# Preparing K-12 School Administrators for a Safe Return to School in Fall 2020

Updated July 23, 2020

Schools are an important part of the infrastructure of communities and play a critical role in supporting the whole child, not just their academic achievement.

This guidance is intended to aid school administrators as they consider how to protect the health, safety, and wellbeing of students, teachers, other school staff, their families, and communities and prepare for educating students this fall.

This guidance is for K-12 school administrators who are preparing for students, teachers, and staff to return to school in fall 2020. School administrators are individuals who oversee the daily operations of K-12 schools, and may include school district superintendents, school principals, and assistant principals.

#### It is critical that all administrators:

- Engage and encourage everyone in the school and the community to practice preventive behaviors. These are the most important actions that will support schools' safe reopening and will help them stay open.
- Implement multiple SARS-CoV-2 mitigation strategies (e.g., social distancing, cloth face coverings, hand hygiene, and use of cohorting).
- Communicate, educate, and reinforce appropriate hygiene and social distancing practices in ways that are developmentally appropriate for students, teachers, and staff.
- Integrate SARS-CoV-2 mitigation strategies into co-curricular and extracurricular activities (e.g., limiting or cancelling participation in activities where social distancing is not feasible).
- Maintain healthy environments (e.g., cleaning and disinfecting frequently touched surfaces).
- Make decisions that take into account the level of community transmission.
- Repurpose unused or underutilized school (or community) spaces to increase classroom space and facilitate social distancing, including outside spaces, where feasible;
- Develop a proactive plan for when a student or staff member tests positive for COVID-19.
- Develop a plan with state and local health department to conduct case tracing in the event of a positive case.
- Educate parents and caregivers on the importance of monitoring for and responding to the symptoms of COVID-19 at home.
- Develop ongoing channels of communication with state and local health departments to stay updated on COVID-19 transmission and response in your local area.

The guidance described in this document is based on the best available evidence at this time. This guidance is meant to supplement—not replace—any state, local, territorial, or tribal health and safety laws, rules, and regulations with which schools must comply.

Key considerations for school administrators:

- COVID-19 transmission rates in the immediate community and in the communities in which students, teachers, and staff live
- Approaches to cohorting that fit the needs of your school/district and community (e.g., keeping students in class pods, staggering when students return to school facility, having the same teacher stay with the same group of students)
  - o Can unused or underutilized school spaces, including outdoor spaces, be repurposed to increase classroom space and facilitate social distancing?
- Concurrently implementing multiple strategies in school to prevent the spread of COVID-19 (e.g., social distancing, cloth face coverings, hand hygiene, and use of cohorting)
- Best practices for your school and community to communicate, educate, and reinforce
  personal protective behaviors to prevent the spread of COVID-19 in school and in the
  community
- Integrating strategies to reduce COVID-19 transmission into co-curricular and extracurricular activities (e.g., limiting participation in activities where social distancing is not feasible)
- Planning and preparing for when someone gets sick
- Working with state and local health authorities to develop a plan to conduct contact tracing in the event of a positive case
- Communicating appropriately to families about home-based symptom screening

### Critical Role of Schools

This guidance is intended, first and foremost, to protect the health, safety and wellbeing of students, teachers, other school staff, their families, and communities.

Schools are an important part of the infrastructure of communities, as they provide safe, supportive learning environments for students, employ teachers and other staff, and enable parents, guardians, and caregivers to work. Schools also provide critical services that help to mitigate health disparities, such as school meal programs, and social, physical, behavioral, and mental health services. School closure disrupts the delivery of these critical services to children and families, and places additional economic and psychological stress on families, which can increase the risk for family conflict and violence.[11,12]

The unique and critical role that schools play makes them a priority for opening and remaining open, enabling students to receive both academic instruction and support as well as critical services. In order to prioritize opening schools safely and helping them to remain open, communities should consider adopting actions to mitigate community transmission.

CDC's Implementation of Mitigation Strategies for Communities with Local COVID-19

Transmission has strategies for community mitigation to reduce or prevent the spread of COVID-19, which in turn will help schools to open and stay open safely. Recognizing the importance of providing safe, in-person learning, communities may also wish to help schools by examining whether additional public or private space, including outdoor spaces, that is currently underutilized might be safely repurposed for school and instructional purposes.

Returning to school in fall 2020 poses new challenges for schools, including implementing mitigation measures (e.g., social distancing, cleaning and disinfection, hand hygiene, use of cloth face coverings), addressing social, emotional, and mental health needs of students, addressing potential learning loss, and preparing for the probability of COVID-19 cases within the broader school community. This guidance provides information about:

- what is currently known about COVID-19 among school-aged children;
- the importance of going back to school safely;
- what is currently known about SARS-CoV-2 (the virus that causes COVID-19) transmission in schools and its impact on community transmission; and
- the ways administrators for kindergarten through grade 12 (K-12) schools can plan and prepare for in-person instruction and minimize the impact of potential closures.

## What is known about the signs and symptoms, burden, and transmission of SARS-CoV-2 among children?

### Signs and Symptoms

Common COVID-19 symptoms <u>among children</u> include fever, headache, sore throat, cough, fatigue, nausea/vomiting, and diarrhea. However, many children and adults infected with the virus that causes COVID-19 are asymptomatic (meaning they have no signs or symptoms of illness).

### Impact of COVID-19 on Children

Collecting and sharing data, including how it affects different places and populations, is important for understanding the context and burden of the COVID-19 pandemic. School officials should make decisions about school reopening based on available data including levels of community transmission and their capacity to implement appropriate mitigation measures in schools. Children appear to be at lower risk for contracting COVID-19 compared to adults. While some children have been sick with COVID-19, adults make up nearly 95% of reported COVID-19 cases. Early reports suggest children are less likely to get COVID-19 than adults, and when they do get COVID-19, they generally have a less serious illness. As of July 21, 2020, 6.6% of reported COVID-19 cases and less than 0.1% of COVID-19-related deaths are among children and adolescents less than 18 years of age in the United States.

Early reports suggest the number of COVID-19 cases among children may vary by age and other factors. Adolescents aged 10-17 may be more likely to become infected with SARS-CoV-2 than children younger than age 10,<sup>[7],[8]</sup> but adolescents do not appear to be at higher risk of developing severe illness.<sup>[9]</sup> There are currently a higher proportion of COVID-19 cases among Hispanic/Latino children as compared to non-Hispanic white children. Children and adults with certain <u>underlying medical conditions</u> are at <u>increased risk of severe illness</u> from COVID-19.<sup>[10]</sup> Severe illness means that they may require hospitalization, intensive care, or a ventilator to help them breathe, or may even die. Children with intellectual and developmental disabilities are more likely to have <u>comorbid medical conditions</u> (e.g., diseases of the respiratory system;

endocrine, nutritional and metabolic diseases; and diseases of the circulatory system) that may put them at increased risk for severe illness from COVID-19.[11] Although rare, some children have developed multisystem inflammatory syndrome (MIS-C) after exposure to SARS-CoV-2. As of May 20, 2020, the majority of children hospitalized with MIS-C had recovered.[112]

Data on SARS-CoV-2 transmission among children are limited. Evidence from other countries suggests that the majority of children with COVID-19 were infected by a family member. [13] For example, the first pediatric patients in South Korea and Vietnam were most likely from contact with an adult family member. [14],[15] Published reports from contact tracing of students with COVID-19 in schools from France, Australia, and Ireland suggest that students are not as likely to transmit the virus to other students compared to household contacts. [16],[17],[18] However, more research is needed on SARS-CoV-2 transmission between children and household members.

## What is known about how schools have reopened and the impact on SARS-CoV-2 transmission?

Internationally, schools have responded to COVID-19 using a variety of approaches. [19], [20] For example, China, Denmark, Norway, Singapore, and Taiwan all required temperature checks at school entry. [21] Most countries have changed the way they operate to reduce class sizes, increase physical distance between students, and keeping students in defined groups to reduce contacts (i.e., cohorting). [22] Furthermore, many countries have staggered attendance, start and stop times, and created alternating shifts to enable social distancing. In some places this means that only certain students have returned to schools, either by grade range or need. For example, Denmark was the first European country to reopen schools. Denmark staggered students' reentry in waves (e.g., one group started school first, followed by another group at a later date), with limited class sizes and using other social distancing measures. [23] Younger students (under age 12) returned first based on their lower health risk and need for more supervision than older students. Class sizes were reduced to allow physical distancing. In Taiwan, students returned to school with mandatory temperature checks and use of face masks. Rather than national school closures, Taiwan relied on local decision-making to determine if classroom or school closures were needed, based on infection rates. [24]

There is mixed evidence about whether returning to school results in increased transmission or outbreaks. For example, Denmark initially reported a slight increase in cases in the community after reopening schools and child care centers for students aged 2-12 years, followed by steady declines in cases among children between ages 1 and 19 years. [25] In contrast, Israel experienced a surge of new cases and outbreaks in schools after reopening and relaxing social distancing measures; it is unclear what caused the increase in cases and what other mitigation measures the schools had implemented. [26] In summer 2020, Texas reported more than 1,300 COVID-19 cases in childcare centers; however, twice as many staff members had been diagnosed as children, suggesting that children may be at lower risk of getting COVID-19 than adults. [27]

It is important to consider community transmission risk as schools reopen. Evidence from schools internationally suggests that school re-openings are safe in communities with <u>low SARS-CoV-2 transmission</u> rates. [28] Computer simulations from Europe have suggested that school re-

openings may further increase transmission risk in communities where transmission is already high. [29] More research and evaluation is needed on the implementation of mitigation strategies (e.g., social distancing, cloth face coverings, hand hygiene, and use of <u>cohorting</u>) used in schools to determine which strategies are the most effective. Such research would improve understanding of the impact of mitigation strategies on the risk of SARS-CoV-2 transmission in schools, and ongoing monitoring and surveillance of transmission in schools could help with timely outbreak detection and prevent wider spread.

## Why is it Important to Open Schools for In-Person Instruction?

While opening schools – like opening any building or facility—does pose a risk for the spread of COVID-19, there are many reasons why opening schools in the fall of 2020 for in-person instruction is important.

Schools play a critical role in the wellbeing of communities. Schools are a fundamental part of the infrastructure of communities. Schools provide safe and supportive environments, structure, and routines for children, as well as other needed support services to children and families. Schools play a vital role in the economic health of communities by employing teachers and other staff and helping parents, guardians, and caregivers work.

Schools provide critical instruction and academic support that benefit students and communities in both the short- and long-term. The main role and priorities of K-12 educational institutions are to provide age-appropriate instruction and support students' academic development. Reopening schools will provide in-person instruction for students, facilitate increased communication between teachers and students, and provide students with critical academic services, including school-based tutoring, special education, and other specialized learning supports.

Studies show that students have experienced learning loss during the period of school closure and summer months. [30] In-person instruction for students has advantages over virtual learning, particularly when virtual learning was not the planned format for instruction, and schools may not have the resources or capability to transition fully to virtual learning. In-person classroom instruction has the added benefit for many students of interpersonal interaction between the student and the teacher and the student and peers. [31] Teachers are able to more actively participate in student learning, provide feedback as students encounter challenges, and promote active learning among students. [32]

In-person instruction may be particularly beneficial for students with additional learning needs. Children with disabilities may not have access through virtual means to the specialized instruction, related services or additional supports required by their Individualized Education Programs (IEPs) or 504 Plans. Students may also not have access through virtual means to quality English Language Learning (ELL). [34]

When schools are closed to in-person instruction, disparities in educational outcomes could become wider, as some families may not have capacity to fully participate in distance learning (e.g., computer and internet access issues, lack of parent, guardian, or caregiver support because of work schedules) and may rely on school-based services that support their child's academic success. The persistent achievement gaps that already existed prior to COVID-19 closures, such as disparities across income levels and racial and ethnic groups, could worsen and cause long-term effects on children's educational outcomes, health, and the economic wellbeing of families and communities. While concern over higher rates of COVID-19 among certain racial/ethnic groups may amplify consideration of closing a school that educates primarily racial minority students, there should also be consideration that these may also be the schools most heavily relied upon for students to receive other services and support, like nutrition and support services.

## Schools play a critical role in supporting the whole child, not just the academic achievement of students.

- Social and emotional health of students can be enhanced through schools. Social interaction among children in grades K-12 is important not only for emotional wellbeing, but also for children's language, communication, social, and interpersonal skills. Some students may have experienced social isolation and increased anxiety while not physically being in school due to COVID-19. Resuming in-person instruction can support students' social and emotional wellbeing. Schools can provide a foundation for socialization among children. When children are out of school, they may be separated from their social network and peer-to-peer social support. Schools can facilitate the social and emotional health of children through curricular lessons that develop students' skills to recognize and manage emotions, set and achieve positive goals, appreciate others' perspectives, establish and maintain positive relationships, and make responsible decisions.
- Mental health of students can be fostered through school supports and services. Schools are an important venue for students to receive emotional and psychological support from friends, teachers, and other staff members. Lengthy school building closures can leave some students feeling isolated from important friendships and support from other caring adults. 401 Schools also provide critical psychological, mental and behavioral health (e.g., psychological counselling, mental and behavioral assessment) services to children who may not have access to these services outside of school. School closures have limited the availability of these services. Furthermore, isolation and uncertainty about the COVID-19 pandemic can create feelings of hopelessness and anxiety while removing important sources of social support. Some students may have experienced trauma through the loss of a loved one from COVID-19. Increases in anxiety and depression may occur when students do not have the structure and routine that being in school brings to their daily lives. Finally, having opportunities to be physically active through recess and physical education can help improve students' feelings of anxiety and sadness. These physical activities should be provided regularly to students in a safe and supportive environment that includes physical distancing and strategies to reduce close contact between students.
- Continuity of other special services is important for student success. Students who rely on key services, such as school food programs, special education and related services (e.g., speech and social work services, occupational therapy), and after school programs are put at greater risk for poor health and educational outcomes when school buildings are closed and

they are unable to access such school health programs and services. [41] During periods of school building closures, students had limited access to many of these critical services, potentially widening educational and health disparities and inequities.

## How can K-12 schools prepare for going back to in-person instruction?

**Expect cases of COVID-19 in communities.** International experiences have demonstrated that even when a school carefully coordinates, plans, and prepares, cases may still occur within the community and schools. Expecting and planning for the occurrence of cases of COVID-19 in communities can help everyone be prepared for when a case or multiple cases are identified.

- Coordinate, plan, and prepare. Administrators should coordinate with local public health officials to stay informed about the status of COVID-19 transmission in their community. Additionally, planning and preparing are essential steps administrators can take to safely reopen schools:
  - CDC's <u>Considerations for Schools</u> provides detailed recommendations for schools to plan and prepare to reduce the spread of COVID-19, establish healthy environments and maintain healthy operations. This guidance includes information about implementation of mitigation strategies, such as physical distancing within buses, classrooms and other areas of the school, healthy hygiene habits, cleaning and disinfection, use of cloth face coverings, staggering student schedules, and planning for staff and teacher absences (e.g., back-up staffing plans).
  - One important strategy that administrators can consider is cohorting (or "pods"), where a group of students (and sometimes teachers) stay together throughout the school day to minimize exposure for students, teachers, and staff across the school environment. At the elementary school level, it may be easier to keep the same class together for most of the school day. In middle and high school settings, cohorting of students and teachers may be more challenging. However, strategies such as creating block schedules or keeping students separated by grade can help to keep smaller groups of students together and limit mixing. Strategies that keep smaller groups of students together can also help limit the impact of COVID-19 cases when they do occur in a school. If a student, teacher, or staff member tests positive for SARS-CoV-2, those in the same cohort/group should also be tested and remain at home until receiving a negative test result or quarantine. This helps prevent a disruption to the rest of the school and community by limiting the exposure. Schools should have systems in place to support continuity or learning for students who need to stay home for either isolation or quarantine. This includes access to online learning, school meals, and other services. The same holds for students with additional needs, including children with a disability, that makes it difficult to adhere to mitigation strategies.

<u>Operating Schools During COVID-19</u>: Guiding principles and mitigation strategies to use when school is open

- Prepare for potential COVID-19 cases and increased school community transmission. Schools should be prepared for COVID-19 cases and exposure to occur in their facilities. Collaborating with <u>local health officials</u> will continue to be important once students are back to school, as they can provide regular updates about the status of COVID-19 in the community and help support and maintain the health and wellbeing of students, teachers, and staff. Having a plan in place for maintaining academic instruction and ensuring students have access to special services is also critical.
- Making decisions about school operations: Administrators should make decisions in collaboration with local health officials based on a number of factors, including the <u>level of community transmission</u>, whether cases are identified among students, teachers, or staff, what other indicators local public health officials are using to assess the status of COVID-19, and whether student, teacher, and staff cohorts are being implemented within the school.
  - What is the <u>level of community transmission</u>? There are specific strategies schools can implement based on the level of community transmission reported by local health officials:
    - If there is <u>no to minimal</u> community transmission, reinforcing everyday preventive actions, ensuring <u>proper ventilation</u> within school facilities, including buses, and maintaining cleaning and disinfection practices remain important. These actions can help minimize potential exposure. Schools should also monitor absenteeism among teachers, staff, and students to identify trends and determine if absences are due to COVID-19, symptoms that led to quarantine, concerns about being in the school environment and personal health and safety, or positive test results. Anyone who tests positive for COVID-19 should <u>stay home and self-isolate</u> for the timeframe recommended by public health officials. Anyone who has had <u>close</u> <u>contact</u> with someone who has tested positive or is symptomatic for COVID-19 should be tested and stay home until receiving a negative result, or <u>stay home and monitor for symptoms</u>.
    - If there is *minimal to moderate* community transmission, schools should follow the actions listed above, and continue implementing mitigation strategies such as <u>social distancing</u>, use of <u>cloth faced coverings</u>, reinforcing everyday preventive actions, and maintaining cleaning and disinfection. This also can include ensuring that student and staff groupings/cohorts are as static as possible and that mixing groups of students and staff is limited.
    - If there is <u>substantial</u>, <u>controlled</u> transmission, significant mitigation strategies are necessary. These include following all the actions listed above and also ensuring that student and staff groupings/cohorts are as static as possible with limited mixing of student and staff groups, field trips and large gatherings and events are canceled, and communal spaces (e.g., cafeterias, media centers) are closed.
    - If there is <u>substantial</u>, <u>uncontrolled</u> transmission, schools should work closely with local health officials to make decisions on whether to maintain school operations. The health, safety, and wellbeing of students, teachers, staff and their families is the most important consideration in determining whether school closure is a necessary step. Communities can support

schools staying open by implementing strategies that decrease a community's level of transmission. However, if community transmission levels cannot be decreased, school closure is an important consideration. Plans for virtual learning should be in place in the event of a school closure.

- Did a student or staff member test positive for SARS-CoV-2? If someone within the school community (e.g., student, teacher, staff) tested positive for SARS-CoV-2, assessing the level of risk is important to determine if, when, and for how long part or all of a school should be closed. K-12 administrators can also refer to CDC's Interim Considerations for K-12 for School Administrators for SARS-CoV-2 Testing, which provides additional information about viral diagnostic testing. A single case of COVID-19 in a school would not likely warrant closing the entire school, especially if levels of community transmission are not high. The levels of community transmission described above and the extent of close contacts of the individual who tested positive for SARS-CoV-2 should all be considered before closing. These variables should also be considered when determining how long a school, or part of the school, stays closed. If the transmission of the virus within a school is higher than that of the community, or if the school is the source of an outbreak, administrators should work collaboratively with local health officials to determine if temporary school closure is necessary. Students, teachers, and staff who test positive or had close contact of the individual who tested positive should be provided with guidance for when it is safe to discontinue self-isolation or end quarantine.
  - What other indicators are local public health officials using to assess the status of COVID-19? Local health officials can help inform decisions related to school operations by examining public health indicatorspdf icon that are used to determine level of community transmission and disease severity levels. For example, indicators such as healthcare capacity (e.g., staffing, ICU bed occupancy), changes in newly identified COVID-19 cases, and percentage of people testing positive for SARS-CoV-2 infections in the community might be useful to determine whether to maintain or modify school operations. These indicators are set by state, local, tribal, and territorial health and healthcare officials, and should be shared with schools for decision making.

0

• Is a cohort approach used within the school? The level of student and staff mixing within the school should also be considered. If students are kept in cohorts to minimize mixing of students, exposure to an individual with COVID-19 may be limited to one particular cohort and not pose a broad risk to the rest of the school. Cohorts that have been in close contact with someone with COVID-19 can switch to virtual learning and stay home in accordance with CDC's guidelines for quarantine and self-isolation, and the school may remain open.

- Communicate with families, staff, and other partners. When preparing to go back to school, regular communication should be used to update students, families, teachers, and staff about academic standards, meal program services, and access to other school-based essential services that students and families rely on. Regular communication with families, staff, and other partners should include:
  - Updates about the status of COVID-19 in the school and community
  - o Notification when there are COVID-19 cases in the school (when communicating about the health status of students, schools should take care to avoid disclosing personally identifiable information and should follow all applicable privacy requirements, including those of the Family Educational Rights and Privacy Act)
  - Explanation of what parents, students, teachers, and staff can expect when returning to school; in particular, communicating about:
    - the importance of staying home when sick and <u>staying home to monitor</u> <u>symptoms if close contact occurred with a person who tested positive for</u> SARS-CoV-2
    - considerations for COVID-19 symptom screenings
    - types of social distancing measures being implemented
    - when students, teachers, staff and/or visitors will be expected to wear cloth face coverings and whether cloth face coverings will be available from the school.
    - everyday <u>healthy hygiene practices</u> that will be implemented upon reopening (e.g., students, teachers, staff staying home when sick, hand hygiene, cleaning frequently touched surfaces)
  - actions being taken to prevent SARS-Cov-2 transmission in buses, school buildings and facilities
  - actions that families and households can take to help prevent the spread of COVID-
  - o actions families can take to manage anxiety about COVID-19
  - decisions about operational status, potential use of virtual learning if COVID-19 cases are identified among students, teachers, or staff, and
  - o guidance on <u>caring for someone who is sick</u> and for <u>parents, guardians, and caregivers who are sick</u>
  - guidance on how to <u>reduce stigma</u>. Fear and anxiety about a disease can lead to social stigma, which is negative attitudes and beliefs toward people, places, or things

Families and students who had to make alternative arrangements with community providers to receive services (e.g., physical or occupational therapy, speech therapy, mental health services) during periods of school closures may need additional support and communication to establish a transition plan upon returning to school. Additionally, some families may have experienced significant hardship that now increases the number of students who need or qualify for some services, such as school meal programs. Schools can take actions to identify, support, and communicate with families who need to initiate new services as schools prepare to open. Administrators can work with community partners to plan for additional school-based services and programs during the transition back to normal schedules in anticipation of an increased need for mental health services.

#### Additional resources for PK-12 administrators

- Considerations for Schools
- Latest COVID-19 Information
- Cleaning and Disinfection
- Guidance for Businesses and Employers
- Guidance for Schools and Childcare Centers
- COVID-19 Prevention
- <u>Handwashing Information</u>
- Face Coverings
- Social Distancing
- COVID-19 Frequently Asked Questions
- People at Higher Risk
- Managing Stress and Coping
- HIPAA and COVID-19
- CDC Communication Resources
- Community Mitigation
- Approach for Monitoring and Evaluating Community Mitigation Strategies
- OSHA Guidance on Preparing Workplaces for COVID-19 pdf icon
- FERPA & Coronavirus Disease 2019pdf icon

#### Top of Page

### What Is Cohorting?

Cohorting (sometimes called podding) is a new term for a strategy that schools may use to limit contact between students and staff as part of their efforts to limit transmission of SARS-CoV-2 (the virus that causes COVID-19). These strategies work by keeping groups of students – and sometimes staff – together over the course of a pre-determined period of time. Ideally, the students and staff within a cohort will only have physical proximity with others in the same cohort. This practice may help prevent the spread of COVID-19 by limiting cross-over of students and teachers to the extent possible, thus:

- decreasing opportunities for exposure or transmission of SARS-CoV-2,
- reducing contact with shared surfaces,
- · facilitating more efficient contact tracing in the event of a positive case, and
- allowing for targeted testing, quarantine, and/or isolation of a single cohort instead of school-wide measuresin the event of a positive case or cluster of cases.

Cohorting strategies are common practice in many elementary schools across the United States. Many elementary school students have the same teacher and

classmates during the entire school year. Implementation of this strategy varies, depending on setting and resources. For example:

- Schools may keep cohorts together in one classroom, and have teachers rotate between rooms.
- Schools may alternate cohorts by days or weeks, with cohorts assigned to specific days or weeks.
- Schools may adopt a hybrid approach, with some cohorts assigned to inperson learning and others assigned to online learning.

Evidence of the impact of cohorting on spread of COVID-19 is limited. Some evidence from other viral disease outbreaks and school reopenings in international settings suggests that cohorting may be an important tool for mitigating COVID-19 spread. However, it is essential to note that those studies were conducted in very different contexts, in communities with lower transmission levels.