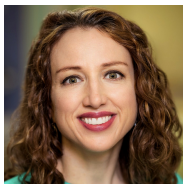


Children, COVID, and the Urgency of Normal: The Under Age 5 Edition

A tool kit for parents, teachers, administrators, and child advocates.

Our Team



Dr. Kristen Walsh is a board-certified pediatrician in northern NJ. She has over 20 years of clinical experience in both academic and private practice settings. For the past 10 years, she has volunteered at a school for special needs children and been involved in early childhood advocacy on both the state and national levels.



Dr. Ram Duriseti received his MD from the University of Michigan and his medical training and PhD in Computational Decision Modeling from Stanford University. He has been practicing clinical Emergency Medicine in both community and academic settings for over 20 years. At Stanford, he primarily works in the Pediatric Emergency Department.



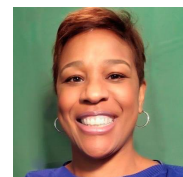
Dr. Jennifer Grant is a Clinical Associate Professor at University of British Columbia. She practices as a medical microbiologist and infectious disease physician in Vancouver with research interests in quality improvement, infection control and occupational health.



Karen Vaites is an elementary literacy curriculum expert and children's advocate based in New York. As the founder of Eduvaites, she serves as consultant and advisor to multiple literacy nonprofits as well as states on efforts to improve reading instruction in the United States. As the founding Chief Marketing Officer at Open Up Resources, she has been a pioneer in the effort to improve literacy and math curriculum in the United States.



Dr. Eliza Holland is a pediatric hospitalist practicing in Charlottesville, VA. She spent several years as a volunteer in elementary school libraries and is an advocate for early literacy. Since 2020, she has been supporting COVID response to enable in-person activities for children in schools in Virginia and at camps in North Carolina.



Dr. Nicole Johnson is board certified in pediatric critical care and specializes in pediatric procedural sedation. She is active in many grassroots organizations advocating for restoring the patient-physician relationship and delivery of safe, quality, low-cost medical care to all Americans. She has been outspoken about the potential impact of US COVID19 policies on children since 2020.



Dr. Todd Porter received his MD from the University of Virginia School of Medicine and MSPH from the University of Colorado. He is a community pediatrician in Illinois whose interests include literacy instruction and dyslexia. He has been advocating for the importance of in-person learning and return to normalcy for our children since 2020.



Dr. J. Thomas Megerian is a board-certified pediatrician and child neurologist specializing in Autistic spectrum and other neurodevelopmental disorders. He is currently the **medical director of the Thompson Autism Center** and attending neurologist at Children's Health Orange County, as well as an Associate Professor (volunteer faculty) at CHOC and University of California, Irvine.

About This Toolkit

This toolkit summarizes the most important data regarding COVID19 infection for children under age 5. It is intended for parents, teachers, administrators, and everyone invested in taking care of children, and serves as a supplement to our first Toolkit on COVID-19 in schools.¹

Our goal is to inform you about the risks of COVID specifically to children under 5 and how the measures we are using to prevent the transmission of COVID affect them. As physicians, our role is to inform you with accurate data, give it context you can understand, and provide guidance about confusing issues. We want to empower you to make evidence-based decisions to take the best possible care of children under age 5 years.

Impacts from COVID vary among different communities, schools, families, and individual children. We humbly acknowledge this, and provide these data **to support every community in making their own decisions.**

¹ Urgency of Normal Toolkit available at: <https://www.urgencyofnormal.com/>

About This Toolkit cont.

In this toolkit we discuss the risk of COVID infection to children under 5 and compare it to other common respiratory viruses. We then discuss the effects of COVID prevention measures with a focus on masking children in this age group. We close with our recommendations based on this evidence.

We urge everyone to have discussions with openness and mutual respect. The job of being a teacher, school administrator, parent, or child has been exceptionally difficult these last two years. Understand that if you're frayed, so is the person you're talking to. **Compassion and accurate information will move us forward.**

Please share and discuss with your communities, and use this information to help inform and focus discussions with your school or daycare.

RSV Bronchiolitis is More Severe Than COVID for Children Under Age 5

Respiratory syncytial virus (RSV) bronchiolitis is a seasonal illness that primarily affects children under the age of 5. Approximately 58,000 children per year are hospitalized for RSV bronchiolitis according to the CDC.¹

The US has 20 million children under 5, so the RSV hospitalization rate is **290** hospitalizations per 100,000 children in this age group every year.

By comparison, the **two years of COVID pandemic has caused fewer hospitalizations of kids under age 5 than a single typical year of RSV: 186** hospitalizations per 100,000 children in the same age group.²

In addition, children with RSV are more likely to have longer hospital stays and need **oxygen support compared to children with COVID.**^{3,4}

1 <https://www.cdc.gov/rsv/research/us-surveillance.html>

2 <https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network>

3 <https://www.tandfonline.com/doi/full/10.1080/14767058.2020.1849125>

4 <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiac052/6529705>

Hospitalization Risk from COVID is Similar to Other Respiratory Viruses in Children Under 5

ANNUAL HOSPITALIZATIONS, CHILDREN UNDER 5

Influenza, average annual hospitalizations (2010-2020).*

19,451

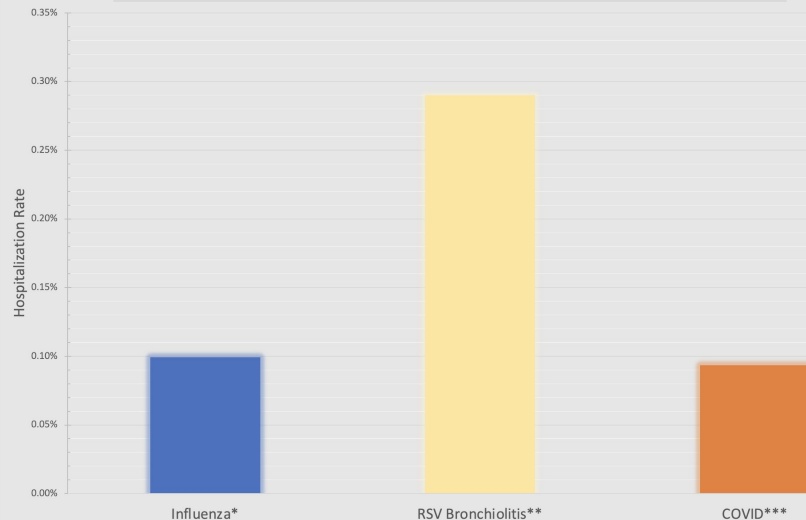
RSV, average annual hospitalizations (2000-16).**

58,000

COVID, 24,000-36,000 hospitalizations*** estimated over **two** years of the pandemic (from COVID-Net rate of 186 per 100,000 under 5 year olds).

18,000

Historical Annual Population Based Hospitalization Rates in Under 5 Year Olds
RSV Bronchiolitis vs. Influenza vs. COVID-19



*[CDC average annual hospitalizations are divided by population to yield the hospitalization rates shown at right.](#)

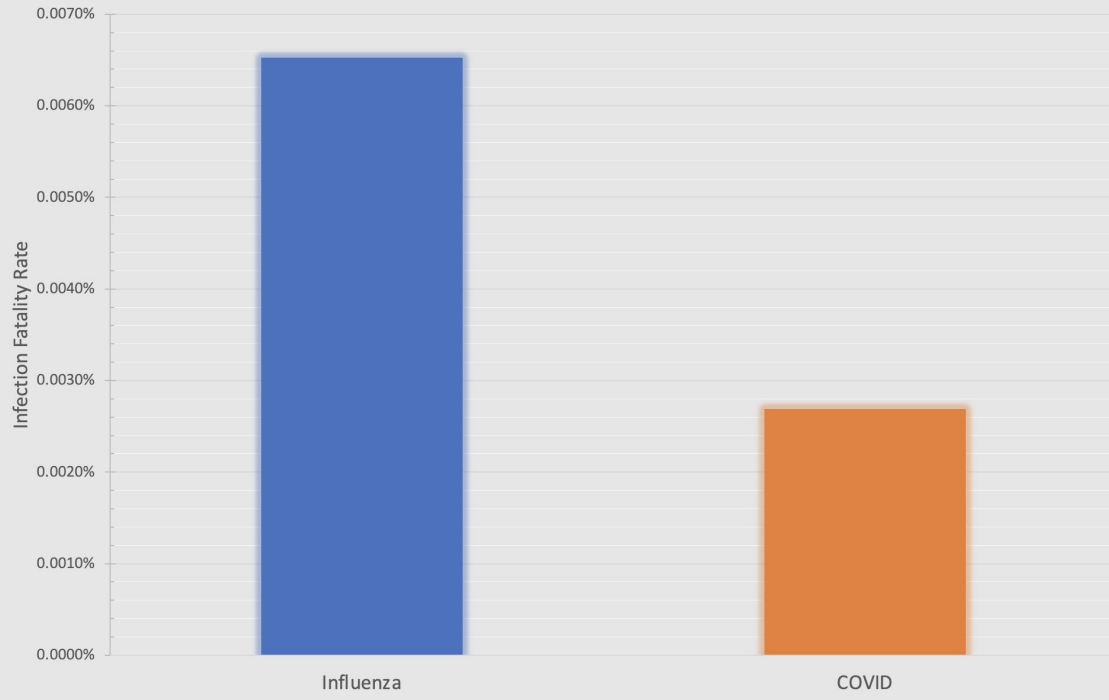
**[The Burden of RSV in Young Children](#)

***These are “uncorrected” hospitalizations. We test every admission for COVID which leads to positive tests not connected to the reason for admission. This has happened globally in 35%-60% of Pediatric hospitalizations. In the US, it counts as a COVID admission. Incidental positives were even more common with Omicron (50-70%). Therefore, hospitalizations truly attributable to COVID are lower than reflected in these figures and chart.

Other sources for this slide are listed on slide 22

Influenza Has a Higher Fatality Rate Per Infection Than COVID in Young Children

Estimated Infection Fatality Rates in Under 5 Year Olds
Influenza vs. COVID-19 (includes "incidental infections")



Infection Fatality Rates Calculated from CDC Data

For influenza, the 2010-20 seasonal average used.¹ The 2020-21 Influenza burden was too low to be estimated, so was not included here.

For COVID, there have been 396 deaths in the under-5 age group², out of approximately 15 million infections. (There are 20 million under-5s in the US³, and CDC data shows that 73.5% of children have had COVID⁴)

¹[CDC: Estimated Flu Burden from Past Seasons](#)

²[CDC: Provisional COVID-19 Pediatric Deaths](#)

³[US Census Data](#)

⁴[CDC Seroprevalence data](#)

Summary: Fatality and Hospitalization Rates in Children Under 5 with COVID, RSV, and Influenza

Virus	Annual Hospitalizations (CDC estimates)	Percentage Annual Hospitalization	Average annual Deaths
COVID	18,000	0.09%	198 (396 in two years of pandemic) ¹
Influenza	19,451	0.10%	216 ²
RSV	58,000	0.29%	100-500 ³

Fortunately, the risk of serious disease and death from COVID in the under-5 age group is similar to that from common respiratory illnesses for which we do not implement special policies.

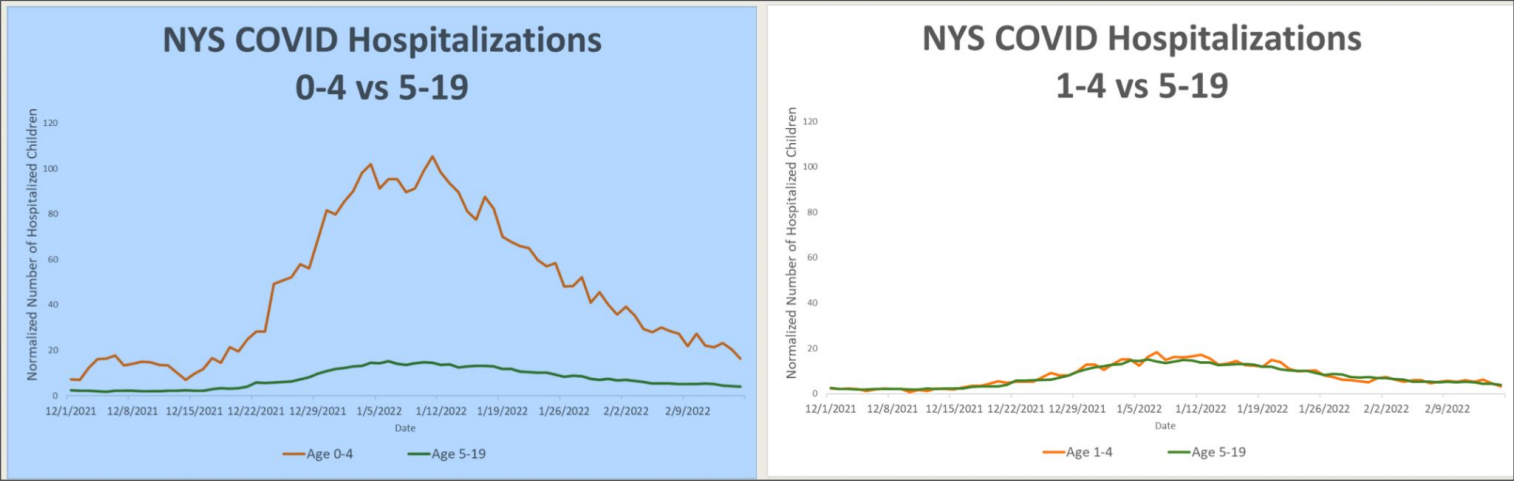
¹[CDC pediatric COVID data](#)

²[CDC Estimated Flu Burden from Past Seasons](#)

³[CDC RSV report](#)

Children Age 1-4 Do Not Have Higher COVID Hospitalization Rates Than Older Children

Some have suggested that children under 5 are high-risk because they are hospitalized at outsized rates; in fact, **hospitalization rates for children 1-4 are similar to that of children ages 5-19**.^{1,2} Infants under 1 year old are the group at highest risk, as is the case with other respiratory viruses, including precautionary admissions for fever in very young infants. New York State data provides a helpful illustration:



1 https://gis.cdc.gov/grasp/covidnet/covid19_5.html
2 https://www.cdc.gov/mmwr/volumes/71/wr/mm7107e4.htm#F1_down

The Majority of US Children Have Immunity to COVID

In blood sampling taken through the month of February 2022 in the US, 75% in the under-11 year old group has evidence of a prior infection.^{1,2} UK estimates 82% in the 5-11yo age group through March 2022.³

Immunity gained from a previous infection is protective against re-infection, and more importantly, severe disease, with efficacy similar to that of vaccines.⁴

This protection has been shown to be robust against variants⁵ and durable, with antibody responses lasting at least 20 months.⁶

1 https://www.cdc.gov/mmwr/volumes/71/wr/mm7117e3.htm?s_cid=mm7117e3_w

2 <https://covid.cdc.gov/covid-data-tracker/#national-lab>

3 <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19latestinsights/antibodies>

4 <https://journals.sagepub.com/doi/10.1177/01632787211047932>

5 <https://www.medrxiv.org/content/10.1101/2022.01.05.22268782v1.full>

6 <https://jamanetwork.com/journals/jama/fullarticle/2788894>

The World Health Organization Recommends Against Masking Toddlers

“Children aged 5 years and under should not be required to wear masks. This is based on the safety and overall interest of the child and the capacity to appropriately use a mask with minimal assistance.”

“Children with cognitive or respiratory impairments, developmental disorders, disabilities or other specific health conditions who experience difficulties wearing a mask should not be required to do so.”

The European Centre for Disease Prevention and Control Does Not Recommend School Masking Under the Age of 12

“[The use of face masks] in school settings is challenging, as children younger than 12 years old may have a lower tolerance to wearing masks for extended periods of time and may fail to wear them properly.

In primary schools, the use of face masks is recommended for teachers and other adults when physical distancing cannot be guaranteed, but it is not recommended for students.”

The CDC No Longer Recommends Different Masking Rules for Children and Adults

The CDC updated its K-12 guidance and no longer recommends universal masking in “low” or “medium” risk areas.¹ The CDC indicates on its website² and representatives³ confirmed that these changes apply to early education settings.

COVID-19 Guidance for Operating Early Care and Education/Child Care Programs

Updated Jan. 28, 2022 Languages ▾ Print

CDC’s new [COVID-19 Community Levels](#) recommendations align precautions for educational settings with those for other community settings. CDC is in the process of updating this page with these new recommendations. Updates will be posted here when available.

¹ https://covid.cdc.gov/covid-data-tracker/#county-view?list_select_state=all_states&list_select_county=all_counties&data-type=CommunityLevels&null=CommunityLevels

² <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/child-care-guidance.html>

³ <https://www.the74million.org/article/an-outdated-website-an-atlantic-article-an-instagram-story-how-the-cdc-botched-revising-its-mask-guidance-for-preschoolers/>

Masking Young Children Has Little to No Effect on COVID Transmission

A rigorous study of over 1 million children compared in-school COVID transmission rates between unmasked 3-5 year olds and masked 6-11 year olds in the fall of 2020. **There was no difference in transmission rates between unmasked 5 year olds and masked 6 year olds.**¹

During the fall 2021 Delta surge, both infection and transmission rates were again measured between unmasked 5 year olds and masked 6 year olds. The results were the same: **“mask mandates in schools were not associated with lower SARS-CoV-2 incidence or transmission, suggesting that this intervention was not effective.”**²

One frequently cited study concluded that “masking young children is associated with fewer childcare program closures, enabling in-person education.”³ **However the study did not specifically evaluate the effect of masking on transmission, it was only looking at closures.** Even then, the claimed benefit was very small: only 14%.

Every well-controlled real-world study shows the same result: little to no benefit to mask use in children under the age of 5.

¹ https://journals.lww.com/pidj/fulltext/2021/11000/age_dependency_of_the_propagation_rate_of.2.aspx

² https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4046809

³ <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2788457>

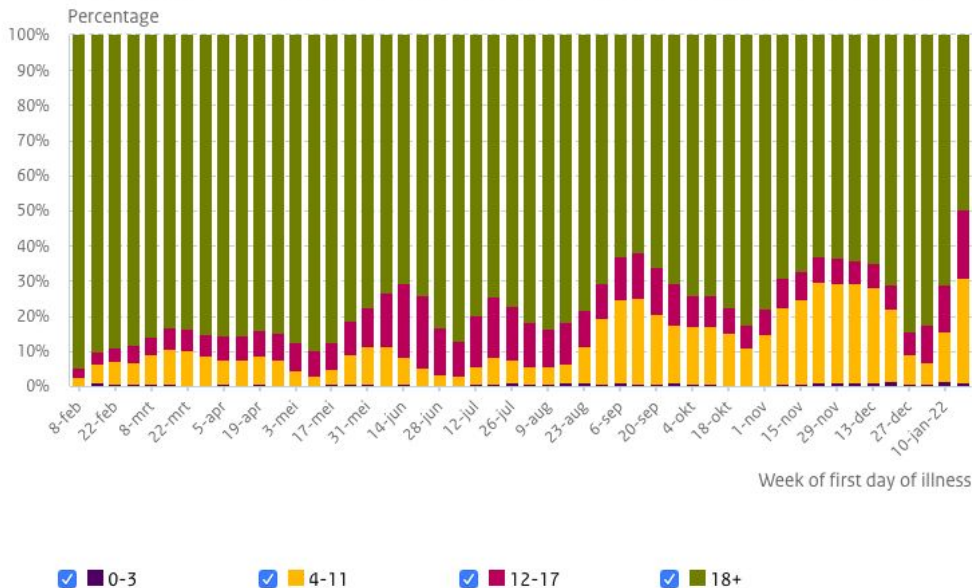
We Do Not Need to Mask Young Children to Protect Adults

Transmission data from the Netherlands shows that children in this age group are less likely to spread COVID than any other age group.

The figure shows the percentages of people (in source and contact tracing) who tested positive for SARS-CoV-2 and infected another person, per age group, per week

Children aged 0 to 3 years represent the lowest percentage (see thin black bars at far bottom of each column). Adults (≥ 18) represent a significant majority as the most likely source of infection.

Percentage of infected contacts according to the age of the source



Unfortunately, We Have Limited Research on the Effects of Long-Term Masking

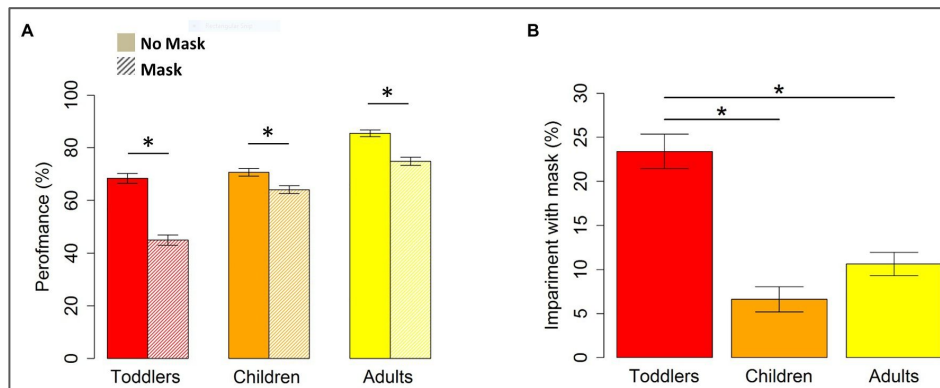
There is little research on the effects of masking children for long periods of time. Therefore, we do not know if masking young children for years is benign.

What we do know about children's development in the first 5 years gives us cause for concern about potential impacts of long-term masking on children's speech, language, and literacy learning.

This section highlights evidence and research that we would encourage leaders to consider with regards to risks for young children.

Masking Impairs the Recognition of Emotions

An Italian study looked at the impact of masking on correctly reading emotions across different age groups. All age groups struggled, but toddlers had the most difficulty.¹



Studies have shown that children with autism are especially affected by emotional recognition challenges.²

A recently-published study found that masks “led to a profound deficit in face perception abilities” that was more pronounced in children than adults.³

1 <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.669432/full>

2 <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257740>

3 <https://cognitiveresearchjournal.springeropen.com/articles/10.1186/s41235-022-00360-2>

Masking Impairs Understanding in Both Hearing and Hearing-Impaired People

A study looked at the impact of masking and ambient noise on word recognition in children and adults. Especially with classroom noise and 2 people talking, children had a harder time with word recognition when masks were used.¹

Face masks lower the volume of a person's speech and slightly garble it. Depending on the type of face mask, they may reduce the clarity of speech and lower it from anywhere to 5 to 15 decibels (dB). In other words, **speech is not just quieter, it's more muffled.**²

The CDC recommends clear masks when working with hearing-impaired people.³ However, ClearMasks are expensive, costing \$77 for 24 masks. They are marketed as single use and for “use indoors at room-temperature in ventilated, low-humidity environments.”⁴

Recent interviews with speech pathologists revealed frustrations and difficulties around masking during therapy, including clear masks. “[Despite] a number of tricks to prevent [clear masks] from fogging up, they inevitably do. Fogging aside, even clear masks prevent therapists from using tactile cues, such as straws or tongue depressors to push patients’ tongues into place, or bite plates to keep the jaw in alignment.”⁵

1 https://exlingsociety.com/images/ExLing-2021/ExLing_2021_preliminary_proceedings.pdf#page=207

2 <https://www.healthyhearing.com/report/53084-Face-masks-and-hearing-aids>

3 <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/types-of-masks.html>

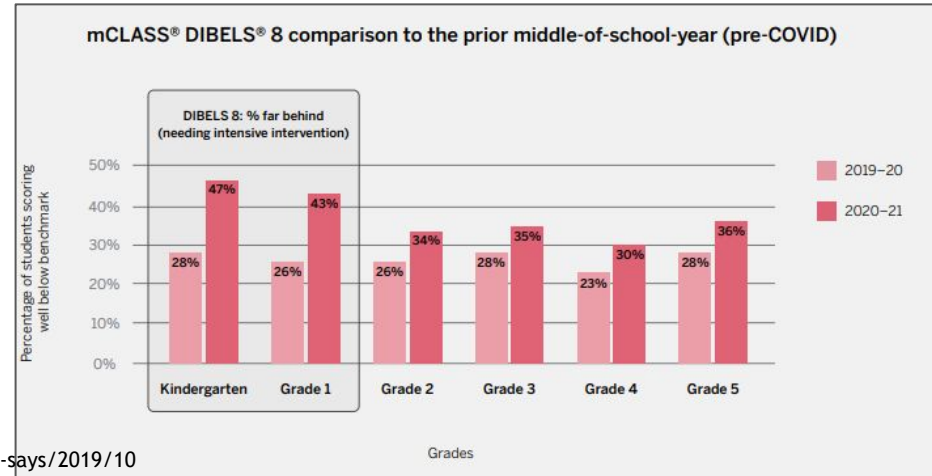
4 www.theclearmask.com

5 <https://www.theatlantic.com/family/archive/2022/03/how-masks-get-way-speech-therapy-kids/623332/>

Potential Impact on Early Reading Skills

Phonics instruction, in which “teachers explicitly tell students what sounds correspond to what letter patterns,” is an essential part of learning to read¹. Students in early grades (K-2) learn that the English language has 26 letters which combine to make 44 sounds (e.g., S and H combine to make the “sh” sound), which empowers kids to decode new words. In phonics lessons, teachers regularly model sounds for students, and ask students to practice these sounds in classrooms.

While we lack studies to isolate the effect of masking on reading outcomes in early grades, screeners for early reading skills (ex. DIBELS²) have shown the most pronounced declines in reading proficiency in early grades during the pandemic, raising concerns that masks may be impeding the teaching and learning of reading skills.



1 <https://www.edweek.org/teaching-learning/how-do-kids-learn-to-read-what-the-science-says/2019/10>

2 https://amplify.com/wp-content/uploads/2021/02/Amplify-mCLASS_MOY-COVID-Learning-Loss-Research-Brief_022421.pdf

Recommendations

Maintain in-person learning regardless of case counts and vaccination rates. Students' overall health is best supported by keeping daycares, pre-schools, and schools open.

De-escalate fear around getting COVID.

- For healthy young children, COVID is similar to other seasonal respiratory viruses
- Encourage children, parents, and staff to see mild COVID infections as inevitable and not alarming.
- Encourage a booster dose for parents, caregivers and school employees if older or in higher-risk groups.

Change the focus to supporting students' developmental, emotional, and social health.

- Avoid escalating mask rules or other COVID policies. More restrictive policies increase fear and falsely convey that preschools and daycares are unsafe.
- Restore fully normal life and preschool/daycare for all children.
- Encourage extracurricular activities and social events without fear.

Well-Being is About More Than the Mere Absence of COVID

It is time to appropriately balance risks to children's health

- Disruptions to normal living can never be harm-free
- Coronavirus is here to stay
- We cannot eliminate risk, but we *can* reduce it to levels we've always known how to live with

There is no reason to wait for a vaccine for young children to return to normal

- The vast majority of healthy children are at low risk for serious illness or for spreading COVID to others
- Three quarters of all children already have had naturally acquired COVID infection

Reclaiming normal life for our kids is the best way to support and protect them

- Masking has little to no benefit and poses poorly understood risks to learning and development
- Other countries have never masked this age group, with no adverse consequences to health
- Restrictions on physical activity, social interaction, and barriers to learning could have lasting impacts on young children

All analyses and recommendations presented here represent the authors' combined perspective, and do not represent the view of any of our employers or institutions.



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Data Sources Used for Calculations and Charts for this Toolkit:

[CDC: Summer 2021 RSV Surge Advisory](#)

[Trends in Bronchiolitis Hospitalizations 2000-2016](#)

[The Burden of RSV in Young Children](#)

[RSV Associated Hospitalizations in Young Children](#)

[UK 2021 Pediatric COVID Hospitalization Chart Review](#)

[CDC: Provisional COVID-19 Pediatric Deaths*](#)

[CDC: COVID Data-tracker*](#)

[CDC: IFR Estimates by Age](#)

[CDC: Disease Burden Estimates](#)

[CDC: COVID-19 Hospitalization Data**](#)

[CDC: COVID-19 Seroprevalence Hub***](#)

[CDC: By Age Post-Infection Seroprevalence through February 2022](#)

[UK COVID-19 Seroprevalence Estimates by Age](#)

[CDC: Estimated Flu Burden from Past Seasons](#)

[South African Study of Pediatric Omicron Hospitalizations](#)

[UK 2022 COVID Pediatric Hospitalization Chart Review](#)

[CDC: Weekly COVID-19 Hospitalizations](#)

[Bronchiolitis and RSV Associated Deaths](#)

[RSV Fatality Rates in At-Risk and Otherwise Healthy Children](#)

[RSV Associated Mortality American Academy of Pediatrics](#)

[Estimates of RSV Disease Burden Relative to Influenza](#)

[US Census Data](#)

[Mechanisms Underlying Decreased COVID-19 Severity in Children](#)

*Data pulled through February 12, 2022

**Data pulled through April 2, 2022

***Data available through January 29, 2022