COVID-19 for Pediatric Populations

February 23, 2021

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Disclosures

- No financial disclosures
- What gets said here today may change based on new data and recommendations
  - Knowledge is moving rapidly, the fastest it has for any pandemic

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Agenda

- Epidemiology
- Vaccine news
  - How are we doing?
  - TB testing and COVID vaccines
- Mitigation
- Schools
- Discussion

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Epidemiology

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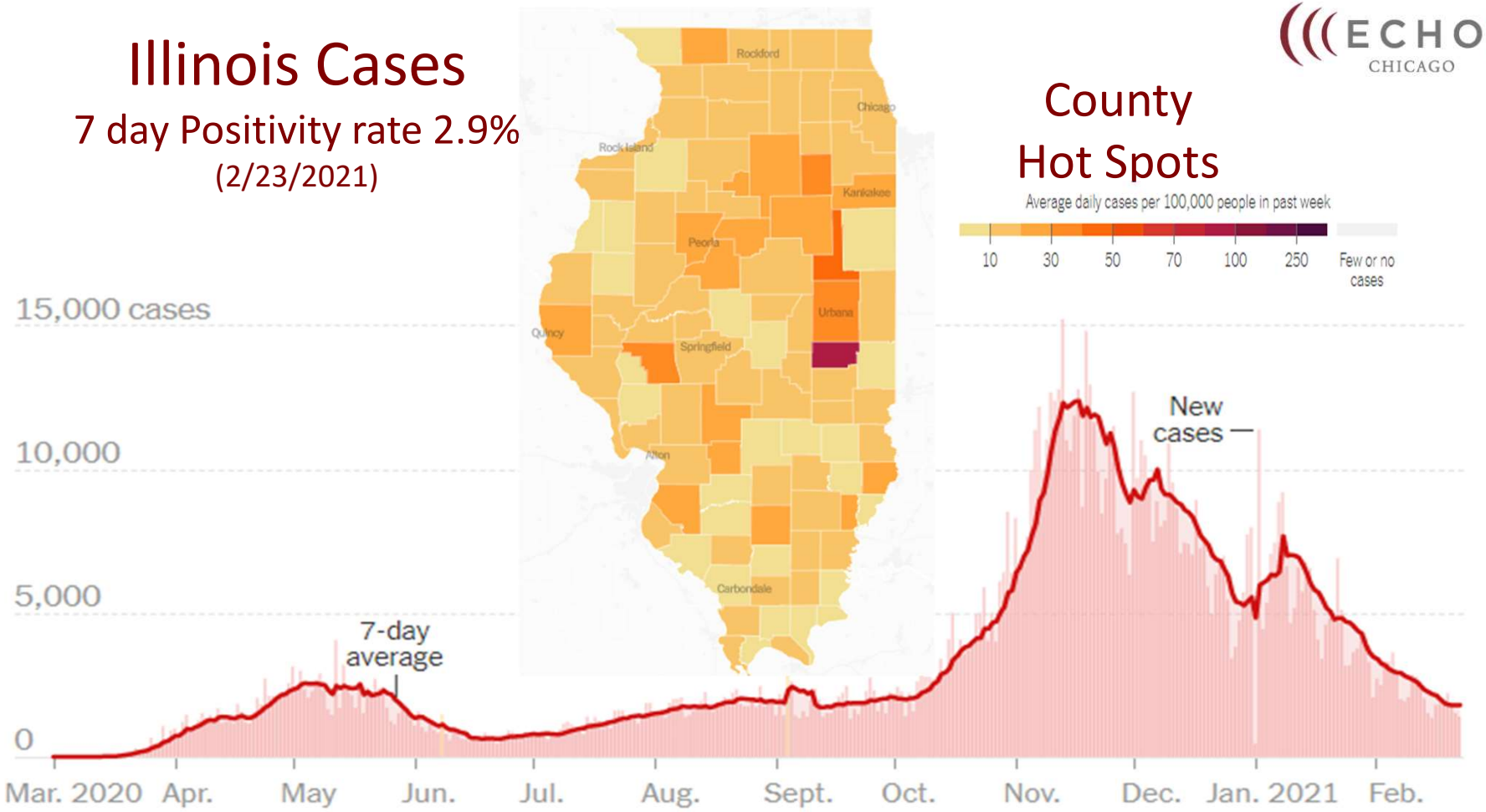
Illinois Cases

7 day Positivity rate 2.9%
(2/23/2021)



County Hot Spots

https://www.nytimes.com/interactive/2020/us/illinois-coronavirus-cases.html
https://covidactnow.org/us/illinois-il?s=1330330

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Worldwide Drop in Cases

- Seasonality
  - Maybe elsewhere but not in Chicago (brrrr!)
- Herd immunity
  - Nearly 28 million Americans have had confirmed COVID-19 diagnosis reported
  - CDC estimates that only 1 in 4.6 infections are reported
    - Could be up to half the US population with some degree of natural immunity to infection
  - A moment of silence for the >500k who have died
- Mitigation
  - We know it works
- Vaccines
  - Too early overall given the coverage but maybe combined with natural immunity it got us to a tipping point?

Vaccine Coverage 2/23/2021

- Illinois: 13.8% first dose coverage
  4.5% completed series

- Chicago: 10.6% first dose coverage
  4.1% completed series

https://covidactnow.org/us/illinois-il?s=1330330
https://data.cityofchicago.org/Health-Human-Services/COVID-19-Daily-Vaccinations-Chicago-Residents-Cumu/rna5-2pgy

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COVID -19 Vaccine

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Single Dose Vaccination in Healthcare Workers Previously Infected with SARS-CoV-2

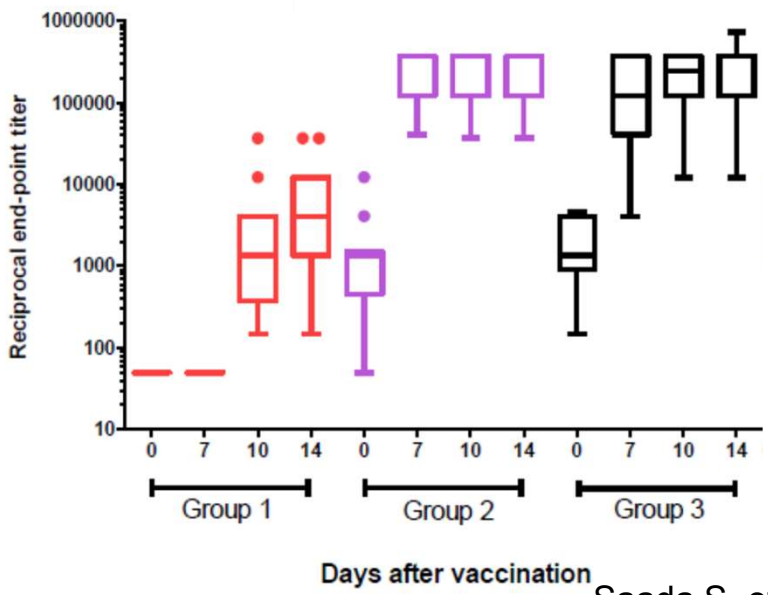
Saman Saadat, PhD[1]; Zahra Rikhtegaran Tehrani, PhD;[1] James Logue[2]; Michelle Newman[3]; Matthew B. Frieman, PhD[2]; Anthony D. Harris, MD[3,4,*], and Mohammad M. Sajadi, MD[1,2,4,5,*,**]

- Antibody responses to a single dose of the Pfizer-BioNTech or Moderna vaccines in HCW across 3 groups
  - Group 1: IgG antibody negative (presumed never infected with SARS-CoV-2)
  - Group 2: IgG positive with asymptomatic SARS-CoV-2 infection
  - Group 3: IgG positive with history of symptomatic SARS-CoV-2 infection

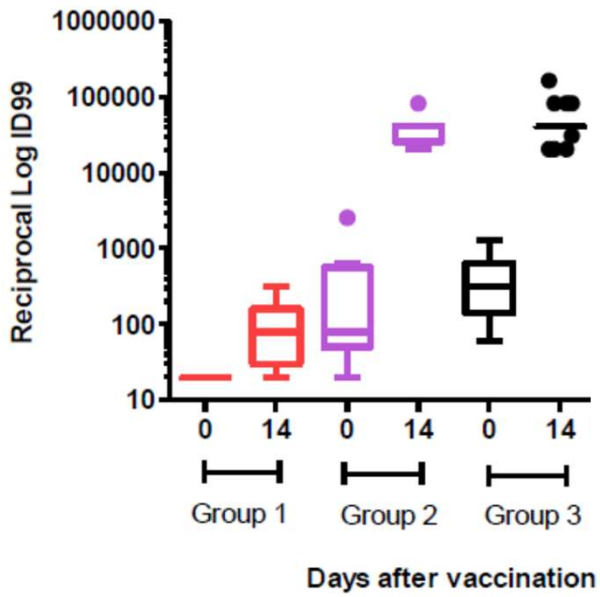
Saada S, et al. https://doi.org/10.1101/2021.01.30.21250843

Anti-SARS-CoV-2 antibody responses after single dose of vaccination

IgG spike trimer end-point titers



Live virus neutralization



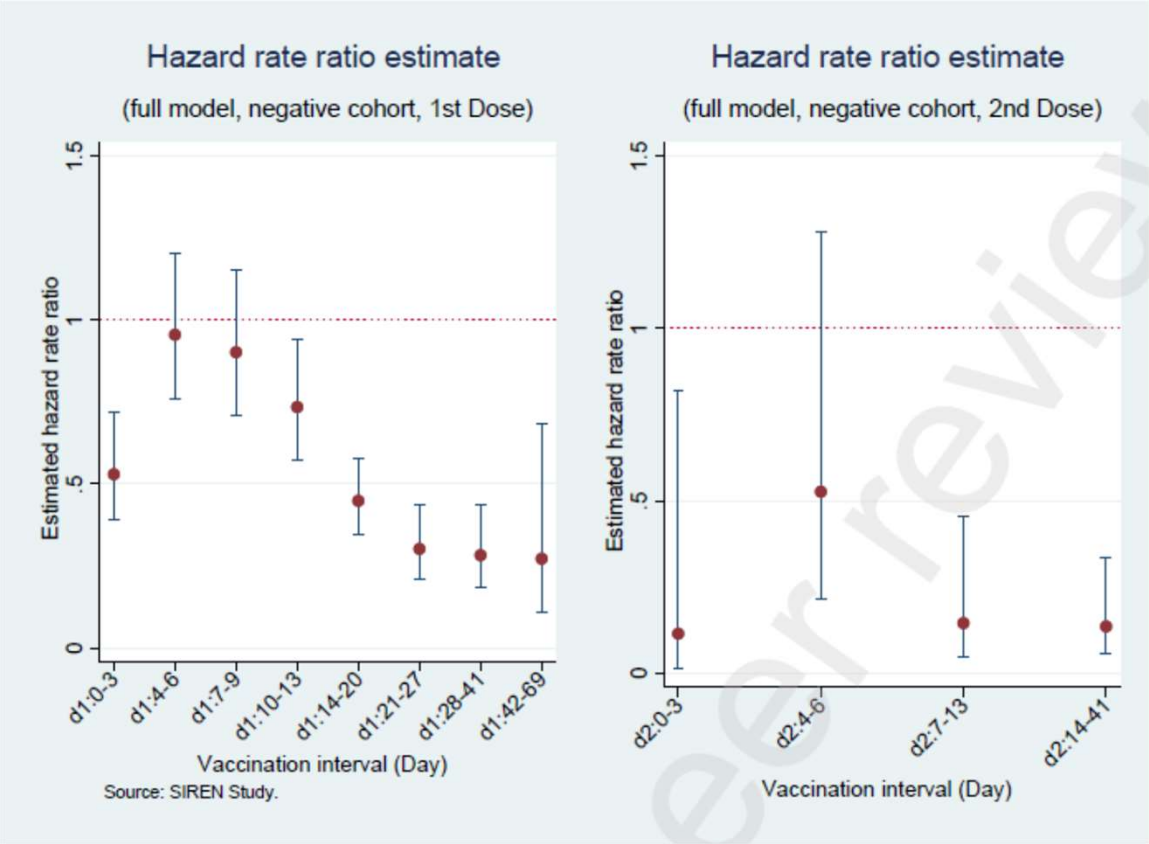
Saada S, et al. https://doi.org/10.1101/2021.01.30.21250843

THE LANCET

Effectiveness of Pfizer Vaccine Against Infection in Healthcare Workers in England, Multicentre Prospective Cohort Study

- In those with no prior evidence of SARS-CoV-2 infection, vaccine efficacy <u>against infection</u> (not just symptoms) was:
  - 72% (95% CI 58-86) 21 days (and more) after first dose
  - 86% (95% CI 76-97) 7 (and >14 days) after two doses

Hall V, et al. Lancet preprint https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3790399



Mitigation

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
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Maximizing Fit for Cloth and Medical Procedure Masks to Improve Performance and Reduce SARS-CoV-2 Transmission and Exposure, 2021

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Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
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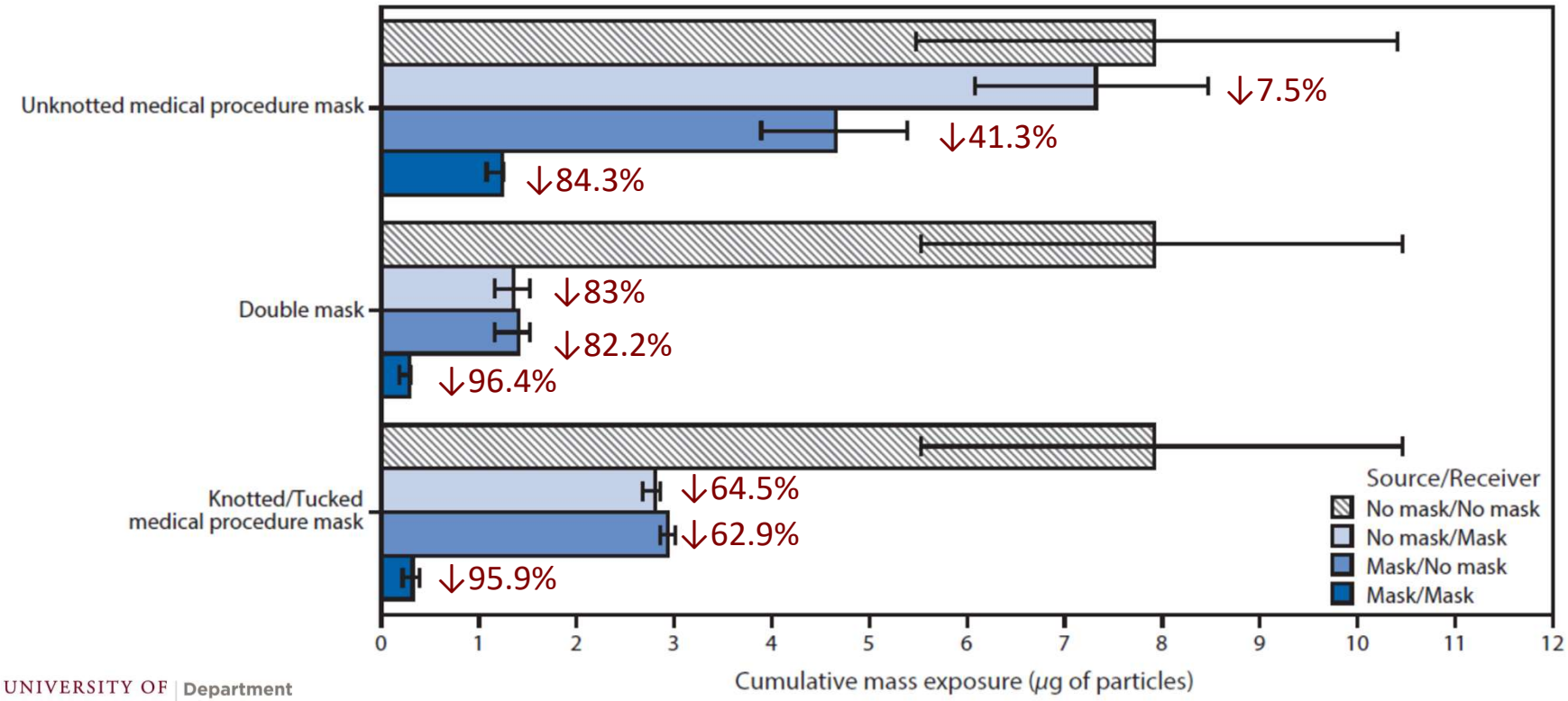
FIGURE 2. Mean cumulative exposure* for various combinations of no mask, double masks, and unknotted and knotted/tucked medical procedure masks†



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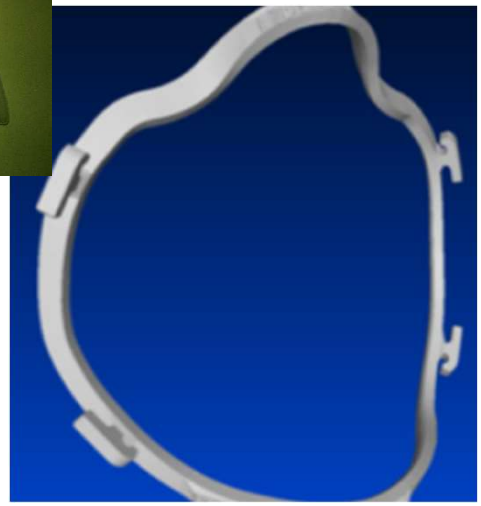
Another Option

Badger mask fitter (DIY or purchase):
https://docs.google.com/presentation/d/1bTUmxEiZ_EMo9DYjHWl13rarzPwKDukUQhRj-gxJxfM/edit#slide=id.g999855a266_29_10



https://kdtpros.com/elementor-60/
Requires a 3D printer or can buy online

Wearing the Badger Mask Fitter

Promoting productive workplaces through safety and health research

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NPPTL Respirator Assessments to Support the COVID-19 Response

Updated February 2, 2021

International Assessment Results – Not NIOSH-approved

- The National Personal Protective Technology Laboratory (NPPTL) has published various ratings of masks on the market https://www.cdc.gov/niosh/npptl/respirators/testing/NonNIOSHresults.html
- They included several disclaimers but the content may still be of value to those providers looking to purchase masks and need to know if they are of value
  - NPPTL makes no representation as to the authenticity of the samples received and assessed
  - They did not assess the quality processed at the manufacturing site
  - For each model they evaluated ten respirators
  - Only particulate filter efficiency was assessed, not fit

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Quarantining After Exposure If Vaccinated?

- Vaccinated persons with an exposure to someone with suspected or confirmed COVID-19 are not required to quarantine if they meet all of the following criteria:
  - Are fully vaccinated
    - ≥2 weeks following receipt of the second dose in a 2-dose series, or ≥2 weeks following receipt of one dose of a single-dose vaccine
  - Are within 3 months following receipt of the last dose in the series
  - Have remained asymptomatic since the current COVID-19 exposure
- Persons who do not meet **all 3** of the above criteria should continue to quarantine after exposure to someone with suspected or confirmed COVID-19
- Vaccinated inpatients and residents in healthcare settings should quarantine regardless of vaccination status
- Vaccinated people should continue to protect themselves and others by:
  - Wearing a mask, staying at least 6 feet away from others, avoiding crowds, avoiding poorly ventilated spaces, washing hands often

https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html

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Schools and COVID

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CDC Published New School Based Guidelines

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CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Search COVID-19

COVID-19

ACT NOW!

WEAR A MASK STAY 6 FEET APART AVOID CROWDS

Your Health | Vaccines | Cases & Data | Work & School | Healthcare Workers | Health Depts | More

- Community, Work & School
- Vaccination
- Health Equity +
- Community Mitigation Framework
- Cleaning, Disinfecting, & Ventilation +
- Workplaces & Businesses +
- Schools & Child Care –
  - K-12 School Operational Strategy
  - Indicators for School Decision-Making

Operational Strategy for K-12 Schools through Phased Mitigation

Updated Feb. 12, 2021 Languages Print

On This Page

https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/operation-strategy.html#indicators

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%

Mitigation Strategies and K-12 School Learning Modes by Level of Community Transmission

Low Transmission[1] Blue	Moderate Transmission Yellow	Substantial Transmission Orange	High Transmission Red
All schools: Universal and correct use of masks is required; implementing other key mitigation strategies: handwashing and respiratory etiquette; cleaning and maintaining healthy facilities; contact tracing and diagnostic testing[2] in combination with quarantine and isolation.			
K-12 schools open for full in-person instruction Physical distancing of 6 feet or more to the greatest extent possible[3]		Elementary schools in hybrid mode[4]; physical distancing of 6 feet or more required	
		Middle and high schools in hybrid learning mode or reduced attendance Physical distancing of 6 feet or more is required	Middle and high schools in virtual only instruction unless they can strictly implement all mitigation strategies, and have few cases; schools that are already open for in-person instruction can remain open, but only if they strictly implement mitigation strategies and have few cases[5]
Sports and extracurricular activities with masks required; physical distancing of 6 feet or more to the greatest extent possible[6]	Sports and extracurricular activities with masks and physical distancing of 6 feet or more required	Sports and extracurricular activities occur only if they can be held outdoors, with masks and physical distancing of 6 feet or more required	Sports and extracurricular activities virtual only

https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/operation-strategy.html#indicators

Mitigation Strategies for Schools That Do Implement Expanded Screening Testing

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Low Transmission[1] Blue	Moderate Transmission Yellow	Substantial Transmission Orange	High Transmission Red
All schools implement 5 key mitigation strategies: Universal and correct use of masks required; physical distancing; handwashing and respiratory etiquette; cleaning and maintaining healthy facilities; contact tracing in combination with isolation and quarantine. **Diagnostic testing[2]:** Symptomatic students, teachers, and staff and close contacts referred for diagnostic testing			
Screening Testing			
Routine screening testing of teachers and staff offered once per week			
No screening testing for students	Routine screening testing of students offered once per week[4]		
School Status			
K-12 schools open for full in-person instruction Physical distancing of 6 feet or more to the greatest extent possible[5]		K-12 schools in hybrid learning mode or reduced attendance[6] Physical distancing of 6 feet or more is required	
Sports and extracurricular activities occur; physical distancing of 6 feet or more to the greatest extent possible[7]	Sports and extracurricular activities occur with physical distancing of 6 feet or more required	Sports and extracurricular activities occur only if they can be held outdoors, with physical distancing of 6 feet or more	Sports and extracurricular activities are virtual only

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https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/operation-strategy.html#indicators

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Early Release / Vol. 70
February 22, 2021

Clusters of SARS-CoV-2 Infection Among Elementary School Educators and Students in One School District — Georgia, December 2020–January 2021

- Nine clusters of linked COVID-19 cases were identified involving 13 educators and 32 students at 6 elementary schools (2,600 students and 700 staff)
  - Sixty-nine household members of persons with school-associated cases were tested, and 18 (26%) received positive results
  - Teacher to student spread more common than student to teacher

Problems:

- Although plastic dividers were placed on desks between students, students sat <3 ft apart
- In 7 clusters, transmission might have occurred during small group instruction sessions in which educators worked in close proximity to students
- Mandated in-classroom mask use except while eating, was high (but was it?)
  - Information obtained during interviews indicated lack of or inadequate mask use by students likely contributed to spread in 5 clusters

https://19thnews.org/2021/02/new-cdc-data-shows-covid-cases-spiked-when-georgia-schools-reopened/

Discussion

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