



November 2020

In-Person Learning in the Time of COVID-19

The costs and benefits of in-person learning during rising cases in Colorado

As cases of COVID-19 rise exponentially, many counties are moving to more restrictive policies regarding gatherings, restaurants, services, and events. The current [COVID-19 Dial Policy](#) includes recommendations for the learning environment for schools, but the [new public health order](#) leaves the decision to go in-person, remote, or hybrid to the individual school districts in consultation with local public health agencies. A review of Colorado's public health data reveal that in general, schools have been successful in implementing school guidance, and that strategies such as cohorting, mask wearing and disease investigation seem to be working to prevent school outbreaks. Students in grades K-8 are at a lower risk for in-school transmission than high school students. This paper is intended to help school districts weigh the cost/benefit of in-person learning during a rise in viral transmission.

Societal Benefits of In-Person Learning During COVID-19

Remote learning, hybrid schedules, and unreliable child care have implications for many aspects of Coloradans' lives, the extent of which we are just beginning to understand. Students are facing a [loss of learning, disproportionately felt in already-disadvantaged communities](#), and parents and guardians are struggling to maintain their jobs, careers, and mental health.

Before COVID-19, 65% of children under six had all of their parents in the workforce. For the first time in its history, [the September 2020 Federal Reserve Beige Book](#) included concerns about child care and the upcoming school year as a constraint on worker availability. [One in four women are considering scaling back their careers or leaving the workforce altogether](#) as they navigate their children learning from home.

Disadvantaged students [are disproportionately affected](#) by the loss of learning. Students whose families are less able to support out-of-school learning will face larger learning losses than their more advantaged peers, which in turn will translate into deeper losses of lifetime earnings. These communities already face significant barriers to attaining an education; minimizing the learning disruptions for these communities should be prioritized throughout the pandemic.

COVID-19 Transmission in Schools

Kindergarten - 12th (K-12) grade schools began to offer in-person learning in August 2020. Modalities vary across the state, including in-person learning, at-home instruction and a hybrid of both. Since that time, 182 confirmed outbreak-associated cases have been reported among students, and 124 cases among staff for a total 308 outbreak-associated cases in 94 schools.¹ Colorado has a total of 2,311 public and private K-12 schools with close to a million students enrolled.

¹ These data likely underestimate the total number of cases in schools due in part to limited testing of students.

SCHOOL ENROLLMENT

Colorado Public Schools, K-12: 2019/2020					
Number of Public Schools	Student Enrollment	Elementary	Middle School	High School	Teachers/ Principals/ Asst Princ.
1,914	913,223	426,253	209,994	276,976	59,178

Source: Colorado Education Facts and Figures, Colorado Department of Education

Colorado Private Schools, K-12*: 2020/2021	
Number of Private Schools	*Student Enrollment (20/21)
397	54,111

Source: <https://www.privateschoolreview.com/school-size-stats/colorado>

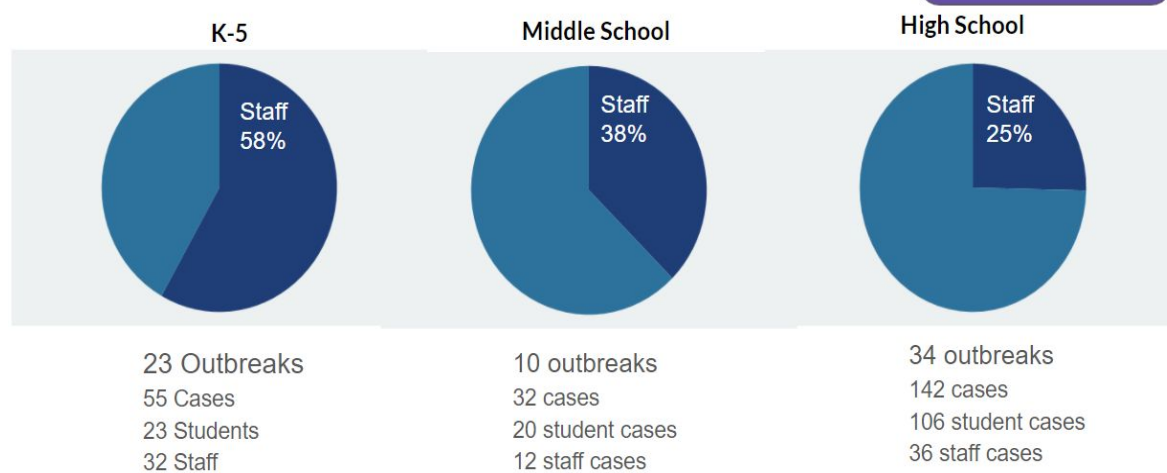
*Pre-K counts are included if integrated into a school that includes grades beyond Kindergarten.

In Colorado, in general, (but not always for rural schools), public school campus types are grades K-5, middle school (grades 6-8), and high school (grades 9-12). The following chart depicts confirmed outbreak-associated cases within these types of settings. Outbreaks are generally defined as two or more cases of COVID-19 occurring in the same place around the same time. Findings show that older students are a larger proportion of outbreak cases than younger students. More detailed information on the criteria used to define an outbreak in a school setting can be found [here](#).

K-12* Outbreak Case Distribution

*Outbreaks in schools classified as K-8 or K-12 excluded

Older students are a larger proportion of outbreak cases



Confirmed cases only

Other campus configurations exist as well, particularly among rural districts, charter schools and private schools, including K-8 and K-12 being located on one campus and possibly in a single building. The

following table depicts all school outbreak cases since August 2020 by campus type. The average number of cases involved in an outbreak range between 2.4 and 4.2. The data summarized excludes probable cases (cases without a PCR-based laboratory test result) and cases among students who were not part of an outbreak.

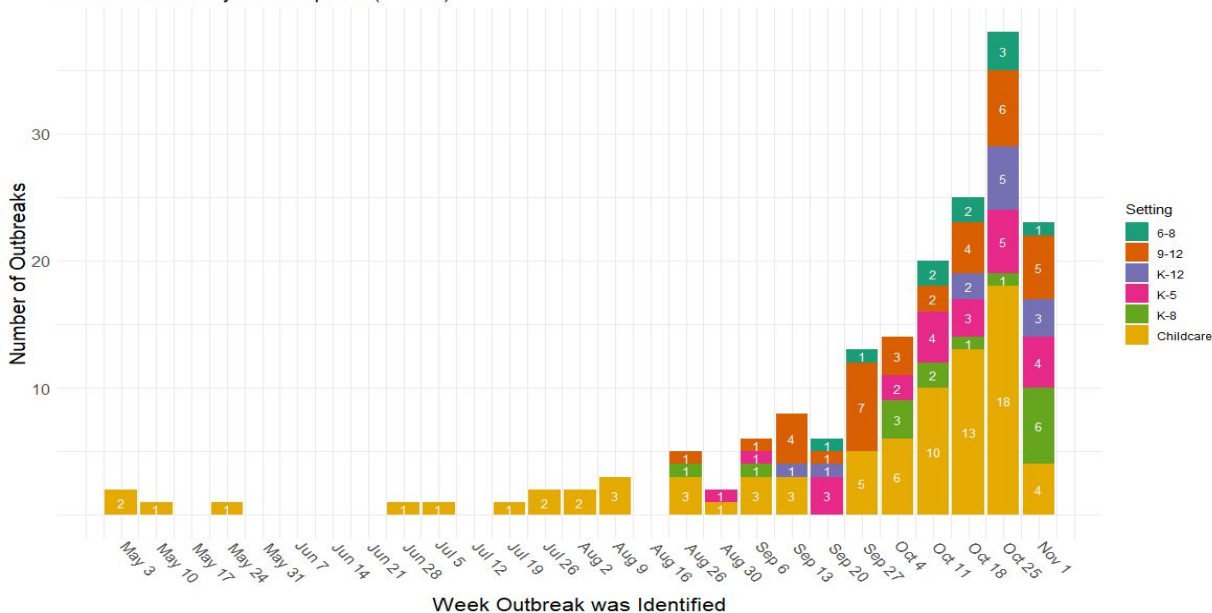
Summary of Outbreaks and Confirmed Outbreak-Associated Cases of COVID-19 in Colorado Schools by Campus Type²

Campus Type		Positive staff	Positive students	Ave. # confirmed cases/outbreak
TOTAL	94 total outbreaks 308 confirmed cases	124	182	3.3
K-5	23 total outbreaks 55 confirmed cases	32	23	2.4
K-8	15 total outbreaks 41 confirmed cases	20	19	2.7
K-12	12 total outbreaks 38 confirmed cases	24	14	3.2
6-8	10 total outbreaks 32 confirmed cases	12	20	3.2
9-12	34 total outbreaks 142 confirmed cases	36	106	4.2

As the semester progresses, outbreaks in schools have increased, with the largest increase occurring in early childhood settings. There are currently 74 active K-12 outbreaks and 17 have been resolved.

School Outbreaks by Week Reported to the State, by Campus Type (K-5, K-8, K-12 6-8, 9-12 and Child Care)

School Outbreaks by Week Reported (n = 174)



² Official designations of school classifications (campus type) are from the Colorado Department of Education. There were a few schools (<5) that had a designation other than these 5 classifications (e.g. K-6, 7-12) and were placed within the category that included all grade levels in that specific designation.

The New Public Health Order

[Public Health Order 20-36](#) categorizes educational institutions as **critical businesses** for the purposes of providing critical services to students and the general public. Preschool through 12th grade public and private schools are considered critical for the purpose of **providing meals, housing, and facilitating/providing materials for distance learning**. Schools or school districts, in consultation with their local public health agency, may also determine that it is necessary and critical to provide in-person learning or other essential services for some or all students. Schools continue to be required to work with state and local public health officials to follow [case and outbreak guidance](#) for schools **when cases of COVID-19 are suspected or confirmed** in students or staff to determine transmission mitigation strategies, isolation, quarantine, and shifting to remote learning.

Although critical businesses may continue to operate as normal, they **must comply with the guidance and directives** for maintaining a clean and safe work environment issued by the Colorado Department of Public Health and Environment (CDPHE) and any applicable local health department, and must comply with distancing requirements and all PHOs currently in effect to the greatest extent possible. The [COVID-19 Dial Policy](#) still strongly encourages that people at risk of severe illness from COVID-19 remain at home or in the great outdoors as much as possible.

While the decision lies with school districts and local public health, CDPHE's data suggests that K-8 schools, when implementing public health mitigation, have been able to provide a reasonably safe in-person learning environment. Districts should consider the benefits of in-person learning with this data that show lower rates of transmission when making their decisions. CDPHE at this time recommends that school districts consider **curtailing after school extracurricular activities** in an effort to further decrease transmission and preserve in-person learning when cases are rising exponentially.

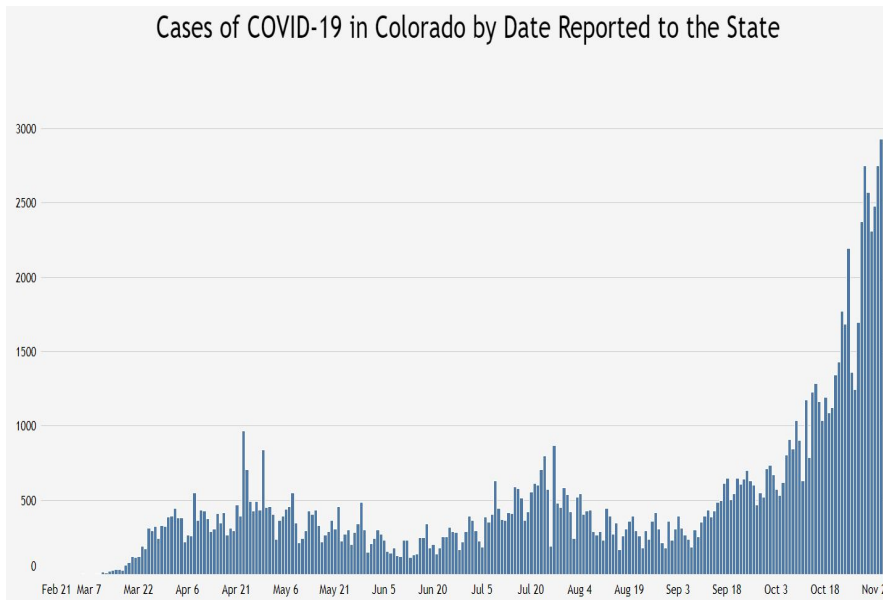
In addition, designation of educational institutions as a "critical business" for certain functions does not imply that teachers and staff are "critical infrastructure workers" for the purposes of continuing in-person work duties while quarantined. These staff may continue to support education remotely, as under Section III.B of the public health order, critical businesses are required to "adopt work from home or tele-work policies for any operations that can be done remotely." CDPHE's FAQs on "critical infrastructure workers" is available [here](#).

Data suggest that there is a lower risk to have in-person learning for grades K-5, a slightly higher risk for grades 6-8, and grades 9-12 are at the highest level of risk. In general, transmission appears to be happening from interactions that occur outside of the school day and then brought into the school, as opposed to widespread transmission occurring in schools.

Current COVID-19 Trends

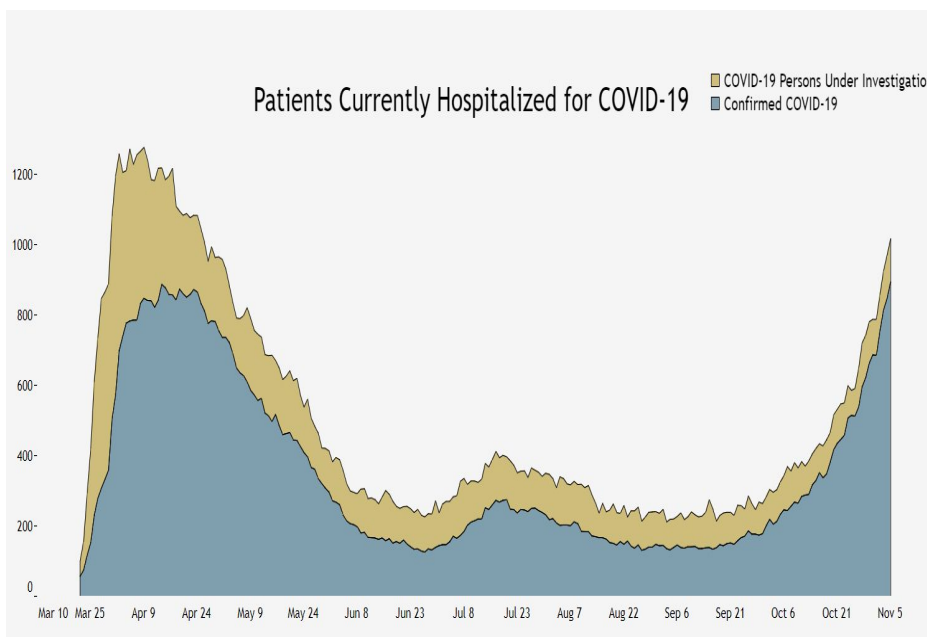
It is important to consider the context of viral transmission and in-person learning. Cases and hospitalizations are increasing rapidly in Colorado and we are in exponential growth of the virus. This is by far the highest case count since the beginning of the pandemic with between 2,000 and 3,500 cases reported per day in November. The percent positivity of tests confirms that this rise in detected cases is not simply due to greater test availability, but reflects an ongoing, dramatic surge in COVID-19 rates in our state.

**Colorado 7-day Average Case Count (Detected Infections)
Three Waves: Spring, July, and Fall**



More people are hospitalized with COVID-19 today than at any prior point in the pandemic, resulting in mounting pressure on Colorado’s healthcare system. In November, hospitalizations have surpassed the spring peak. Hospitalizations in adults over the age of 64 have increased significantly in recent weeks, but there have also been many hospitalizations in the 40-64 age group.

**Number of Patients Hospitalized for COVID-19 by Date
March 10-Nov 5, 2020**

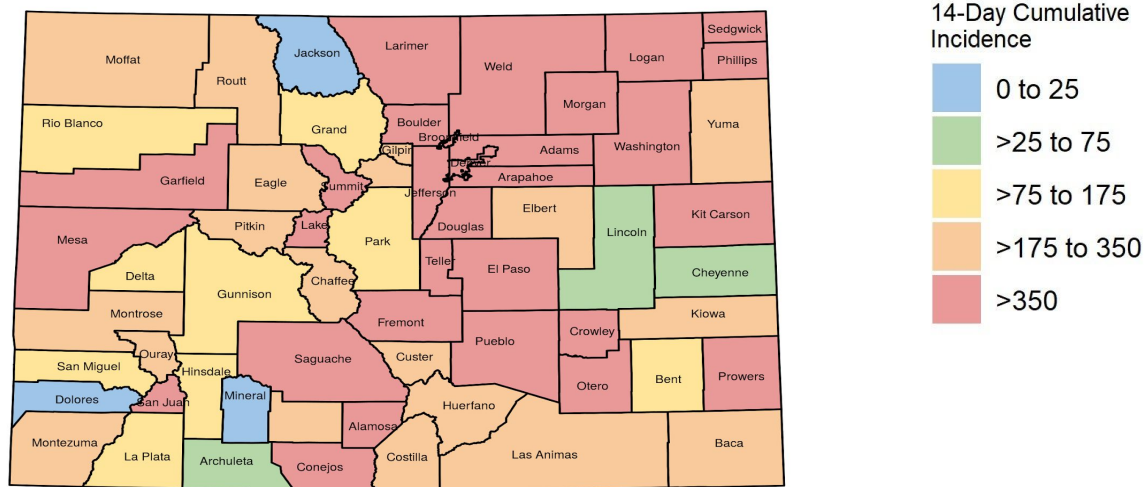


Most counties have seen a steep increase in incidence of the disease in the last several weeks. Cases are increasing quickly, with no signs of slowing or a plateau, and it’s likely this trend will continue. The

Governor, along with CDPHE, has strongly recommended that Coloradans interact only with members of their household. While these data are statewide, high transmission rates in the community have implications for transmission rates and levels of safety in schools not yet fully understood.

**Two-week Incidence rate in CO Counties
(per 100,000 population)**

14-Day Incidence per 100,000 (CEDRS, updated Nov 06, 2020)



Recommendations for Determining Educational Modality During Times of Higher Viral Transmission

While no remote or hybrid learning strategy can fully replace the benefits of in-person learning, schools in counties with higher rates of viral transmission should [consider a range of strategies](#) to best support students, families, and their communities. This includes: 1) prioritizing in-person learning for specific populations based on need and risk, 2) eliminating or greatly restricting extracurricular activities, and 3) implementing additional protective measures within the school.

1) Prioritizing In-Person Learning based on Need and Risk

Targeting specific populations for limited in-person learning is an important strategy to promote continued, safe in-person learning during times of increasing COVID-19 cases. As both case and outbreak data demonstrate, the risk of in-person learning is [lower for younger students](#), especially elementary-age students, as they are better able to cohort and maintain stable groups of students and staff. These students are also the least likely to participate meaningfully in remote learning without close parental supervision, and may not be safe left alone if their parents work outside the home. With this in mind, some schools and local public health agencies may determine that elementary schools should continue in-person learning longer than middle or high schools based on their local needs and levels of COVID-19 transmission.

Students receiving special education services or who require higher levels of caregiver supervision are another group with a diverse set of needs who may be disproportionately impacted by virtual learning. Depending on students’ specific needs, schools should consider a range of supports, including maintaining in-person learning for these students.

Schools may also consider offering on-site remote learning for middle or high school students who struggle with internet connectivity or other access issues. Ideally, these students would be supervised in small groups (for example: 5 to 10 students) with a single in-person proctor to reduce exposure and transmission risks.

2) Eliminating or Greatly Restricting Extracurricular Activities

Schools should recognize the additional risk posed by extracurricular activities, whether these activities are directly affiliated with schools or not. Even if conducted with optimal risk reduction measures in place, extracurricular activities present another venue in which COVID-19 transmission may occur. Further, schools may have less control of risk reduction measures in these activities. Large outbreaks associated with sports teams have resulted in the suspension of in-person learning for entire school districts in Colorado.

While extracurricular activities have value for participants, they are not integral to the core educational mission of schools, and should not be prioritized at the expense of in-person learning, the health of school community members, and transmission of COVID-19 in the wider Colorado community.

3) Implementing Additional Protective Measures in School

Schools who desire to continue in-person education during times of high community transmission will need to adopt both curricular and operational strategies to reduce both the risk and disruption caused by individuals COVID-19. Diligent adherence to the guidelines developed jointly by [CDPHE and CDE](#) will lower, but not eliminate, the risk of disease transmission in the school.

Understanding that close contacts of sick individuals will need to quarantine, all schools should proactively adopt class schedules that limit the number of close contacts each individual has. Adoption of [scheduling modalities](#) such as block schedules, alternating in-person/remote scheduling, and small cohorts of fewer than 30 individuals (including teachers, students, and support staff) will be not only prudent, but necessary for any continuity of in-person learning to be possible.

Other Considerations

Schools will also need to evaluate the means available to them to support the emotional and mental health of the school community, and develop tools and protocols (such as regularly scheduled check ins, peer mentorship, individual learning plans and goal setting, and outreach for identified concerns) to support their community. This is especially true as decisions are made to move to remote learning.

Finally, regardless of what strategy schools adopt, communication and coordination with stakeholders in the school community is paramount. Individuals with medical vulnerabilities and other safety concerns should continue to receive support if they choose to learn or work remotely.