

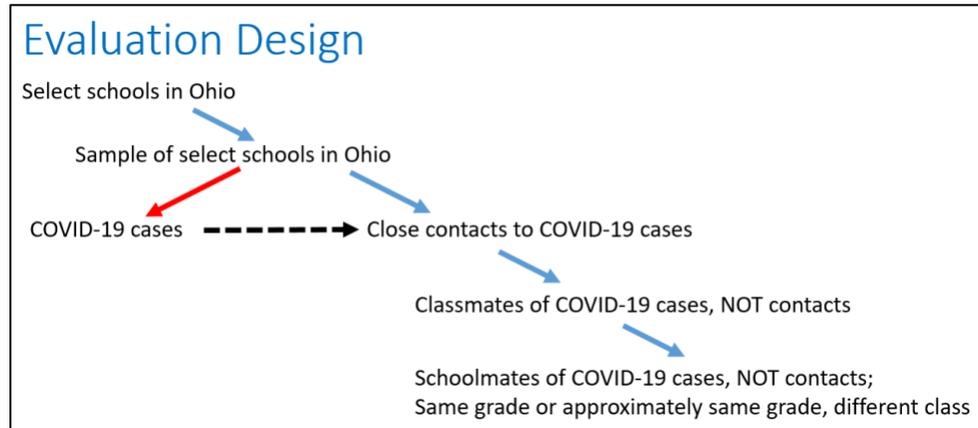
Ohio Schools COVID-19 Evaluation December 20, 2020

Executive Summary

Ohio's schools face an unprecedented challenge with COVID-19. In-person schooling benefits children's learning and social development, but many children are missing school because of quarantine when they have been in close contact with another child with COVID-19.

The Ohio Schools COVID-19 Evaluation (OSCE) explored the question: If a child in a supervised setting was in close contact (defined as within six feet for 15 minutes) to another child with COVID-19 and both children were wearing masks properly, did the close contact child need to stay at home to quarantine?

Evaluation Approach



Nine (9) school districts throughout the state broadly participated in the evaluation, and seven (7) participated in COVID-19 testing. The districts were selected through recommendations of the Office of the Governor, the Ohio Department of Medicaid, and The Ohio State University.

Schools could choose whether to have close contact children quarantine at home or be allowed to remain in school with regular testing.

Close contact children were identified by the schools working with their local health departments.

Two comparison groups were included: All grade levels—comparison children were selected from the same grades as the close contact (other class group); elementary schools—comparison children were also selected from children in the same class who were not close contacts (same class group).

Close contact children were scheduled to be tested four times over two weeks (14 days). Comparison children were scheduled to be tested twice over two weeks. The test used was the Abbot BinaxNow Ag test. All children with a positive test were isolated and the local health department was informed.

Preliminary Results

The following results are preliminary and may change as data and analyses are finalized. Additional analyses will also be performed to put these results in context.

During the evaluation, 1,501 tests were performed on 728 children. Overall, 21 children had a positive test for COVID-19.

In the close contact children, 2.9% (15/524) had a positive test for COVID-19. In the other class group, 3.6% (6/168) children had a positive test, and in the same class group 0% (0/36) had a positive test.

The rate of COVID-19 in high schools was similar to the rate in elementary schools.

**Ohio Schools COVID-19 Evaluation
December 20, 2020**

Implications

Children who were close contacts and appropriately masked had rates of COVID-19 that were similar to children with no known COVID-19 exposure in school.

The COVID-19 rate in the comparison group suggests community transmission outside the school setting.

This evaluation could be done safely because of the mask and distancing protocols in the schools, combined with the testing program for close contact children. The testing was determined to be of minimal risk to children as the testing options simply provided more information about COVID status in an environment of supervised adherence to mask wearing and social distancing among school-age youth. If future policies allow close contact children to remain in school, testing options must be carefully considered.

The following pages provide more detailed methods and results. We emphasize that this report is preliminary. The full report will be completed by January 29, 2021.

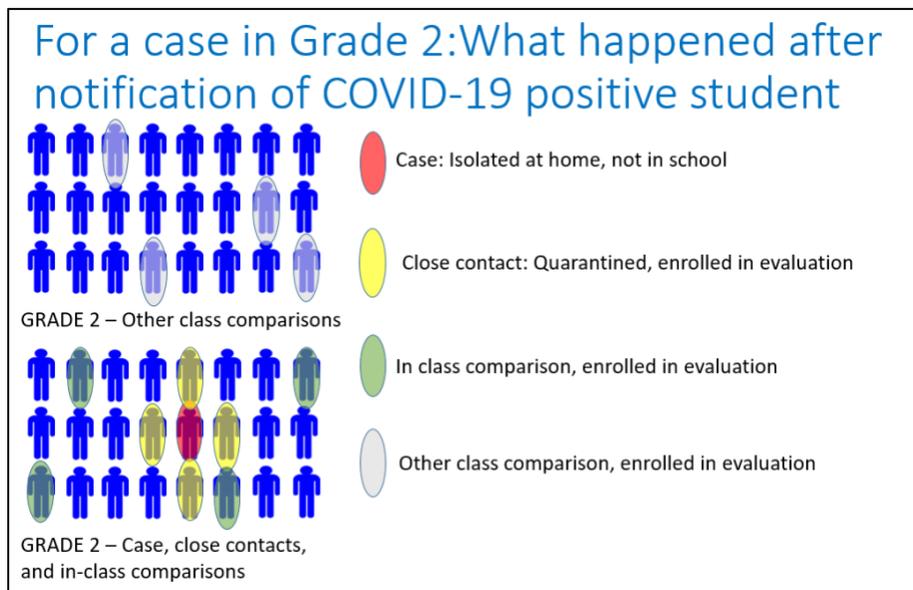
Ohio Schools COVID-19 Evaluation December 20, 2020

Preliminary Results Summary

Under current CDC guidelines, children who are within 6 feet for at least 15 minutes of another child with COVID-19 are considered close contacts regardless of mask usage. This definition was established early in the pandemic as a mitigation measure. At the time, mask usage was not widely recommended but the definition has not changed with time. Part of the rationale in establishing the recommendation was that the public, in contrast to health care workers, was not accustomed to wearing masks and would not use them correctly. In settings with high adherence to mask usage, such as schools, this definition may be too strict, resulting in unnecessary quarantine and missed days of school. The critical question is whether this definition of close contact can be safely altered to incorporate mask usage.

The Ohio Schools COVID Evaluation (OSCE) was designed to evaluate the possible impact of a guideline that would allow schools to keep students in the classroom who were considered close contacts of another child in the school with COVID-19, if both the close contact and the case were wearing masks appropriately. The OSCE was a *pilot evaluation*; it was not a research study, nor was it designed to answer the mask and quarantine question definitively. The OSCE was a collaboration of the State of Ohio Governor’s Office, the Ohio Department of Medicaid, the Ohio Department of Health, the Ohio Department of Insurance, and school districts throughout the state.

Evaluation Design



The OSCE included 9 volunteer school districts throughout the state. The districts were selected through recommendations of the Office of the Governor, the Ohio Department of Medicaid, the Ohio Department of Health, and The Ohio State University. Some school districts opted out of participation after initial discussions. Elementary and high schools were the primary focus of the evaluation due to distinct classroom attendance and mobility dynamics, although middle schools were allowed to participate.

Each school’s quarantine policy was not mandated by the evaluation. Schools could choose to allow close contact students to remain in school or to quarantine at home. In all cases, close contact students were expected to follow the testing procedures described below.

COVID-19 cases among students in participating schools were identified through the school systems, in collaboration with local health departments. Students meeting the definition of close contacts were identified by the schools. This group is referred to as “close contacts.”

Ohio Schools COVID-19 Evaluation December 20, 2020

In the elementary schools, two comparison groups were also identified. One group comprised students in the same classroom as the close contacts, who did not meet the definition of close contact. The second group comprised students selected from another classroom of the same grade. For high schools, the comparison group comprised children selected from the same grade as the contact. Flexibility was allowed for specific situations.

In the close contact group, students were expected to be tested four times over a two-week period. Students in the comparison groups were expected to be tested two times over a two-week period. The days of the testing were flexible to accommodate the testing program and the schools' needs. Testing typically occurred on a Monday/Thursday schedule or Tuesday/Friday schedule.

The Abbott Laboratories BinaxNow Ag test was used, with published rates of sensitivity and specificity 97.1% and 98.5%, respectively. The tests were performed by trained staff who followed all accepted clinical infection control procedures including the wearing of appropriate personal protective equipment.

All students were monitored for symptoms and fever. This information was recorded on a standardized form. Additional data were collected using a questionnaire from parents, high school students, and teachers. These data are not included in this preliminary report.

We report the data as frequencies of all student tests. We do not perform any formal statistical tests in this report. We report the results based on students (the denominator of the evaluation is the student), not independent tests. Accordingly, any student who had a positive test result utilizing the BinaxNow was considered to be positive for COVID-19. Any student who had negative results regardless of the number of tests administered was considered to be negative for COVID-19.

Results

This evaluation includes data from 7 school districts.¹ Of these, 2 districts were fully in-person for the entire period, 3 districts were in a hybrid format, 1 district shifted from in-person to fully remote, 1 district varied by individual school within the district between in-person and remote due to staff shortages. The first student was tested on 11/10/2020. The final test was performed on 12/18/2020.

Overall, 728 students participated in the OSCE, including 481 high school students, 58 middle school students, and 189 elementary students. Of these students, 524 were considered close contacts to a case of COVID-19. In the comparison groups, 36 were identified as in-class comparison and 168 were other class comparison.

During the evaluation, 1,501 tests were performed. In the close contact group, 1,089 tests were performed. In the comparison groups, 59 tests were performed among the in-class comparison and 353 were performed among the other class comparison. Overall, considering all tests administered, initial and repeat, 1.4% of all student tests were positive.

Overall, 2.9% of students (21/728) had a positive test for COVID-19. In the close contact group, 15 of the 524 children (2.9%) had a positive test (Table 1). The number of children in-class comparison group was small (n=36), and none had a positive test (0/36). In the other class comparison group, the percentage of children with a positive test was slightly higher (6/168, 3.6%). If both comparison groups are combined, the percentage of students with a positive test was the same as in the close contact group (2.9%, 6/204).

The percentage of high school students with a positive test was similar to elementary students (Table 1). After stratification by type of student, no meaningful differences were identifiable, although these estimates are imprecise.

¹ Two schools remained in the evaluation but did not have student tests administered due to changes in attendance policy, rendering testing infeasible.

Ohio Schools COVID-19 Evaluation
December 20, 2020

Impressions and Guidance for Interpretation

This pilot evaluation shows that it is feasible to engage with school districts and schools to assess the potential impact of alternative quarantine procedures for students. Despite substantial logistical challenges, the evaluation provides useful insights regarding the need for quarantine when both a student case and a close contact are wearing masks in supervised school settings. We must emphasize two critical points: (1) These data are preliminary—final analyses may provide different values and possibly interpretation; and (2) this pilot evaluation was not intended nor designed to provide the definitive answer regarding mask usage and quarantine in schools. In addition, the low rates of test positivity cannot be compared directly to the much higher community test positivity as testing in communities is often prompted by symptomatic illness.

This evaluation was performed in the context of a significant surge of COVID-19 cases across the State of Ohio. The percentage of positive test results observed in the comparison groups was high. This value suggests substantial transmission in the local communities of the school systems. Interpretation of the specific value must be made cautiously. The students in the comparison group underwent testing without any associated symptoms or indication for testing, other than participation in the evaluation. As a result, this percentage cannot be meaningfully compared to positivity rates observed in the local communities.

The percentages across the three groups (close contacts, in-class comparison, and other class comparison) were comparable. Also, the percentage in the close contact group was very close to the *a priori* value of 3%, above which we suggested that we would have concern for retaining those children in school during a quarantine period.² Taken together, we do not identify any differences in the groups that would imply a mandatory, at-home quarantine was necessary for students who were close contacts with appropriate mask usage. But we must re-emphasize that these results are preliminary, and the evaluation was a pilot meant to inform school policy considerations. The evaluation was not designed or of a scale to answer school attendance questions definitively.

To restate, the Ohio Schools COVID-19 Evaluation could be done safely because of the mask and distancing protocols in the schools, combined with the testing program for close contact children. If future policies allow close contact children to remain in school, testing options must be carefully considered.

A special thanks to Ashland City, Athens City, Champion Local, Lakota Local, Marysville Exempted Village, Mason City, Princeton City, Troy City, and Whitehall City School Districts for their cooperation in the evaluation.

² The *a priori*, defined as the reasoning or knowledge which proceeds from theoretical deduction of assumption, of three percent (3%) is suggested by the Centers for Disease Control and Prevention and utilized in COVID-19 investigations of university students in the State of Ohio.

**Ohio Schools COVID-19 Evaluation
December 20, 2020**

| Table 1: Number and percentage of students with positive tests overall and by school type. | | | | | | | | |
|---|------------------------------|------|------------------------------|------|------------------------------|------|------------------------------|------|
| | Overall (N=728) | | Elementary (N=189) | | Middle School (N=58) | | High School (N=481) | |
| | Number positive /Total | % | Number positive /Total | % | Number positive /Total | % | Number positive /Total | % |
| All students | 21/728 | 2.9% | 5/189 | 2.6% | 3/58 | 5.2% | 13/481 | 2.7% |
| Close contacts | 15/524 | 2.9% | 4/116 | 3.4% | 2/39 | 5.1% | 9/369 | 2.4% |
| In-class comparison | 0/36 | 0% | 0/31 | 0% | 0/5 | 0% | --* | |
| Other class comparison | 6/168 | 3.6% | 1/42 | 2.4% | 1/14 | 7.1% | 4/112 | 3.6% |
| Combined comparison | 6/204 | 2.9% | 1/73 | 1.4% | 1/19 | 5.3% | 4/112 | 3.6% |

**All high school students who were not in the close contacts group are considered "Other class" comparison*