-imagined schedules to prevent the entire student body from simultaneously rushing into hallways and each other.**

Healthy Buildings Promote Safer Schools

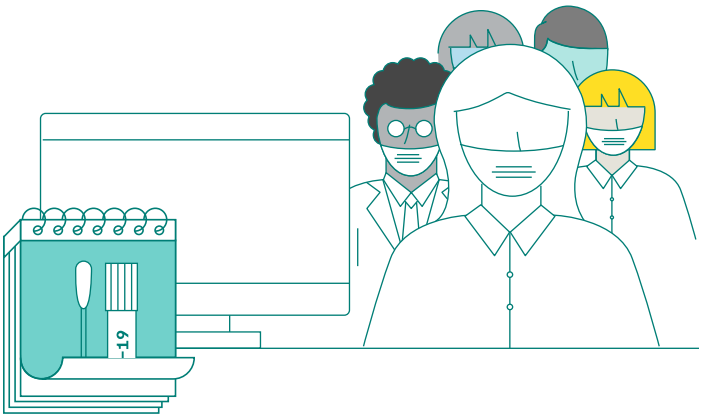
Harvard University's Healthy Buildings for Health initiative provides guidance on what type of strict control measures in schools can help limit the risk of Covid-19 transmission and outbreak among students, teachers and staff.[51] The three components of Covid-19 exposure — intensity, frequency, and duration — can be reduced through practical, deliberate interventions. The guidance encompasses practices that can be adopted and integrated across classrooms, buildings, activities, schedules and policies, complemented by multi-layered framework that schools can adopt and adapt to their individual situations within their communities.

The multi-layered control strategies for reopening schools must consider individual protocols, building design and structure, and policies and procedures that create the safest environment possible. Students, teachers, and staff should be urged to wear masks, wash hands frequently, follow social distancing and minimize sharing of objects. Building air quality can be improved through mechanical ventilation systems with filters that are MERV 13 or higher and can be supplemented with portable air cleaners with high-efficiency particulate air (HEPA) filters. Other suggested physical measures include installing plexiglass barriers at fixed interaction locations and no-contact infrastructure like soap dispensers and faucets. For schools, high-risk periods including transition times, lunch, and free time will require staggered, distanced structure. Managing these and other control strategies through a Covid-19 response team will improve coordination and response time. When adopted locally as part of a multi-layered approach, the strategies proposed by the Healthy Buildings initiative can help mitigate risk for Covid-19 transmission in school buildings, which empowers schools to reopen with greater confidence and success.

Managing Mis- and Disinformation

Like all new disease outbreaks, scientific understanding of Covid-19 is evolving constantly and public health advice changes as more is learned, creating an environment of uncertainty that is ripe with unintentional misinformation as people struggle to learn new science and are confused by intentional disinformation from malicious actors. Helping people find trustworthy information is compounded by the sheer number of news outlets and social media platforms. Their inconsistent policies for addressing inaccurate information complicate the public health response. In this pandemic, the "infodemic" of misinformation and disinformation is putting lives at risk and must be addressed.

In the void, too many Americans are consuming misleading, confusing, false or even harmful information. Everything from the utility of masks, the science of social distancing, the safety of vaccines and even the existence of the virus itself has been questioned. Thousands have died as a result.



MAJORITY OF AMERICANS WOULD GET ROUTINE TESTING FOR COVID-19, IF OFFERED AT WORK, AND WOULD ALLOW THEIR CHILD TO GET TESTED ROUTINELY AT SCHOOL.[52]

Demand for Vaccine Information

Research from First Draft News finds that demand for vaccine information is high and the supply of credible information is low, which fuels a "cacophony of voices and narratives" from bad actors to create an environment of extreme uncertainty and mistrust of institutions and leaders.[53] This requires meeting the demand with accurate, clear, credible information from newsrooms, tech platforms, trusted community leaders, and government leadership.

This is a critical stage in the Covid-19 pandemic. As vaccinations slowly roll out amid a surge of Covid-19 infections and deaths, increasing rates of vaccine skepticism threaten to jeopardize our response efforts. Recent surveys by Pew Research and Gallup found that only 51% to 60% of respondents said they would get a Covid-19 vaccine if it were available today, well below the minimum 70% threshold needed to achieve herd immunity.[54,55,56]

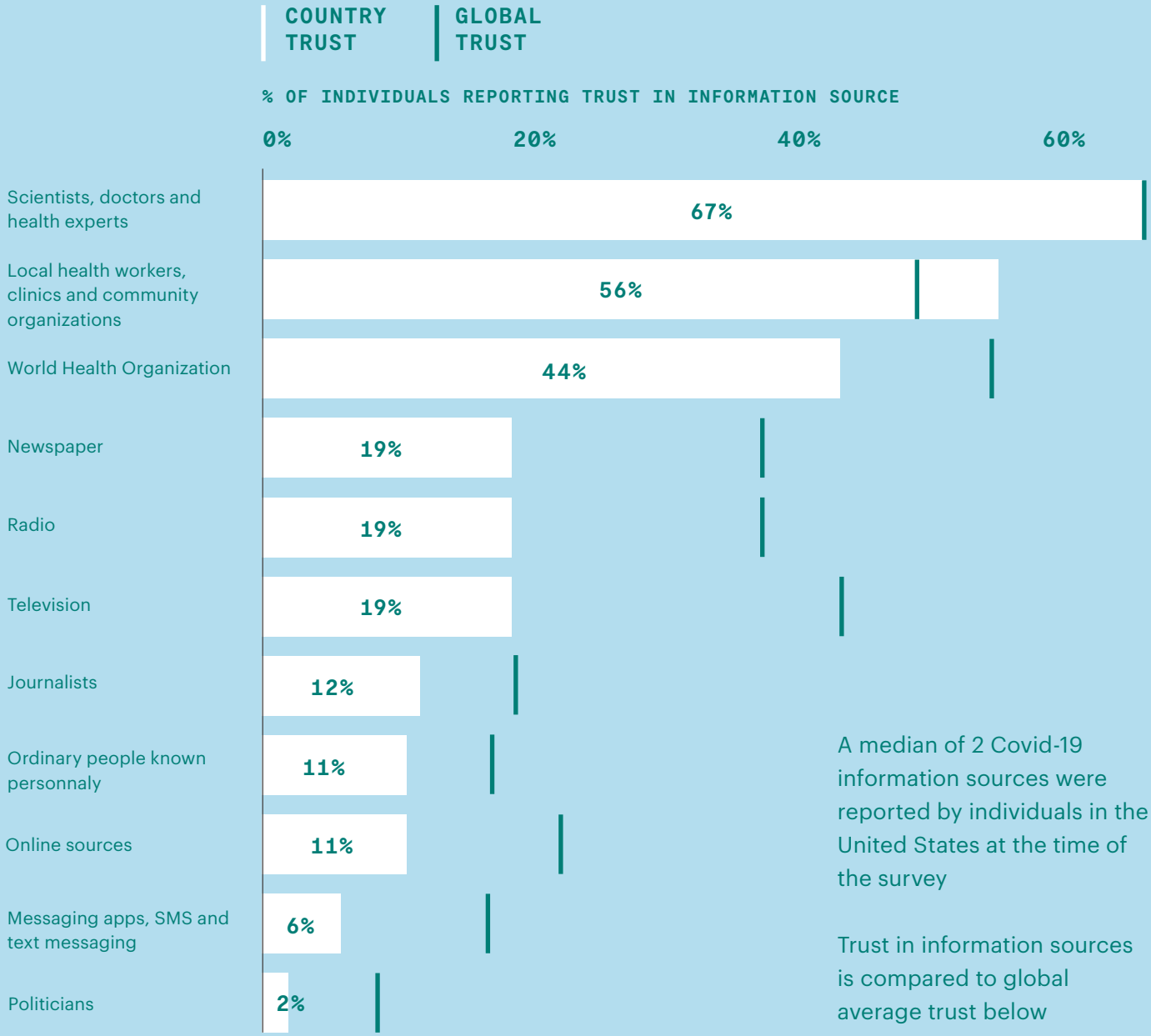
The pervasiveness of social media makes it easy to spread inaccurate information on Covid-19 or even create it. With the stakes as high as illness and death, newsrooms and social media platforms have a responsibility to ensure they are proactively working to shut down mis- and disinformation and promote scientifically accurate information.

This involves a 21st century approach to public health communications where trusted leaders can share guidance that is local, personal, and simple, but also informed by deep community engagement and behavioral insights.

Trusted Information Sources

According to a global survey of over 300,000 people, local health workers, clinics, and community organizations are one of the most trusted sources of information.[57]

WHAT ARE THE TRUSTED SOURCES FOR COVID-19 INFORMATION IN THE UNITES STATES?



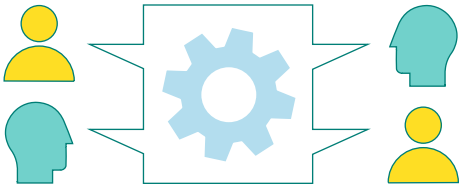
A median of 2 Covid-19 information sources were reported by individuals in the United States at the time of the survey

Trust in information sources is compared to global average trust below

Among the most important actions in building back trust are:

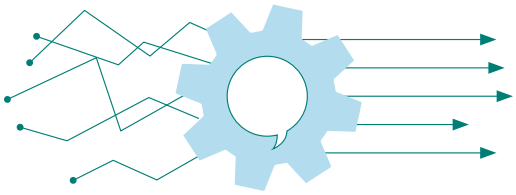
Public Health Leadership

The administration should offer a daily briefing on the pandemic led by the Covid-19 taskforce. The day's message should reflect the consensus of scientific opinion that avoids scientific and academic jargon, addresses changes in response efforts as the pandemic evolves, and be repeated in every forum available.



Community-Led Response

Communities must be heard and have ownership of their response efforts. The administration should engage with trusted community leaders — from family doctors to teachers to faith leaders — to disseminate fact-based, scientific messages for communities to make informed decisions on how best to protect themselves. Leaders should receive clear data-driven information and technical assistance on how to dispel misleading and false information and be able to discuss topics like the safety and accuracy of tests and vaccines, and the rationale behind vaccine prioritization. The administration should also provide an avenue for community leaders to share feedback that informs future public health messages. Lastly, C.D.C. and state and local officials must remove the cumbersome and lengthy government review processes that make it difficult for frontline workers to address questions and concerns in near real-time.

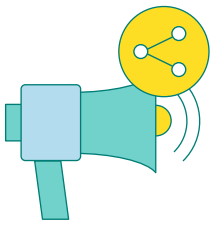


Newsroom Education

Newsrooms have an outsized role to play in preventing mis- and disinformation from taking root. The administration should host briefings with experts on the science behind public health guidance, the current information landscape, how to report on the pandemic without causing harm, risks specific to communities disproportionately impacted by the pandemic, and national security concerns.

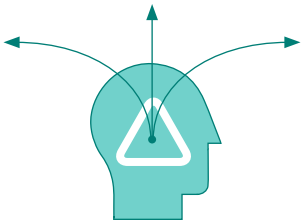
Accessible Data on Pandemic

The Biden administration should help make data from reputable scientists and researchers easy and transparent to access and analyze. This will reinforce the administration's commitment to science and data. One mechanism can be through a national repository of planned, active and completed research in the Covid-19 Evidence Commons, which is a new project supported by The Rockefeller Foundation being driven by Arizona State University. The repository should combine the data with analysis so that anyone can easily interpret and understand the information.



Social Media Responsibility

According to Pew Research, an estimated 1 in 5 Americans get their news from social media.[58] As the leading disseminator of mis- and disinformation, given their growing role as a source for news and information, Facebook, Twitter, Instagram and other social platforms must step up their responsibility for managing mis- and disinformation. Technology platforms should monitor Covid-19-related conversations to provide real-time alerts of mis- and disinformation, share information on the origins and influence, and change policies that prevent misleading and false information from spreading.

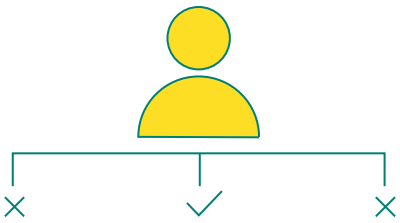


Promote Harm Reduction

Social and behavioral science must inform how public health officials communicate on effective mitigation measures to motivate Americans to wear masks, physically distance, wash hands, get tested, and vaccinated. Guidance needs to go far beyond the current abstinence-only message of staying home that further stigmatizes Americans who need to make a living, feel socially isolated, or who are genuinely confused by the seemingly arbitrary nature of some of the mandates. It is no wonder that current contact tracing efforts are failing — Americans do not want to be shamed by who they have been with and where they have gone.[59] Instead, guidance and messaging should be compassionate and understanding of the devastating impact on normal American life.

Informed by Data and Analytics

Public health officials should use data science and behavioral analytics to reach Americans where they consume information, both on and offline. Practices used in marketing and advertising — A/B message testing, search engine optimization, microtargeting — can be adopted to create culturally relevant, tailored messages that reach and resonate with Americans where they already consume information. Additionally, feedback loops from social listening should inform messaging to address confusion and fear in real-time.

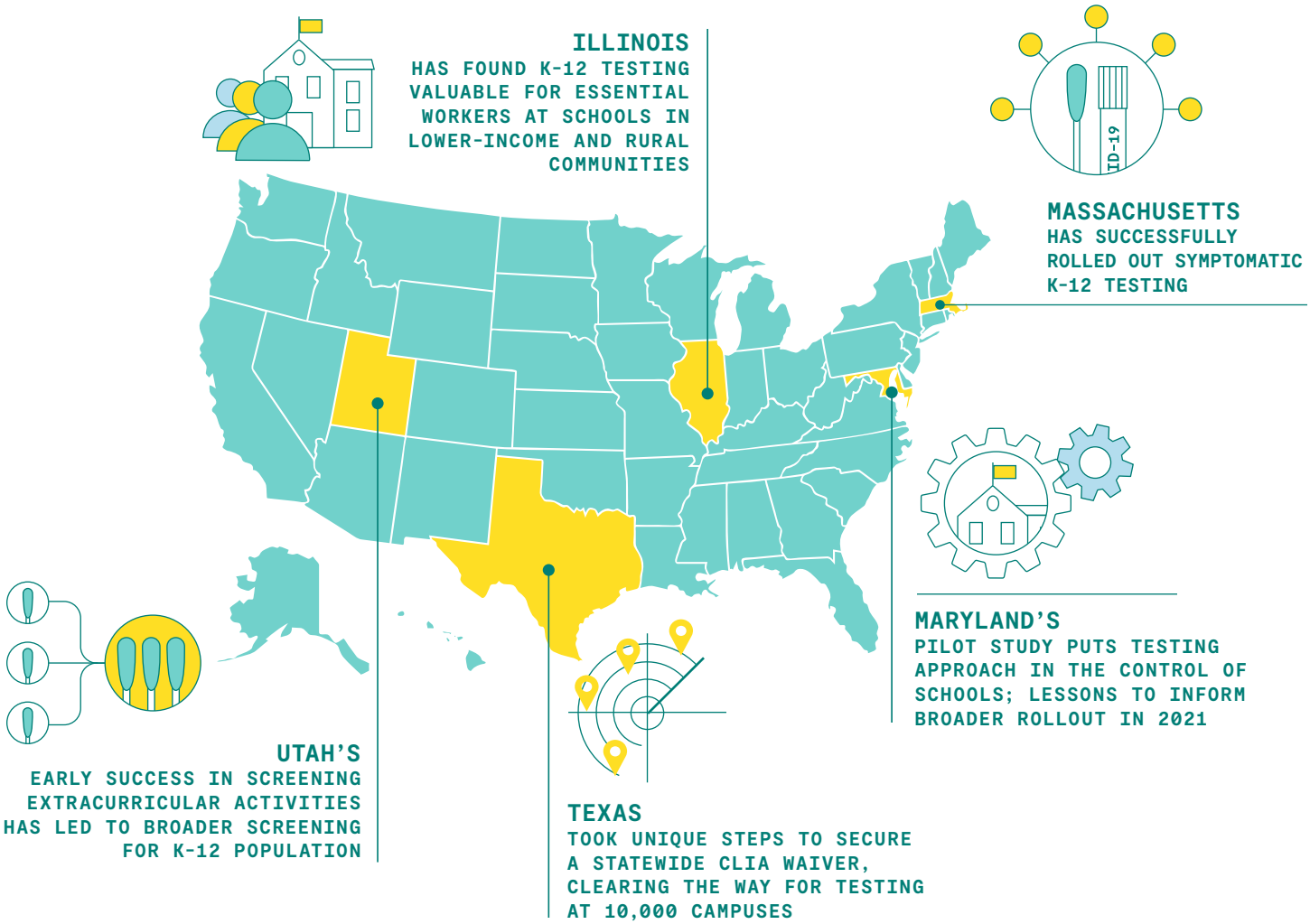


Guidance with Action

The administration must be unafraid to continue to discuss the hard truths that mitigation measures like mask wearing will likely be necessary for another year. But messaging must be accompanied with a profound change in mindset among leaders, regulatory agencies, and scientists for large-scale action. The time for caution, pilot programs, small studies and tentative efforts is over. We know what works. Proven strategies must be operationalized by existing institutions. Public health guidance must follow through with actions that Americans can do now. Guidance on testing in K-12 schools must be accompanied with a rollout of readily accessible tests in schools and a plan for what happens if a teacher or student tests positive. Asking someone to quarantine after a positive test should be followed up with financial assistance so they can stay home.

State & Territory Alliance for Testing (STAT)

Testing Programs



Governors in the Alliance use their joint purchasing power to encourage manufacturers to ramp up the production of rapid tests, reduce prices and provide quicker delivery. So far, states have used STAT's leverage to purchase millions of rapid tests, which are going straight to schools, nursing homes, and other public settings on the frontlines of the pandemic.

States and territories in STAT meet regularly to learn about advances in testing, share success stories, and listen to experts preview the most promising technological breakthroughs.

Massachusetts

Massachusetts has Successfully Rolled Out Symptomatic K-12 testing; Test Supply is a Major Challenge to Widespread Asymptomatic Screening[60]

Massachusetts operationalized Phase 1 of its BinaxNOW Rapid Point of Care (POC) Covid-19 Testing for K-12 Schools in November with a group of about 150 interested public school districts, charter schools, and approved special education schools providing any form of in-person instruction. The state recommended testing students and staff who are showing Covid-19 symptoms fully or partially. Participating districts and schools were required to obtain CLIA waivers, received test kits at no cost, and in most cases, will administer

the test using existing staff resources. Having conducted a validation study of the Abbott BinaxNOW test that confirmed very high specificity in both adults and children and very high sensitivity in newly symptomatic adults, Massachusetts is planning to conduct an additional study focused on the sensitivity of BinaxNOW for asymptomatic children. Massachusetts has cited lack of test supply as a major challenge in any attempt to conduct widespread asymptomatic testing in a K-12 setting.

Texas

Texas Took Bold Steps to Secure a Statewide CLIA Waiver, Clearing the Way for Testing at 10,000+ Campuses[61]

Texas has rolled out screening tests on an opt-in basis for its K-12 populations using Abbott BinaxNOW tests in two ways: targeted for staff and students who present symptoms of Covid-19 while on campus; and screening for staff at frequencies contingent on the Covid-19 hospitalization rate within each school's Trauma Service Region (<7%, every 4 weeks; 7-15%, every 2 weeks; >15%, every week). All testing is free, administered by individuals who have complied with training requirements provided online, and is conducted on a voluntary basis with permission slips required for students under 18 years of age. Schools have discretion over the use of tests for extracurricular activities but cannot mandate the testing of any staff or student. Uniquely, the Texas Division of Emergency Management (TDEM) obtained a statewide CLIA waiver which allows for testing at all locations including school systems across the state, negating the need for schools to obtain their own individual waivers. A standing delegation order for testing was also issued to ensure school nurses could participate in compliance with state nursing board requirements. All necessary PPE is distributed with the test cards on a monthly basis and a custom mobile application was developed and provided to comply with state reporting requirements. The Texas Education Agency (TEA) co-sponsors the program and promotes participation. The program is currently available to ~6M students and staff in 10,000+ public and private campuses across all 254 counties in the state. As of early December, ~20% of potential sites have requested the testing assets leading to the distribution of more than 1 million tests with additional schools opting-in daily.

Utah

Utah's Early Success in Screening Extracurricular Activities has Led to Broader Screening for K-12 population

Utah has rolled out a "Test to Play" strategy for the asymptomatic screening of students participating in extracurricular activities at the high school level. Testing is undertaken every two weeks and a negative test is required for practice or competition in extracurricular activities. Utah is now piloting a "Test to Stay" strategy in several school districts, extending asymptomatic screening to the state's broader K-12 population. School testing teams have been assigned the responsibility to administer, manage and report tests and put into place positivity thresholds for school closures. If any school hits the threshold, the school either goes online for two weeks or offers testing to all students if the school continues to offer in person learning.

Illinois

Illinois Finds K-12 Testing Valuable for Essential Workers; at Schools in Lower-income and Rural Communities

Illinois has piloted K-12 Rapid POC testing using Abbott BinaxNOW with 8 districts comprising 40-50 schools. The state provided schools with discretion on the targeting and frequency of testing, leading to a range of approaches including symptomatic; symptomatic+; and weekly screening regimens. All such approaches have been viewed positively by the state, providing a meaningful level of risk mitigation and allowing schools to remain open. K-12 testing has been particularly well received in rural communities where testing sites are further away, by parents who are essential workers, and at schools in lower-income areas. Illinois is planning to roll the program out to another 40 school districts.

Maryland

Maryland's Archetype Study Puts Testing Approach in the Control of Schools; Lessons to Inform Broader Rollout in 2021

Maryland has operationalized an Early Adopter Program with nine K-12 schools with varying sizes / demographics / residential programs. The approach has been to undertake screening and confirmatory PCR testing of asymptomatic positive POC tests as well as negative POC tests if there is known exposure or symptoms present. Like Illinois, Maryland has left it up to the schools to determine what works best for their population in terms of frequency of testing. The goal of the early adopter program is to capture lessons before rolling out to a broader set of districts in 2021.

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The Rockefeller Foundation is grateful to the following people who have contributed to this report. Some may differ with aspects of it or have stressed other matters of primary focus. All have contributed with the greatest sense of shared purpose at this time of national need.

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