MMS Virtual Member Forum
COVID-19 and School Reopening Forum
September 9, 2020

On September 9, 2020, the Massachusetts Medical Society (MMS) in collaboration with the Massachusetts Academy of Family Physicians, the Massachusetts Chapter of the American Academy of Pediatrics, and the Massachusetts Chapter of the American College of Physicians hosted a 90 minute Virtual Member Forum on COVID-19 and School Reopening. Dr. David Rosman, president, Massachusetts Medical Society and Dr. Michele Parker, president, Massachusetts Academy of Family Physician served as moderators.

The COVID-19 School Reopening Forum covered perspectives on the benefits, risks and strategies for safe school reopening from experts in pediatrics, infectious disease, public health, and education. The needs and challenges of schools in communities that struggle with socioeconomic factors of poverty and racial inequality were highlighted.

Resource slides from the program are posted.

Forum Faculty:

Jeffrey Riley, commissioner, Massachusetts Department of Elementary and Secondary Education

Dr. Lloyd Fisher, president, Massachusetts Chapter of the American Academy of Pediatrics

Dr. Elisa Choi, governor, Massachusetts Chapter of the American College of Physicians

Dr. Sandra Nelson, infectious disease specialist, Massachusetts General Hospital

Dr. Larry Madoff, medical director, Bureau of Infectious Disease and Laboratory Sciences, Massachusetts Department of Public Health.

Forum Presentations - Summary of Highlights

Forum Speaker 1 – Commissioner Jeffrey Riley

Update on the status of schools re-opening in Massachusetts
At the end of the last school year Commissioner Riley led the planning process for the upcoming school year by mandating that all school districts plan for all contingencies, utilizing three models: remote learning, hybrid learning and in-person learning with new safety requirements. They relied on the work of Johns Hopkins University, to better understand if the trajectory of the virus would allow schools to re-open. Massachusetts was one of just a handful of states in the “green” category. Working with the governor's medical advisory board, the COVID Command Center, as well as other medical experts they developed a town-by-town risk stratification utilizing case data. A stoplight metric was assigned, red, yellow, green or un-shaded, to each town based on the number of cases per 100,000. Towns designated red are recommended to start schools remotely, those designated yellow could either be hybrid or remote models depending on other factors in the community, and towns identified as green or un-shaded are recommended to try and open up in-person or at least in a hybrid model. Commissioner Riley reiterated that although MA is a “green” state, it continues to have districts where the virus is still surging.

The learning models for towns and districts are decided locally based on community metrics. Commissioner Riley said all MA districts have been able to plan for remote, hybrid and in-person models and should be able to move up and down within these models based on the risk of virus transmission in their individual towns and districts and added that they are ready for all contingencies. Currently, he reports that about 70% of MA districts are going hybrid or in-person and 30% are starting remote. There are four key components in schools that have been put into place that are non-negotiable for hybrid and in-person models: mask wearing for children and staff, physical distancing between three and six feet for students, frequent hand sanitizing and the message that you must stay at home if you are sick. Commissioner Riley reported that for the most part, parents and families want to see their children back at school. The medical community also seems to support the return to school, but the teachers unions have been adamant against it in many cases.

He said they are using the best data available to make good decisions for Massachusetts educational communities and pointed to the deleterious effects of not being in school for children and families including increased mental health issues, as well as food insecurity. Without the kind of structure and support services they need, children with complex special education needs have regressed, and in many cases significantly. Similarly it is very difficult to teach kindergarten and first graders how to read on a Zoom call. Commissioner Riley reiterated that the best thing is to try to get as many of our students back into classrooms as soon as possible with the appropriate safety measures.

**Forum Speaker 2 - Dr. Lloyd Fisher**

*What has been the impact on child health that pediatricians have seen since schools have closed in-person learning, and how does that affect your thoughts on what we need to do now to move forward?*
For most children, COVID-19 has not had the devastating and life threatening physical health effects that have occurred in adults. Pediatricians and family physicians that care for children are seeing significant harm caused from the lack of in-person learning. The negative impact goes far beyond the academic effects. There is a chilling increase in undiagnosed child abuse and neglect. Dr. Fisher reports seeing higher rates of depression and suicidal ideation, dramatic changes in the personalities of children, and significant regression, especially for those with pre-existing developmental or emotional disabilities. He also described the inadequacies of remote services for developmentally delayed children. Additionally, he has seen an alarming increase in childhood obesity, which has a direct correlation to screen time, and brings an increased risk for adult obesity and associated diseases and health consequences. He warned these educational and non-educational impacts may last a lifetime and are likely to exacerbate the already well-documented achievement gap across income levels and ethnic and racial groups. Furthermore, parents who have the means to augment learning with enrichment programs while important widen socioeconomic and racial disparities.

Dr. Fisher pointed to the low transmission rates in MA and the guidance put forth by the Department of Elementary and Secondary Education (DESE) that supports the safe return for as many students and staff as possible this fall. He reiterated the importance of making decisions based on science, data, and evidence, and not on the misinformation or fear that's driven by misleading headlines and social media.

**Forum Speaker 3 - Dr. Elisa Choi**

**How can colleges, universities, and other higher education institutions reduce the risk of COVID-19 transmission for their students and staff?**

Based on cumulative data obtained from a nationwide survey that was recently compiled and published by The New York Times, more than 1,500 universities and colleges in the US were surveyed, and data as of September 3, 2020 showed that there are more than 51,000 cases of COVID-19 at more than 1,020 colleges, with at least 60 deaths since the start of the COVID-19 pandemic. More than 45,000 cases of COVID-19 at these colleges and universities have been recorded since July, and more than 24,000 additional cases have been recorded since August. In Massachusetts specifically, there are currently 252 cases at 34 schools. Dr. Choi added the caveat that with all this data, there currently is not a unified national tracking system for colleges' COVID-19 reporting, and many of the schools are reporting their data in different ways. However, as these numbers point out, there are important reasons to be vigilant about COVID-19 transmission risk occurring at colleges and universities as they reopen.

While there is value in pursuing in-person learning environments for colleges and universities, Dr. Choi warned that several measures must to be taken and implemented to minimize further risk and avoid the creation of COVID-19 hotspots. In order to mitigate the risks of transmission of COVID-19, colleges and universities need to implement proactive measures and approach screening for COVID-19 optimally with some component of testing, since based on emerging literature, it appears that symptom screening alone without COVID-19 testing may not be adequate. These screening
measures for COVID-19 can be activated upon students' entries to campuses, dormitories, and/or other campus residential facilities.

Dr. Choi emphasized the importance of contact tracing and surveillance after COVID-19 cases are confirmed, as well as a geographic isolation and quarantining of positive COVID-19 students, and limiting those students' exposure to external off campus activities. Ensuring a safe physical environment on campus, with frequent and routine cleaning and disinfecting of frequently touched surfaces and also ensuring adequate ventilation systems to promote air circulation are other important environmental measures.

Additionally, colleges and universities can reduce transmission risks for COVID-19 with very firm and proactive messaging to students. Promoting and enforcing behaviors, such as wearing of masks, maintaining physical distance, hand hygiene are all very important. Faculty, staff, and students should be reminded to avoid in-person attendance at classes if they are feeling sick or have suspect COVID-19 symptoms.

Schools and universities can provide prompt and timely medical care, including the separation of COVID-19 positive cases and isolation of those cases away from others who are uninfected. COVID-19 positive cases should be isolated from others, and developing COVID-19 case dashboards for many colleges and universities may be a very proactive and helpful real time way to keep track of emerging positive cases on their campuses. These dashboards could potentially serve as a crucial tool in contact tracing and in surveillance follow up that should happen after a positive COVID-19 case is confirmed. Finally, the decisions about how to, or when, or even if to reopen colleges and universities for face to face and in-person learning should be paired with close communications with local and state departments of health and with a clear understanding of the COVID-19 community prevalence near the school.

Dr. Choi reiterated that we have the tools and the knowledge to reduce COVID-19 transmission and school campuses must implement them with direct and focused efforts. Additionally, she encouraged influenza vaccinations as influenza season approaches.

*Dr. Choi participated in this forum in her role as a governor for the Massachusetts chapter for the ACP, however the perspectives she shared represent her own opinions and are not necessarily policies of any organization with which she is affiliated.*

**Forum Speaker 4 - Dr. Sandra Nelson**

We are aware of the challenges associated with remote learning, but many staff members and students have concerns about the safety of school re-opening and the transmission risk of COVID-19 in schools. What advice based on experiences in the schools and other settings can physicians offer?

Multiple studies from the pre-lockdown era, primarily from European countries, show that children in schools were not major drivers of infection. However, there have been
some modeling studies that suggested that the closure of schools, along with other distancing strategies, which were employed around the same time, were associated with reductions in transmission. Whether this was because children were removed from schools or because adults, who then stayed home to care for their children, and distance themselves, and it was actually the separation of adults that facilitated the reduction in transmission is unknown.

Since that time, schools around the world have emerged from their lockdown and have begun to reopen, largely but not consistently with reassuring results. Strategies in these different settings with respect to masks, distancing, size of cohorts, and other mitigation factors have varied. Dr. Nelson highlighted the experiences of two European countries. Schools in the UK reopened in early June, as the lockdown eased. They gradually built up their census of students in schools to about 1.6 million students by the end of the summer. Out of those 1.6 million students, they identified a total of 200 confirmed cases of COVID-19 over the summer. Of those, about one third were students and two thirds were staff, and about 120 of those cases were transmitted in schools. Most of the outbreaks were small, with only one secondary case, and outbreaks were larger when the index patient was an adult and when the direction of transmission could be determined. There was more likely to be transmission from staff to students and staff to staff than from students to the adults and students in their community. The other important piece of information from the UK, which has been seen now in multiple settings, is that the likelihood of outbreaks correlated with the regional incidence of COVID-19. The greater the risk in the community, the greater the risk in the schools.

In Sweden, primary schools never closed, although some of the secondary schools did close for a period of time. There was never really a formal lockdown. The Swedish did a study where they compared their experience with that of neighboring Finland and found that the rates of disease for children in Sweden were the same as they were in Finland, despite the fact that Finland had completely locked down and closed its schools. This was also true despite the fact that Sweden had higher rates of overall infection than Finland. Sweden has also tracked infection by occupation and found that teachers, as an occupation, do not have a higher risk than other occupations.

Another country to highlight is Israel, which was able to get its COVID-19 rates down to very low levels, and in May, reopened schools. Unlike other settings, they did a deep dive into the school reopening and essentially had a full in-person reopening. Unfortunately, that coincided with an extreme heat wave, which led to both a relaxation of facemasks, in schools and communities, as well as a closing of windows. Crowded classrooms also contributed, and unfortunately, multiple outbreaks were seen.

Dr. Nelson said there will be cases in schools as long as there are cases in communities, and when rates in the communities are low, sustained outbreaks in schools are unlikely. Schools that successfully reopened in Europe did so with rates of disease of around 1 to 10 cases per 100,000 per day averaged over 7 days, which is similar to the metric in Massachusetts. She underscored the importance of mitigation strategies and reminded that without these, we may expect outbreaks. Dr. Nelson concluded by pointing out that a
lot of time spent has been spent focusing on children, and we can't ignore the effect of adults in schools.

**Forum Speaker 5 – Dr. Madoff**

**How are we doing in Massachusetts and what metrics are we following?**

Dr. Madoff reported that Massachusetts is doing well as it continues to monitor a variety of COVID-19 metrics. The number of new cases is reported daily, and both 14-day and 7-day moving averages, which smooth out the day-to-day variation in cases are all carefully followed. The percentage of positive tests is monitored as well, which has dramatically declined since the peak of the outbreak. Currently, MA is below 1%, at around 0.8% of COVID tests positive. The number of tests being done has dramatically increased with almost three million molecular tests done in Massachusetts since the beginning of the outbreak. The rates of COVID-19 are also monitored in each of our 351 cities and towns, and reported in a weekly dashboard map, showing the rates of transmission in each of the communities with risk designated by red, yellow, and green.

He said that the overwhelming majority of communities in Massachusetts, either have fewer than five cases or have a rate of COVID-19 of less than 4 per 100,000 as a 14 day moving average, and this is updated weekly. MA has had some increases in case numbers and is currently averaging about 300 cases on a rolling average basis. At the lowest point, this was closer to 200. There has been some uptick and so these metrics are carefully monitored. Other metrics watched, include syndromic surveillance from emergency departments and viral levels in wastewater, looking for all kinds of early warning detection monitoring to keep ahead of this.

Dr. Madoff added that the surge in the rest of the country is concerning, and this was part of the reason behind the governor's travel order requiring quarantine for anyone coming into the state from an area of the country or internationally where transmission is higher than it is in Massachusetts. The “Stop the Spread” initiative has been expanded, and offers free COVID-19 testing with rapid result turnaround in 20 of the higher rate communities.

A rapid testing mobile unit has been developed to respond to schools that have suspected COVID-19 clusters to prevent outbreaks from occurring further. School officials, after consulting with local public health and DPH, will be able to request a state-sponsored mobile testing unit to come to their school and test groups of students and staff who meet certain criteria. This resource is available to public and private schools throughout the state to provide free testing of asymptomatic students and staff. Symptomatic students or close contacts of students who have COVID-19 are expected to be tested either at a testing site or through their provider.
during the MMS Virtual Member Forum

How do you think schools should address sports and recess given that physical activity is important for child health, keeping in mind that sports can include close contact? How do you feel about making recommendations about sports and recess for kids who are working remotely?

**Dr. Fisher:** I do think it's important for children to get physical activity on a regular basis. That's something I talk to patients about every time I'm in the exam room, how they can get physical activity. We are seeing a significant rise in childhood obesity, so children need to get outside and they need fresh air. I definitely support of recess because children need to have recess. They need to run around, and they need to have some socially distanced mask breaks outside. We want children six feet apart when they're having mask breaks and we know that being outside, the risk of transmission is far less. There are challenges ahead of us to make sure that certain games that are played are modified so they can be played safely. There are definitely some sports that are more concerning than others in terms of close contact. At the high school level, there are a lot of restrictions placed on the full contact sports.

For the second part of the question, which is about the remote learning activities, I know that schools are going to be having virtual gym classes. These are going to be individualized on the district level, but as physicians, we need to work with our families.

**Dr. Nelson:** We are encouraging sports because they are incredibly important for the overall wellness and improve the academic performance of students. The Department of Energy and Environmental Affairs (EEA) has published guidelines on youth sports, and it is a great resource. The guidelines rank sports by level of risk, with sports like golf and cross-country being low risk in terms of transmission and sports like football and wrestling being higher risk. Depending on the level of risk, there are different guidelines around how those sports can be modified and conducted. That is actually overseen by the Massachusetts Interscholastic Athletic Association (MIAA) and they have information that is quite detailed and about how those sports can be played. There is a path forward to play sports safely.

**Should colleges do regular testing of all students?**

**Dr. Choi:** The answer is not quite so simple. There is what we should do, what we would like to do ideally, and then there's the practical aspect of what we can do.

There are conflicting guidelines and data, which also confuse the picture. Some national guidelines actually argue against doing mass screenings, but clearly for many colleges who have decided that's important, they're finding it a useful tool for both contact tracing, surveillance and follow up after positive cases.

Utilizing a mathematical model recently published in JAMA, they found that when they modeled the potential of using a screening COVID-19 test that had about a 70%
sensitivity and greater than 95% specificity, that to achieve a benefit on some of the results you would want to be able to achieve to reduce the transmission time, you would need to be testing and screening approximately every couple of days. While that is a very abbreviated summary of their findings, it illustrates what we should do ideally. It is my opinion that we should try to test students before they come on campus, potentially rescreen at some interval, whether that be twice weekly or weekly, or possibly every couple weeks, and certainly test when you have somebody who may be a close contact of someone who is a known positive. There are lots of caveats about screening tests because we know that there are shortages of COVID-19 tests and sometimes test results can take more time. It does make sense both from a modeling perspective and also from the biology and spread of COVID-19 to try and screen and test frequently and as widely as possible.

There has been confusion around some of the guidelines and how some of them differ. The CDC updated isolation for COVID-19 positive cases as 10 days and 24 hours being fever free with reduction of symptoms, but the last CDC guidelines still have self-isolation guidelines as 10 days and 72 hours being fever free with reduction of symptoms. Can you clarify and advise what physicians should be advising their patients?

Dr. Madoff: The CDC guidance has shifted quite a bit on so-called release from isolation guidance from a strategy, which at first emphasized repeat testing on individuals. And as we’ve learned, many people with COVID-19 continue to have positive tests for a considerable period of time after they have recovered. We rarely endorse what’s called a test-based strategy at this point, except in some very limited circumstances. Similarly, the guidance around the symptom-based strategy for release from isolation has also been updated. The CDC guidance, which originally required 10 days, with three of those days afebrile and improvement in symptoms, was updated to 10 days, with one day of being fever free, without antipyretics and with improvement in symptoms. DPH is also using this guidance. Unfortunately, some of the guidance that is on the website hasn't been fully updated yet.

People are asking about daycare programs. Do children need to be cleared by a pediatrician and have a note clearing them to return to daycare when they have mild URI symptoms, like a clear runny nose and sneezing? We are already getting these requests, but it will not be possible to see every one of these children as the season goes on. Without improved testing sensitivity, we will not be able to definitively say these children are cleared to return.

Dr. Fisher: One of the things that I think is a little bit confusing is that there are two parts of the Department of Education. There's early education, (EEC), and elementary and secondary education (DESE). The guidance from EEC and DESE are not exactly the same. In fact, the DESE guidelines are a lot more prescriptive in terms of the protocols of what to do when a child has a symptom or there has been an exposure. My understanding is there is work at the state level to harmonize those two guidelines knowing that we pediatricians, and parents, and family doctors really need some consistency in the
guidelines. I am advising all of the pediatricians that I interact with to really follow the DESE guidelines. In that situation, if a child has a symptom, there is no sort of get out of quarantine with a physician letter. You still need a test if the child has a symptom. I recognize that this is very different than everything we've done in the past, which is if a child has mild cold symptoms, they go back to school. This year, we have to do something different if we want to be successful. Unfortunately, those children are going to need to stay home for the full quarantine or test negative. You do not need to see them, most of them we are just getting the testing done. Our turnaround time for testing has really improved in the state over the last month. In the ideal scenario, you're getting a test and you're getting that test result back within a couple of days.

If that child's respiratory symptoms have improved and they are now fever free for the time period that's in the protocol, they can go back to school. But there really is no situation where I would say that a pediatrician or family physician should be writing a letter saying, yes, this child has a fever, or a cough, or a cold. Now, if their only symptom is a runny nose and they have absolutely no other symptoms, then the protocols are quite clear that rhinorrhea without any other symptoms is not a reason to be quarantined, stay out of school or be tested. We have a standard letter that puts in the protocol. And we're not saying that this child should or shouldn't go back to school. We're saying it's really up to the school district to take the symptoms and put them into the protocol that DESE has put into place. But to acknowledge the question, the early childhood guidelines are not quite as detailed. So my recommendation is to use the DESE ones in those scenarios.

**There is some confusion about alternative diagnoses as a way to get children back to school? As well, there is some concern that patients with a positive strep test or influenza test can then be cleared for school, and people are worried about co-infection and some misrepresentation there?**

**Dr. Fisher:** There has been a ton of confusion about this. The Mass chapter of the Academy of Pediatrics is making a visual algorithm, to help all primary care, or school nurses, or really anybody to plug things into this online algorithm to help answer some of these questions. If the alternative diagnosis is for an acute illness, strep, ear infections, pneumonia, then no, that doesn't get you out of the need for the isolation period or to have a negative COVID-19 test. For example, if I'm seeing a patient with a sore throat and a fever, I do a rapid strep, that rapid strep is positive, they cannot return to school until they either have a negative COVID-19 test or they've completed their 10 days of isolation from the onset of symptoms and the fever free period that is in the guidelines.

The alternative diagnosis comes in with underlying chronic illnesses. There are basically four chronic conditions, anxiety-induced abdominal pain, allergic rhinitis, chronic migraines, and asthma-induced cough. For example, the child that constantly has a runny nose because of seasonal allergies, or the child who has cough all winter long due to asthma. If this symptom is indicative of their baseline, that individual patient's baseline, that's where the clinical decision making comes into play to say that this is a child's chronic ongoing illness, and an alternative diagnosis can get you out of the testing and the isolation period.
Could you comment on air transmission in facilities and what role facilities play in the transmission rate at our schools? Some schools are struggling to fix the ventilation issues aiming for four to six air exchanges an hour. Where do we think ventilation is on the list of factors relative to community infection rate, masks, distancing, and hand hygiene?

**Dr. Nelson:** Unfortunately, ventilation is a topic that infectious disease physicians don't know as much about, and we have had to learn more about it. It's remarkable how much of a factor this has been in many school districts. In part this relates to the controversy over whether COVID-19 is transmitted by airborne spread or not. The vast majority of infectious disease epidemiologists believe COVID-19 is primarily a droplet-mediated transmission virus. In which case, ventilation is important, but perhaps not as important as some of the other measures like masks and distancing. In my opinion, I think we are probably are overly focused on ventilation. Nevertheless, there are examples of super spreading events, which are extremely rare, such as a recent publication on a bus, the outbreak in a call center in Korea, an outbreak in a restaurant and the Biogen outbreak here in Massachusetts. All of these were indoors, and several of them were associated with enclosed spaces without good airflow or with circulation of air such that was just being re-circulated with no fresh air was being introduced. I don't think that all filters need to be upgraded to the MERV 13 or that we necessarily need to achieve hospital-level air change per hour degrees of filtration. Ensuring there is some air movement is important, and opening windows is the best option. Honestly, I don't know what the right answer is, but I do question why we are spending a lot of money, which could potentially be going towards things like technology upgrades for students who really need it. So the other piece is what's going on overseas, and I don't think ventilation has received the same level of emphasis and despite that, there still has been successful school reopening. I do recommend following the guidance of the CDC on ventilation.

At what percentage of positive COVID tests do serious shutdown measures need to be taken?

**Dr. Larry Madoff:** Questions around metrics are very difficult, and at DPH we take a holistic approach to this and we can't point to any single number that's going to cause us to make changes. We are more concerned about the direction of the metrics and how things are looking in communities, town-by-town and region-by-region. These decisions are going to be made based on many variables and not on any single number or metric. I can't say in advance what we're going to do based on a single rate.

People are asking about different types of testing, saliva testing versus PCR testing. Could you speak to some of the testing that is on the horizon, what might be more effective, or efficient, or available, and how that might affect us going forward.

**Dr. Choi:** In addition to tests utilizing a nasopharyngeal or pharyngeal swab many colleges and universities are now utilizing a recently approved saliva test. This could impact access to more widespread COVID-19 testing. It has a rapid turnaround, user operability is easier and it is well tolerated all of which could broaden the scope of use.
What becomes more uncertain is other tests, antigen tests, and whether that's going to be able to fully replace our current PCR-based test.

From my perspective, I think less about novel ways to test for COVID-19, and more about trying to implement more accessible distribution, certainly in the college and university landscape. In Massachusetts, much of the availability of the testing is due to scaling up of the more traditional COVID-19 tests through collaborations and partnerships with the Broad Institute. Partnerships that would allow more accessibility and expansion for mass testing along with a concerted effort to understand where testing is needed should be where our efforts are focused.

**There are a couple of questions about who needs to be quarantined and tested when there's a positive exposure? Does there need to be quarantine/testing when there's a six foot differential in classrooms? Is there a need to quarantine and/or test siblings and close contacts for other people in the house?**

**Dr. Madoff:** There is a distinction between isolation, which is for people who are sick or have a diagnosis of COVID-19, and quarantine, which is for contacts that may be incubating COVID-19. The quarantine period is longer than the isolation period because of the variable incubation period of COVID-19.

What has become fairly clear is that in general, prolonged close contact is what drives transmission. So we have focused, and authorities, public health authorities, nationally, globally, have also focused on prolonged close contact exposure of more than 10 to 15 minutes at a distance of less than six feet. For those individuals who have an exposure like that, regardless of the setting, we recommend quarantine. So if someone is in contact with an individual who has COVID-19 or is later diagnosed with COVID-19 within two days, we do recommend quarantine for those individuals, and that means being home apart from others for 14 days.

If there is evidence of transmission in a classroom, for example one student is then closely followed by another student that develops COVID-19 in a classroom setting. That's where our mobile testing comes in, and we widen the net, to include others in the classroom, realizing that asymptomatic transmission can occur. We don't always know exactly when and where transmission occurs, and there have been reports of transmission occurring over greater distances or in some super spreading situations. In general, we found it useful to use, and we use this throughout our contact tracing in Massachusetts and nationally, the six-foot and prolonged exposure, sort of a face-to-face contact. There are some other situations, for example, if someone coughs or sneezes on an individual, even if it doesn't take 10 or 15 minutes to do that, that's another considered a close contact situation. In general, we would not quarantine the whole classroom.

**There are a number of questions about how do we keep teachers safe and advocate for both them and the children? In particular, what type of PPE is recommended for both primary and secondary education teachers. What data do we have around teachers?**
Dr. Nelson: I mentioned the experience in Sweden, where teachers were not higher risk than other occupations. There's limited experience and limited data from other countries, which have found similar results. But if you look at the risks that teachers have, there was a recent study that suggested that something around 40% of teachers either have a high-risk condition as defined by the CDC or they live with a family member who has a high-risk condition. These are really important considerations for our teachers. In the DESE guidance, there is an effort to protect the teachers, with masks and distancing. In some situations enhanced PPE is needed, particularly in special education rooms where distancing between teachers and students can't be maintained. For example, children who may have a tracheostomy or need some care, those aides and teachers will need enhanced PPE. Outside of that, the PPE for teachers is going to include the same protective measures that the students are going to be using, which will be essentially masks and distancing. There is separate PPE guidance for nurses as well through the DPH.

At the Mass Medical Society, we have been doing a lot of work on equity and disparities, and we are concerned about the reality of worsening disparities in the closing of schools. Simultaneously, we are concerned about the past effects of online schooling and how it going forward will continue to worsen these inequities. So what actions should the school districts take now to enhance equity in that space? If we need to close schools again, how should we be proactively be thinking about ways to enhance equity?

Dr. Fisher. These are very important and difficult questions. I am seeing more of this inequity in the last few months than I've seen in my entire career. This is one of the major driving forces of why we need to get children back into school. We want the towns to do everything they can to make it safe, and we want every adult to do what they need to do to keep transmission low. The school systems need to utilize the money that came from the state for technology, especially if they are fully remote or are going to have to turn to fully remote. In the districts I'm working with, they are making devices available to every student who needs them to access the curriculum. I think some towns that are fully remote are still making available some limited in-person option to the children that are most at risk. Some parents may be non-English speakers and they are going to struggle to help their child have access to the curriculum in this way. So making the teachers available for some one on one, even if it is remote instruction, is important. If a child has an IEP, the school system must still honor that IEP. Anything we can do as individual care providers to advocate for an individual child must be done. Our chapter in of the national AP has been advocating and lobbying to Congress to make additional funding available for these types of efforts. The districts that have the most children at risk are also the districts that traditionally have been the most underfunded. It's a challenge, but we need to advocate to both state and national leaders for additional funding specifically to those districts.

We talked a lot about screening, contacts, and quarantines, and there's a question about asymptomatic COVID-19 contacts. The accuracy of the COVID-19 tests will depend on when the child is exposed, do you recommend asymptomatic COVID-19 contacts to wait until day four to five after a possible exposure to be tested?
Dr. Madoff: We do recommend testing for contacts, but regardless of the outcome of the testing, we ask that contacts remain quarantined for the full 14 days. So the point of testing in this setting is to try to get an early handle on the potential that those people could develop disease and become cases themselves and their contacts require testing so that they need to be isolated and their contacts traced. It's a bit of a trade off between trying to get a result quickly and waiting as long as possible for it to be positive. Our recommendation is basically to try to get the testing done. In practice, usually by the time the testing from the original case comes back, the contact is identified, that person is tested, ends up being several days anyway. We don't try to put an exact time frame on it, but just recommend that contacts be tested. To emphasize again, regardless of the outcome of that testing, even if that testing is negative, they need to remain quarantined for the full 14 days. Because a test is only good at one point in time, and someone who is incubating COVID-19 could be negative one day and positive the next.

Are there any children we should recommend not attend school in person, for example, a patient in a yellow zone with a significant chronic illness or multiple generations at home?

Dr. Nelson: The CDC has listed criteria that are high risk for both children and adults. For children, those criteria include what's defined as medical complexity, which is oftentimes characterized by sort of a congenital illness, a neurologic illness, metabolic or genetic disorders. Those individuals are going to be at higher risk. However, some of those are the same individuals who are special needs and may actually benefit more and need the benefits of in-person learning. Decisions should be individualized between school districts and families.

As to the high-risk members of the family who are at home, is a more difficult question. This really affects a lot of children, particularly in areas where the epidemic has really raged. I don't know if we really know what the right answer is, but we do know that distancing within households is effective. For students who do return to in-person learning, maintaining some degree of distancing in the homes, if feasible, can also help to prevent transmission in a home setting.

What about exposure on school buses and regulations on school buses? Are there patients we should really give advice not to go on buses?

Dr. Nelson: The ventilation systems on school buses are terrible, even when you turn off the recirculation mode you are only bringing in a tiny portion of fresh air. The most important thing on a school bus is to keep those windows open as long as possible in the season. For the most part, it is a relatively short duration of travel. All students, regardless of age, should be masked on school buses, and only one child per seat, unless there are siblings, in which case they can be together. There have been some outbreaks on buses, but most have occurred in settings where the windows were closed and there was no air circulation. Buses are a necessary path to getting to school, and may still be the safer option when you look at things like public transit.
What do you think about the use of the rapid in office, POC COVID-19 Ig, IgM tests that use whole blood?

**Dr. Choi:** A serologic test, rapid or not, whole blood or otherwise is not the preferred method to diagnose acute infection. While there's validity to serologic tests, there is a time lag before the development of antibodies, even IgM antibodies, which are the earlier antibodies. There is absolutely an opportunity to miss a diagnosis if you rely exclusively and solely on any serologic test. Particularly in the early few days of acute COVID-19, when there may not be an adequate serologic response to detect it, regardless of what type of serologic test is used. There is an appeal to this test because it is rapid and at point of care, but for acute infection, it would not be a good absolute substitute to direct testing like with a PCR test.