

Since the beginning of the pandemic, Vermont K-12 schools have been impacted by increasing rates of COVID-19 within their school communities requiring students to move to virtual learning. In 2021, a transition back to in-person learning was encouraged to support student learning and mental health. However, COVID-19 continued to impact K-12 schools as students who tested positive for COVID-19 were advised to stay home as were the faculty, staff, and classmates who had close contact with them, resulting in missed days of school and work.

In early spring 2021, there was a late surge in high school cases and a substantial increase in outbreaks at high schools. This led to identifying high school sports as an activity that may increase the risk of spreading COVID-19. The following analysis includes all K-12 school cases reported to public health as of April 30, 2021.

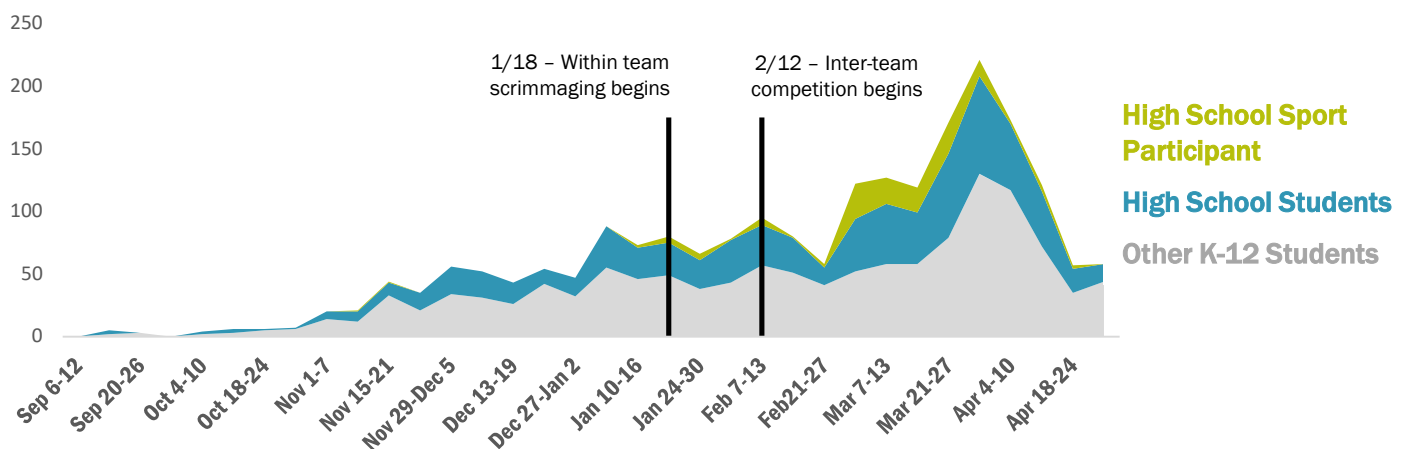
KEY POINTS

- **36% of K-12 school outbreak cases are related to high school sports.**
- **59% of high school sports-associated outbreak cases participated in hockey.**
- **Students missed an estimated 2,255 to 4,510 days of in-person learning due to close contact to a case related to spread from participation in high school sports.**

COVID-19 in K-12 Students Over Time

From the beginning of the 2020-2021 school year there have been 2,190 cases among Vermont K-12 students. From September to mid-November, cases were primarily in K-12 students who were younger than high school grades (other K-12 students). From mid-November through April high school students began to make up a greater proportion of the overall K-12 student case count. In January 2021 high school sports-related cases began to appear. By February, high school sports-related cases accounted for 30% to 40% of high school cases each day.

Number Cases of COVID-19 among K-12 Students by Week



This chart does not show the spread of COVID-19 in these settings, only the setting in which the student was present. Analysis excludes students who were learning fully remote and not participating in a school sanctioned event and those where type of learning setup was unknown.

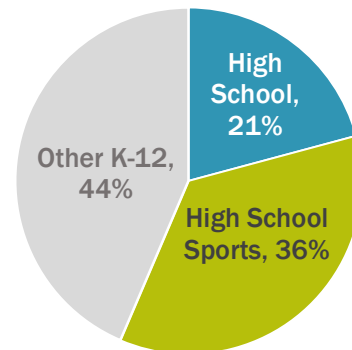
Spread of COVID-19 Related to School Sports

Outbreaks indicate that COVID-19 is spreading among people at a specific location. There have been 89 outbreaks in K-12 schools, and 23 of those involved high school sports teams, with six of these including transmission between teams. Overall, 379 cases have been associated with K-12 school outbreaks. Over a third of those (36%) are related to participation in high school sports.

All high school outbreak cases account for 57% of K-12 school outbreak cases (N = 214). Sixty-seven of those (31%) are the result of spread between teammates or players on opposing teams. There was only one outbreak related to middle school sports (data not shown).

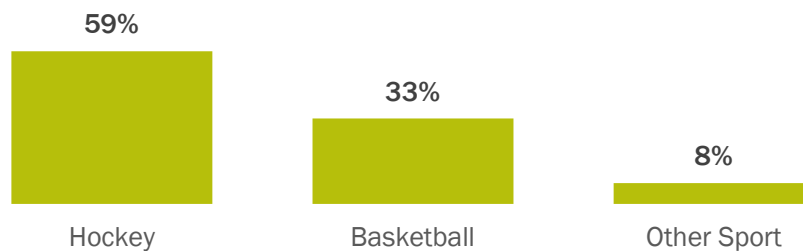
Of the 23 high school sports-associated outbreaks, 11 were related to hockey and nine to basketball. Despite a similar number of outbreaks having occurred among hockey and basketball teams, more than half of high school sports-associated outbreak cases are related to hockey (59%). This does not necessarily imply any wrongdoing on the part of schools, teams, players, or venues. However, this does point to something unique occurring that warrants further exploration.

Percent of K-12 Student Cases Associated with an Outbreak



Values are rounded to the nearest whole number and therefore may not add to 100% due to the error introduced when rounding.

Over half of sports-related outbreak cases were connected to playing hockey



Positive tests linked to three high school sports outbreaks had whole genome sequencing performed to learn more about the virus' spread. In these instances, the virus was found to be highly related among team members. This strongly suggests the occurrence of spread between teammates rather than multiple introductions from more than one person. The progression of outbreaks with variants did not differ from that of outbreaks without variants.

High School Team	# Samples Available/Sequenced	Viral Relationship	Variants
Hockey Team A	7/7	Highly Related	B.1.2
Hockey Team B	3/3	Highly Related*	B.1.429
Basketball Team A	3/3	Highly Related	B.1.2

*Final analysis is pending on one sample.

Days of Lost In-Person Instruction

All close contacts of cases are advised to quarantine for 14 days from the date of last exposure, with the option of ending quarantine early with a negative test on or after day seven. From September 1, 2020 through April 30, 2021 there were 686 close contacts of infected students that were the result of transmission due to participation in high school sports. Of those, 451 were identified as classmates that were exposed at school. Each student who quarantined missed at least five days of in-person learning. At most, they missed 10 days of in-person learning, if they quarantined the full 14 days. This resulted in a cumulative estimated 2,255 to 4,510 days of lost in-person learning. This equates to approximately 6 to 12 years.

There was an estimated loss of 2,255 to 4,510 days of in-person learning because of exposure to a high school sports-related case.



Date of last exposure to a case was used as the quarantine start date. If that was not available, the date the person was named as a contact was used.

The least number of estimated days a person could lose to in-person learning was 5 days out of 7. The max number of estimated days lost was 10 out of 14.

These values may be an overestimate. They assume that all quarantine recommendations were followed. And they do not account for the type of school learning setup (in-person, virtual, or hybrid) for close contacts as this information is not collected during interviews of close contacts. Some students may have been counted more than once if they were named as a close contact more than once at different times.

Key Takeaways

COVID-19 transmission related to high school sports poses a challenge to in-person learning for teammates, members of opposing teams and classmates. Hockey had a higher impact, accounting for over half (59%) of high school sports-related outbreak cases. Whole genome sequencing performed on several outbreaks confirmed that spread of COVID-19 occurred between team members. A cumulative of 2,255 to 4,510 days were estimated to have been lost to in-person learning due to close contact to a high school sports-related case.

Along with a COVID-19 vaccine now available to this age group, these data may be considered for future infection prevention efforts in these settings.

For more information about COVID-19 data in this report: contact COVID-19 Public Health Inquiries ahs.vdhpubliccommunication@vermont.gov