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COVID-19 and Children's Surveillance Report

Number 6

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The Royal Children's Hospital Melbourne

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Contents

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Overview

- This weekly summary documents the latest COVID-19 surveillance data in children and adolescents, with a focus on Victoria and New South Wales (NSW) as well as specific countries that are relevant to the Australian context because of their size, COVID-19 epidemiology, the mitigation measures in place and data availability.
- Data on Multisystem Inflammatory Syndrome in Children (MIS-C), otherwise known as Paediatric Inflammatory Multisystem Syndrome (PIMS-TS), is also searched for but is not always available.
- This report is updated weekly using the most recently available data from government websites.
- Surveillance data for the Omicron variant of concern is included where available, including for NSW, South Africa, Canada and the United States.
- The number of infections in unvaccinated children may also increase if school mitigation measures are few, or there are changes to testing criteria and the adoption of screening in schools. The number of cases will be biased towards the age groups that are tested most.

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Summary

- Throughout 2021, the proportion of infections in unvaccinated children has generally increased as vaccination of adults has increased.[1,2] This proportion may continue to increase in countries where a low proportion of children are vaccinated. Many countries are now vaccinating adolescents and several other countries, including Australia and the USA, have begun vaccinating children aged 5 years and over.
- With the predominance of Omicron in many settings and with vaccines having low effectiveness against infection, the age distribution of infection has changed again. Early reports from NSW, the UK and Denmark, regions which have intensive surveillance, indicate that transmission mainly occurs in 20-29 year olds for now, with children and adolescents less affected. However, some settings have had lockdowns and closed schools and other settings have only just started to open schools again, so these mobility changes may also change the age distribution over time.
- COVID-19 epidemiology in children and adolescents varies by setting.
- Many schools were closed for the end-of-year holidays and some have reopened in early January 2022.
- The Omicron variant of concern[3] was first reported from South Africa on 25 November 2021. At the time of writing, it has been detected in 118 countries[4], up from 101 countries in the last report. Omicron is now the predominant variant in Australia, South Africa, the UK, USA and many other countries already due to its high transmissibility.
- There has been an increase in paediatric hospitalisations but this has been a combination of admission for COVID-19 treatment and incidentally testing positive when admitted for an unrelated condition. In New York State, for children aged 0-4 years, COVID-19 hospitalisations have increased from 0.4 to 4 per 100,000 children during the Omicron wave. For children aged 5-11 this has increased from 0.2 to 0.8 per 100,000, and for adolescents aged 12-18 years this has increased from 0.1 to 1.5 per 100,000.[5] 56% of admitted children had comorbidities, highlighting the need for adolescents with immune-compromising conditions should get their third dose and primary school age children get vaccinated as soon as possible. Importantly, 36-47% of children were admitted not for the treatment of COVID-19 but for other conditions and incidentally tested positive for COVID-19 due to high prevalence in the community.[6] Nevertheless, being a COVID-19 positive patient presents its own health care and workforce challenges.
- While paediatric infections and hospitalisations are rising in the US, the outcomes appear to be milder with Omicron compared to Delta. Early data from the US also suggests that Omicron is less severe in children compared with Delta, with children 70-80% less likely to attend an emergency department for care and about 50-60% less likely to be hospitalised for treatment.[7]
- An analysis of COVID-19 in children <16 years in New South Wales (NSW) during the 2021 Delta wave found that 22% were asymptomatic and 3.8% required hospital admission.[8] Among those hospitalised, 36% were admitted due to medical need while 64% were admitted for social reasons, and hospitalisations were more common in children aged <2 years. Less than 0.1% of cases required ICU admission, which was more common in children aged 12-15 years. MIS-C occurred in 0.04% of cases. There was one child death associated with COVID-19.
- Up until school holidays and before the predominance of the Omicron variant, infections appeared to be stable in children and adolescents in **Victoria** and declined in **NSW** with the return of face-to-face learning despite many school infections. This could be attributable to high vaccine coverage in ≥12 year olds and implementation of mitigation measures in schools including test, trace, isolate and quarantine (TTIQ).

[1] Russell FM, Anderson V, Crawford N, Curtis N, Danchin M, Goldfeld S, Hart J, Keeble T, Medley T, Mulholland K, Ranganathan S, Suryawijaya Ong D, Overmars I, Perrett K, Steer A. COVID-19 in Early Childhood Education and Care & Schools. Research Brief Number 1, Version 1: 14 October 2021. Parkville, Victoria, Australia: Murdoch Children's Research Institute, The Royal Children's Hospital, University of Melbourne Department of Paediatrics; 2021. https://www.mcri.edu.au/sites/default/files/media/documents/covid-19_in_early_childhood_education_and_care_and_schools.pdf
[2] American Academy of Pediatrics (AAP). Children and COVID-19: State-Level Data Report 14 October 2021. Illinois, US: AAP; 2021. https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/
[3] World Health Organization (WHO). Update on Omicron 28 November 2021. Geneva, Switzerland: WHO; 2021. https://www.who.int/news/item/28-11-2021-update-on-omicron
[4] GISAID. Tracking of Variants. Munich, Germany: GISAID; 2022. https://www.gisaid.org/hcov19-variants/
[5] New York State Department of Health. Pediatric COVID-19 Update 07 January 2022. New York, US: New York State Department of Health; 2022. https://www.health.ny.gov/press/releases/2022/docs/pediatric_covid-19_hospitalization_report_summary.pdf
[6] New York State Department of Health. Pediatric COVID-19 Update 07 January 2022. New York, US: New York State Department of Health; 2022. https://www.health.ny.gov/press/releases/2022/docs/pediatric_covid-19_hospitalization_report_summary.pdf
[7] Wang L, Berger NA, Kaelber DC, Davis PB, Volkow ND, Xu R. Comparison of outcomes from COVID infection in pediatric and adult patients before and after the emergence of Omicron. medRxiv [preprint]. 2022;21268495. https://doi.org/10.1101/2021.12.30.21268495
[8] Williams P, Koirala A, Saravanos G, et al. COVID-19 in children in NSW, Australia, during the 2021 Delta outbreak: severity and disease spectrum. medRxiv [preprint]. 2021. https://doi.org/10.1101/2021.12.27.21268348

- **Victoria** closed schools for holidays from 18 December 2021.
  - Density limits have been reintroduced with work from home default, indoor mask wearing is required for all aged 8 years and older.
  - Approximately 88% of 12-15 year olds have received at least one dose of a COVID-19 vaccine. Children aged 5-11 years became eligible for vaccination from 10 January 2022, two doses given eight weeks apart, and ~14% have received their first dose.
  - Infections remain high but there is now a downward trend, with ~30,000 confirmed cases per day in all ages.
    - Omicron is now the dominant variant in Victoria, detected in ~76% of samples collected in late December 2021.
    - Infections are highest in the 20-29 year and followed by the 30-39 year, increasing in the 10-19 year and low in the 0-9 year age groups.
    - Testing capacity has been constrained in all ages due to increased demand. Since 8 January 2022, Victorian daily case numbers include both PCR and rapid antigen test (RAT) positive results.
  - There is no hospitalisation data available by age, but total numbers for all age groups have increased in recent weeks.
  - Two children have died with COVID-19 throughout the entire pandemic.
- **NSW** schools closed for holidays from 18 December 2021.
  - Indoor mask wearing is required for all aged 12 years and older.
  - Approximately 82% of 12-15 year olds have received at least one dose of vaccine. Children aged 5-11 years are now eligible for vaccination and ~13% have received their first dose.
  - Case numbers have increased to ~48,000 confirmed cases per day in all ages, although there is now a downward trend.
    - Omicron is now the dominant variant in NSW.
    - Infections are highest in the 16-39 year and lowest in the 0-9 year age group (data to Report #5, 10 January 2022).
  - There is no data on hospitalisation trends by age, but overall hospitalisations have increased in recent weeks.
    - From June to December 2021, 11 children aged 0-9 years were admitted to ICU, and 33 unvaccinated and 1 fully vaccinated adolescents aged 10-19 years were admitted to ICU.
  - One child has died with COVID-19 throughout the entire pandemic.
- In **Europe and North America**, cases are on the rise across all age groups in many countries, although there is now a downward trend in several countries and regions, including the United Kingdom and New York State, USA.
- **Canada** closed its schools for the holidays in December 2021 and they reopened in mid-January 2022. The Province of Ontario has resumed in-person learning following a brief switch to remote learning due to rising case numbers.
  - Public Health and Social Measures (PHSM) vary by province. Ontario introduced further restrictions including closure of indoor dining.
  - Since November 2021, all 5-11 year olds have been offered vaccine with an eight week interval between doses. Approximately 48% of 5-11 year olds and 87% of 12-17 year olds have received at least one dose of vaccine.
  - There was a steep increase in infections in all age groups due to the Omicron variant, which has overtaken the Delta variant, although there is now a downward trend.
  - There is no data on hospitalisation trends by age, but overall hospitalisations have increased in recent weeks.
    - In the Province of British Columbia, rising case rates among children since August 2021 (Delta wave) have not translated to an increase in hospitalisations (data to Report #5, 10 January 2022).
  - There have been 24 deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.
- **Denmark** closed their schools early for the end-of-year holidays and they reopened in early January 2022.
  - Additional PHSM were reintroduced, including a partial lockdown due to a rapid rise in COVID-19 cases due to Omicron.
  - Approximately 82% of the population aged 12+ have received at least one dose of vaccine. The 5-11 year old vaccination program commenced in late November 2021.
  - Total infection and hospitalisation rates continue to remain on a steep upward trend.
    - Omicron is now the predominant variant, causing >90% of all COVID-19 infections.
    - There is no data on hospitalisation trends by age.
  - There have been three deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.

- **England** reopened its schools in early January 2022 following the end-of-year holidays.
  - Additional PHSM were reintroduced in late November 2021, including indoor mask wearing, work from home default and proof of vaccination. RAT is available for all twice weekly.
  - Approximately 52% of 12-15 year olds and 66% of 16-17 year olds have received at least one dose of vaccine. Vaccination in 5-11 year olds is only recommended for immunocompromised children.
  - Infections across most age groups remain high but are now on a downward trend overall.
    - Omicron is now the predominant variant in England.
    - Infections are primarily in the 20-39, followed by the 40-59 year age group.
    - Infections in children aged 5-19 remain on an upward trend, although infections still remain lower than adults.
  - Overall hospitalisations are stabilising.
    - There was a steep increase in 0-4 year olds but rates in children remain the lowest compared to all other age groups.
    - Hospitalisations include children who test positive, irrespective of the reason for admission, so is an overestimate of hospitalisations for treatment of COVID-19.
    - Children admitted to hospital with Omicron require less support and are discharged earlier, compared to children admitted earlier in the pandemic. Supplementary oxygen use by children aged under 1 was 12% compared with 22.5% in the first wave of the pandemic. Admission to intensive care was 9.9% (vs14% previously), use of mechanical ventilation was 2% (vs 5.8%), use of non-invasive ventilation was 2% (vs 7.2%), and mean length of stay was 1.7 days (vs 6.6 days).[9]
  - There have been 75 deaths with COVID-19 in children aged 0-19 years in the past year.
- **Finland** reopened its schools in early January 2022 following the end-of-year holidays. There are no restrictions on children's activities.
  - Additional restrictions were reintroduced in late December 2021, including indoor mask wearing, proof of vaccination, work from home default and density limits. Further restrictions were introduced in January 2022, including limits on household visitors, hospitality opening hours and access to public places.
  - Approximately 76% of 12-15 year olds and 83% of 16-19 year olds have received at least one dose of vaccine. All children aged 5-11 years are now offered vaccine.
  - There continues to be a steep increase in infections in all age groups, especially in the 15-24 year olds. Infection rates are similar between people who are vaccinated or unvaccinated in most age groups.
  - Overall hospitalisations continue to increase. Data on hospitalisations by age group is no longer reported.
  - There have been no deaths in anyone <30 years old throughout the entire pandemic.
- **Scotland** reopened its schools in early January 2022 following the end-of-year holidays.
  - Additional restrictions were reinstated in December 2021, including indoor mask wearing, density limits and work from home default.
  - Approximately 67% of 12-15 year olds and 82% of 16-17 year olds have received at least one dose of vaccine. Vaccination in 5-11 year olds is recommended for immunocompromised children.
  - Infections across all age groups are now decreasing.
    - Omicron is responsible for >90% of infections.
    - The 20-39 year age group continues to have the highest rates of infection.
  - Hospitalisations in children are on the rise, primarily in the <1 year age group. Hospitalisations also include children who test positive, irrespective of the reason for admission, so is an overestimate of hospitalisations for treatment of COVID-19.
  - There have been 2 deaths due to COVID-19 in children aged 0-14 years in the past year.
- **Singapore** reopened its schools in early January 2022 following the end-of-year holidays.
  - Restrictions were reintroduced in late September 2021, including indoor and outdoor mask wearing, work from home default and density limits.
  - Approximately 90% of the entire population has received at least one dose of vaccine. All children aged 5-11 years are now offered vaccine.
  - Currently there is an upward trend in overall infections with ~900 cases per day, primarily in the 20-39 year age group.
  - Overall hospitalisations remain stable.
  - A total of five cases of MIS-C have been reported (up to 8 November 2021), all from the Delta wave in mid-late 2021. There has been one ICU admission due to MIS-C.
  - There have been no deaths in children throughout the entire pandemic.

[9] Torjesen I. COVID-19: Omicron variant is linked to steep rise in hospital admissions of very young children. BMJ. 2022;376:o110. https://doi.org/10.1136/bmj.o110

- **South Africa** reopened its schools in early January 2022 following the end-of-year holidays.
  - Certain restrictions such as the curfew and density limits were eased since late December 2021.
  - Approximately 46% of the entire population is fully vaccinated. Vaccination for children 5-11 years old is not available.
  - There was a rapid increase in infections due to Omicron in all age groups but this is now rapidly decreasing, with children <19 years having the lowest infection rates.
  - Overall hospitalisations are also now decreasing. However, many admissions were incidental (admitted for other reasons and subsequently test positive).
  - There have been 775 deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic. This accounts for <1% of all COVID-19 deaths in the country.
- In the **United States**, schools have reopened in several States and Territories following the end-of-year holidays.
  - The US Centres for Disease Control and Prevention (CDC) recommend multi-layered PHSM, but adoption varies by State and Territory.
  - Approximately 28% of 5-11 year olds and 65% of 12-17 year olds have received at least one dose of vaccine. Since November 2021, all children aged 5-11 years have been offered vaccine with a three week interval between doses.
  - There are large differences in infection and hospitalisation rates and the number of deaths in children between States and Territories, most likely due to differences in vaccination coverage and adherence to PHSM.
  - There continues to be an upward trend in infections in most US states, mostly in the 18-39 year age group.
    - An estimated 98% infections were due to Omicron as of 8 January 2022.
  - There is a current increase in hospitalisation rates among children aged 0-4 years, but rates remain stable in other paediatric age groups.
  - There have been 710 deaths with COVID-19 in children aged 0-17 years throughout the entire pandemic. This accounts for <0.1% of all COVID-19 deaths in the country.
    - Texas has had the highest number of child deaths (120) and there are six States that have reported 0 deaths throughout the entire pandemic.[10]
  - A total of 6431 cases of MIS-C have been reported, including 55 deaths (data to Report #5, 10 January 2022).
    - There does not appear to be an increase in MIS-C despite the surge of Omicron cases, but surveillance is ongoing.
  - The State of New York experienced its Omicron surge in the past month[11].
    - Rates of COVID-19 hospitalisation for children aged 0-4 have increased from 0.4 to 4 per 100,000 during December 2021. For children aged 5-11, the increase has been from 0.2 to 0.8 per 100,000. The increase for adolescents aged 12-18 has been from 0.1 to 1.5 per 100,000. Despite this exponential growth, these rates are very low.
    - 70% of children who contracted COVID-19 and were hospitalised were symptomatic and 54% had no comorbidities.
    - During this period, 12% of 5-11 year olds were fully vaccinated. Most admissions in the 5-11 year age group were unvaccinated (91%) compared to 4% fully vaccinated. The hospitalisation rate was 0.17 per 100,000 amongst those vaccinated vs 0.73 per 100,000 amongst those unvaccinated. There were few admissions in children who had received one or both doses of vaccine.
  - Hospitalisations and deaths include all children who test positive, irrespective of the reason for admission or death, so is likely an overestimate of hospitalisations and deaths due to COVID-19.

[10] American Academy of Pediatrics (AAP). Children and COVID-19: State-Level Data Report 30 December 2021. Illinois, US: AAP; 2021. https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/
[11] New York State Department of Health. Pediatric COVID-19 Update 07 January 2022. New York, US: New York State Department of Health; 2022. https://www.health.ny.gov/press/releases/2022/docs/pediatric_covid-19_hospitalization_report_summary.pdf

Summary of COVID-19 epidemiology in children and adolescents

Country	Cases	Hospitalisations	MIS-C/PIMS-TS	Total deaths^
VIC, Australia	↓	Not available	Not reported	2[b]
NSW, Australia	↓	↑*	Not reported	1[b]
Canada	↓	↑*	Not reported	24[b]
Denmark	↑	↑*	Not reported	3[b]
England, UK	↓	Stable	Not reported	75[b,#]
Finland	↑	↑*	Not reported	0
Scotland, UK	↓	↑*	Not reported	2[a,#]
Singapore	↑	Stable	5 cases	0
South Africa	↓	↓*	Not reported	775[b]
USA	↑	↑	6431 cases	710[b]

Note: Trends and values are for children only, unless otherwise specified.
**Available data includes both children and adults.*
^Age range for child deaths between 0-19y except Scotland (0-14y) and USA (0-17y). Deaths [a]due to COVID-19 or [b]with COVID-19. [#]In the past year.

List of abbreviations

Abbreviation	Term
CDC	US Centres for Disease Control and Prevention
MIS-C	Multisystem inflammatory syndrome in children
NSW	New South Wales, Australia
PCR	Polymerase chain reaction
PHSM	Public health & social measures
PIMS-TS	Paediatric inflammatory multisystem syndrome
RAT	Rapid antigen testing
TTIQ	Test, trace, isolate, quarantine

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Australia: Victoria

(population 6.6 million)

PHSM[12]

Indoor mask-wearing required for all aged 8+, all shops open, TTIQ, QR check-in, proof of vaccination to attend some premises.

From 6 Jan 2022, density limits reintroduced and work from home default.

From 8 Jan 2022, a positive RAT result is reported as a "probable" COVID-19 case (treated as a PCR positive case and reported in daily case numbers).

From 18 Jan 2022, certain essential workers can be exempt from close contact home isolation requirements to attend work.

Schools & mitigation[13]

All students returned to onsite fulltime schooling from 1 Nov and all closed for holidays from 18 Dec 2021.

Standard PHSM, staggered return, cohorting, masks in primary & secondary, mandatory vaccination for staff from 18 Oct, RAT available for students and staff who are close contacts at an educational setting, all educational contacts can return to school after a negative standard PCR following exposure.

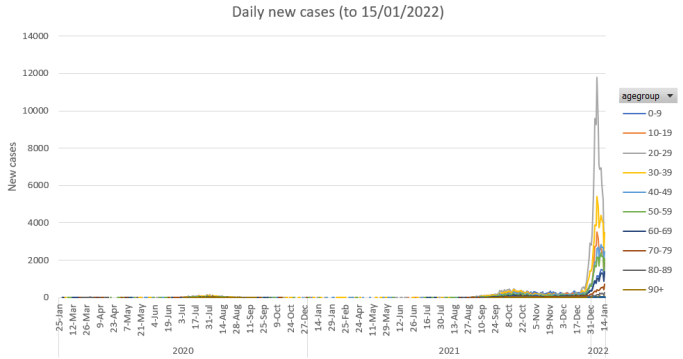
Mandatory vaccination for staff.

Vaccination coverage[14,15]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	13.8	-	-
12-15	88.2	84.2	-
16+	94.0	92.7	-
18+	-	-	24.0

Fourth dose for immunocompromised recommended from early Jan 2022, booster dose available to all eligible adults aged 18y+. Three primary dose recommendation extended to all severely immunocompromised people aged 5y+ from mid-Jan 2022. Vaccination for 5-11y available from 10 Jan 2022.

Infections by age group[16]



From 8 Jan 2022, daily numbers include both PCR and RAT positive cases.

Hospitalisations in children[17]

Current cases in hospital	1,114 cases in hospital	89 cases in ICU

No age breakdown

Deaths by age group[18]

People who have passed away with COVID-19

16/01/2022

Age group	Male	Female	Total
00-09	0	1	1
10-19	0	1	1
20-29	2	1	3
30-39	7	1	8
40-49	14	7	21
50-59	41	26	67
60-69	88	48	136
70-79	234	133	367
80-89	342	283	625
90+	177	282	459
Total	905	783	1,689

Two children have died with COVID-19 throughout the pandemic, including one 15 year old and one child under 10 with multiple underlying conditions and in palliative care.

[12] https://www.coronavirus.vic.gov.au/coronavirus-covidsafe-settings
[13] https://www.coronavirus.vic.gov.au/education-information-about-coronavirus-covid-19
[14] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[15] https://twitter.com/VicGovDH
[16] Data from: https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[17] https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[18] https://www.coronavirus.vic.gov.au/additional-covid-19-case-data#cases-in-hospital

Australia: New South Wales

(population 8.2 million)

PHSM[19]

Mandatory masks indoors and on public transport for all aged 12+, TTIQ, QR check-in, all shops open, proof of vaccination to attend some premises. Certain essential workers can be exempt from close contact home isolation requirements to attend work.

Schools & mitigation[20]

All students returned to onsite fulltime schooling from 8 Nov and all closed for holidays from 18 Dec 2021.

Standard PHSM, RAT home testing for educational contacts.

Mandatory vaccination for staff.

Vaccination coverage[21,22]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	13.1	-	-
12-15	82.1	78.3	-
16+	95.2	93.8	-
18+	-	-	26.1

Fourth dose for immunocompromised recommended from early Jan 2021, booster dose available to all eligible adults aged 18y+. Three primary dose recommendation extended to all severely immunocompromised people aged 5y+ from mid-Jan 2022. Vaccination for 5-11y available from 10 Jan 2022.

Infections by age group[23]*

Figure 3. Seven day backward rolling average of COVID-19 cases rate per 100,000 population by age and notification date, NSW, from 16 June 2021 to 25 December 2021

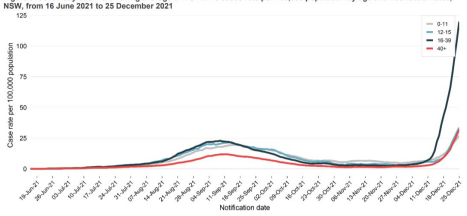


Table 4. Demographics of confirmed and probable Omicron infections, Delta infections, and infections with genomic sequencing under investigation by gender, age, vaccination status and clinical severity, NSW, 26 November to 25 December, 2021

	Confirmed Omicron Cases	Probable Omicron Cases^	Confirmed Delta Cases	Not Sequenced
Gender				
Female	564 (51.0%)	1,473 (50.4%)	1,205 (47.4%)	23,618 (49.3%)
Male	540 (48.9%)	1,443 (49.3%)	1,330 (52.4%)	24,236 (50.5%)
Not stated	1 (0.1%)	9 (0.3%)	5 (0.2%)	95 (0.2%)
Age group*				
0-9	26 (2.4%)	82 (2.8%)	371 14.6%)	2,982 (6.2%)
10-19	203 (18.4%)	516 (17.6%)	457 (18.0%)	7,219 (15.1%)
20-29	567 (51.3%)	1,447 (49.5%)	575 (22.6%)	17,295 (36.1%)
30-39	136 (12.3%)	442 (15.1%)	397 (15.6%)	9,026 (18.8%)
40-49	83 (7.5%)	202 (6.9%)	314 (12.4%)	4,981 (10.4%)
50-59	54 (4.9%)	145 (5.0%)	186 (7.3%)	3,517 (7.3%)
60-69	16 (1.4%)	56 (1.9%)	127 (5.0%)	1,795 (3.7%)
70-79	14 (1.3%)	21 (0.7%)	77 (3.0%)	762 (1.6%)
80-89	4 (0.4%)	12 (0.4%)	31 (1.2%)	298 (0.6%)
90+	2 (0.2%)	1 (<0.1%)	5 (0.2%)	71 (0.1%)
Vaccination status				
Fully vaccinated	879 (79.5%)	2,344 (80.1%)	1,234 (48.6%)	33,796 (70.5%)
Partially vaccinated	12 (1.1%)	12 (0.4%)	43 (1.7%)	444 (0.9%)
No effective dose	154 (13.9%)	308 (10.5%)	703 (27.7%)	4,489 (9.4%)
Under investigation#	29 (2.6%)	165 (5.6%)	37 (1.5%)	5,321 (11.1%)
Not eligible (aged 0-11 years)	31 (2.8%)	96 (3.3%)	523 (20.6%)	3,899 (8.1%)
Clinical severity				
Hospitalised	17 (1.5%)	16 (0.5%)	101 (4.0%)	620 (1.3%)
ICU	1 (0.1%)	0 (0.0%)	1 (<0.1%)	2 (<0.1%)
Deaths	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	1,105 (100%)	2,925 (100%)	2,540 (100%)	47,949 (100%)

* Does not include people with no birth date recorded
# Vaccination status is updated regularly using both the Australian Immunisation Register and the patient's interview.
^ Probable Omicron cases are confirmed cases that are yet to have genomic sequencing but have PCR results that show an S gene dropout, a feature caused by a mutation in the Omicron variant. Following genomic sequencing, these cases will be reported with their confirmed variant.

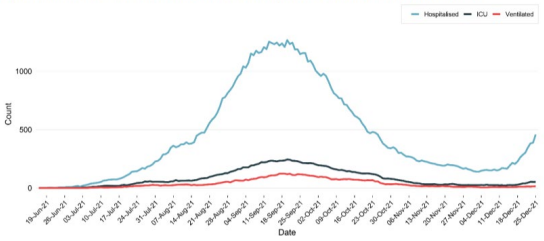
Hospitalisations in children[24]*

Hospitalisations among people diagnosed with COVID-19, by age group, NSW

Age-group (years)	Since 16 Jun 2021			Jan 2020 – 15 Jun 2021	
	Hospitalised	Percentage of cases hospitalised*	Hospitalised per 100,000 population	Hospitalised	Percentage of cases hospitalised*
0-9	303	2%	30.0	4	2%
10-19	387	2%	40.1	10	3%
20-29	1,050	5%	89.6	27	2%
30-39	1,319	8%	112.7	46	4%
40-49	1,357	12%	131.4	48	7%
50-59	1,333	16%	137.1	78	11%
60-69	1,106	23%	131.6	117	18%
70-79	843	36%	144.7	92	23%
80-89	562	49%	204.9	52	43%
90+	143	51%	206.2	16	38%
Total	8,403	8%	103.9	490	9%

* There is often a delay between a person becoming ill with COVID-19 and subsequently requiring a hospitalisation or dying. Since 16 June 2021, the median time between onset and hospitalisation is 6 days and between onset and death is 11 days. Therefore hospitalisations and deaths are under-reported for the most recently notified cases.

Figure 5b. Number of cases in hospital, in ICU and ventilated by date, NSW, from 16 June to 25 December 2021



Many admissions in <12y children are for social reasons as parents are hospitalised for treatment of COVID-19. ~1% of primary school age cases are admitted for treatment of COVID-19. Graph is not available by age group.

Deaths by age group[25]*

Table 6. Deaths following recent infection with COVID-19, by age group, from January 2020 to 25 December 2021

Age-group (years)	Since 16 Jun 2021			Jan 2020 – 15 Jun 2021	
	Number of deaths	Case fatality rate	Fatality rate per 100,000 population[1]	Number of deaths	Case fatality rate[2]
0-9	0	0%	0.0	0	0%
10-19	1	<1%	0.1	0	0%
20-29	6	<1%	0.5	0	0%
30-39	15	<1%	1.3	0	0%
40-49	28	<1%	2.7	0	0%
50-59	66	1%	6.8	1	<1%
60-69	105	2%	12.5	4	1%
70-79	138	5%	23.7	15	4%
80-89	171	13%	62.3	20	16%
90+	68	22%	98.0	16	38%
Total	598	<1%	7.4	56	1%

Proportion of cases with a severe outcome (ICU and/or death) amongst all cases, by age, time of infection, and vaccination status, NSW, 1 January 2020 to 25 December 2021

Age-group (years)	% cases with severe outcomes (ICU and/or death)					
	Jan 2020 - 15 Jun 2021		16 Jun – 25 Dec 2021: Fully vaccinated		16 Jun – 25 Dec 2021: Un-vaccinated	
0-9	0%	(0 / 251)	-	-	<1%	(11 / 15,789)
10-19	<1%	(1 / 325)	<1%	(1 / 5,238)	<1%	(33 / 12,303)
20-29	<1%	(4 / 1,115)	<1%	(4 / 15,250)	1%	(109 / 12,483)
30-39	1%	(15 / 1,098)	<1%	(7 / 8,354)	2%	(161 / 9,612)
40-49	2%	(12 / 718)	<1%	(8 / 5,435)	3%	(189 / 6,431)
50-59	4%	(30 / 710)	1%	(22 / 4,243)	7%	(286 / 4,325)
60-69	7%	(44 / 656)	1%	(28 / 2,357)	11%	(243 / 2,138)
70-79	12%	(46 / 394)	4%	(44 / 1,245)	20%	(177 / 902)
80-89	21%	(26 / 122)	8%	(45 / 557)	30%	(135 / 450)
90+	38%	(16 / 42)	17%	(28 / 168)	33%	(30 / 90)
Total	4%	(194 / 5,431)	<1%	(187 / 42,847)	2%	(1,374 / 64,523)

* For this table, un-vaccinated includes those with no effective dose, and those who are ineligible for vaccination (aged 0-11 years).

One child has died with COVID-19 throughout the pandemic, a 15 year old with pneumococcal meningitis and COVID-19.

Note: NSW data has not been updated since Report #5 (10 Jan 2022).

[19] https://www.nsw.gov.au/covid-19/stay-safe/rules
[20] https://education.nsw.gov.au/covid-19/advice-for-families
[21] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[22] https://twitter.com/NSWHealth
[23] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx
[24] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx
[25] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx

murdoch children's research institute
The Royal Children's Hospital Melbourne
THE UNIVERSITY OF MELBOURNE

Canada

(population 38 million)

PHSM[26]

Standard PHSM including TTIQ and mask wearing encouraged in shared spaces and subject to local advice.

Ontario closed indoor dining from early Jan 2022.

Schools & mitigation[27]

Closed for winter holidays in Dec 2021 and returned to school in mid-Jan 2022. Ontario resumed in-person learning following a brief switch to remote learning due to rising case numbers.

Standard PHSM and additional measures depending on local advice: physical distancing, cohorting, masks when required, screening tests. RATs provided to students in Ontario for return to in-person learning.

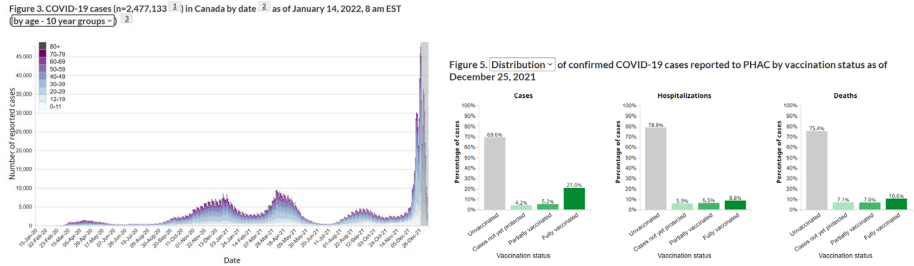
Vaccination coverage[28]

Age group (years)	1st dose (%)	Fully vaccinated* (%)	3rd/booster (%)
12+	90.6	87.8	16.6
5-11	48.4	3.2	-
12-17	87.3	82.8	0.7

*Canada also uses the J&J/Janssen vaccine which is a single-dose vaccine.

Third/booster doses have been available to high-risk individuals in phases since Sep 2021. Vaccination of 12y+ commenced mid-May and 5-11y in mid-Nov 2021.

Infections by age group[29,30]



British Columbia (pop. 5.1 million; data has not been updated since Report #4 04 Jan 2022):

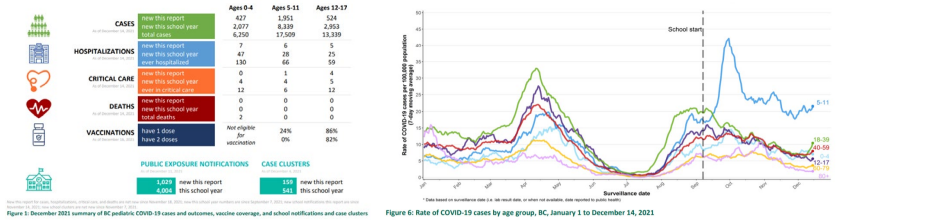
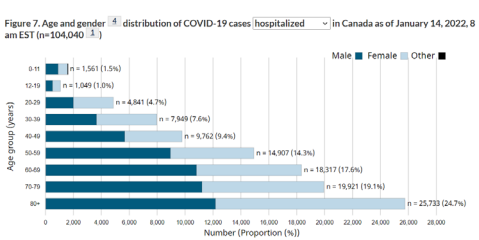


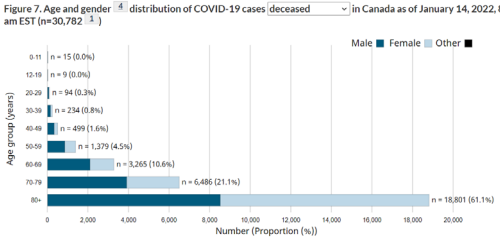
Figure 1: December 2021 summary of BC pediatric COVID-19 cases and outcomes, vaccine coverage, and school notifications and case clusters

Figure 6: Rate of COVID-19 cases by age group, BC, January 1 to December 14, 2021

Hospitalisations in children[31]

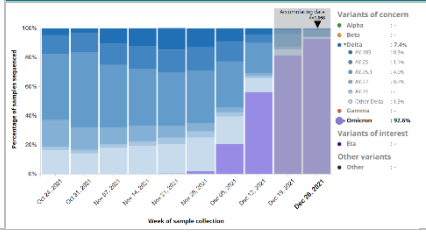


Deaths by age group[32]



There have been 24 deaths with COVID-19 in children aged 0-19y throughout the pandemic.

Genomic surveillance[33]



[26] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html
[27] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/planning-2021-2022-school-year-vaccination.html
[28] https://health-infobase.canada.ca/covid-19/vaccination-coverage/
[29] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[30] http://www.bccdc.ca/schools/news-resources/data-for-k12
[31] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[32] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[33] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html

Denmark

(population 5.9 million)

PHSM[34]

Partial lockdown reinstated from 19 Dec 2021.

Previously all PHSM lifted on 8 Oct 2021, except for mask wearing in airports & hospitals.

Schools & mitigation[35]

Closed early for winter holidays in 2021 and returned to school in early Jan 2022.

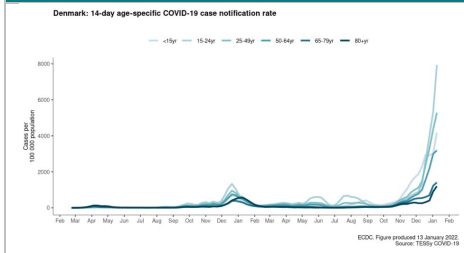
Standard PHSM; PCR or RAT screening tests: Recommended weekly for staff & students from grade 1 unless fully vaccinated or previously infected with COVID-19 in the last 6 months, twice weekly tests recommended for areas with high infection rates.

Vaccination coverage[36]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/ booster (%)
12+	82.3	80.0	56.7

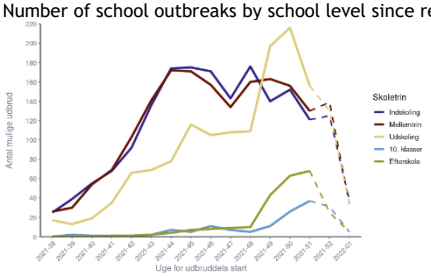
Commenced 3rd/booster vaccination for people 65+y in late Oct and for all adults from late Nov 2021. Vaccination for 5-11y age group commenced late Nov 2021, coverage data not available.

Infections by age group[37,38]



Omicron is now the predominant variant in Denmark (>90%).

Number of school outbreaks by school level since return to school:

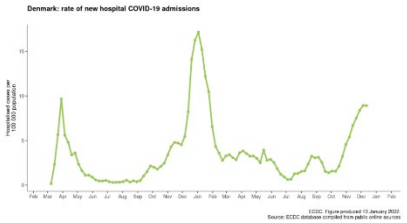


Grades: 0-3, 4-6, 7-9, 10, 10+

Hospitalisations in children[39,40]

Age group	Confirmed cases	Total hospitalised (%)	Comorbid. (%)	Short hospital stay	Hospitalised females	Hospitalised males
Aldersgrupper	Bekræftede tilfælde	Indlagte i alt (%)	Heraf med komorbiditet (%)	Korte indlæggelser**	Indlagte kvinder	Indlagte mænd
0-9	106.239	780 (1)	162 (21)	376	372	408
10-19	171.264	581 (0)	196 (34)	220	322	259
20-29	191.221	1.836 (1)	773 (42)	680	1.168	668
30-39	141.552	2.520 (2)	1.141 (45)	911	1.544	976
40-49	140.645	2.857 (2)	1.406 (49)	891	1.410	1.447
50-59	116.246	3.712 (3)	2.209 (60)	845	1.643	2.069
60-69	60.407	3.611 (6)	2.616 (72)	534	1.475	2.136
70-79	33.611	4.876 (15)	4.179 (86)	439	2.055	2.821
80-89	12.867	3.810 (30)	3.401 (89)	304	1.864	1.946
90+	3.228	1.026 (32)	928 (90)	68	600	426
I alt	977.280	25.609 (3)	17.011 (66)	5268	12.453	13.156

For the entire pandemic, a total of 48 children in ICU, which included 15 children with comorbidities.



Graph is not available by age group

Deaths by age group[41]

Age group	Confirmed cases	Deaths (%)	Comorbid. (%)	Hospitalised females	Hospitalised males
Aldersgrupper	Bekræftede tilfælde	Dødsfald (%)	Heraf med komorbiditet (%)*	Dødsfald kvinder	Dødsfald mænd
0-9	106.239	2 (0)	2 (100)	0	2
10-19	171.264	1 (0)	0 (0)	0	1
20-29	191.221	10 (0)	5 (50)	6	4
30-39	141.552	9 (0)	4 (44)	5	4
40-49	140.645	27 (0)	19 (70)	9	18
50-59	116.246	103 (0)	78 (76)	37	66
60-69	60.407	295 (0)	253 (86)	107	188
70-79	33.611	891 (3)	832 (93)	320	571
80-89	12.867	1293 (10)	1215 (94)	590	703
90+	3.228	731 (23)	672 (92)	437	294
I alt	977.280	3362 (0)	3080 (92)	1511	1851

Total of 3 deaths with COVID-19 in children aged 0-19y throughout the pandemic.

[34] https://en.coronasmitte.dk/rules-and-regulations
[35] https://en.coronasmitte.dk/rules-and-regulations
[36] https://experience.arcgis.com/experience/9824b03b114244348ef0b10f69f490b4/page/page_3/
[37] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[38] https://covid19.ssi.dk/overvagningsdata/ugentlige-opgorelser-med-overvaagningsdata
[39] https://covid19.ssi.dk/overvagningsdata/ugentlige-opgorelser-med-overvaagningsdata
[40] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[41] https://covid19.ssi.dk/overvagningsdata/ugentlige-opgorelser-med-overvaagningsdata

England, UK

(population 56.6 million)

PHSM[42]

Standard PHSM including TTIQ and mandatory mask wearing indoors, work from home default, proof of vaccination/negative test required for certain venues; previously most PHSM lifted until re-introduced in late Nov 2021.

Schools & mitigation[43]

Closed for winter holidays in Dec 2021 and returned to school in early Jan 2022.

Standard PHSM, cohorting, mask wearing required for adults and students from year 7 onwards, twice-weekly RAT screening for staff and secondary school students, vaccination of 16-17y commenced mid-Aug & 12-15y commenced mid-Sep 2021 (initially as single dose). Close contacts who are fully vaccinated or under 18.5y and produce a negative PCR test result do not need to isolate.

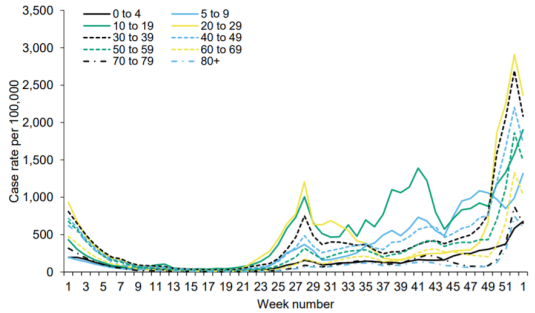
Vaccination coverage[44]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
12+	90.5	83.1	63.0
12-15	51.6	8.3	-
16-17	65.6	44.5	4.0

Third/booster dose available for all 18y+ and other high-risk groups. Vaccination is recommended for children aged 5-11 years who are immunocompromised.

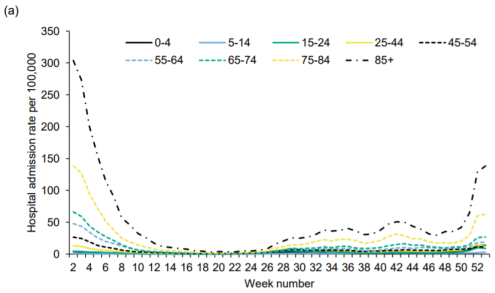
Infections by age group[45]

Figure 5: Weekly confirmed COVID-19 case rates per 100,000, tested under Pillar 1 and Pillar 2, by age group

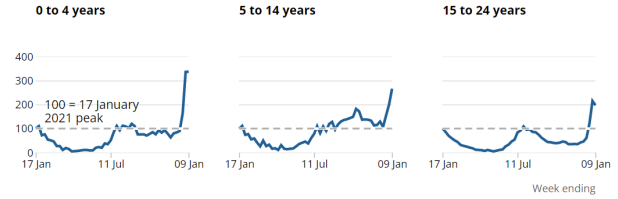


Hospitalisations in children[46,47]

Figure 43: Weekly hospital admission rate by age group for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch

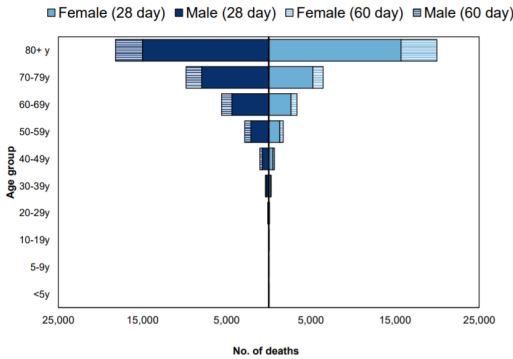


COVID-19-positive hospital admissions as a percentage of the rate during the January peak (rate in week ending 17 January = 100%), by age, England



Deaths by age group[48]

Figure 55: Age-sex pyramid of laboratory confirmed COVID-19 deaths, for the past year



A total of 75 deaths with COVID-19 in the past year:

<5y: 15
5-9y: 8
10-19y: 52

[42] https://www.gov.uk/guidance/covid-19-coronavirus-restrictions-what-you-can-and-cannot-do
[43] https://www.gov.uk/government/publications/actions-for-schools-during-the-coronavirus-outbreak/schools-covid-19-operational-guidance
[44] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=England
[45] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[46] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[47] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19latestinsights/hospitals
[48] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season

Finland

(population 5.5 million)

PHSM[49]

Restrictions reinstated in late Dec 2021, including mandatory indoor mask wearing, proof of vaccination to attend premises, work from home default and density limits. Additional restrictions in early Jan 2022 including limits on household visitors, hospitality opening hours and access to public places.

Schools & mitigation[50]

Schools closed for winter holiday in late Dec 2021 and reopened in early Jan 2022.

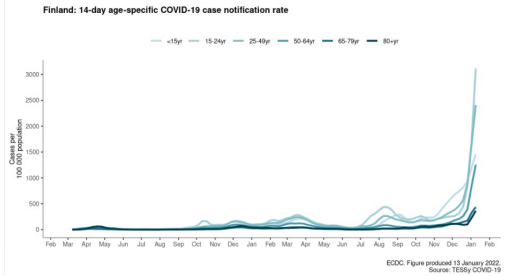
Standard PHSM, cohorting, masks, ventilation, vaccination of 12y+ commenced early Aug & 5-11y in late Dec 2021.

Vaccination coverage[51]

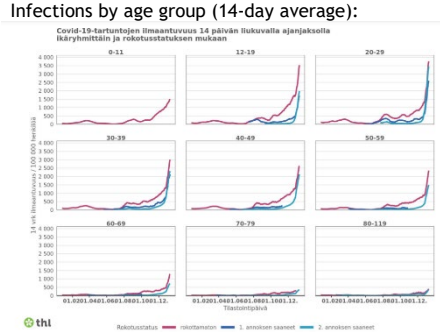
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
12+	86.3	82.9	38.5
12-15	75.7	68.1	0.3
16-19	83.0	76.5	3.9

Third/booster dose is recommended for all aged 18y+. Fourth dose recommended for 12y+ with severe immunodeficiency. Vaccine offered to 5-11y children from late Dec 2021.

Infections by age group[52,53]



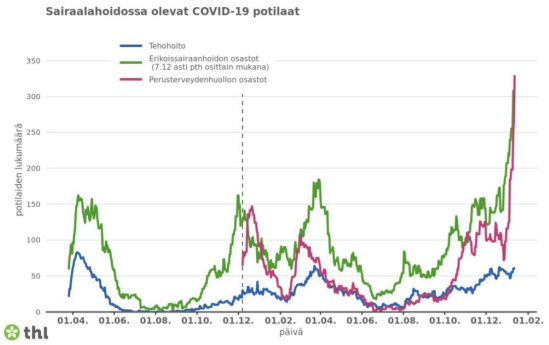
Infections by age group (14-day average):



Pink (unvaccinated)
Dark blue (1 dose)
Light blue (2 doses)

Hospitalisations in children[54]

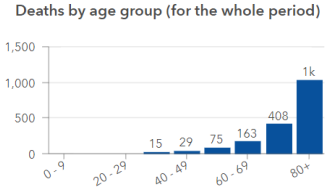
Number of hospitalisations:



Blue (Intensive care)
Green (Specialist wards)
Pink (Primary health care)

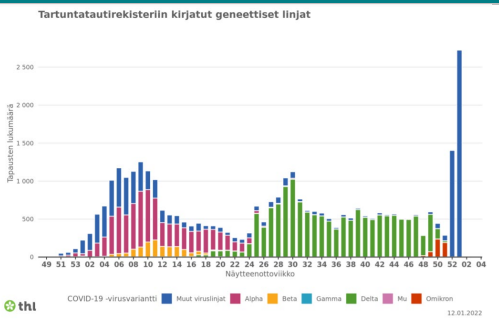
Data is no longer available by age groups.

Deaths by age group[55]



There have been 0 deaths in children throughout the entire pandemic.

Genomic surveillance[56]



Blue (Other virus lineage)

[49] https://valtioneuvosto.fi/en/information-on-coronavirus/current-restrictions
[50] https://valtioneuvosto.fi/en/information-on-coronavirus/current-restrictions
[51] https://sampo.thl.fi/pivot/prod/en/vaccreg/cov19cov/summary_cov19ageareacov
[52] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[53] https://covid19-country-overviews.ecdc.europa.eu/countries/Finland.html
[54] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[55] https://experience.arcgis.com/experience/92e9bb33fac744c9a084381fc35aa3c7
[56] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta

Scotland, UK

(population 5.5 million)

PHSM[57]

Minimal restrictions before reinstated in Dec 2021, including mandatory masks indoors, density limits, recommendation to travel only for essential reasons, work from home default and proof of vaccination to attend premises.

Schools & mitigation[58]

Closed for winter holidays in late Dec 2021 and returned to school in early Jan 2022.

Standard PHSM, cohorting, mask wearing recommended for adults and students from year 7 onwards, twice-weekly RAT screening for staff and secondary school students, vaccination of 16-17y commenced mid-Aug & 12-15y commenced mid-Sep 2021 (initially as single dose). Close contacts who are fully vaccinated or under 18.5y and produce a negative PCR test result do not need to isolate.

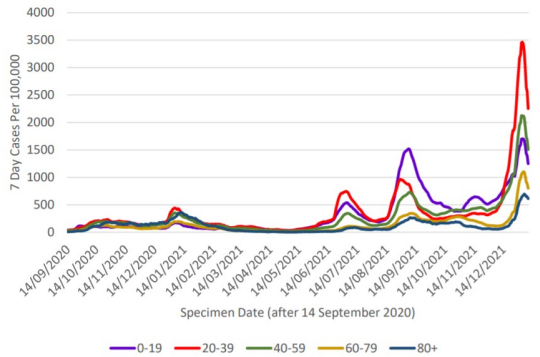
Vaccination coverage[59]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
12+	91.9	85.0	66.6
12-15	66.6	17.5	0.8
16-17	81.5	49.8	8.3

Third/booster dose available for all 18y+ and other high-risk groups. Vaccination is recommended for children aged 5-11 years who are immunocompromised.

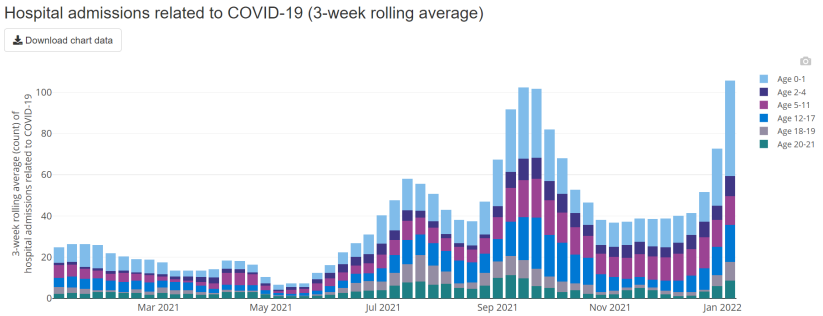
Infections by age group[60]

Figure 4: Seven day case rate in Scotland by age group by specimen date[20]. Refers to PCR testing only. Data up to 9 January 2022



Omicron is responsible for >90% of cases in Scotland as of 10 Jan 2022.

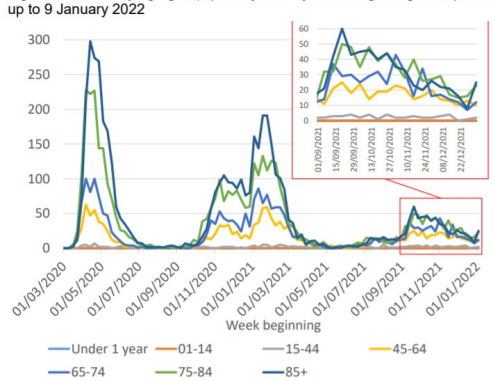
Hospitalisations in children[61]



Any admitted child who is COVID-19 positive is included, so this overestimates the number of children being admitted and needing treatment for COVID-19.

Deaths by age group[62,63]

Figure 8: Deaths by age group (weekly total by week beginning, NRS), data up to 9 January 2022



There have been 2 deaths due to COVID-19 in children aged 0-14y in the past year.

[57] https://www.gov.scot/coronavirus-covid-19/
[58] https://www.gov.uk/government/publications/actions-for-schools-during-the-coronavirus-outbreak/schools-covid-19-operational-guidance
[59] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=Scotland
[60] https://www.gov.scot/collections/coronavirus-covid-19-the-state-of-the-epidemic/
[61] https://scotland.shinyapps.io/phs-covid19-education/_w_852fb58e/
[62] https://www.gov.scot/collections/coronavirus-covid-19-the-state-of-the-epidemic/
[63] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/weekly-and-monthly-data-on-births-and-deaths/deaths-involving-coronavirus-covid-19-in-scotland

Singapore

(population 5.5 million)

PHSM[64]

Restrictions re-introduced on 27 Sep 2021 after temporary easing.

Mandatory masks indoors & outdoors, TTIQ, work from home, shops open with density limits and digital check-in, vaccination requirements to enter some premises, limits on guests at home.

Schools & mitigation[65]

Closed for end-of-year holidays in mid-Nov 2021 and returned to school in early Jan 2022.

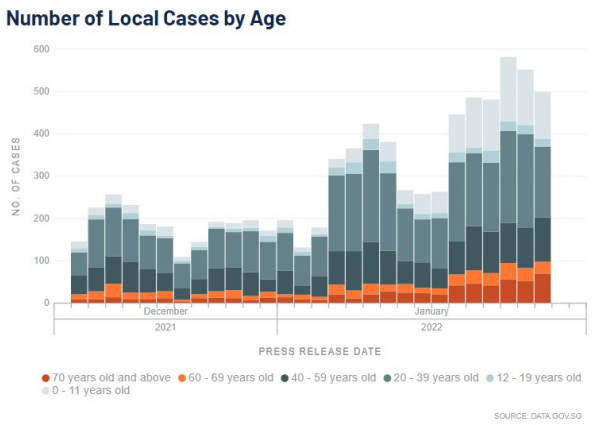
Standard PHSM, cohorting, RAT & temperature screening, mandatory masks 6y+ with exceptions, vaccination of 12y+ commenced early Jun 2021 and 5-11y in late Dec 2021.

Vaccination coverage[66]

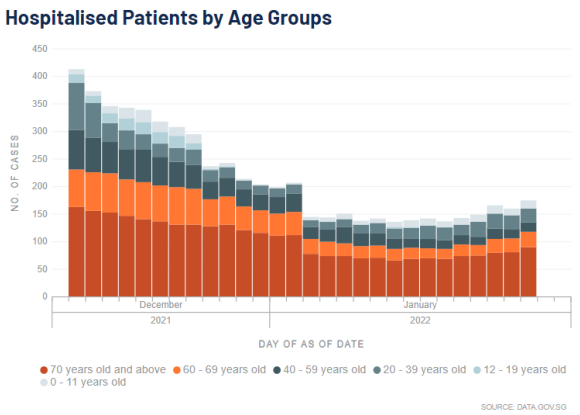
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
Total pop.	90.0	88.0	51.0

Third/booster dose available for all aged 18y+. From 14 Feb 2022, all 18y+ must receive a booster dose within 270 days of their 2nd dose to be considered fully vaccinated.

Infections by age group[67]



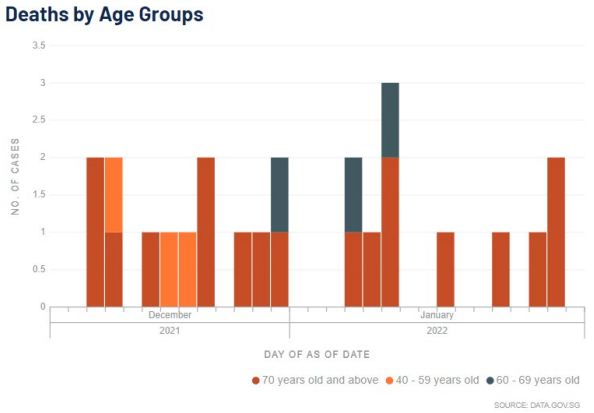
Hospitalisations in children[68]



One child was admitted to ICU due to MIS-C for the entire pandemic.

There have been five cases of MIS-C throughout the entire pandemic, last reported 8 Nov 2021.

Deaths by age group[69]



There have been 0 deaths in children throughout the entire pandemic.

[64] https://www.moh.gov.sg/covid-19-phase-advisory
[65] https://www.moe.gov.sg/faqs-covid-19-infection
[66] https://www.moh.gov.sg/
[67] https://www.moh.gov.sg/
[68] https://www.moh.gov.sg/
[69] https://www.moh.gov.sg/

South Africa

(population 60.4 million)

PHSM[70]

Since 1 Oct 2021, restrictions including partial curfew, mandatory masks 6y+ with exceptions, density limits.

Since 30 Dec 2021, lifting of certain restrictions including removal of curfew and increased density limits.

Schools & mitigation[71,72]

Closed for end-of-year holidays in mid-Dec 2021 and returned to school in early Jan 2022.

Standard PHSM, ventilation, symptom screening, mandatory masks 6y+ with exceptions, visitor limits, vaccination of 12y+.

Vaccination coverage[73]

Age group (years)	Fully vaccinated* (%)
18+	45.7

*Note: South Africa also uses the J&J/Janssen vaccine which is a single-dose vaccine.
Vaccination is available for all aged 12y+. Coverage data for 12-17y not available.

Infections by age group[74]

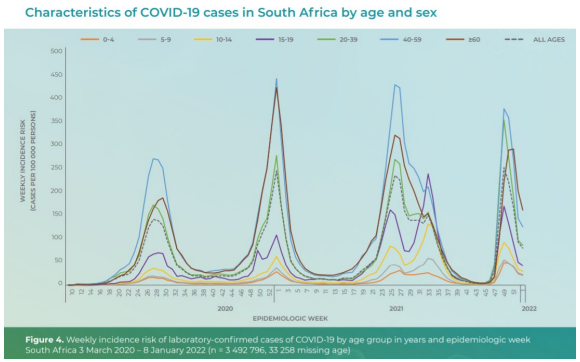
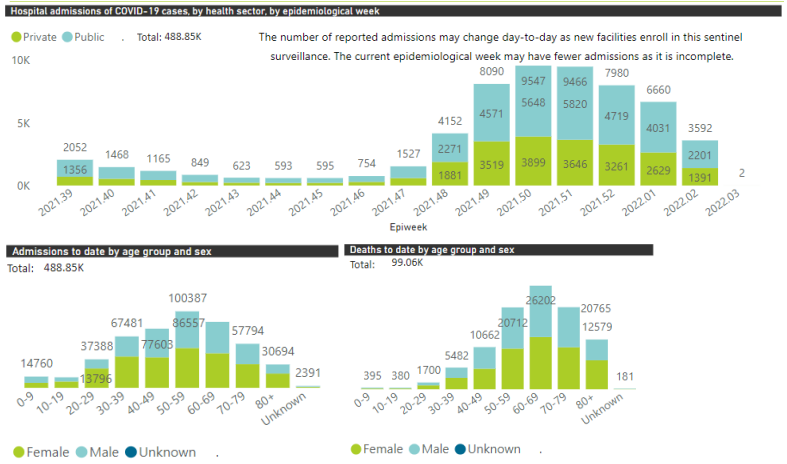


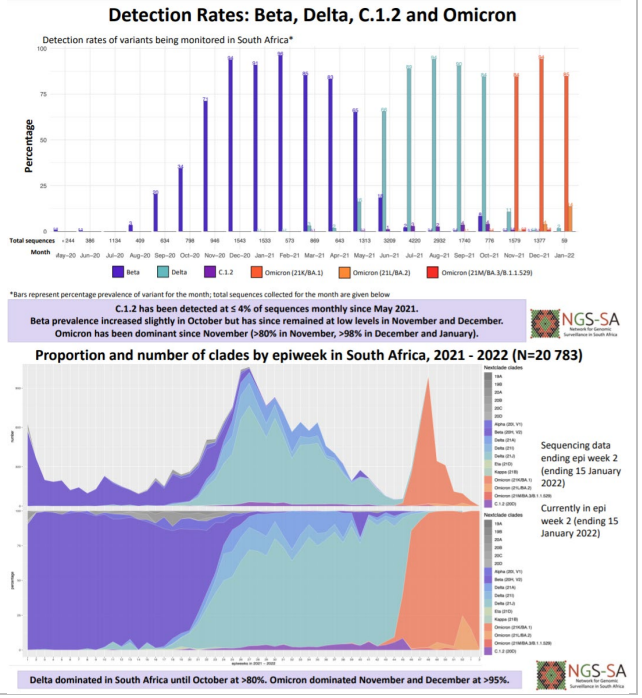
Figure 4. Weekly incidence risk of laboratory-confirmed cases of COVID-19 by age group in years and epidemiologic week South Africa 3 March 2020 – 8 January 2022 (n = 3 492 796, 33 258 missing age)

Hospitalisations in children and deaths by age group[75]



Total of 775 deaths with COVID-19 in children 0-19y throughout the entire pandemic. Deaths in children account for <1% of all deaths in South Africa.

Genomic surveillance[76]



[70] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[71] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[72] https://sacoronavirus.co.za/vaccine-updates/
[73] https://sacoronavirus.co.za/latest-vaccine-statistics/
[74] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/weekly-epidemiological-brief/
[75] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/daily-hospital-surveillance-datcov-report/
[76] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/sars-cov-2-genomic-surveillance-update/

USA

(population 332.8 million)

PHSM[77]

The US CDC recommends indoor mask wearing for all unvaccinated and aged 2y+, physical distancing, hand & surface hygiene, TTIQ, but adoption varies by State/Territory.

Schools & mitigation[78]

Closed for winter holidays in late Dec 2021 and reopened from early Jan 2022.

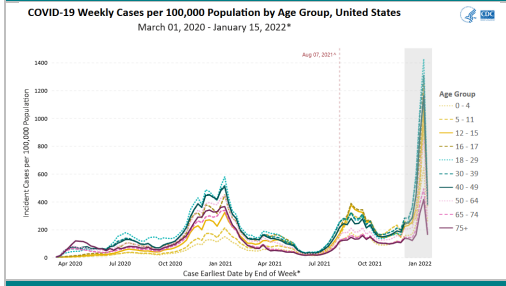
Standard PHSM, cohorting, masks, PCR & RAT screening, vaccination commenced mid-May for 12+y and early Nov 2021 for 5-11y, but adoption varies by State.

Vaccination coverage[79,80]

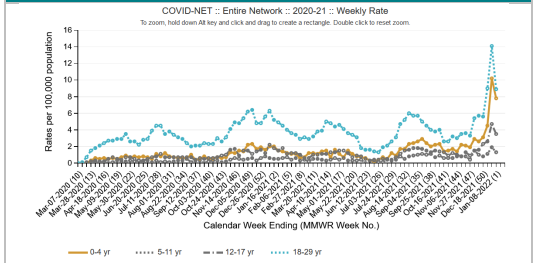
Age group (years)	1st dose (%)	Fully vaccinated* (%)	3rd/booster (%)
5-11	27.6	18.4	-
12-17	64.9	54.5	-
18+	86.9	73.5	41.3

*Note: The US also uses the J&J/Janssen vaccine which is a single-dose vaccine.
Third/booster dose for 65y+ and other high-risk individuals from Sep 2021, expanded to all 18y+ from late Nov 2021.

Infections by age group[81]

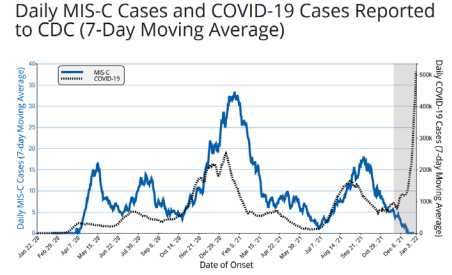


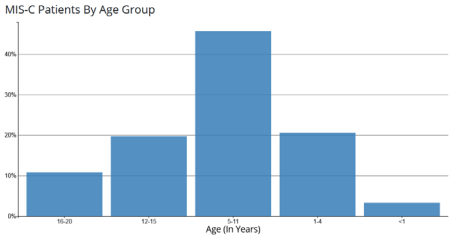
Hospitalisations in children[87]



Any admitted child who is COVID-19 positive is likely to be included, so this is likely to be an overestimation of the number of children needing treatment for COVID-19.

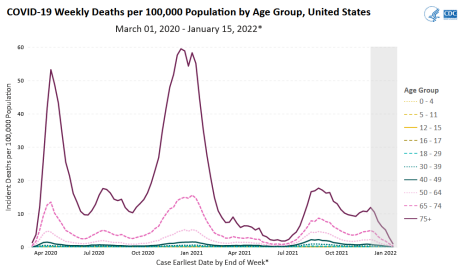
MIS-C[82]





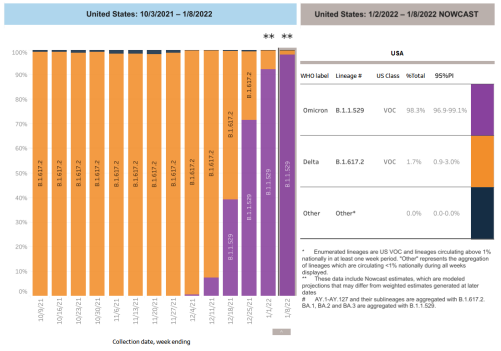
Note: Data has not been updated since Report #5 (10 Jan 2022).
There have been 6431 cases of MIS-C throughout the entire pandemic, including 55 deaths.
The median age of MIS-C cases was 9y and half were between 5-13y.

Deaths by age group[83,84]



Total 710 deaths with COVID-19 in children 0-17y throughout the entire pandemic, accounting for <0.1% of all deaths in the US.
There is marked variation by State/Territory and case fatality rates are between 0-0.01% for the vast majority of States and Territories[86]:
e.g. Texas (n=120); Arizona (n=54); California (n=44); Tennessee (n=29); Puerto Rico (n=9); Guam (n=6); Hawaii (n=1); Alaska (n=0).

Genomic surveillance[85]



Omicron is now responsible for ~98% of all infections in the US.

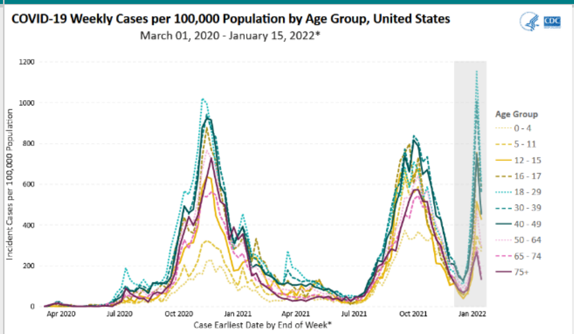
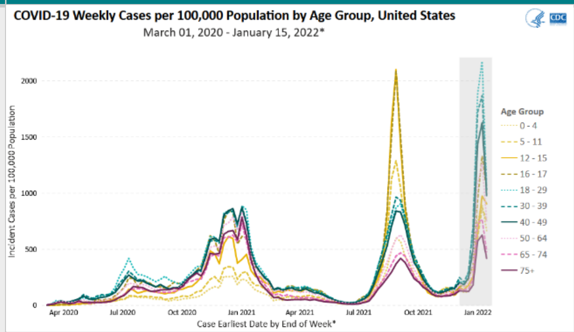
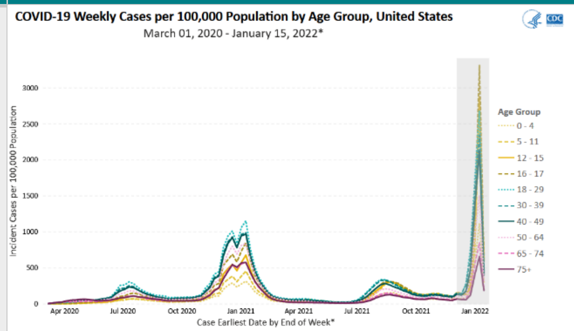
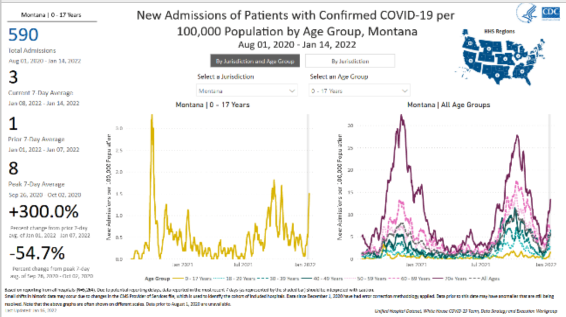
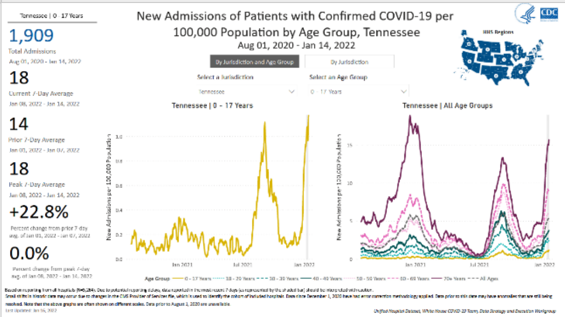
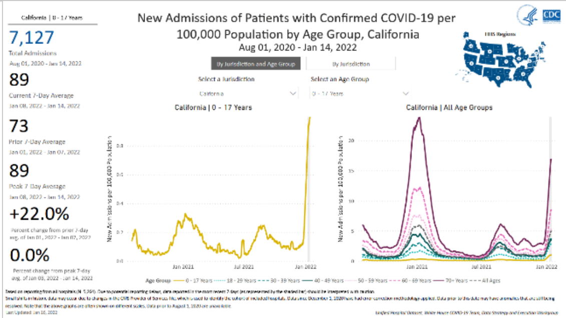
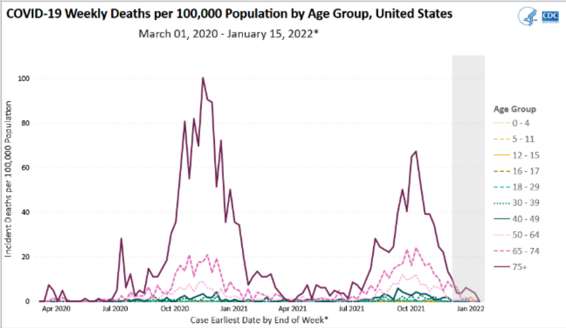
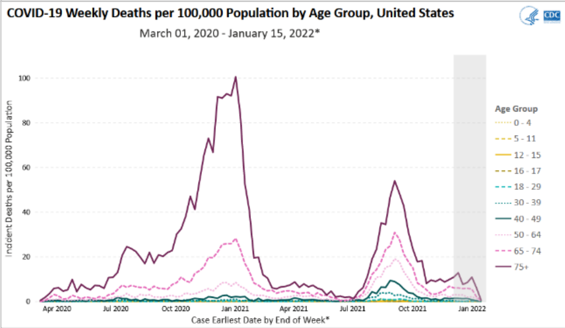
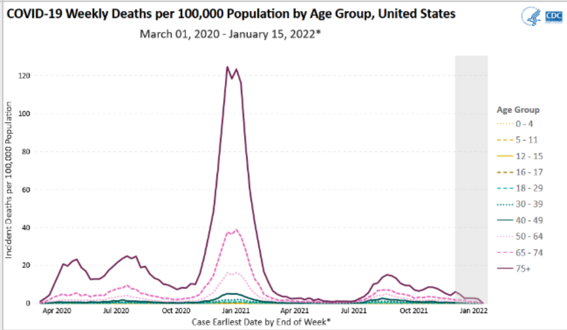
[77] https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html
[78] https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-guidance.html
[79] https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total
[80] https://covid.cdc.gov/covid-data-tracker/#vaccination-demographics-trends
[81] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[82] https://covid.cdc.gov/covid-data-tracker/#mis-national-surveillance
[83] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[84] https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm
[85] https://covid.cdc.gov/covid-data-tracker/#variant-proportions
[86] https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/
[87] https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html

USA: Comparison of states

A comparison of select US states based on 7-day incidence per 100,000 population and PHSM.

INDICATOR	MONTANA (pop. 1.1 million)	TENNESSEE (pop. 6.8 million)	CALIFORNIA (pop. 39.5 million)
7-day incidence per 100,000 population[88]	862.2	1509	2130
PHSM	Mask wearing encouraged, physical distancing, TTIQ[89]	Mask wearing encouraged, physical distancing, TTIQ[90]	Indoor mask wearing mandatory in many indoor venues for all aged 2+, TTIQ[91]
Schools & mitigation	Closed in Dec 2021 for winter holidays, returned to school in early Jan 2022. Standard PHSM as recommended by US CDC, school-based mask mandates with option for parents to opt-out, vaccination encouraged, vaccination of 12+y commenced mid-May and 5-11y in early Nov 2021.[92]	Closed in Dec 2021 for winter holidays, returned to school in early Jan 2022. Standard PHSM as recommended by US CDC, mask wearing and vaccination encouraged, vaccination of 12+y commenced mid-May and 5-11y in early Nov 2021.[93]	Closed in Dec 2021 for winter holidays, returned to school in early Jan 2022. Standard PHSM as recommended by US CDC, mask wearing mandatory for all aged 2+, PCR & RAT screening, vaccination of 12+y commenced mid-May and 5-11y in early Nov 2021, mandatory staff vaccination or weekly testing.[94]
Vaccination coverage[95]	**Age group (years)** / **1st dose (%)** / **Fully vacc.* (%)** 5-11 / 21.6 / 14.8 12-17 / 48.3 / 41.0 18-64 / 66.5 / 57.5 65+ / 99.9 / 91.4 *The US also uses the J&J/Janssen vaccine which is a single-dose vaccine. State-specific data on 3rd/booster dose coverage not available.	**Age group (years)** / **1st dose (%)** / **Fully vacc.* (%)** 5-11 / 14.9 / 10.1 12-17 / 42.5 / 35.4 18-64 / 66.0 / 57.1 65+ / 96.4 / 88.3	**Age group (years)** / **1st dose (%)** / **Fully vacc.* (%)** 5-11 / 33.5 / 22.1 12-17 / 80.4 / 65.5 18-64 / 94.0 / 75.5 65+ / 99.9 / 92.9

[88] https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days
[89] https://covid19.mt.gov/index
[90] https://covid19.tn.gov/prevention/
[91] https://covid19.ca.gov/masks-and-ppe/
[92] https://dphhs.mt.gov/publichealth/cdepi/diseases/CoronavirusMT/index
[93] https://www.tn.gov/health/cedep/ncov/educational-resources.html
[94] https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/COVID-19/K-12-Guidance-2021-22-School-Year.aspx
[95] https://www.mayoclinic.org/coronavirus-covid-19/vaccine-tracker

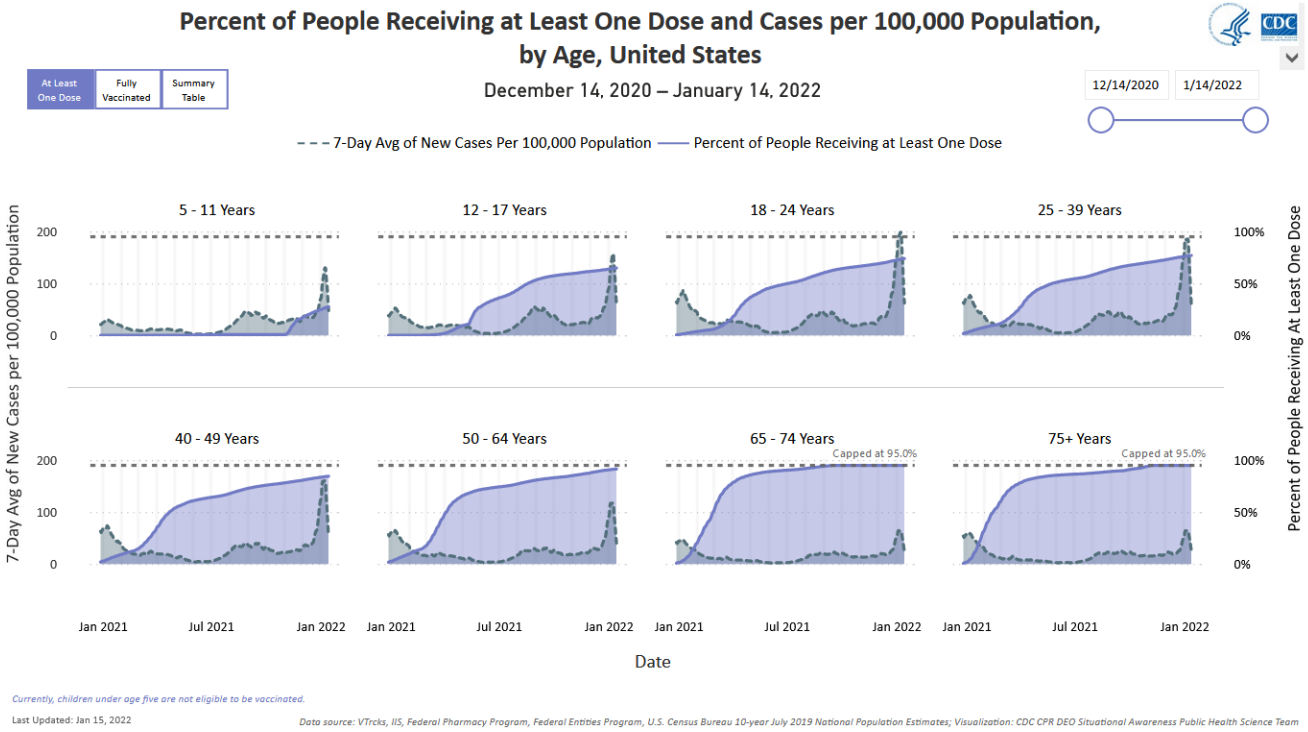
INDICATOR	MONTANA (pop. 1.1 million)	TENNESSEE (pop. 6.8 million)	CALIFORNIA (pop. 39.5 million)
Infections by age group[96]			
Hospitalisations in children[97]			
Deaths by age group[98]			

Note: Comparative graphs may have different scales on the y-axis.

96 https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
97 https://covid.cdc.gov/covid-data-tracker/#new-hospital-admissions
98 https://covid.cdc.gov/covid-data-tracker/#demographicsovertime

USA: Impact of vaccination on disease incidence

Seven-day incidence per 100,000 population in people who received at least one dose of vaccine, by age group.[99]



[99] https://covid.cdc.gov/covid-data-tracker/#vaccinations-cases-trends

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https://www.mcri.edu.au/research/themes/infection-and-immunity/asia-pacific-health