

STAY SAFE MN

MDH COVID-19 Update

House Health Finance and Policy Committee

November 4, 2021

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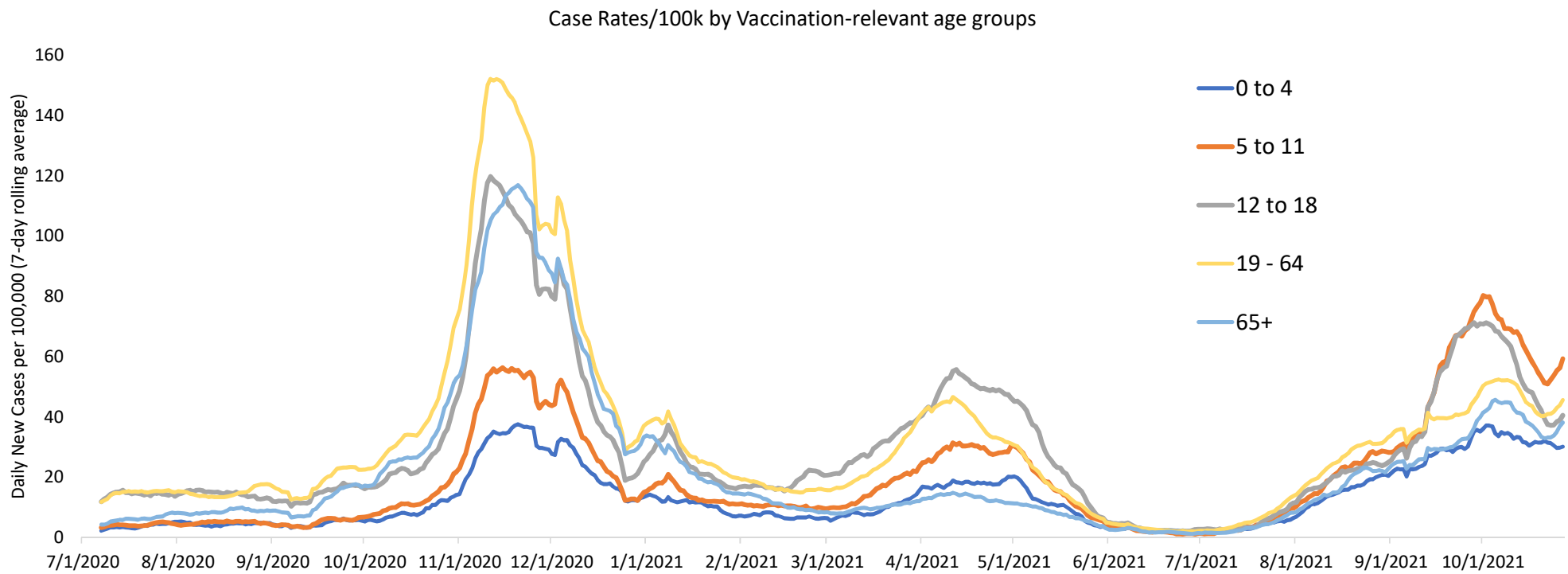
COVID-19 Update

Ruth Lynfield, MD
State Epidemiologist and Medical Director
Minnesota Department of Health

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COVID-19 cases, Minnesota

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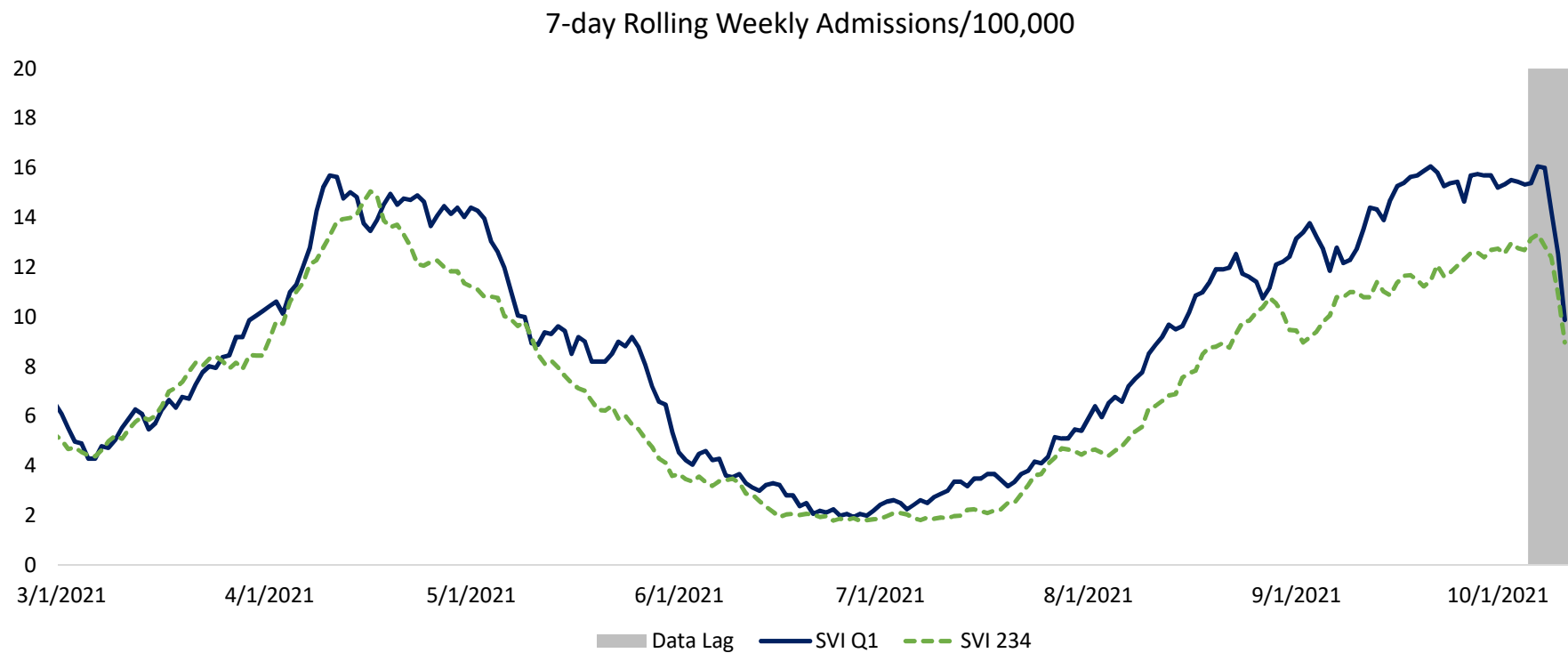


Source: MDH COVID-19 database, current as of 11/3/21. Includes confirmed, probable, and reinfections, by specimen date.

11/4/2021

Hospitalizations by Social Vulnerability Index

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SV Q1 high vulnerability and accounts for 29% of the population

Pediatric Hospitalizations: How Many in Minnesota?

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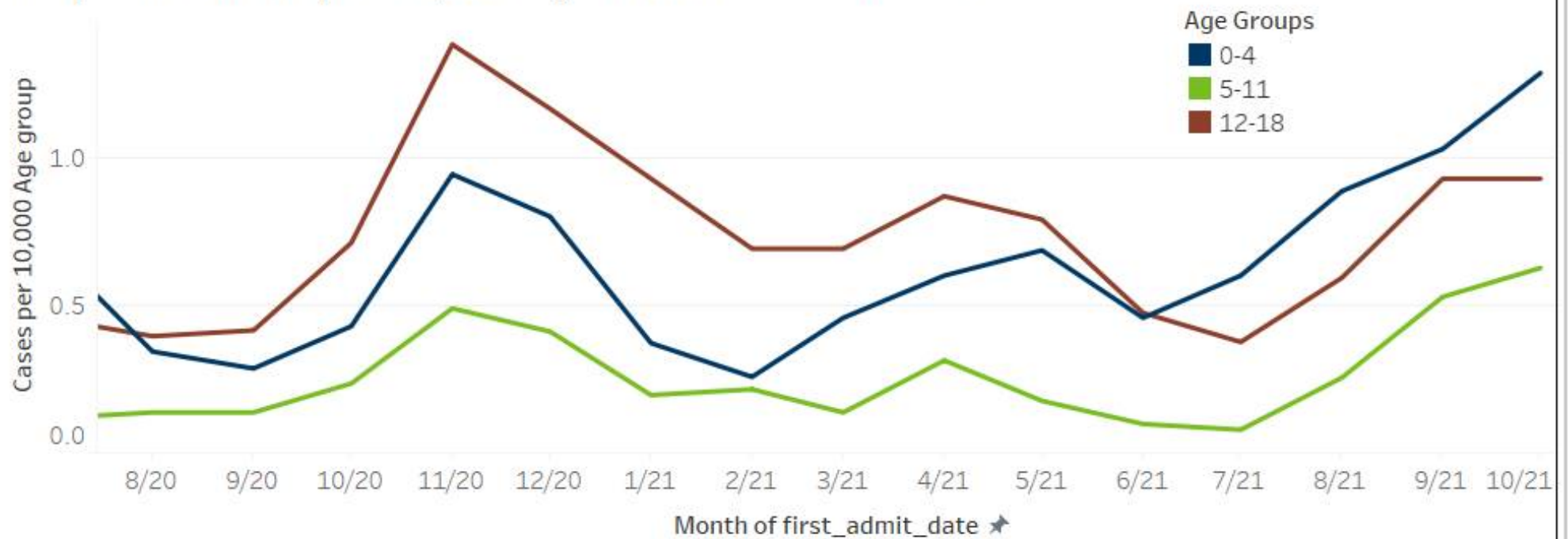
- 1046 children (0-17 years) hospitalized with COVID-19; 2.6% of total COVID hospitalizations
- Completed review on 694 (about 66%).
 - 275 (40%) underlying medical conditions
 - 185 (27%) children were admitted to the ICU, and of those, 89 (48%) had comorbidities

Data as of November 2, 2021

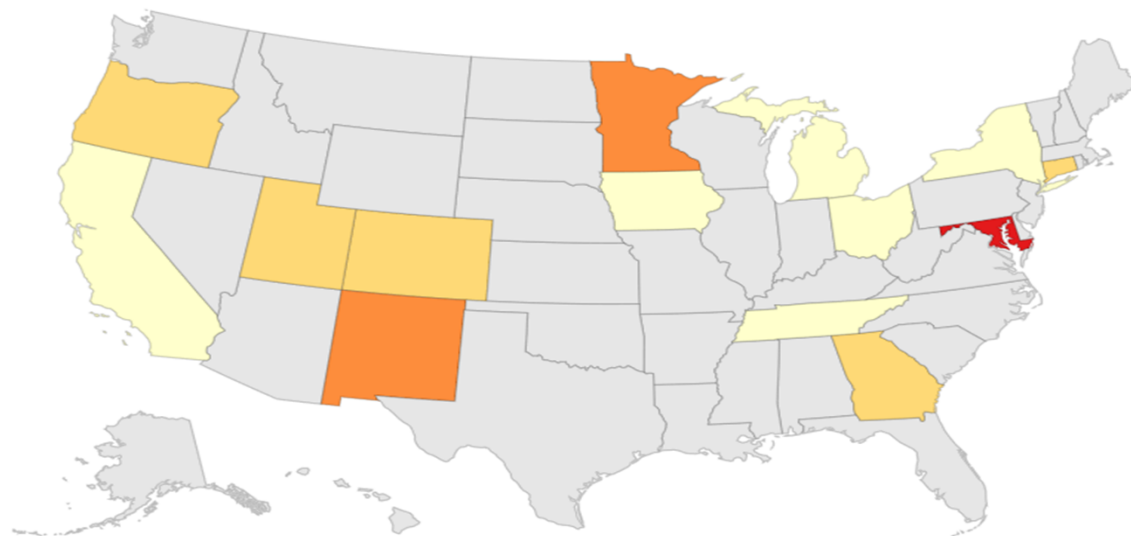
Hospitalizations in Children, MN

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Hospitalizations per 10,000 by Month of Admit Date



COVID-NET Surveillance Area



Percentage of
state population
represented by
participating
COVID-NET
counties

- 4% - < 28%
- 28% - < 52%
- 52% - < 76%
- 76% - 100%

Increasing COVID-19 hospitalizations among U.S. children and adolescents since the rise of the Delta variant*

Hospitalizations among
ages 0–4



10x increase

Hospitalizations among
unvaccinated adolescents

10x higher

than fully vaccinated

PREVENT COVID-19 AMONG CHILDREN

Everyone ages 2 and up:

Wear a mask in public indoor spaces,[†]
schools, and childcare centers

Everyone ages 12 and up:

Get vaccinated



* During June 20–August 14, 2021
† In areas with substantial or high transmission

bit.ly/MMWR9321b

MMWR

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7036e2.htm>

How Long Does Immunity for COVID-19 Last?

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- Still learning- brand new virus
- Correlates of protection not yet defined
- Don't know precise level of neutralizing antibody that is associated with protection
- Protective immunity also includes cellular immunity (CD4, CD8) memory B-cells
 - May protect against severe disease if reinfected
 - Thought to last at least 6-8 months
- Lack of standardization between assays that measure immunity
- Varying responses; duration may vary with age, disease severity, immune compromise
- Need to better understand duration after infection, vaccination, infection plus vaccination, impact of mutational changes in virus

Terms

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- Fully vaccinated: 14 days post completion of 2-dose series for mRNA or single dose Janssen
- Vaccine Efficacy: How well a vaccine performs under ideal and controlled circumstances
- Vaccine Effectiveness: How well a vaccine performs under “real-world” conditions
- Vaccine Breakthrough: How many cases have occurred among vaccinated persons

Vaccine Efficacy: Initial Data

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- **Pfizer: 95% efficacy** among ≥ 16 years for symptomatic, laboratory confirmed COVID-19; >43,000 participants
 - Efficacy from trials 100% in 12-15 years; ~2,200 participants and 91% in 5-11 years, ~2,300 participants
- **Moderna: 94% efficacy** among ≥ 18 years against symptomatic laboratory confirmed COVID-19 30,000 participants
- **Janssen: 66% efficacy** among ≥ 18 years against symptomatic, laboratory confirmed COVID-19; (74% in US); **93% against hospitalization after 14 days (no hospitalizations after 28 days in the vaccine group in the study)** 40,000 participants
- Median time of 2 months for follow up for initial studies for FDA Emergency Use Authorization

MMWR, ACIP Interim Recommendations, December 18, 2020, December 20, 2020, March 5, 2021, May 21, 2021,
Data submitted to VRBPAC October 27, 2021 and ACIP November 2, 2021

Vaccine Effectiveness (VE) of COVID-19 Vaccines

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- February 1–August 6, 2021, VE for Pfizer/Moderna among U.S. veterans hospitalized at five Veterans Affairs Medical Centers
 - 1175 patients enrolled (388 case-patients, 787 PCR-negative controls)
 - 93% male; median age 68 years, 49% Black, many with comorbidities
- **Overall VE mRNA vaccines: 87%** (95% CI = 80–91)
 - **18–64 years: 95%** (95% CI = 89–98)
 - **≥65 years: 80%** (95% CI = 68–87)
 - Moderna: 92% (95% CI = 84–98)
 - Pfizer: 83% (95% CI = 74–89)

Vaccine Effectiveness (cont.)

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- Evaluated VE Pfizer in EHR of managed care (Kaiser); Dec 14, 2020-August 8, 2021
- 3.4 million persons ≥ 12 years (median 45 years)
- **VE for fully vaccinated: 73% against infection; 90% against hospital admission**
- VE against infection decreased from 88% during first month after full vaccination to 47% after 5 months; VE 61% for ≥ 65 years against infection
- VE against hospitalization not significantly different to 5 months; looking at age: VE for ≥ 65 years (86%; 95% CI: 82-88) compared with 18-44 years (92%; 95% CI: 88-95)
- VE against hospitalization for Delta variant high and overlapped with other variants

Vaccine Effectiveness (cont.)

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- ≥ 18 years non-immunocompromised admitted to 21 US hospitals
- 3,689 patients were included: 1,682 case-patients (median age 58 years) and 2,007 control-patients (median age 53 years; PCR negative); March 11-August 15, 2021
- VE against COVID-19 hospitalization:
 - **Moderna** (476 fully vaccinated): **93%** (no significant change >120 days)
 - **Pfizer-BioNTech** (738 fully vaccinated): **88%** (91% at 14–120 days (median = 69 days) after receipt of the second vaccine dose but declined to **77%** at >120 days (median = 143 days) ($p < 0.001$)
 - **Janssen vaccine** (113 fully vaccinated) **71%**

Self WH. Comparative Effectiveness of Moderna, Pfizer-BioNTech, and Janssen (Johnson & Johnson) Vaccines in Preventing COVID-19 Hospitalizations Among Adults Without Immunocompromising Conditions – United States, **March–August 2021**. MMWR 2021;70:1337–1343. DOI: <http://dx.doi.org/10.15585/mmwr.mm7038e1>

Vaccine Effectiveness (cont.)

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Effectiveness of Pfizer-BioNTech and Moderna Vaccines in Preventing SARS-CoV-2 Infection Among Nursing Home Residents Before and During Widespread Circulation of the SARS-CoV-2 B.1.617.2 (Delta) Variant – National Healthcare Safety Network, March 1–August 1, 2021

Weekly / August 27, 2021 / 70(34);1163-1166

Two doses of mRNA vaccines were **75% effective** against infection among nursing home residents early in the vaccination program (March–May 2021). During June–July 2021, when B.1.617.2 (Delta) variant circulation predominated, effectiveness declined significantly to **53%**.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e3.htm>

Advisory Committee of Immunization Practices (ACIP)

Waning Immunity and Emergence of Delta Variant

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In context of waning vaccine-induced immunity and predominance of Delta variant

- **Declines in VE of mRNA** vaccine series against SARS-CoV-2 **infection** observed, including among groups recommended to receive early vaccine: **VE was 75% to 84% among adults aged ≥65 years, 53% among residents of long-term care facilities, and 66% among health care personnel and other frontline workers**
- VE of a primary mRNA COVID-19 series against **COVID-19–associated hosp.** high: **78% to 100%**, although some studies show slightly lower VE against hosp. in older adults
- Janssen-data limited, some studies suggest stable VE over time; however, **VE of Janssen: 58% to 83% against infection and 60% to 83% against COVID-19–associated hospitalization** among persons aged ≥18 years

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7044e2.htm>; October 29, 2021 (see for references for specific studies)

CDC Expands Eligibility for COVID-19 Booster Shots

For Immediate Release: Thursday, October 21, 2021

For persons who received a Pfizer-BioNTech or Moderna COVID-19 vaccine, the following groups are eligible for a booster shot at 6 months or more after their initial series: (should) 65 years and older; age 18-64 years who live in long-term care settings, 50-64 with underlying conditions, and (may) 18-49 years with underlying conditions age 18-64 years who work or live in high-risk settings

For persons who received Janssen COVID-19 vaccine, booster shots recommended for who were vaccinated two or more months prior

ACIP Immunocompromised

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- Decreased VE in Immunocompromised for mRNA vaccine series- **VE 71% in immunocompromised vs. 90%** in general population against infection and **59% in immunocompromised vs. 91%** among non-immunocompromised against hospitalization. In series of small studies, 16% to 80% of solid organ transplant recipients and hemodialysis patients had no detectable antibody response after the second dose of mRNA vaccine but 33% to 55% developed antibodies after receiving an additional dose
- Third dose recommended for moderately-severe immunocompromised; recommendations also made for booster doses (refer to guidance)

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7044e2.htm>; October 29, 2021 (see for references for specific studies)

Early Impact of Booster

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- Israel, early data on boosters given to persons ≥ 60 years at least 5 months after series
- Analysis 1 month after boosters

Table 2. Primary Outcomes of Confirmed Infection and Severe Illness.*

Outcome	Nonbooster Group	Booster Group	Adjusted Rate Ratio (95% CI)†
Confirmed infection			11.3 (10.4–12.3)
No. of cases	4439	934	
No. of person-days at risk	5,193,825	10,603,410	
Severe illness			19.5 (12.9–29.5)
No. of cases	294	29	
No. of person-days at risk	4,574,439	6,265,361	

* Listed are the results of the Poisson regression analysis in participants who received a booster vaccine and in those who did not receive a booster. The booster group includes data that were obtained at least 12 days after receipt of the booster dose.

† The rate ratio is the estimated factor reduction in the rate in the booster group as compared with the rate in the nonbooster group.

- Secondary analysis (focused on persons who obtained booster to control confounding and bias)
Rates of confirmed infection at least 12 days after vaccination was dropped by a factor of 5.4 compared with infection at 4-6 days post booster

Bar-On, NEJM, Oct 7, 2021

Early Impact of Booster (cont.)

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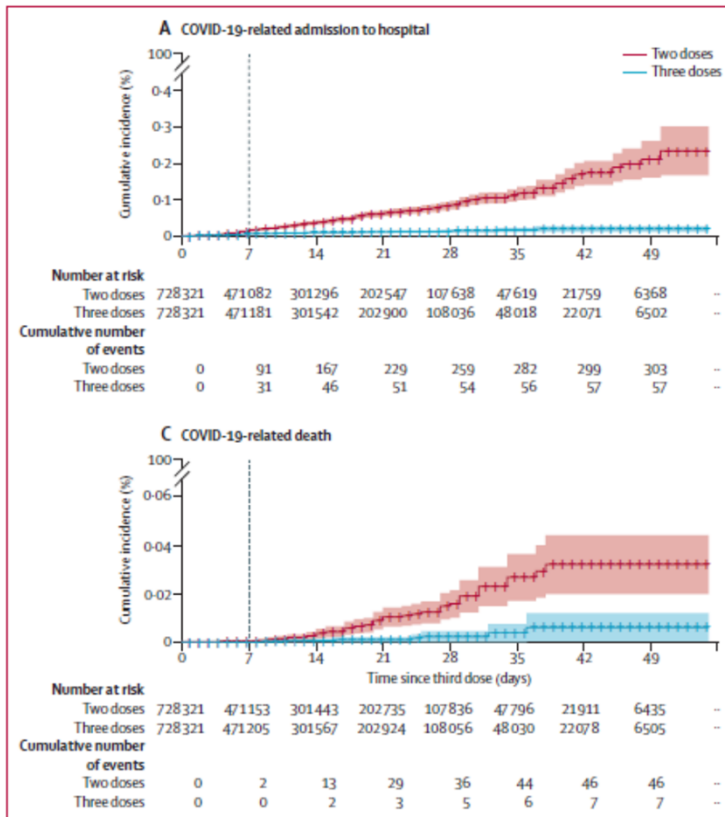


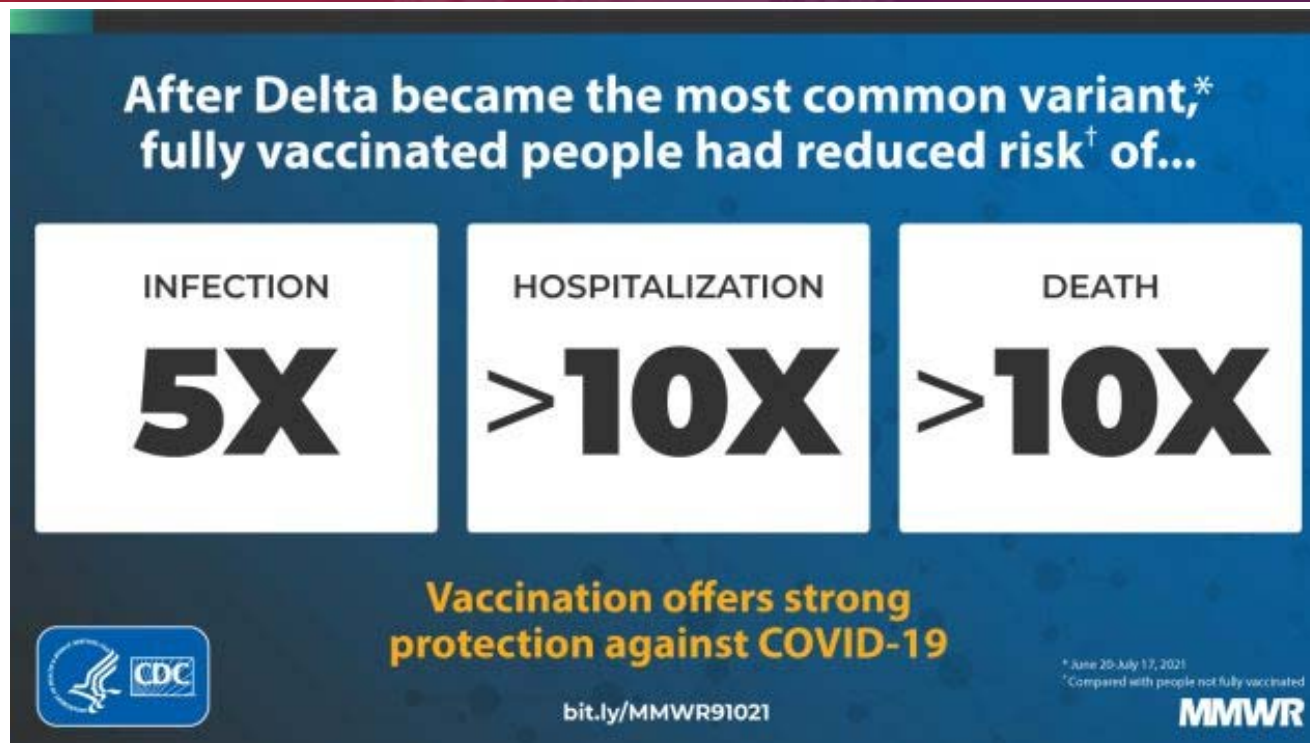
Figure 1: Cumulative incidence curves comparing COVID-19-related admission to hospital (A), severe disease (B), and death (C) in individuals who received two versus three doses of the BNT162b2 mRNA COVID-19 vaccine. The dashed vertical line indicates day 7, on which the main analysis period begins.

- Observational study in Israel post-booster; health system >1 M
- Median age 52 years
- Compared with persons who received 2 doses 5 months prior, persons who received 3 doses of the vaccine (7 days or more after the 3rd dose) had 93% lower risk of COVID-19-related hospitalization and 81% lower risk of COVID-19-related death
- Similar for different sexes, age groups (ages 40-69 and 70+) and number of comorbidities

Barda, et al. Lancet; Oct. 29, 2021

Cases, Hospitalizations and Deaths, 13 US Jurisdictions

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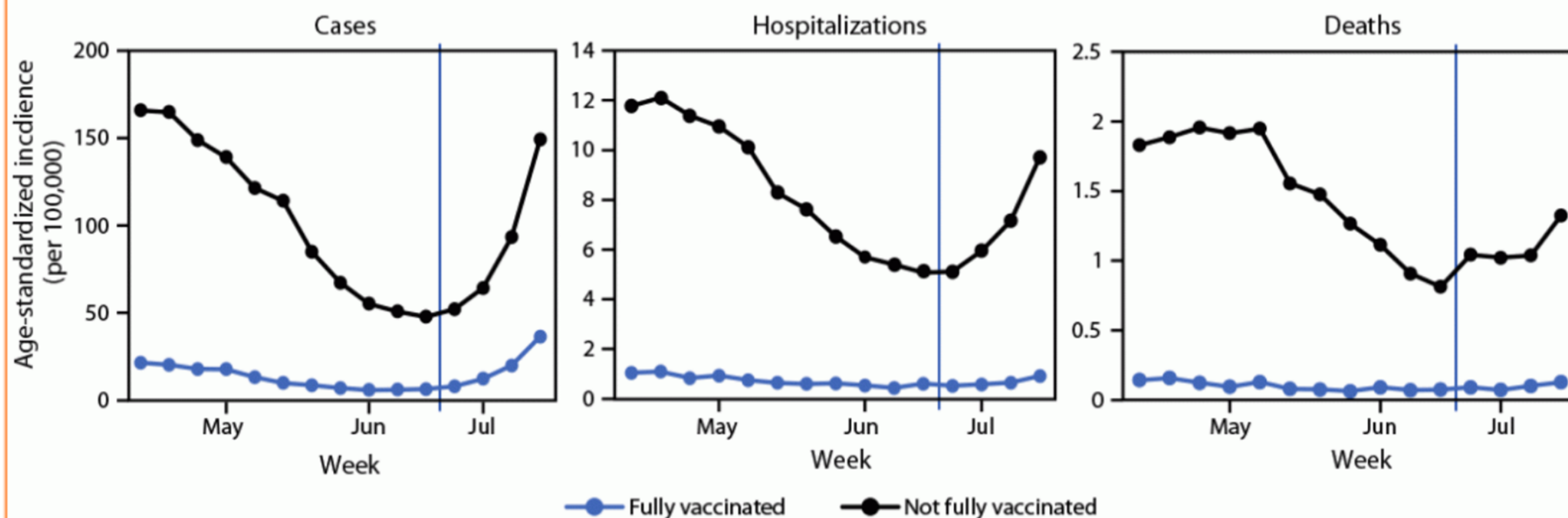


Scobie HM, Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021. MMWR 2021;70:1284–1290. DOI: <http://dx.doi.org/10.15585/mmwr.mm7037e1>

Cases, Hospitalizations and Deaths, 13 US Jurisdictions (cont.)

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FIGURE 2. Weekly trends in age-standardized incidence* of COVID-19 cases, hospitalizations,[†] and deaths,[§] by vaccination status[¶] — 13 U.S. jurisdictions,** April 4–July 17, 2021



* Rates are standardized by age, according to the enumerated 2000 U.S. Census age distribution. Blue vertical lines indicate when the B.1.617.2 (Delta) variant reached a threshold of >50%, using weighted estimates for 13 jurisdictions combined.

Scobie HM, Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021. MMWR 2021;70:1284–1290. DOI: <http://dx.doi.org/10.15585/mmwr.mm7037e1>

Minnesota Vaccine Breakthrough (VBT) Data

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All data is preliminary and may change as cases are investigated. Case and vaccine totals reflect only the results from laboratory testing and vaccinations that have been reported.

Updated weekly, on Mondays at 11 a.m.
Updated 11/1/2021

Case Overview

Total number of fully vaccinated Minnesotans age 12 and older (as of the week beginning 9/26)*		3,209,369
	Number of vaccine breakthrough cases	Percent of fully vaccinated people
Total cases	57,023	1.777%
Total cases hospitalized**	2,609	0.081%
Total deaths***	372	0.012%

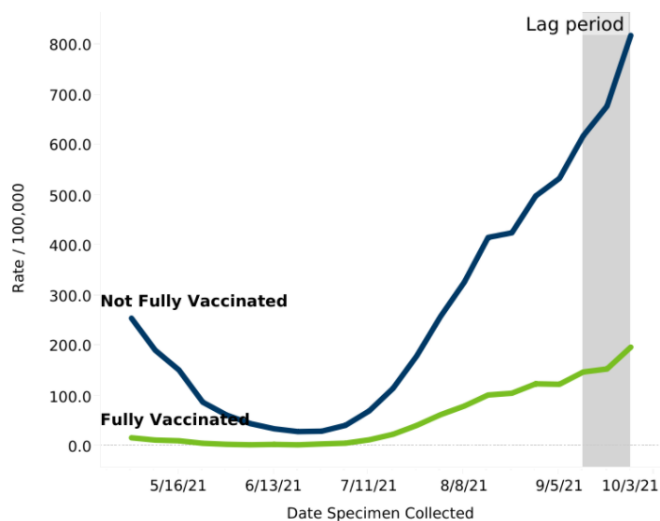
<https://www.health.state.mn.us/diseases/coronavirus/stats/vbt.html>

Minnesota VBT (cont.)

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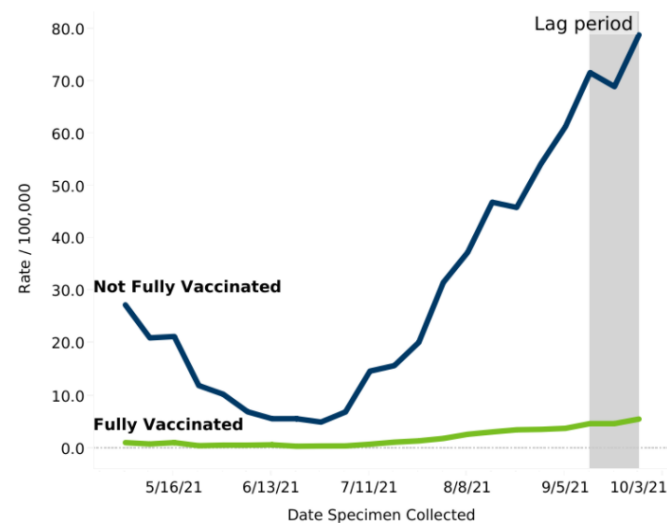
Cases: Weekly Age-Adjusted Rate

Hover/click over lines for more information



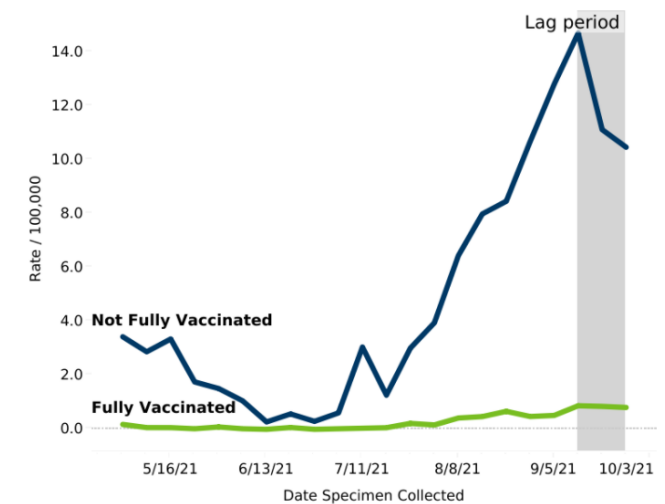
Hospitalizations: Weekly Age-Adjusted Rate

Hover/click over lines for more information



Deaths: Weekly Age-Adjusted Rate

Hover/click over lines for more information



Looking at rates in the period of September 12 (pre-lag) if unvaccinated have 4 times the risk of being infected and >15 times risk of being hospitalized or dying from COVID-19

<https://www.health.state.mn.us/diseases/coronavirus/stats/vbt.html>

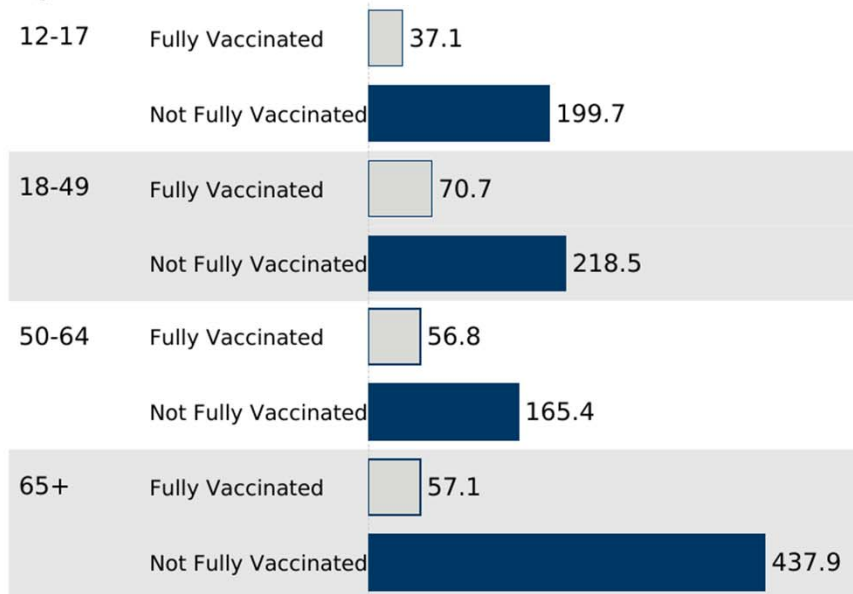
Vaccine Breakthrough, MDH

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Cases: Rate by age group per 100,000

Week starting: 5/2/2021 to 9/26/2021

Ages



Decrease Risk of Reinfection with Vaccine

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Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination – Kentucky, May–June 2021

- Residents in KY with SARS-CoV-2 infection in 2020; case control study of those reinfected during May–June 2021 compared with those who were not reinfected
- Being **unvaccinated** was associated **with 2.3 times the odds of reinfection** compared with being fully vaccinated
- Limitations: persons who are vaccinated may be less likely to get tested, single state, vaccination data may be missing or incorrect, retrospective study over 2-month period, don't have data on comorbidities

Hospitalized Patients Previously Infected or Vaccinated

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Laboratory-Confirmed COVID-19 Among Adults Hospitalized with COVID-19–Like Illness with Infection-Induced or mRNA Vaccine-Induced SARS-CoV-2 Immunity — Nine States, January–September 2021

Early Release / October 29, 2021 / 70

Vision network, 187 US hospitals; among >7,000 COVID-19–like illness hospitalizations whose prior infection or vaccination occurred 3-6 months beforehand: **5.5 times higher odds of laboratory-confirmed COVID-19 among previously infected patients than among fully vaccinated patients**

CDC Science Brief Oct. 29

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

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SARS-CoV-2 Infection-
induced and Vaccine-
induced Immunity

Science Brief: SARS-CoV-2 Infection-induced and Vaccine-induced Immunity

Updated Oct. 29, 2021

[Print](#)

This brief provides an overview of the current scientific evidence regarding infection-induced and vaccine-induced immunity, including both peer-reviewed and preprint publications, as well as unpublished CDC data. Although comprehensive, it is neither a formal systematic review nor meta-analysis. New data continue to emerge, and recommendations (the science brief, this webpage, etc.) will be updated periodically, as needed.

Executive Summary:

- Fully vaccinated and those naturally infected with SARS CoV-2 each thought to have low risk of infection for at least 6 months
 - Immunity high but not perfect
 - At this point we don't have lab value that predicates protection for a particular person
 - Range in immune response to natural infection
 - More consistent antibody response to vaccine
 - Older persons and immunocompromised may have less protection following vaccine or natural infection

CDC Science Brief (cont.)

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- Level of protection may differ for particular variants of SARS CoV-2
- Insufficient evidence regarding infection-induced immunity in persons with mild or asymptomatic illness
- More data emerging that vaccination after infection enhances protection and further reduces risk of reinfection

**CDC recommends COVID-19 vaccination for all eligible persons
(including those who have been previously infected)**

WHO Clinical Case Definition for Long COVID: October 6, 2021

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“Post COVID-19 condition occurs in individuals with a **history of probable or confirmed SARS-CoV-2** infection, **usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis**. Common symptoms include **fatigue, shortness of breath, cognitive dysfunction** but also others which generally have an **impact on everyday functioning**. Symptoms may be **new onset**, following initial recovery from an acute COVID-19 episode, or **persist** from the initial illness. Symptoms may also **fluctuate** or **relapse** over time. A separate definition may be applicable for children.”

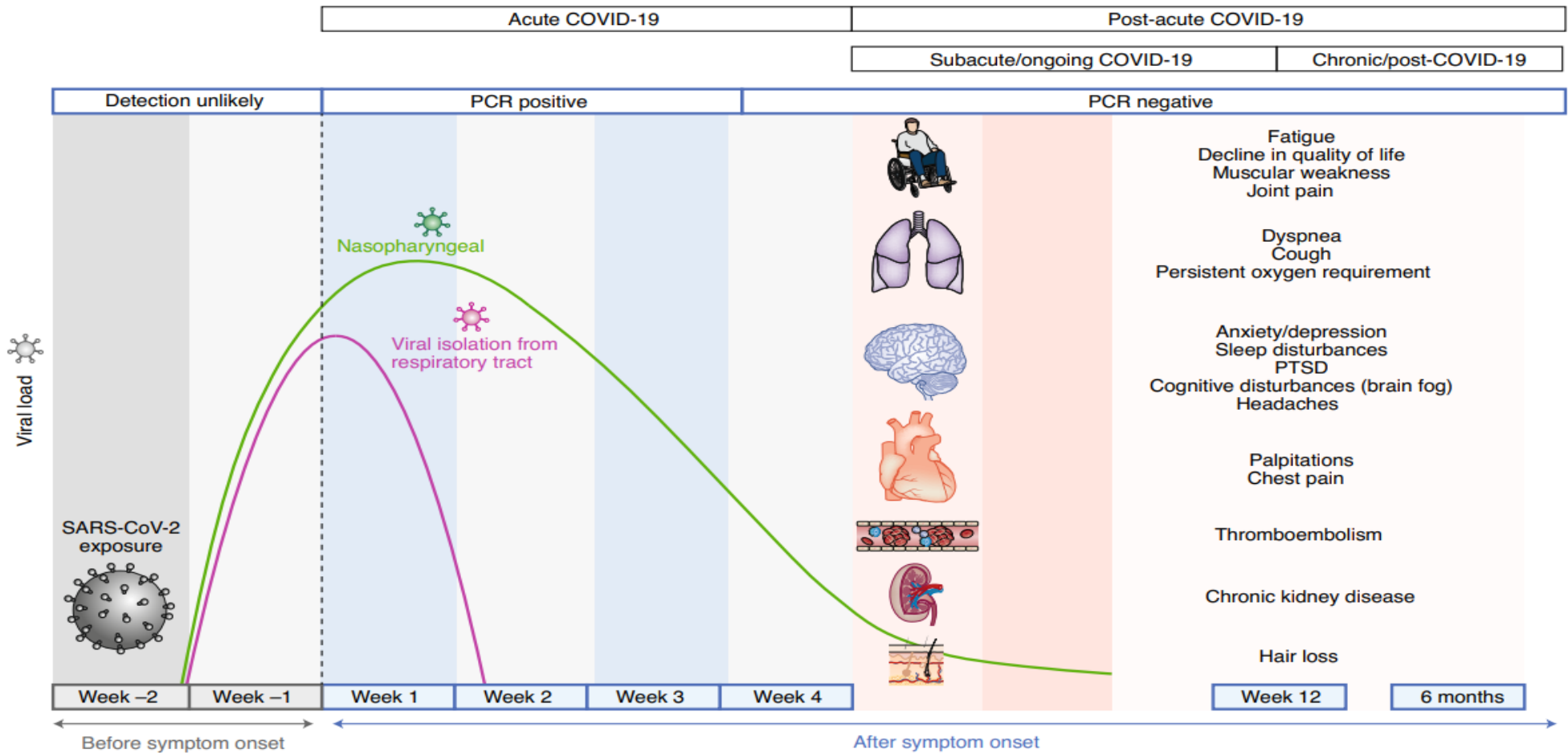


Fig. 1 | Timeline of post-acute COVID-19. Acute COVID-19 usually lasts until 4 weeks from the onset of symptoms, beyond which replication-competent SARS-CoV-2 has not been isolated. Post-acute COVID-19 is defined as persistent symptoms and/or delayed or long-term complications beyond 4 weeks from the onset of symptoms. The common symptoms observed in post-acute COVID-19 are summarized.

Nalbandian, et al. Post-acute COVID-19 syndrome. *Nat Med* **27**, 601–615 (2021).

Long COVID: Questions

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- What is the prevalence of long-COVID symptoms in Minnesotans, adult, children, by sociodemographic characteristics?
- What is the duration and severity of long-COVID symptoms?
- How does long-COVID impact activities of daily living?
- How does vaccination impact long-COVID?
- What are appropriate clinical screening and treatment protocols? How are these coordinated? Adult? Children?
- What are care recommendations for individuals with comorbid conditions or disabilities?
- What information and recommendations about long-COVID are needed by Minnesotans experiencing long-COVID symptoms, health care providers, public health providers, community organizations, employers, schools, etc.

Long COVID: MDH Role

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- Assess burden of long COVID (adults, children, rural, BIPOC) in Minnesota
- Epidemiological studies
- Engage and work with clinical and public health partners; long COVID survivors; health insurer's; employers; schools; high risk communities
- Advisory Groups (clinical/academic experts; stakeholder engagement and collaboration)
- Foster consensus clinical screening, evaluation, treatment, follow-up and coordinated care recommendations for primary care and specialists.
- Long COVID awareness and communication resources

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Vaccines for Children Ages 5-11

Assistant Commissioner Joanna Dornfeld

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5 to 11 Vaccine Values

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Keep children healthy and safe, minimize the number of children who become ill with COVID

Keep kids learning in schools, in person

Slow the spread of COVID in schools, families, and communities

Ensure vaccine access for all students and families

5 to 11 Vaccination Goals

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- Vaccinate quickly, efficiently and equitably
- 80% of all Minnesota children vaccinated within 6 months of emergency use authorization (for eligible age-band)
 - 50% of eligible MN children vaccinated within 3 months of approval
 - While pediatric supply is a fixed allocation, use at least 90% of each week's amount within the week following arrival of shipments
 - Equitable access and participation in vaccine across race, income and geography (using school district/county data)

- **Allocation and prioritization** – allocate vaccine to align with CDC guidance, Administration's goals to ensure **rapid vaccine administration**, equity, meeting greatest need, and statewide coverage and access; Identify gaps and fill them.
- **Leadership and collaboration** - communicate and engage with **school and community leaders**, providers, and vaccination partner community regularly to coordinate, assess needs, and implement actions.
- **Communication and education** – campaign including outreach and engagement focused on health equity and hesitancy; **make sure parents know where to go to get their child a shot.**

Federal Approval and Supply Release

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- **Federal Approval Timing**
 - FDA VRBPAC met October 26th
 - FDA issued EUA October 29th. Shipments expected to begin shortly after EUA is issued.
 - ACIP met and CDC issued final CDC approval November 2.
 - **Shots in arms began yesterday.**
- **Federal Vaccine Supply** - Minnesota supply secured and ample for launch. Shipments began Monday, 11/1.

<https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>

Vaccination Strategy – Statewide access with focus on high SVI kids

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Pharmacies

- Request pharmacies prioritize and weight allocation in high SVI communities

VFC Providers including FQHCs

- Distribute to Vaccine for Children providers to ensure statewide coverage.
- Weight higher allocation to high Medicaid clinics.
- Request that they prioritize Medicaid and medically at-risk patients.

Schools

- LPH encouraged to do school clinics
- Identify vax partners for higher need areas, combination of longer and pop-up clinics

Community Sites, CCCs

- Allocate to local public health agencies to operate community clinics.
- Expand MOA site to offer kid-friendly section for child vax with incentives; 1500.

Vaccine Info and Resources for Parents and Families

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- What parents need to know about the COVID-19 vaccine for their children
- Who should get vaccinated
- How we know the COVID-19 vaccines are safe for children
- Where to get your child vaccinated
- What to expect when your child or teen gets vaccinated
- mn.gov/vaxforkids

The background of the slide features a pattern of stylized, virus-like particles. These particles are depicted with a central core and numerous protruding spikes, resembling coronaviruses. They are rendered in a color gradient that transitions from a deep red on the left to a dark blue on the right. The particles vary in size and are scattered across the entire background.

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Thank You!

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