

Evidence-based Review COVID-19 and School Considerations

Cape Elizabeth School District Committee Meeting
March 30, 2021

Smita Sonti, MD
Jessica Rosenthal, MD

Objectives

- Review epidemiologic data on current community prevalence
- Review updated CDC guidelines regarding 3ft vs. 6ft spacing
- Review studies regarding school based transmission
- Review vaccine efficacy and local vaccination rates
- Review mental health data



Current Pertinent Prevalence Data

- Cumberland County: 7 day positivity rate as of 3/29 - 3/30/21: 2.59% - 2.8%. 2.59% today.
- 96.27/100,000 cases to 100/100,000 per 7 days. 99/100,000 today.
- “High” to “Substantial” community transmission per CDC categorization for Cumberland County
 - From 4 tiered categorization: high, substantial, moderate, low

<https://covid.cdc.gov/covid-data-tracker/#county-view>

% of cumulative cases by age in Maine:

- < 20 year olds 16%
- 20-30 year olds 18%

<https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus/data.shtml>




Table 1. CDC Indicators and Thresholds for Community Transmission of COVID-19

Indicator	Low Transmission Blue	Moderate Transmission Yellow	Substantial Transmission Orange	High Transmission Red
Total new cases per 100,000 persons in the past 7 days ²	0-9	10-49	50-99	≥100
Percentage of NAATs that are positive during the past 7 days ³	<5.0%	5.0%-7.9%	8.0%-9.9%	≥10.0%


Maine DOE Criteria for Schools (Maine CDC and DHHS):

County	March 26, 2021	March 12, 2021	Feb. 26, 2021
Cumberland	GREEN	GREEN	GREEN

CDC Update - March 19 2021

- Elementary: students should be at least 3 ft apart
- Middle and High School: students should be **at least 3 feet** apart in areas of **low, moderate, or substantial community transmission**. In areas of **high community transmission, these students should be 6 feet apart, *if cohorting is not possible***.
- 6 ft distance
 - Between adults in the school building, and between adults and students. Several studies have found that transmission between staff is more common than transmission between students and staff, and among students, in schools.¹
 - When masks can't be worn, such as when eating.
 - During activities when increased exhalation occurs, such as singing, shouting, band, or sports and exercise. Move these activities outdoors or to large, well-ventilated spaces.
- This is now consistent with the MDOE spacing guidelines that have been in place this year as well as with WHO guidelines.


Would close contact definition change?

- CDC:
 - Being within 6 ft of an infected person (with or without a face mask) for at least 15 minutes (cumulatively in a day)
 - No changes to guidance with new recommendation for 3 ft spacing in schools
 - There is no increased risk from transient passing within 3 ft
 - Maine DOE:
 - Entire classroom is considered a close contact
 - “To help protect students in the school and out of an abundance of caution, Maine CDC considers everyone within a classroom to be close contacts.”
- 

Why the Spring 2020 school guidance?

- **Decision to close schools in March 2020:** based on data from influenza transmission, for which children and schools may be major drivers of pandemics.
 - Data now suggest SARS-CoV-2 (“COVID 19”) transmission in schools is limited when mitigation measures are used, and that children and schools are not the primary drivers of the pandemic.
- **6 ft physical distancing:** based on historical studies of other contagious diseases such as 1982 bacterial meningitis outbreak and SARS-COV-1 (“SARS”) in a hospital setting.
 - However, emerging international and U.S. evidence suggests layering of other prevention strategies is effective at reducing SARS-COV-2 transmission risk even with physical distances of less than 6 feet between students in classrooms.

https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/transmission_k_12_schools.html



How does the risk of transmission differ between 3ft and 6ft masked? Harvard study in MA schools:

- 251 school districts, K-12, 537,336 students, 99,390 staff attended **in-person instruction** during the **16-week study period**.
- The number of cases among students and staff were similar between schools that observed 3ft distances and those that mandated 6ft distance.

Details of MA study

- K-12 and large enough sample size that results applied to all
- Did not separate by school type, but 98% of school districts used same mitigation efforts in all schools
- Controlled for community prevalence and demographic variables
- This study had 3 investigators validate the infection control plans at all schools (inter-rater reliability > 80%)
- Variety of infection control efforts (enhanced cleaning, cohorting, mandatory symptom screening, ventilation efforts) were included
- Any schools that had surveillance testing were excluded
- **Strong correlation between community rates and positive cases** (esp among school staff)
- **The large size and variety of all the school districts makes this a robust study in many ways**

To what extent does in person learning contribute to community spread? (1)

COVID 19 infections among students and staff in NYC Public Schools

- 234,132 individuals in 1594 Public Schools, study over 3 month span
- Prevalence rate was no higher than the burden in the general community and that transmission within schools was not common.

<https://pediatrics.aappublications.org/content/pediatrics/early/2021/03/05/peds.2021-050605.full.pdf>

Incidence and Secondary Transmission of SARS-CoV-2 Infections in Schools in North Carolina

- Over 9 weeks, 11 participating school districts K-12 had >90 000 students and staff attend school in person
- Among these students and staff, 773 community-acquired SARS-CoV-2 infections. Through contact tracing: 32 infections were acquired within schools. No instances of child-to-adult transmission were reported within schools.

<https://pediatrics.aappublications.org/content/early/2021/03/23/peds.2020-04809>

To what extent does in person learning contribute to community spread? (2)

Evidence from Michigan and Washington.

- K-12, 810 districts in Michigan and 286 districts in Washington
- Found that if community transmission was the same and other factors (mask wearing etc) was the same, school rates of transmission did not increase with in person learning
- Noted exception: In an area of HIGH community prevalence, the in person learning did have higher rates of COVID than remote

<https://caldercenter.org/sites/default/files/CALDER%20WP%20247-1220-2.pdf>

CDC Review of prevalence in schools:

- Study of ~ 3 million US students: COVID rates similar in counties w/in-person education vs. fully remote education

https://www.cdc.gov/mmwr/volumes/70/wr/mm7003e1.htm?s_cid=mm7003e1_e#T1_down



Difference by age in transmission and severity

- In age 0-24 years, incidence of COVID increases with age... but is lower than in older age groups
 - 18-24 years had higher incidents than other age groups
 - Dr. Shah today noted 20-30y/o w/more cases
- Underlying conditions (regardless of age) were biggest predictor of severe outcomes in children
- Several studies on school based transmission do include K -12 schools

https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e2.htm?s_cid=mm6939e2_w

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7003e1.htm>

How much protection do vaccines provide?

- Pfizer: 95.0% effective in preventing COVID-19 after 2 doses, per CDC
 - Israeli trial: during 3rd COVID wave **w/UK variant prevalent**
 - after 2 doses, reduced symptomatic cases by 94%, hospitalization by 87%, and severe COVID-19 by 92%
 - 2-3 weeks after 1st dose, efficacy was 57% for symptomatic covid-19, 74% for hospitalization, and 62% for severe disease
- Moderna: 94.1% effective in preventing COVID-19 after 2 doses, per CDC
- J&J: 66.3% effective in preventing COVID-19 two weeks after 1 dose, per CDC
 - High efficacy at preventing hospitalization and death in people w/COVID-19
 - No hospitalizations 4 weeks after J&J vaccine
- CDC study 3/29/21: 2 wks after 2nd dose of Pfizer and Moderna, risk of infection decreased by 90%. 2 wks after 1st dose, risk of infection decreased 80%.
- Trials in children currently in progress. Use authorization timeline unknown

State and Local Vaccination Rates/Estimates

- 30% Maine residents w/1st dose; 19% w/final dose
- 33% Cumberland residents w/1st dose; 22% w/final dose
- > 75% all Cumberland residents 70 and older
- CDC yet to publish school staff vaccine rates
- CESD staff survey: 87% staff plan to be vaccinated by end of April

<https://www.maine.gov/covid19/vaccines/dashboard>



Mental Health Considerations with COVID

- COVID Experiences nationwide survey:
 - In comparison to children who attended in person school, parents of children in combined or virtual school were more likely to report their **child's mental or emotional health worsened during the pandemic and that their time spent outside, in-person with friends, and engaged in physical activity decreased.**
 - These parents more frequently reported their **own emotional distress, difficulty sleeping, loss of work, concern about job stability, child care challenges, and conflict between working and providing child care.**
- Compared with 2019, the proportion of mental health-related ED visits for children aged 5–11 and 12–17 years increased approximately **24%** and **31%**, respectively.
- Increased suicidal thoughts and attempts. One study in Texas showed recent suicidal ideation was 1.60 and 1.45 times higher in March and July 2020, respectively, than in March and July 2019.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7011a1.htm>

Suicide Ideation and Attempts in a Pediatric Emergency Department Before and During COVID-19" (Hill RM, et al. *Pediatrics*. Dec. 16, 2020).

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6945a3.htm>

Key Take-Aways

- Community rates impact schools BUT within school transmission is low
- Adolescent rates are higher than younger children (but overall rates still lower than adults)
- MA study included large sample of a variety of school districts
- All above studies were done in mostly pre-vaccinated populations
- This information informs decisions but doesn't answer the "how"
- Schools that have had in person learning with low rates have successfully utilized:
 - Universal and correct use of [masks](#)
 - [Physical distancing](#)
 - [Handwashing and respiratory etiquette](#)
 - [Cleaning](#) and maintaining healthy facilities
 - [Contact tracing](#) in combination with isolation and quarantine



Thank you

Questions?

