

Revised COVID-19 K-12 School Surveillance Guidance for Identification and Classification of Outbreaks

Version 2: 9/1/2022

Background and Justification

State, territorial, local, and Tribal (STLT) health departments prioritized surveillance of K–12 school-associated SARS-CoV-2 infections during the COVID-19 pandemic, and over time have adapted approaches based upon each STLT’s laws and regulations, local priorities, and available resources. To work towards comprehensive and comparable surveillance approaches, the Council for State and Territorial Epidemiologists (CSTE), with input from members and in collaboration with the Centers for Disease Control and Prevention (CDC), developed the first iteration of this document (*published August 6th, 2021*) titled *Standardized COVID-19 K-12 School Surveillance Guidance for Classification of Clusters and Outbreaks*. Since the first version of this document was released, there have been several important changes in the evolution of circulating SARS-CoV-2 variants, population immunity, and the pandemic response including:

- Shifting away from universal case investigation and contact tracing for individual cases¹, including in the K-12 setting, which limits the ability to identify school-associated cases
- Increased availability and use of at-home over the counter (OTC) SARS-CoV-2 rapid antigen tests, of which results are not usually reported to public health
- Emerging variants, such as Omicron and its subvariants, with increased infectiousness and time periods with high levels of community transmission
- Widespread availability of COVID-19 vaccines and therapeutics, including COVID-19 vaccines authorized under emergency use for school-aged children
- Increasing immunity within the U.S. population due to either natural infection, vaccination, or both, leading to decreased numbers of individuals with severe illness and fewer hospitalizations

These changes and feedback from STLTs and schools indicated a need for revised approaches to COVID-19 surveillance in schools and a higher threshold for classification of a school-related outbreak, particularly during time periods with high COVID-19 community transmission levels where many cases are likely associated with exposures in the community. Additionally, ability to ascertain a school-associated case or outbreak without case investigation and contact tracing required a new approach, not reliant on case-based surveillance. The prior definition of a school-associated COVID-19 case required epidemiologic and location information and was defined as a COVID-19 case (confirmed or probable) who is a student, teacher, or staff member physically present in the school setting or participated in a school sanctioned extracurricular activity within the 14 days prior to illness onset or a positive test result or within 10 days after illness onset or a positive test result. Additionally, the

¹ Public Health Agencies Transitioning Away from Universal Case Investigation and Contact Tracing for Individual Cases of COVID-19 (January 24, 2022): <https://cdn.ymaws.com/www.cste.org/resource/resmgr/covid-19/4e509e47-08ec-4e93-a7be-f301.pdf>.

definition of a cluster or outbreak was reliant upon school-associated COVID-19 case information and further epidemiologic information and was defined as cases comprising at least 10% OR at least three school-associated cases of students, teachers, and staff within a specified core group with symptom onset or positive test result within 14 days of each other and no likely known epidemiologic link to a case outside of the school setting (*school-associated cluster definition*) and with an epidemiologic link in the school setting or school-sanctioned extracurricular activity (*school-associated outbreak definition*). Therefore, new considerations for approaches to outbreak identification in schools are warranted.

The prior document has been updated and replaced with this version to reflect the current phase of the COVID-19 pandemic and recommended approaches to K-12 school COVID-19 surveillance given varying STLT needs, local priorities, and resources. This revised guidance includes recommended approaches for the collection of data for K-12 schools, considerations for when a school should consider investigation, response, and public health reporting. This focus moves away from a universal case investigation and contact tracing model and focuses on sustainable surveillance practices which allow evaluation of trends and mitigation of transmission in schools when outbreaks are identified.

For operational guidance related to COVID-19 in K-12 schools and recommendations for prevention and outbreak response see [CDC's Operational Guidance for K-12 Schools and Early Care and Education Programs to Support Safe In-Person Learning](#). CDC's K-12 guidance includes strategies for everyday operations, staying up to date on vaccinations, improving ventilation, COVID-19 community levels and associated prevention strategies, diagnostic and screening testing, management of cases and exposures, and responding to outbreaks.

Goals of COVID-19 School Surveillance

It is important to conduct some form of SARS-CoV-2 infection surveillance in schools to detect and implement control measures for elevated levels of school-based transmission and outbreaks. Surveillance for school-related SARS-CoV-2 infections should transition away from a focus on individual case investigations and contact tracing among staff and students to a more sustainable and strategic approach to identify and investigate COVID-19 outbreaks in the school setting. STLT health departments should continue to collaborate with schools and school districts to adapt this guidance to local priorities and resources to continue surveillance for COVID-19 outbreaks, which may warrant investigation, response, and potential public health action.

Statement of the Desired Action(s) to be Taken

STLTs and schools may opt to use these considerations to identify school-related COVID-19 outbreaks and make public health recommendations for school data collection, when schools should consider investigation, response, and reporting in their jurisdictions.

STLTs should adapt school-related data collection approaches, thresholds for investigation, response, and public health reporting to their jurisdictional needs, laws/regulations, local priorities, accessible data, and available public health and school-based staff and resources. Each approach has its benefits and challenges which also must be considered in the context of jurisdictional needs and resources. Some STLTs may utilize multiple approaches as each approach may provide different types and timeliness of data.

K-12 School-related COVID-19 Surveillance Approaches:

- 1) *Direct reporting by the school or district to STLT public health authorities:*
 - a. Aggregate reporting of SARS-CoV-2 infection cases on a regular (e.g., daily, weekly or monthly) basis: This level of reporting is labor intensive for school and public health staff and is *not* recommended unless this data is used as one of the parameters in weighing potential public health action. This approach maintains the ability to monitor trends for reported cases among staff and students. Such reporting will likely be incomplete and include many cases for whom infection was acquired outside of school to be more reflective of community trends. Some STLTs that are recipients of CDC ELC Reopening Schools funding may have requirements for reporting of aggregate test and case data for participating schools. An advantage of this approach is the ability to capture at-home COVID-19 testing through school reporting². Schools performing aggregate reporting may still have a requirement for outbreak reporting according to local rules and regulations.
 - b. Reporting of outbreaks to public health when they occur: This level of reporting relieves school staff of regular data reporting burden, however, requires school staff to maintain vigilance regarding school-related SARS-CoV-2 infections and report any identified outbreaks to STLT public health authorities, when they occur. Alternatively, some jurisdictions and schools may opt to report COVID-19 outbreaks, or other SARS-CoV-2 infections of concern, to public health only when public health assistance is needed for investigation or response. This method aligns with the routine processes utilized for other communicable diseases that commonly occur in school-age children such as influenza and norovirus.
- 2) *STLT health department to monitor trends of healthcare provider or laboratory reported SARS-CoV-2 infections among school-aged children and adolescents:*
 - a. Ascertain case rates among school-aged children in a geographic area by assigned school district: This approach relieves schools of regular reporting burdens and allows STLT health departments to monitor trends for school-aged children and adolescents based on school district of residence. This does not allow characterization of school-related outbreaks nor an assessment of staff infections, however, will allow public health to analyze trends and focus efforts and interventions in a timely manner with minimal burden on school staff and resources. This approach, however, requires more STLT staff time. Additionally, this will only include cases reported by healthcare providers or laboratories and will exclude OTC tests not reported to public health. In addition, STLTs will not be able to determine whether elevated case rates in an area are due to transmission in the community rather than school or school-associated activities. There could be a potential role for emergency department syndromic surveillance to monitor trends of COVID-like illness³ among school-aged children as an additional data source to assess disease rates among this age group, where available. This approach may be less useful in some jurisdictions based on school district size, and whether children are able to attend schools outside of the school district of their residence (e.g., private or charter schools, cities/counties that allow children to attend school in other parts of their jurisdiction).
 - b. Match school-aged SARS-CoV-2 infection physician and laboratory reporting with state education department student registrant data to determine district or school-based case levels: This approach relieves schools of regular reporting burdens and allows STLT health departments

² CDC MMWR: [Notes from the Field: School-Based and Laboratory-Based Reporting of Positive COVID-19 Test Results Among School-Aged Children - New York, September 11, 2021 - April 29, 2022.](#)

³ The CDC National Syndromic Surveillance Program (NSSP) COVID-19 Response: <https://www.cdc.gov/nssp/covid-19-response.html>.

to monitor trends for school-aged children and adolescents based on school district or school database matching performed by the health department. This may allow characterization of school-or district-related outbreaks and will allow public health to analyze trends and focus efforts and interventions in a timely manner with minimal burden on school staff and resources. This approach, however, would require data sharing agreements between public health and state/local education departments and will likely require significant public health staff resources to perform data cleaning and matching. Additionally, this approach will only include cases reported by physicians and laboratories and will exclude OTC tests not reported to public health and would not include staff or teacher infections.

3) *Absenteeism reporting:*

- a. This approach varies by jurisdiction in methodology and frequency which significantly impacts the utility and timeliness of the data. Absenteeism reporting can include all-cause, syndrome-specific, illness absenteeism, or some other approach. The frequency of reporting may vary from daily to weekly or monthly, with data inputs from daily to aggregate weekly counts. Finally, reporting may occur on the school level, across groups of schools geographically, or by school district. These factors impact the utility of this reporting for COVID-19 K-12 school surveillance. In many jurisdictions, current school absenteeism tends to have a reporting delay, be non-specific (often may not include the reason for the absence) and tends to be inconsistently reported. Absenteeism reporting may not be timely enough for outbreak detection or to evaluate near real-time trends in SARS-CoV-2 infections among school students which might warrant school or public health investigation and action. However, if consistent and timely reporting is available, an STLT may choose to use absenteeism reporting as a method to detect and respond to COVID-19 outbreaks in a school setting. Additionally, school absenteeism reporting can provide useful information on attendance patterns over time and identify patterns of chronic absenteeism that may be associated with increased community levels of SARS-CoV-2 infection. Further, this information may be useful to determine the cumulative impact of overlapping outbreaks during seasons when other respiratory viruses (e.g., influenza) commonly circulate and for other purposes such as ensuring continuity of operations. This approach will not address staff or teacher infections in the school-setting.

Many institutions of higher education have started using SARS-CoV-2 wastewater surveillance to supplement or replace case-based surveillance to provide input to guide potential response, particularly given the congregate residential settings at many universities and colleges, and increased resources to support this strategy. However, wastewater surveillance has not yet been commonly implemented nor studied in K-12 school settings. Regardless, with future funding and resources, some schools may supplement school-related COVID-19 surveillance approaches with participation in wastewater surveillance to enhance an understanding of trends that may impact the school and public health response. Implementation research and public health evaluations of wastewater surveillance in schools and school communities and its use in public health response are needed to guide the role of wastewater surveillance in response activities moving forward. Additionally, in the future, genomic surveillance may play a role in public health response to potential school-related outbreaks, however, requires investment in STLT infrastructure and staff to enhance genomic surveillance and data analytics.

K-12 School-related COVID-19 Surveillance Considerations for Thresholds for Investigation and Response:

Often in the school setting, it is difficult to determine if an outbreak exists, especially during times of high COVID-19 community transmission and during seasons when other respiratory viruses commonly circulate.

STLTs should adapt and provide considerations for schools and school districts within their jurisdictions to assist in outbreak identification and when to respond and report to public health. These considerations should prompt further investigation and response by schools and, when warranted based on the size or severity of the suspected outbreak or based on school-based need, public health can be consulted to assist in the investigation and response. STLTs may require or recommend that schools report all potentially school-related outbreaks or report to public health only when public health assistance is needed for the investigation and response.

Given differing jurisdictional priorities, resources, school and school district sizes and structures, and varying levels of community transmission over time, one standardized numerical threshold for a school-related outbreak may not be suitable for all school settings. Additionally, many jurisdictions and schools do not have the capacity to sustain case identification and reporting to determine which cases are school-associated, when school transmission has occurred, and to identify clusters and outbreaks given the shift away from case investigation and contact tracing removing access to this detailed epidemiologic information. Therefore, approaches must be adapted to local jurisdictions' and schools' capabilities and needs.

Considerations for core group⁴ or school-level identification of a suspected COVID-19 outbreak:

School staff may identify a potential COVID-19 outbreak within a school or within a core group based on identified and reported [confirmed, probable, or suspect SARS-CoV-2 infection cases](#) or using syndromic approaches which are subjectively or objectively determined to:

- Be above expected compared to the levels of circulation in the community,
- Have concerning epidemiologic patterns or known linkages,
- Have high levels of syndrome-specific or illness-based absenteeism among staff or students,
- Have clusters of ill students and/or staff that are in the same classroom, grade, or have attended a common event, or are members of an extracurricular activity⁵,
- Have high levels of identified transmission in the school, core group, or associated with school sanctioned extracurricular activities (where school transmission information is available),
- Have SARS-CoV-2 infections which are impacting staffing, spreading rapidly, or causing severe disease,
OR
- For STLTs with capacity for outbreak determinations in their schools and who may opt to develop standardized thresholds for investigation, outbreak response, and reporting to public health, STLTs may consider:

⁴ A "core group" includes but is not limited to a school sanctioned extracurricular activity, cohort group, classroom, before/after school care, etc.

⁵ A school sanctioned extracurricular activity is defined as a voluntary activity sponsored by the school or local education agency (LEA) or an organization sanctioned by the LEA. Extracurricular activities include, but are not limited to, preparation for and involvement in public performances, contests, athletic competitions, demonstrations, displays, and club activities.

- Using a discrete threshold for identification of a suspected school-related COVID-19 outbreak in a core-group such as, at least 20% of a defined group (e.g., classroom, sports team, musical/theater group) OR at least five cases among students or staff identified with symptom onset within seven days of each other.
- The timeframe for linkage of cases with each other among a core group was reduced to seven days given the epidemiologic characteristics and incubation period of Omicron and its subvariants as compared to the wild type/original strain, as most infections will occur within one week of exposure, and due to operational considerations for both schools and public health.⁶⁷⁸ Given an overall incubation period of up to 14 days, it is important to recognize that these are intended to serve as flexible guidelines and outbreaks may occur with cases occurring within a time period up to 14 days of each other. Additionally, as new variants arise, these timeframes may need to be re-evaluated based on new epidemiologic data.
- For example, in a group with 20 students and staff, this threshold would be met with at least four students/staff reported with SARS-CoV-2 infection within seven days of each other. Where available, this classification may be limited to where suspected school transmission has occurred, however, this information may often not be available. Some jurisdictions or schools may opt to include absenteeism for COVID-19-like illness in these considerations.
- For larger cohorts (such as for the whole school population) or smaller core groups (10 students/staff or less), this percentage may not be appropriate as a threshold for response, as outbreaks will likely be under and over-identified, respectively. Therefore, tiered threshold percentages may need to be considered or other approaches to adapt to the smaller or larger size and any additional circumstances, such as high-risk students/staff. For smaller cohorts, the prior numerical value of three cases may prompt consideration of an outbreak.

The approach to COVID-19 surveillance in schools may need to be reassessed with the emergence of new SARS-CoV-2 variants with changes in severity or immune escape from prior infection or vaccination, or with co-circulation of multiple other respiratory viruses. A long-term public health aim to improve and standardize school public health surveillance approaches for SARS-CoV-2, influenza, and more broadly, respiratory illnesses is warranted. Funding is needed to achieve this aim and improve school and public health staff and data infrastructure (e.g., school based electronic health records) and interoperability critical to maintain school-related surveillance during this next phase of the COVID-19 pandemic and to improve standardization nationally, as well as to prepare for potential future novel influenza, coronavirus, and other emerging infections.

⁶ Wu Y, Kang L, Guo Z, et al. Incubation period of COVID-19 caused by unique SARS-CoV-2 strains: A systematic review and meta-analysis. *Jama Network Open* 2022;5(8); e2228008; DOI: [10.1001/jamanetworkopen.2022.28008](https://doi.org/10.1001/jamanetworkopen.2022.28008).

⁷ Brandal L, MacDonald E, Veneti L, et al. *Euro Surveill*. 2021;26(50); DOI: [10.2807/1560-7917.ES.2021.26.50.2101147](https://doi.org/10.2807/1560-7917.ES.2021.26.50.2101147).

⁸ Jansen L, Tegomoh B, Lange K, et al. *MMWR Morb Mortal Wkly Rep*. 2021;70(5152):1782; DOI: [10.15585/mmwr.mm705152e3](https://doi.org/10.15585/mmwr.mm705152e3).