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COVID-19 and Children's Surveillance Report

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The Royal Children's Hospital Melbourne

THE UNIVERSITY OF MELBOURNE

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Aim

- To provide a summary on the latest COVID-19 surveillance data in children and adolescents, with a focus on Australian States and Territories 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 included where available.

Methods

- This report is updated using the most recently available data from government websites.
- Excess mortality data are sourced from EuroMOMO and Our World in Data. Excess mortality refers to the number of deaths from all causes during a crisis above and beyond what we would have expected to see under 'normal' conditions.[1] In this case, we are interested to compare the number of deaths during the COVID-19 pandemic compared to the expected number of deaths had the pandemic not occurred.
- Caveat: The number of cases in both unvaccinated and vaccinated children increases if school mitigation measures are few, or there are changes to testing criteria and the adoption of screening in schools which identifies asymptomatic cases. In the absence of random sampling of the population by age group or seroprevalence surveys, trends in case numbers are relatively an unreliable indicator to determine how much SARS-CoV-2 is circulating. Due to the nature of the testing, the number of cases and the age distribution of cases will be biased towards the age groups that are tested most. This means that if there is asymptomatic screening with free testing kits provided in school-age children then it will appear that children contribute more to case numbers than any other age group. Additionally, several countries have changed their testing requirements to no longer test asymptomatic cases and do not require reporting unless at high risk, making it difficult to compare case numbers between countries due to different testing rates. A comparison of testing rates by country is shown on page 7.

Overview

- The Omicron variant of concern[2] has been detected in 193 countries[3] (up from 192 countries in the last report) and is the predominant variant worldwide due to its high transmissibility. Subvariant BA.2 replaced BA.1 as the predominant Omicron subvariant in most regions included in this report, but has now been replaced by BA.4 and BA.5 in many regions, including New South Wales (NSW), Denmark, England, Finland, the Netherlands and South Africa. BA.2.12.1 and BA.5 are now the predominant subvariant in the USA. Genomic surveillance data is not publicly available for Tasmania, Victoria, Scotland and Singapore.
- With the predominance of Omicron in many settings and with vaccines having lower effectiveness against infection for this variant, the age distribution of cases has changed. Reports from NSW, the UK and Denmark, regions which have intensive surveillance, indicate that transmission for BA.1 mainly occurred in 20-29 year olds initially, with cases in children and adolescents increasing as schools reopened after the end-of-year holidays, which in most settings have now declined. However, in the absence of population-based random sampling for testing and changes to testing, it is problematic to compare case trends between and within countries. The UK is the only country in this report that undertakes random sample infection surveys.[4]
- Additionally, PCR/rapid antigen tests (RAT) underestimate the true infection rates. In the UK, seroprevalence surveys found that 97.6% of children aged 8-11 years had evidence of prior infection with SARS-CoV-2 by the third week of Feb 2022 during the Omicron (BA.1) wave.[5] In the USA, 68% of children aged 1-4 years, 77% aged 5-11 years and 74% aged 12-17 years were infected over six months, highlighting the high transmissibility of the Omicron variant.[6]
- Hospitalisations in children and adolescents have declined, including in children who are too young to be vaccinated.

[1] Our World in Data. Excess mortality during the Coronavirus pandemic (COVID-19). London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/excess-mortality-covid
[2] 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
[3] GISAID. Tracking of Variants. Munich, Germany: GISAID; 2022. https://www.gisaid.org/hcov19-variants/
[4] Dean N. Tracking COVID-19 infections: time for change. Nature. 8 February 2022. https://www.nature.com/articles/d41586-022-00336-8
[5] Office for National Statistics (ONS). Coronavirus (COVID-19) antibody and vaccination data for the UK. London, United Kingdom: ONS; 2022. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/coronaviruscovid19antibodydatafortheuk
[6] Clarke KEN, Kim Y, Jones J, et al. Pediatric infection-induced SARS-CoV-2 seroprevalence estimation using commercial laboratory specimens: how representative is it of the general U.S. pediatric population? [Preprint]. SSRN. 2022. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4092074

New updates

- Trends: In South Africa, seroprevalence in children under 12 years old was 56.2% following the Omicron wave in late 2021. Incidence of SARS-CoV-2 infection increased and decreased more rapidly during the Omicron wave than during previous waves. Incidence of infection was decoupled from incidences of hospitalisation, recorded deaths and excess deaths during the Omicron wave, compared with proportions seen during previous waves.[7]
- Trends: In the UK, 99% of secondary and 82% of primary school students were seropositive between 3-25 Mar, compared to 97% and 62%, respectively, between 10 Jan-2 Feb 2022. 78% of children aged 4-7 years were also seropositive.[8]
- Trends: During the Omicron period in Italy (Jan to Apr 2022), there were 644 hospitalisations, including 15 intensive care admissions and two deaths, in children aged 5-11 years. This translates to a risk of hospitalisation of 84 per 100,000 infections, risk of intensive care admission 2 per 100,000, and fatality risk of 0.3 per 100,000.[9]
- Mortality: In the US, COVID-19 was a leading cause of death in children and adolescents (#8 among all cause deaths, #5 in disease related deaths, #1 in infectious or respiratory disease deaths). Death rates were 3.5 per 100,000 in infants aged <1 years, <1 per 100,000 in children aged 1-14 years and 1.8 per 100,000 population in adolescents aged 15-19 years.[10]

School mitigation measures

- All countries in this report reopened schools during the Omicron period and they have remained open.
- School mitigation measures include symptomatic RAT programs and multiple measures in many countries.
- Currently, there are no mask mandates for primary school-age children in Australia. Victoria and Western Australia had a mask mandate for year 3 onwards until the end of term 1 2022. NSW and Victoria mandated masks for secondary school students until late Feb 2022. The ACT requires masks for high school students who are household contacts. Tasmania requires all school staff and secondary school students to wear masks. No Nordic countries have had mask mandates for children and several countries have never recommended masks for children. England, Scotland and South Africa do not have a mask mandate in most places, including schools. Singapore continues to require masks in schools.
- Finland and Denmark lifted all restrictions in Feb 2022. The Netherlands, England and Scotland have removed most restrictions.
- Although vaccines generally have lower effectiveness against Omicron infection, they are still highly effective against severe disease.
- All countries included in this report are offering vaccination to children aged 5 years and older, except for South Africa (12 years and older). First dose coverage rates range from ~8-80% among 5-11 year olds and ~53-99% among 12-15 year olds.

Trends in cases, hospitalisations and deaths

Cases:

- Following the peak in cases and reopening of schools in Victoria and NSW in Feb 2022, cases, hospitalisations, ICU admissions and deaths declined with subvariant BA.1. This pattern was similarly observed after schools reopened in 2020 with the ancestral strain, and in 2021 with the Delta variant. School cases occur but there was no evidence during these periods that they drive community transmission, as the peak of the BA.1 wave occurred during the school holidays and reflected broader community transmission. However, cases amongst school-age children increased in the ACT and Tasmania following school reopening in Feb 2022. This also coincided with an increase in testing availability during school term. During term 1, cases in school-age children peaked in NSW and the ACT in mid-Mar and in Tasmania in late Mar to early Apr 2022, and then declined 2-4 weeks before school holidays commenced.
- BA.2 then replaced BA.1 as the predominant subvariant in NSW and Victoria. Omicron subvariants BA.4, BA.5 and BA.2.12.1 have been detected in the ACT, NSW and Victoria, with BA.4 and BA.5 increasing in incidence in the ACT and Victoria, while BA.5 is now the predominant subvariant in NSW. At the end of term 2 (end of Jun 2022), cases in school-age children were decreasing in the ACT, increasing in Tasmania and remained stable in NSW and Victoria.
- Fine age category breakdown by year of age have not been available for children except for England and The Netherlands which both showed an age-dependent increase in case rates up to about 13 years of age. This pattern was seen for all variants. This may be due to younger children being more efficient at clearing the virus.[11]

[7] Madhi SA, Kwatra G, Myers JE, et al. Population immunity and COVID-19 severity with Omicron variant in South Africa. New England Journal of Medicine. 2022;386:1314-26. https://www.nejm.org/doi/full/10.1056/NEJMoa2119658
[8] Office for National Statistics (ONS). COVID-19 Schools Infection Survey, England: pupil antibody data and vaccine sentiment, March to April 2022. London, UK: ONS. 2022. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/covid19schoolsinfectionsurveyengland/pupilantibodiesandvaccinesentimentmarch2022
[9] Sacco C, Del Manso M, Mateo-Urdiales A, et al. Effectiveness of BNT162b2 vaccine against SARS-CoV-2 infection and severe COVID-19 in children aged 5-11 years in Italy: a retrospective analysis of January-April 2022. Lancet. 2022;400(10346):97-103. https://doi.org/10.1016/S0140-6736(22)01185-0
[10] Flaxman S, Whittaker C, Semenova E, et al. COVID-19 is a leading cause of death in children and young people ages 0-19 years in the United States [Preprint]. medRxiv. 2022. https://www.medrxiv.org/content/medrxiv/early/2022/06/28/2022.05.23.22275458.full.pdf
[11] Mallapaty S. Kids show mysteriously low levels of COVID antibodies. Nature. 10 March 2022. https://www.nature.com/articles/d41586-022-00681-8

- A study in children <5 years infected with the Omicron and Delta variants in the US found that incidence rates increased from 1.0-1.5 (Delta period) to 2.4-5.6 cases per 1000 persons per day (Omicron emergence). Monthly rates peaked in Jan 2022 during the Omicron period at 8.6 cases per 1000 persons per day. Omicron infection was higher in children aged 0-2 years compared to 3-4 years.[12]
- For educational staff, the Netherlands found similar case rates in educational staff vs the general adult population. During 14 Mar to 24 Apr 2022, of 60,496 people tested and working in education or childcare, 64.7% were positive. In comparison, 65.1% of the 1,060,385 adults tested were positive during the same period.[13]
- Some countries had an increase in cases in children and adolescents with schools reopening during the Omicron period, which mostly declined within a few weeks.

Hospitalisations:

- Similarly, hospitalisations briefly increased in children, but this has been a combination of admission for COVID-19 treatment and incidentally testing positive when admitted for an unrelated condition. This has declined even in children too young to be vaccinated.
- In the USA, the increase in paediatric hospitalisations during the Omicron wave was seen more so in the 0-4 year age group but was higher in 0-2 year olds compared to 3-4 year olds.[14] The rate of hospitalisations during the peak of the Omicron wave (first week of Jan 2022) was highest in children aged 0-4 years at 14.5 per 100,000 children (five times that of Delta peak of 2.9).[15] Hospitalisation rates were lowest in the 5-11 year age group at approximately 3 per 100,000, which was the lowest of all age groups. The monthly hospitalisation rate of unvaccinated adolescents aged 12-17 years was six times higher than fully vaccinated adolescents (23.5 vs 3.8 per 100,000). Hospitalisations in children aged 0-4 years decreased by mid-Feb 2022 to 3.9 per 100,000. Recent data is not yet available for the 12-17 year age groups.[16]
- During the Omicron wave in South Africa, paediatric cases were higher than in the three previous SARS-CoV-2 waves and hospitalisations in children uncharacteristically increased ahead of adults. Nearly two-thirds (63%) of the paediatric hospitalisations were in children aged 0-4 years and 44% of these had a primary diagnosis of COVID-19.[17]

Deaths:

- A study in England between Mar 2020 to Dec 2021 found that amongst children who died within 100 days of SARS-CoV-2 infection, 43.8% died of COVID-19. SARS-CoV-2 was responsible for 1.2% of all deaths in children with an infection fatality rate of 0.7 per 100,000.[18]
- In Europe, there has not been a substantial increase in excess mortality in children aged 0-14 years throughout the Omicron period.[19]
- There is no evidence that in-person schooling during the Omicron period has increased community transmission or increased excess mortality in all ages. Where reported, excess mortality has declined, except for temporary increases in Denmark and the Netherlands.

Clinical summary

- During the Omicron BA.1 surge, the clinical manifestations in children have been similar to other common paediatric respiratory viral infections. Croup has been a common reason for admission in the 0-4 year age group with admission to ICU for monitoring and treatment.[20]
- In the United States, acute upper airway disease in SARS-CoV-2 positive children increased during the Omicron wave (1.5% pre-Omicron vs 4.1% Omicron). More than one-fifth of children hospitalised with SARS-CoV-2 and upper airway disease developed severe disease.[21]
- An analysis of paediatric hospitalisation data in England (Dec 2020 to Jan 2022 spanning Alpha, Delta and Omicron waves) found that amongst children hospitalised with COVID-19, 10% (15/147) were admitted with severe COVID-19 presenting as pneumonitis, mainly during the Alpha wave (10/15, 67%) and in older children and adolescents (9/15, 60% aged 12-18 years) with comorbidities (11/15, including 8 with immunosuppression). One third (49/147, 33%) had SARS-CoV-2 as a likely contributor to hospitalisation. The remaining 56% (83/147) incidentally tested positive for SARS-CoV-2 when admitted for an unrelated non-infectious condition.[22]

[12] Wang L, Berger NA, Kaelber DC, et al. Incidence rates and clinical outcomes of SARS-CoV-2 infection with the Omicron and Delta variants in children younger than 5 years in the US. JAMA Pediatrics. 2022. https://doi.org/10.1001/jamapediatrics.2022.0945
[13] National Institute for Public Health and the Environment (RIVM). Research results from GGD data about children and COVID-19. Amsterdam, The Netherlands: Ministry of Health, Welfare and Sport; 2022. https://www.rivm.nl/en/coronavirus-covid-19/children-and-covid-19/research-results-ggd-data
[14] Pediatric COVID-19 update: 7 January 2022. New York, USA: New York State Department of Health; 2022. https://www.health.ny.gov/press/releases/2022/docs/pediatric_covid-19_hospitalization_report_summary.pdf
[15] Marks KJ, Whitaker M, Anglin O, et al. Hospitalizations of children and adolescents with laboratory-confirmed COVID-19 – COVID-NET, 14 States, July 2021 – January 2022. MMWR. 2022:71(7);271-8. https://www.cdc.gov/mmwr/volumes/71/wr/mm7107e4.htm
[16] Marks KJ, Whitaker M, Anglin O, et al. Hospitalizations of infants and children aged 0-4 years with laboratory-confirmed COVID-19 – COVID-NET, 14 States, March 2020 – February 2022. MMWR. 2022:71(11);429-36. https://www.cdc.gov/mmwr/volumes/71/wr/mm7111e2.htm?s_cid=mm7111e2_w
[17] Cloete J, Kruger A, Masha M, et al. Paediatric hospitalisations due to COVID-19 during the first SARS-CoV-2 omicron (B.1.1.529) variant wave in South Africa: a multicentre observational study. Lancet Child & Adolescent Health. 2022:6(5);294-302. https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(22)00027-X/fulltext
[18] Bertran M, Amin-Chowdhury Z, Davies H, et al. COVID-19 deaths in children and young people: active prospective national surveillance, March 2020 to December 2021, England [Preprint]. SSRN. 2022. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4125501
[19] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[20] Omicron drives record cases of child COVID hospitalisations. Financial Times. 17 January 2022. https://www.ft.com/content/28be9d3f-0b12-4c33-bda9-fbff375c0b7e
[21] Martin B, DeWitt PE, Russell S, et al. Acute upper airway disease in children with the Omicron (B.1.1.529) variant of SARS-CoV-2 – a report from the US National COVID Cohort Collaborative. JAMA Pediatrics. 2022. https://jamanetwork.com/journals/jamapediatrics/fullarticle/2791278
[22] Zsigmdond B, Breathnach AS, Mensah A, et al. Hospitalisations in children with confirmed SARS-CoV-2 infection during December 2020 to January 2022: retrospective single-centre cohort, London, England. SSRN. 2022. https://dx.doi.org/10.2139/ssrn.4038380

- An analysis of children <5 years infected with the Omicron and Delta variants in the US found that the risk of severe clinical outcomes in children infected with Omicron were significantly lower than those with Delta.[23]
- During the Omicron period (mid-Dec 2021 to late Feb 2022) in the USA, COVID-19-associated hospitalisation rates in children aged 5-11 years were approximately twice as high among unvaccinated as among vaccinated children. There were no underlying medical conditions in 30% of children and 19% were admitted to ICU. Children with diabetes and obesity were more likely to experience severe COVID-19.[24]
- In South Africa, most of these children (88%) required standard ward care and 20% needed oxygen therapy, while 5% were ventilated and 3% died during the study period. All children were unvaccinated against COVID-19.[25]
- **MIS-C:** Data from the US and UK both show that despite a large increase in cases during BA.1, the number of MIS-C cases did not increase. MIS-C declined in the USA.[26] A UK study found that compared with the Alpha wave, there were fewer cases of MIS-C relative to SARS-CoV-2 cases during both the initial and subsequent Delta waves, and continuing into the Omicron wave despite extensive spread of BA.1.[27] Compared to the Alpha wave, the proportion of MIS-C cases to SARS-CoV-2 cases were lower in pre-vaccine Delta, post-vaccine Delta and Omicron waves, at 56%, 66% and 95% lower respectively. A study in Denmark found that the risk of MIS-C was significantly lower among vaccinated vs unvaccinated children aged 0-17 years (risk ratio 0.11). The risk of MIS-C among unvaccinated children during the Omicron wave was significantly lower than during the Delta wave (RR 0.12) and wild-type wave (RR 0.14).[28]
- A multinational study from North America, Latin America and Europe of 557 critically ill children hospitalised for COVID-19 from 55 sites, found that half had comorbidities, hospital mortality was 10% and higher in children <2 years (15%, odds ratio 1.94) and most who died had pulmonary disease. When adjusted for confounders, mortality-associated factors included cardiac (adjusted OR 2.89) or pulmonary comorbidities (aOR 4.43), admission hypoxemia (aOR 2.44) and lower respiratory symptoms (aOR 2.96). Lower mortality was associated with MIS-C (aOR 0.25), receiving methylprednisolone (aOR 0.5), intravenous immunoglobulin (aOR 0.32) and anticoagulation (aOR 0.49), but these associations might be limited to children >2 years.[29]

[23] Wang L, Berger NA, Kaelber DC, et al. Incidence rates and clinical outcomes of SARS-CoV-2 infection with the Omicron and Delta variants in children younger than 5 years in the US. JAMA Pediatrics. 2022. https://doi.org/10.1001/jamapediatrics.2022.0945
[24] Shi DS, Whitaker M, Marks KJ, et al. Hospitalizations of children aged 5-11 years with laboratory-confirmed COVID-19 – COVID-NET, 14 States, March 2020 – February 2022. MMWR. 2022:71(16);574-81. https://www.cdc.gov/mmwr/volumes/71/wr/mm7116e1.htm?s_cid=mm7116e1_w
[25] Cloete J, Kruger A, Masha M, et al. Paediatric hospitalisations due to COVID-19 during the first SARS-CoV-2 omicron (B.1.1.529) variant wave in South Africa: a multicentre observational study. Lancet Child & Adolescent Health. 2022:6(5);294-302. https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(22)00027-X/fulltext
[26] Does Omicron hit kids harder? Scientists are trying to find out. Nature. 04 February 2022. https://www.nature.com/articles/d41586-022-00309-x
[27] Cohen JM, Carter MJ, Cheung CR, et al. Lower risk of paediatric inflammatory multisystem syndrome (PIMS-TS) with the Delta variant of SARS-CoV-2 [Preprint]. medRxiv. 2022. https://www.medrxiv.org/content/10.1101/2022.03.13.22272267v1
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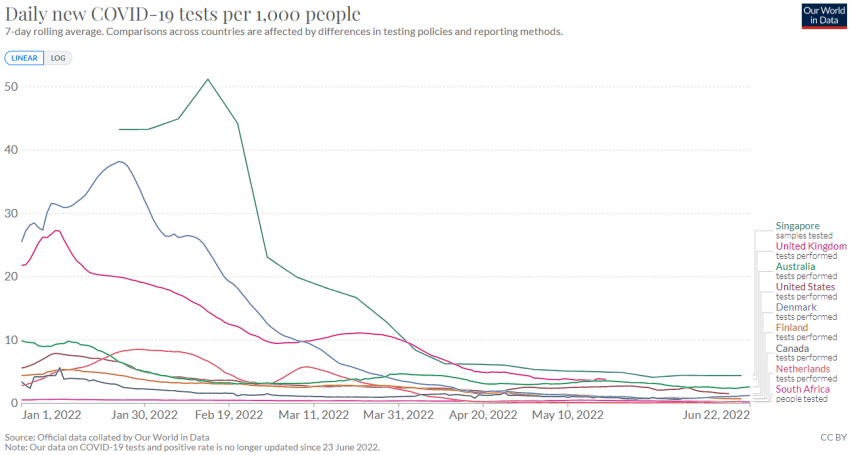
[29] Gonzalez-Dambrauskas S, Vasquez-Hoyos P, Camporesi A, et al. Paediatric critical COVID-19 and mortality in a multinational prospective cohort. Lancet Regional Health – Americas. 2022:12;100272. https://www.sciencedirect.com/science/article/pii/S2667193X22000898?via%3Dihub

Summary of COVID-19 epidemiology in children and adolescents

Country	Predominant variants	Cases	Hospitalisations	MIS-C/PIMS-TS	Deaths^
ACT, Australia	Omicron BA.2	↓	Stable	Not reported	0
NSW, Australia	Omicron BA.5	Stable	Stable	Not reported	4[b]
TAS, Australia	Not reported	↑	Not available	Not reported	0
VIC, Australia	Omicron BA.2	Stable	Not available	Not reported	2[b]
Canada	Omicron BA.2	↓	Not available	Not reported	52[b]
Denmark	Omicron BA.5	Stable	↑*	44 cases[+]	7[b]
England, UK	Omicron BA.2/BA.5	↑	↑	Not reported	90[b,#,±]
Finland	Omicron BA.4/BA.5	↓	Not available	Not reported	0
Netherlands	Omicron BA.5	Stable	Stable	Not reported	Not reported
Scotland, UK	Not reported	↑*	↑*	Not reported	5[a,#]
Singapore	Not reported	↑	↑	5 cases[-]	1
South Africa	Omicron BA.4/BA.5	↓	↓*	Not reported	880[b]
USA	Omicron BA.2.12.1/BA.5	Stable	↑	8639 cases	1063[b]

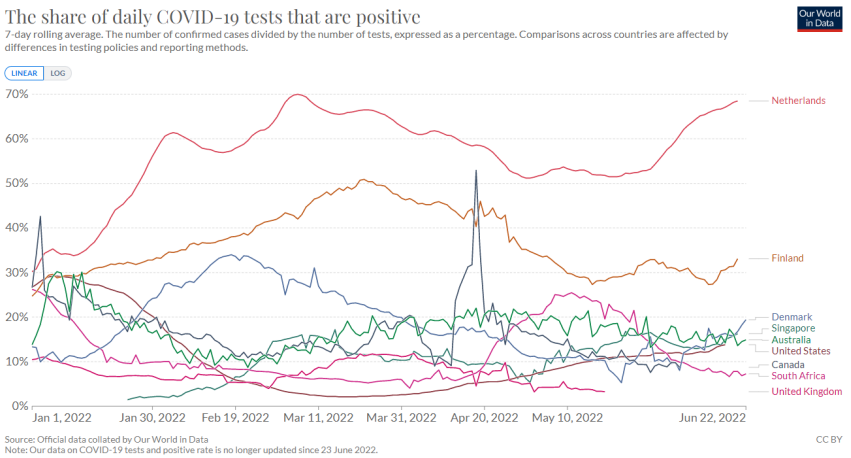
Note: Trends and values are for children only, unless otherwise specified.
**Available data includes both children and adults.*
[+]*During the Omicron period (1 Nov 2021 – 1 Feb 2022).* [-]*Last reported 8 Nov 2021.* [±]*Last reported 7 Apr 2022.*
^*Age range for child deaths between 0-19y except Scotland (0-14y) and USA (0-17y). Deaths* [a]*due to COVID-19 or* [b]*with COVID-19.* [#]*In the past year.*

Testing rates per capita[30]



Country	Testing rates per 1000 people (seven-day average)	Positive test rate (%)
Australia	2.60	14.9
Canada	0.71	8.7
Denmark	1.24	19.4
Finland	0.72	33.1
Netherlands	0.29	68.5
Singapore	4.40	16.3
South Africa	0.24	7.3
UK	3.80	3.3
USA	1.51	13.8

Testing positivity rates[31]



[30] Our World in Data. Coronavirus pandemic (COVID-19): explore the global situation. London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/coronavirus#explore-the-global-situation
[31] Our World in Data. Coronavirus pandemic (COVID-19): explore the global situation. London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/coronavirus#explore-the-global-situation

Summary

- In **Australia**, COVID-19 Public Health and Social Measures (PHSM) and trends differ by State/Territory.
  - Nationwide, approximately 52% of 5-11 year olds and 84% of 12-15 year olds have received at least one dose of vaccine.
  - From early Apr 2022, a second booster dose is offered to all aged 65 years and older and high-risk groups, including Indigenous Australians 50 years and older, individuals living in aged or disability care and immunocompromised individuals aged 16 years and older. From late May 2022, the second booster dose is extended to all aged 16-64 years with a medical condition that increases their risk of severe COVID-19 illness and people with disability with significant or complex health needs. From mid-Jun 2022, the first booster dose is extended to children 12-15 years at risk of severe disease (severe immunocompromise, disability with significant or complex health needs, or complex and/or multiple health conditions).
  - Australia has one of the highest testing rates per capita globally.[32]
  - There have been 11 deaths in children aged 0-9 years and 8 deaths aged 10-19 years for the entire pandemic.[33]
  - Excess mortality increased by 20.5% in Jan to Feb 2022. COVID-19 was the fourth most common cause of death in Feb.[34] From all COVID-19 deaths registered by end of May 2022, 88% were due to COVID-19, while the remaining had an incidental SARS-CoV-2 infection. The median age of death from COVID-19 was 84.2 years. Chronic cardiac conditions were the most common pre-existing chronic condition, followed by dementia, for those who had COVID-19 as the underlying cause of death.[35]
- The **ACT** closed schools for holidays in early Apr and reopened in late Apr 2022. Schools closed again in early Jul 2022 for a two-week winter holiday.
  - Masks are no longer required in most settings except for household contacts.
  - Schools have mitigation strategies in place, including mask-wearing only for high school students who are household contacts. RATs are now provided as needed.
  - Approximately 80% of 5-11 year olds and >99% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.2 is the predominant variant but BA.5 is increasing.
  - Case numbers are declining in all ages. Cases are highest in the 40-64 year age group and lowest in the 65+ year age group.
  - The hospitalisation rates for 0-17 year olds was very low at 1 per 100,000 and now nearing 0. It is unknown how many are incidental. Of all the hospitalisations in <17 years, 74% are unvaccinated.
  - There have been no deaths in children throughout the entire pandemic.
- **NSW** closed schools for holidays in early Apr and reopened in late Apr 2022. Schools closed again in late Jun 2022 for a two-week winter holiday.
  - Masks are no longer required in most settings except for household contacts.
  - Schools have mitigation strategies in place, including RATs for symptomatic individuals and close contacts and maximising classroom ventilation.
  - Approximately 50% of 5-11 year olds and 83% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Case numbers are stable. Cases declined in school-age children 2-3 weeks before term 1 school holidays, which may be due to reductions in testing. Children across the state were offered weekly RATs until the end of Feb 2022, during that time they were likely to be over-represented in case numbers and the percentage contribution to total cases due to increased testing.
  - Hospitalisations are increasing in the 0-9 year age group, but remain stable in 10-19 year olds.
  - Four children have died with COVID-19 throughout the entire pandemic.
- **Tasmania** closed schools for holidays in mid-Apr and reopened in early May 2022. Schools closed again in early Jul 2022 for a two-week winter holiday.
  - Masks are no longer required in most settings, except for close contacts.
  - Schools have mitigation strategies in place, including RATs for symptomatic individuals and close contacts, cohorting and supply of air-purification devices. Masks are no longer required in schools.
  - Approximately 63% of 5-11 year olds and 87% of 12-15 year olds have received at least one dose of vaccine.
  - Genomic surveillance data is not publicly available.

[32] Our World in Data. Total COVID-19 tests per 1,000 people. London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/grapher/full-list-cumulative-total-tests-per-thousand-map?tab=table
[33] Department of Health and Aged Care. Coronavirus (COVID-19) case numbers and statistics. Canberra, Australia: Australian Government; 2022. https://www.health.gov.au/health-alerts/covid-19/case-numbers-and-statistics#cases-and-deaths-by-age-and-sex
[34] Australian Bureau of Statistics (ABS). Provisional mortality statistics. Canberra, Australia: ABS; 2022. https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/latest-release
[35] Australian Bureau of Statistics (ABS). COVID-19 mortality in Australia: deaths registered until 31 May 2022. Canberra, Australia: ABS; 2022. https://www.abs.gov.au/articles/covid-19-mortality-australia-deaths-registered-until-31-may-2022#key-statistics

  - Cases are increasing in most age groups. Case numbers in school-age children started declining two weeks before term 1 school holidays commenced, which continued until mid-Jun 2022, but are now increasing. Cases are highest in the 30-49 year age group, followed by the 12-29 age groups, and lowest in the 70+ age group. Children across the state are offered RATs through schools so are likely to be over-represented in case numbers and the percentage contribution to total cases due to increased testing.
  - Hospitalisations and deaths are not available by age group, but there have been no deaths in children throughout the entire pandemic.
- **Victoria** closed schools for holidays in early Apr and reopened in late Apr 2022. Schools closed again in late Jun 2022 for a two-week winter holiday.
  - Masks are no longer required in most settings, except for close contacts.
  - Schools have mitigation strategies in place, including improved ventilation. RAT screening, then subsequently symptomatic/close contact testing, was provided until late Jun 2022.
  - Approximately 56% of 5-11 year olds and 89% of 12-15 year olds have received at least one dose of a COVID-19 vaccine.
  - Omicron BA.2 is the predominant variant but BA.4 and BA.5 are increasing (approximately 40% as of late Jun 2022).
  - Case numbers are high but stable.
    - Children were offered RATs twice weekly in term 1 2022, so were tested more and therefore likely to be over-represented in case numbers and the percentage contribution to all cases, although testing compliance is not known and the daily breakdown by age for PCR/RATs is not available. Since term 2 2022, RATs were only provided for symptomatic or close contact testing.
    - Since 8 Jan 2022, both PCR and RAT positive results are considered positive cases.
  - There is no hospitalisation data available by age, but overall numbers in all ages are stable.
  - Two children have died with COVID-19 throughout the entire pandemic.
- In **Europe and North America**, the downward trend continues in many countries and regions, although some regions experienced a new increase due to both an increase in Omicron subvariant BA.2 and/or BA.5, which are more transmissible, and the easing of restrictions.
- **Canada** closed its schools for a one-week holiday in mid-Mar 2022. Schools closed again in late Jun 2022 for the summer holidays.
  - PHSM vary by province.
  - Approximately 56% of 5-11 year olds and 88% of 12-17 year olds have received at least one dose of vaccine.
  - Omicron BA.2 is the predominant variant but BA.4 and BA.5 are increasing.
  - There was an initial steep increase in cases due to Omicron BA.1 in Dec 2021 followed by a steep downward trend in all age groups. BA.2 became the predominant variant which caused a temporary steep increase in mid-Apr 2022. Cases are now declining.
  - There is no data on hospitalisation trends by age.
  - There have been 52 deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.
- **Denmark** closed its schools for one-week holidays in mid-Feb and mid-Apr 2022. Schools closed again in late Jun 2022 for the summer holidays. Excess mortality in all age groups dramatically declined over the Omicron period but slightly increased before decreasing and stabilising at baseline over the past three months.[36]
  - All restrictions have been lifted from Feb 2022.
  - Approximately 46% of 5-11 year olds and 81% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Cases are low and stable in all age groups, although testing is now only recommended for individuals at increased risk for severe disease.
  - Hospitalisations are no longer reported by age group, but overall numbers have increased slightly.
  - There have been seven deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.
- **England** closed its schools for holidays from early to mid-Apr 2022. Excess mortality in all age groups continues to dramatically decline over the Omicron period.[37]
  - Most restrictions have been lifted since late Feb 2022. Some remain in place including advice to wear masks in high-risk situations. Free PCRs and RATs are no longer available for most people since early Apr 2022.
  - Approximately 10% of 5-11 year olds, 53% of 12-15 year olds and 65% of 16-17 year olds have received at least one dose of vaccine.
  - Omicron BA.2/BA.5 is the predominant variant.
  - Cases across all age groups peaked in late Dec 2021 to early Jan 2022 with BA.1 and then decreased. Cases increased with subvariant BA.2 in late Feb to early Apr which also declined in all age groups, coinciding with the end of provision of free universal testing for the general public. Cases are now increasing in all adult age groups and in children aged 0-4 years.

[36] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[37] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps

    - Case rates are highest in the 50-69 year age group and lowest in the age 2 to school year 6 group.[38]
    - For the week ending 24 Jun 2022, case rates in England (1:30 people) remained lower than Scotland (1:18), Wales (1:30) and Northern Ireland (1:25) despite having had fewer restrictions during BA.1.[39]
  - Hospitalisations are increasing in the 55+ year age group. There is an upward trend in 0-4 year olds. Hospitalisations remain lowest and stable in children aged 5-14 years.
  - Deaths are no longer available by age group but total deaths in all age groups are stable.
- **Finland** closed its schools for a one-week holiday in mid-Feb 2022. Schools closed again in early Jun 2022 for the summer holidays.
  - Few restrictions remain in place and masks are only recommended for symptomatic individuals and close contacts.
  - Approximately 26% of 5-11 year olds and 78% of 12-17 year olds have received at least one dose of vaccine.
  - Omicron BA.4/BA.5 is the predominant variant.
  - Cases peaked in Apr 2022 and are declining in all age groups. Cases are highest in the 25-64 year age group.
  - Specialist care admissions remain low and stable in children (data to Report #21, 10 Jun 2022).
  - There have been no deaths in children throughout the entire pandemic.
- **The Netherlands** closed its schools for one-week holidays in mid-late Feb and late Apr to early Mar 2022. Schools closed again in mid-Jul 2022 for the summer holidays. Excess mortality declined over the Omicron period, before increasing slightly and decreasing over the past three months and is now within normal range.[40]
  - Few restrictions remain in place, including advice to test if symptomatic.
  - Approximately 4% of 5-11 year olds and 66% of 12-17 year olds are fully vaccinated.
  - Omicron BA.5 is the predominant variant.
  - Cases due to BA.1 were on a steep downward trend when restrictions eased, including removal of mask-wearing, until late Feb 2022. Subvariant BA.2 resulted in a steep upward trend over a few weeks, followed by a steep decline. There was an age-related increase in cases in children up to 13 years of age.
  - Hospitalisations increased with Omicron (BA.1 and BA.2), primarily in the 70+ year age groups, which then declined. Rates remained stable and lowest in children. There is now an increase in the older age groups but remain stable in children.
  - The number of deaths with COVID-19 in children is not reported.
- **Scotland** closed its schools for a one-week holiday in mid-Feb and a two-week holiday in early to mid-Apr 2022. Schools closed again in early Jul 2022 for the summer holidays. Excess mortality in all age groups remains low and stable over the Omicron period.[41]
  - All restrictions have been lifted, with a recommendation to wear masks in certain locations only. From May 2022, testing is only available to high-risk groups and healthcare workers.
  - Approximately 21% of 5-11 year olds, 67% of 12-15 year olds and 81% of 16-17 year olds have received at least one dose of vaccine.
  - Genomic surveillance data is not publicly available.
  - Cases across all age groups peaked in Jan and then decreased, before increasing again in mid-Mar 2022 due to BA.2 which then decreased. Cases are now increasing again but are no longer reported by age group.
  - Hospitalisations in children increased with the BA.2 wave but then decreased. Hospitalisations are no longer reported by age group.
  - There have been five deaths due to COVID-19 in children aged 0-14 years in the past year.
- **Singapore** reopened its schools in late Jun 2022 after a one month holiday.
  - From late Apr 2022, restrictions have eased further to include mask-wearing indoors only (including schools).
  - Approximately 93% of the entire population has received at least one dose of vaccine. All children aged 5-11 years are offered vaccine.
  - Genomic surveillance data is not publicly available.
  - Following a peak in cases with BA.2, there was a decline in case numbers. Cases are now on an upward trend in all age groups.
  - Overall hospitalisations are increasing but admissions remain amongst the lowest in children.
  - A total of five cases of MIS-C have been reported, all from the Delta wave in mid-late 2021. There has been one ICU admission due to MIS-C up until 8 Nov 2021.
  - One child has died with COVID-19 throughout the entire pandemic.

[38] Office for National Statistics (ONS). Coronavirus (COVID-19) Infection Survey, UK: 1 July 2022. London, United Kingdom: ONS; 2022. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/1july2022
[39] Office for National Statistics (ONS). Coronavirus (COVID-19) Infection Survey, UK: 1 July 2022. London, United Kingdom: ONS; 2022. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/1july2022
[40] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[41] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps

- **South Africa** closed its schools for holidays in mid-Mar to early Apr 2022. Schools closed again in late Jun 2022 for the winter holidays. Overall excess mortality declined over the Omicron period, then slightly increased and stabilised since mid-Apr.[42]
  - Few restrictions remain in place, including mandatory indoor mask-wearing for all aged six years and older. Asymptomatic cases are not required to isolate.
  - Approximately 51% of the entire population is fully vaccinated. Vaccination is only offered to those aged 12 years and older.
  - Omicron BA.4/BA.5 is the predominant variant.
  - There was a rapid increase in cases due to Omicron BA.1 in all age groups followed by a rapid decrease. Omicron subvariant BA.2 overtook BA.1 as the predominant variant in late Jan 2022 but there was no increase in case numbers. Cases then increased again with BA.4 and BA.5 overtaking BA.2 as the predominant variants but are now decreasing.
  - Overall hospitalisations and deaths increased with the BA.4 wave but remained lower than the increase seen with BA.1. Hospitalisations are now decreasing.
  - There have been 885 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.
- The **United States** closed its schools for a one-week holiday between Mar-Apr 2022, which varied by location. Schools closed again from mid-Jun 2022 for the summer holidays. Excess mortality in all age groups declined over the Omicron period and stabilised.[43]
  - The US Centres for Disease Control and Prevention (CDC) recommend multi-layered PHSM, but adoption varies by State and Territory.
  - Approximately 37% of 5-11 year olds and 70% of 12-17 year olds have received at least one dose of vaccine.
  - Omicron BA.2.12.1/BA.5 is the predominant variant.
  - Cases are on an upward trend in all age groups.
  - Hospitalisations remain low in children, although there is an increase in 0-4 year olds.
  - There have been 1063 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 (150) and there are three states that have reported zero deaths throughout the entire pandemic.[44]
  - A total of 8639 cases of MIS-C have been reported, including 70 deaths. There was no increase in MIS-C despite the surge of Omicron cases.
  - 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.

[42] Our World in Data. Excess mortality during the Coronavirus pandemic (COVID-19). London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/excess-mortality-covid
[43] Our World in Data. Excess mortality during the Coronavirus pandemic (COVID-19). London, United Kingdom: Global Change Data Lab; 2022. https://ourworldindata.org/excess-mortality-covid
[44] American Academy of Pediatrics (AAP). Children and COVID-19: State-Level Data Report. Illinois, US: AAP; 2021. https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

List of abbreviations

Abbreviation	Term
ACT	Australian Capital Territory
CDC	US Centres for Disease Control and Prevention
MIS-C	Multisystem inflammatory syndrome in children
NSW	New South Wales
OR/aOR	Odds ratio/adjusted odds ratio
PCR	Polymerase chain reaction
PHSM	Public health & social measures
PIMS-TS	Paediatric inflammatory multisystem syndrome
RAT	Rapid antigen testing
TTIQ	Test, trace, isolate, quarantine

Australia: Australian Capital Territory

(population 454,000)

PHSM[45]

From mid May 2022, masks are no longer required in most settings except for household contacts.

Schools & mitigation[46]

Schools closed for holidays in early Jul 2022. Density limits no longer apply and masks are only required for high school students who are household contacts. RATs were provided to staff and students for the first eight weeks of the school year and are now provided as needed.

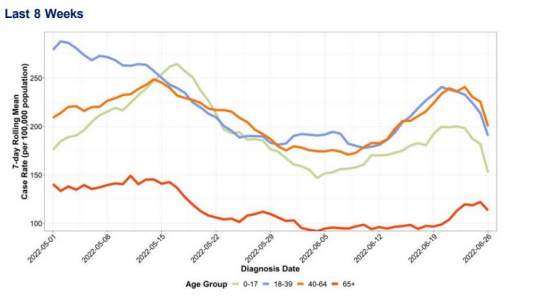
Vaccination coverage[47, 48]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	79.7	68.8	-
12-15	>99.0	>99.0	-
16+	>99.0	>99.0	77.3

Vaccination for 5-11y available from 10 Jan 2022. Three dose primary schedule: Recommended for all severely immunocompromised 5y+ from mid-Jan 2022. Third dose: Available to all eligible adults 18y+, 16-17y from 3 Feb 2022, 12-15y at risk of severe disease from 14 Jun 2022. Fourth dose: Available for immunocompromised from early Jan 2022, all 65+y and high risk groups from 4 Apr 2022, 16-64y at risk of severe disease or with disability from 30 May 2022.

Cases by age group[49]

Figure 3: Rolling mean of COVID-19 case rate by age group and diagnosis date[ab]



Notes:
[a]The DIAGNOSIS DATE will be the TRUE ONSET DATE if known, otherwise it will be earliest of the SPECIMEN DATE, the NOTIFICATION DATE or the NOTIFICATION RECEIVED DATE.
[b]Due to the case processing system, there is a small portion of cases that will not appear before the end of the cut-off period. This will result in an under-reporting of the case numbers and average mean for the 48 hours prior to the cut-off period.

Omicron is the predominant variant, with BA.2 at 56%, BA.5 at 33%, and the remaining BA.2.12.1 or BA.4.

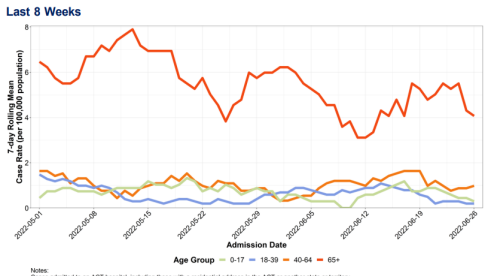
Hospitalisations in children[50]

Table 5: Hospitalised COVID-19 cases[1] by age group and vaccination status

Age Group	4 doses of COVID-19 vaccine N (%)	3 doses of COVID-19 vaccine N (%)	2 doses of COVID-19 vaccine N (%)	1 dose of COVID-19 vaccine N (%)	Unvaccinated N (%)	Unvalidated/ Unknown N (%)	TOTAL Pandemic
0–17	0 (0%)	1 (1%)	26 (17%)	12 (8%)	114 (74%)	1 (1%)	154 (100%)
18–39	1 (0%)	60 (25%)	90 (38%)	10 (4%)	75 (31%)	3 (1%)	239 (100%)
40–64	5 (2%)	98 (33%)	98 (33%)	9 (3%)	83 (28%)	5 (2%)	298 (100%)
65+	30 (6%)	234 (46%)	146 (28%)	14 (3%)	76 (15%)	14 (3%)	514 (100%)
TOTAL[a]	36 (3%)	393 (33%)	360 (30%)	45 (4%)	348 (29%)	23 (2%)	1,205 (100%)

Notes:
[a]Cases admitted to an ACT hospital, including those with a residential address in the ACT or another state or territory

Figure 6: Rolling mean of hospitalised[a] COVID-19 case rate by date of admission



Notes:
Cases admitted to an ACT hospital, including those with a residential address in the ACT or another state or territory.
If the case was admitted to an ACT hospital on multiple occasions, the earliest date of the hospital admission is used in the reporting week.
Admissions are counted whether it was for COVID-related reasons or for other reasons.

Deaths by age group[51]

Table 1: COVID-19 case status by test type

	Test type	WEEK 26[a] Ending 26/06/2022[c]	TOTAL[b]
New Cases	PCR	3,703	92,472
	RAT	3,214	61,431
	Total	**6,917**	**153,903**
Deaths[d]		**3**	**78**

Note:
[a]Cases notified to ACT Health during the reporting period and managed by ACT Health.
[b]Total cases since the start of the pandemic, March 2020.
[c]Total COVID-19 cases since March 2020 may not reflect the sum of cases from last week's reporting period and this week's reporting period. Case numbers may change due to reclassifying some of the cases following further investigation or merging of duplicate records.
[d]COVID-19 deaths by reporting period are cases managed by ACT Health where the death occurred in the reporting period.

Deaths are not available by age group. There have been 0 deaths in children throughout the entire pandemic.

[45] https://www.covid19.act.gov.au/restrictions/current-restrictions
[46] https://www.education.act.gov.au/public-school-life/covid-school-arrangements
[47] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[48] https://twitter.com/ACTHealth
[49] https://www.covid19.act.gov.au/updates/act-covid-19-statistics
[50] https://www.covid19.act.gov.au/updates/act-covid-19-statistics
[51] https://www.covid19.act.gov.au/updates/act-covid-19-statistics

Australia: New South Wales

(population 8.1 million)

PHSM[52]

From mid Jun 2022, masks are no longer required in most settings, except for household contacts.

Schools & mitigation[53]

Schools closed for holidays in late Jun 2022. Masks are no longer required in most school settings and RATs are provided to symptomatic individuals and close contacts. Vaccination and maximising ventilation continue to be encouraged.

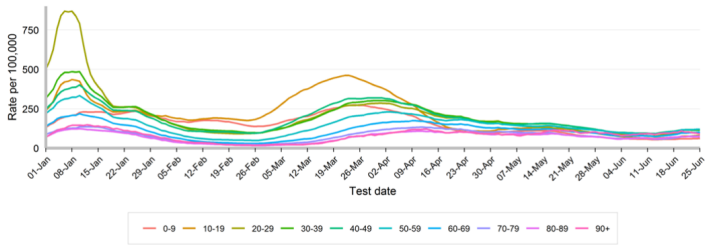
Vaccination coverage[54, 55]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	49.6	38.5	-
12-15	82.6	78.9	-
16+	96.6	95.1	68.1

Vaccination for 5-11y available from 10 Jan 2022. Three dose primary schedule: Recommended for all severely immunocompromised 5y+ from mid-Jan 2022. Third dose: Available to all eligible adults 18y+, 16-17y from 3 Feb 2022, 12-15y at risk of severe disease from 14 Jun 2022. Fourth dose: Available for immunocompromised from early Jan 2022, all 65+y and high risk groups from 4 Apr 2022, 16-64y at risk of severe disease or with disability from 30 May 2022.

Cases by age group[56]

Figure 5. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by age group and test date, NSW, in the four weeks to 25 June 2022

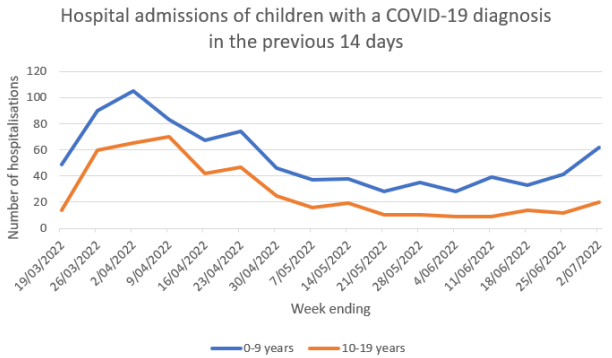


Omicron (BA.5) is the predominant variant.

Table 3. Variants of concern (VOCs) identified by whole genome sequencing (WGS) of virus from people who tested positive for SARS CoV-2 by PCR, by test date, NSW, in the four weeks to 25 June 2022

Variant	Week ending			
	04 June	11 June	18 June	25 June
Omicron (BA.1)	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Omicron (BA.2)	354 (48.7%)	304 (55.0%)	220 (35.6%)	46 (30.1%)
Omicron (BA.2.12.1)	70 (9.6%)	44 (8.0%)	52 (8.4%)	8 (5.2%)
Omicron (BA.3)	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Omicron (BA.4)	69 (9.5%)	57 (10.3%)	76 (12.3%)	26 (17.0%)
Omicron (BA.5)	232 (31.9%)	147 (26.6%)	270 (43.7%)	73 (47.7%)
Recombinant (XM)	0 (0.0%)	1 (0.2%)	0 (0.0%)	0 (0.0%)
Total	727 (100%)	553 (100%)	618 (100%)	153 (100%)

Hospitalisations in children and deaths by age group[57]



Some admissions in <12y children are for social reasons as parents are hospitalised for treatment of COVID-19.

Four children have died with COVID-19 throughout the pandemic, including one 15 year old with pneumococcal meningitis, one three-year-old with underlying genetic disorder, one two-year-old with no major pre-existing conditions and one two-month-old baby.

[52] https://www.nsw.gov.au/covid-19/stay-safe/rules
[53] https://education.nsw.gov.au/covid-19/advice-for-families
[54] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[55] https://twitter.com/NSWHealth
[56] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx
[57] Data used to create graph from: https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx

Australia: Tasmania

(population 558,000)

PHSM[58]

From Jul 2022, masks are no longer required in most settings, except for close contacts.

Schools & mitigation[59]

Schools closed for holidays in early Jul 2022. Masks are no longer required in schools, RATs are provided to symptomatic individuals and close contacts, cohorting and supply of air-purification devices. Vaccination continues to be encouraged.

Vaccination coverage[60]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	63.2	51.5	-
12-15	86.8	82.6	-
16+	>99.0	>99.0	73.0

Vaccination for 5-11y available from 10 Jan 2022. Three dose primary schedule: Recommended for all severely immunocompromised 5y+ from mid-Jan 2022. Third dose: Available to all eligible adults 18y+, 16-17y from 3 Feb 2022, 12-15y at risk of severe disease from 14 Jun 2022. Fourth dose: Available for immunocompromised from early Jan 2022, all 65+y and high risk groups from 4 Apr 2022, 16-64y at risk of severe disease or with disability from 30 May 2022.

Cases by age group[61]

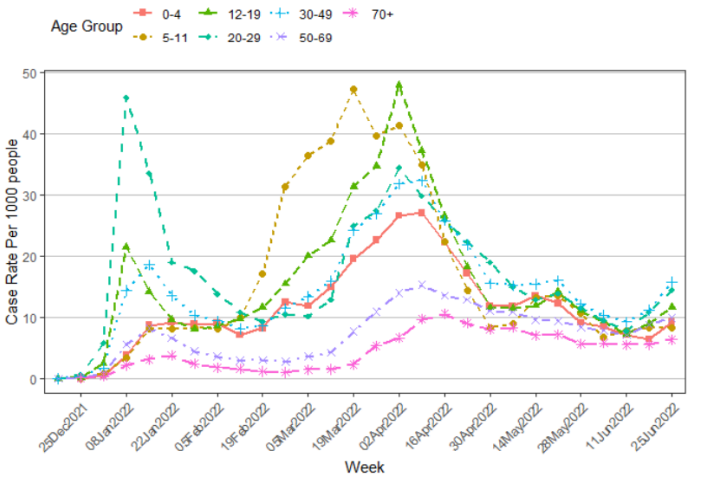


Figure 3: Weekly number of COVID-19 cases per 1,000 people (rate) notified in Tasmania since 15 December 2021, by age group.

Hospitalisations in children and deaths by age group[62]

3.2 Clinical severity and deaths in reported COVID-19 cases by age group

Table 11: Number of cases hospitalised with COVID-19, number of cases hospitalised due to COVID-19, number of cases with COVID-19 admitted to ICU (for any reason), and deaths for which COVID-19 was a cause or contributing factor from 15 December 2021 to 25 June 2022, by age group.

Age Group (years)	All Hospital Admissions with COVID-19	Hospital Admissions due to COVID-19*	Intensive Care Admissions	Deaths
0-4	78 (6.0%)	45 (8.6%)	4 (9.5%)	0 (0.0%)
5-11	23 (1.8%)	4 (0.8%)	0 (0.0%)	0 (0.0%)
12-15	13 (1.0%)	2 (0.4%)	0 (0.0%)	0 (0.0%)
16-19	15 (1.2%)	2 (0.4%)	1 (2.4%)	0 (0.0%)
20-29	104 (8.0%)	28 (5.3%)	5 (11.9%)	0 (0.0%)
30-39	109 (8.4%)	28 (5.3%)	2 (4.8%)	0 (0.0%)
40-49	94 (7.3%)	41 (7.8%)	4 (9.5%)	1 (1.3%)
50-59	119 (9.2%)	46 (8.8%)	7 (16.7%)	5 (6.6%)
60-69	187 (14.4%)	71 (13.5%)	8 (19.0%)	13 (17.1%)
70-79	235 (18.1%)	104 (19.8%)	8 (19.0%)	13 (17.1%)
80-84	141 (10.9%)	76 (14.5%)	2 (4.8%)	13 (17.1%)
85+	177 (13.7%)	78 (14.9%)	1 (2.4%)	31 (40.8%)
Unknown Age	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	1,295	525	42	76

*Age group is based on age provided at time of PCR testing or reporting of a positive RAT. This table excludes interstate and overseas residents who were diagnosed and managed for COVID-19 in Tasmania. Only recorded deaths, where the death was caused or contributed to by COVID-19 have been included. Reason for hospital admission is based on clinician determination at discharge date.

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

[58] https://www.coronavirus.tas.gov.au/families-community/current-restrictions
[59] https://www.coronavirus.tas.gov.au/families-community/schools-and-childcare
[60] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[61] https://www.coronavirus.tas.gov.au/facts/tasmanian-statistics/weekly-report
[62] https://www.coronavirus.tas.gov.au/facts/tasmanian-statistics/weekly-report

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

Australia: Victoria

(population 6.5 million)

PHSM[63]

From Jun 2022, masks are no longer required in most settings, except for close contacts.

Schools & mitigation[64]

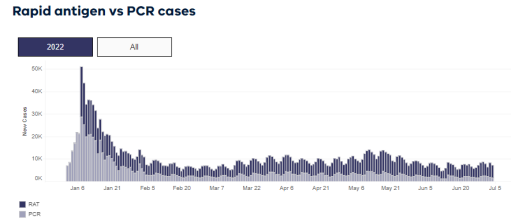
Schools closed for holidays in late Jun 2022. RATs were provided for close contacts or symptomatic testing until late Jun 2022. Vaccination continues to be encouraged.

Vaccination coverage[65, 66]

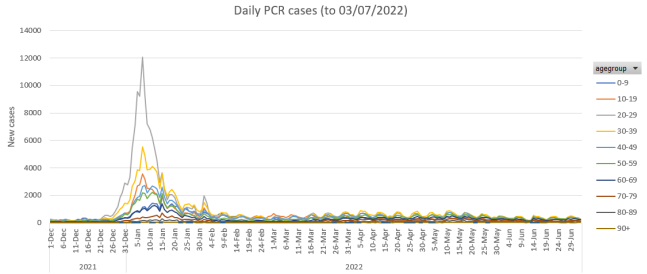
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	56.1	42.6	-
12-15	88.8	85.0	-
16+	95.7	94.3	68.4

Vaccination for 5-11y available from 10 Jan 2022. Three dose primary schedule: Recommended for all severely immunocompromised 5y+ from mid-Jan 2022. Third dose: Available to all eligible adults 18y+, 16-17y from 3 Feb 2022, 12-15y at risk of severe disease from 14 Jun 2022. Fourth dose: Available for immunocompromised from early Jan 2022, all 65+y and high risk groups from 4 Apr 2022, 16-64y at risk of severe disease or with disability from 30 May 2022.

Cases by age group[67]



From 8 Jan 2022, both PCR and RAT positive results are considered positive cases. Age distribution is only available for PCR positive cases, as displayed on the graph.



As of late Jun 2022, BA.2 remains the predominant Omicron subvariant, but approximately 40% of sewerage samples are BA.4/BA.5, increasing from <5% in late May.[70]

Hospitalisations in children[68]

Current cases in hospital: 513
Current cases in ICU: 21
No age breakdown

Deaths by age group[69]

People who have passed away with COVID-19

4/07/2022

Age group	Total
00-09	1
10-19	1
20-29	9
30-39	22
40-49	40
50-59	145
60-69	287
70-79	792
80-89	1,511
90+	1,185
Total	3,993

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.

[63] https://www.coronavirus.vic.gov.au/staying-safe
[64] https://www.coronavirus.vic.gov.au/parents-carers-and-guardians
[65] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[66] https://twitter.com/VicGovDH
[67] Data used to create graph from: https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[68] https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[69] https://www.coronavirus.vic.gov.au/additional-covid-19-case-data#cases-in-hospital
[70] https://www.health.vic.gov.au/covid-19/covid-19-chief-health-officer-update

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

Canada

(population 38 million)

PHSM[71]

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

Schools & mitigation[72]

Schools closed for holiday in late Jun 2022. Standard PHSM and additional measures depending on local advice: physical distancing, cohorting, masks when required, screening tests.

Vaccination coverage[73]

Age group (years)	1st dose (%)	Fully vacc.* (%)	3rd/booster (%)
5-11	56.1	42.3	-
12-17	87.8	84.0	18.1
Total pop.	85.0	81.9	49.0

*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.

Cases by age group[74]

Figure 3. COVID-19 cases (n=3,760,317 [1]) in Canada by date [2] as of June 24, 2022, 9 am EST (by age - 10 year groups)

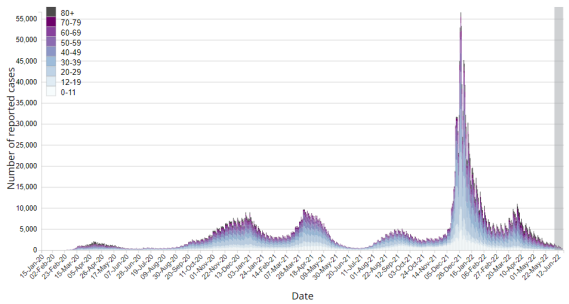
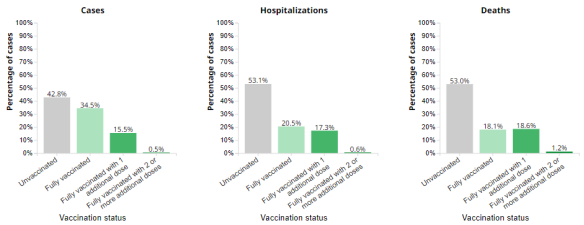
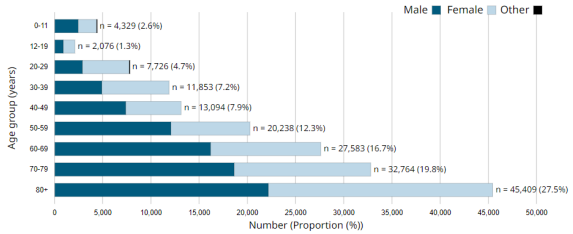


Figure 5. Distribution of confirmed COVID-19 cases reported to PHAC by vaccination status as of June 05, 2022



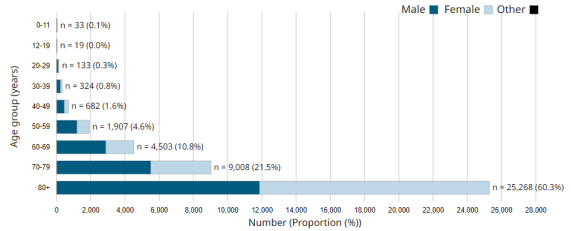
Hospitalisations in children[75]

Figure 7. Age and gender [3] distribution of COVID-19 cases hospitalized in Canada as of June 24, 2022, 9 am EST (n=165,072 [1])



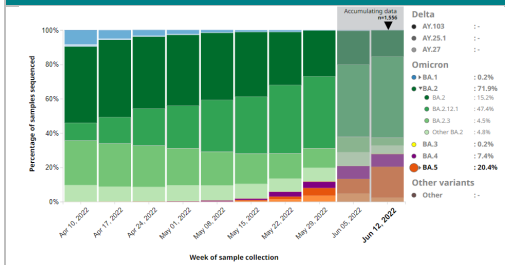
Deaths by age group[76]

Figure 7. Age and gender [3] distribution of COVID-19 cases deceased in Canada as of June 24, 2022, 9 am EST (n=41,877 [1])



There have been 52 deaths with COVID-19 in children aged 0-19y throughout the pandemic.

Genomic surveillance[77]



Omicron (BA.2) is the predominant variant, with the proportions of BA.4/BA.5 increasing.

[71] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html
[72] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/planning-2021-2022-school-year-vaccination.html
[73] https://health-infobase.canada.ca/covid-19/vaccination-coverage/
[74] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[75] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[76] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[77] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html

Denmark

(population 5.9 million)

PHSM[78]

All restrictions lifted from February 2022.

Schools & mitigation[79]

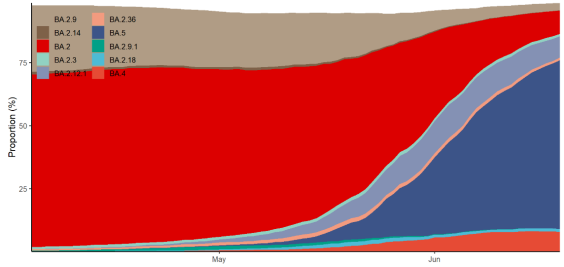
Schools closed for holiday from late Jun 2022. Standard PHSM, close contacts are not required to isolate but encouraged to get tested.

Vaccination coverage[80]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/ booster (%)
5-11	46.2	38.2	-
12-15	80.5	78.7	0.4
16-19	89.5	88.3	46.2
12+	81.7	80.3	61.8

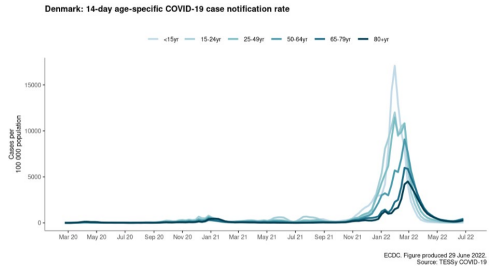
Commenced 3rd/booster vaccination for people 65y+ in late Oct and for all adults from late Nov 2021. Vaccination for 5-11y age group commenced late Nov 2021.

Genomic surveillance[81]



Omicron (BA.5) is the predominant variant.

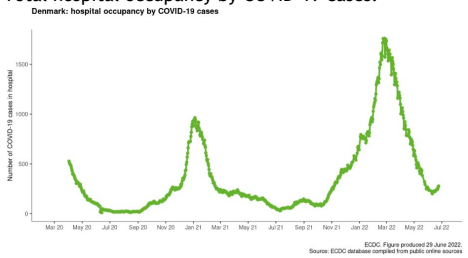
Cases by age group[82]



Hospitalisations in children[83]

Not reported by age

Total hospital occupancy by COVID-19 cases:

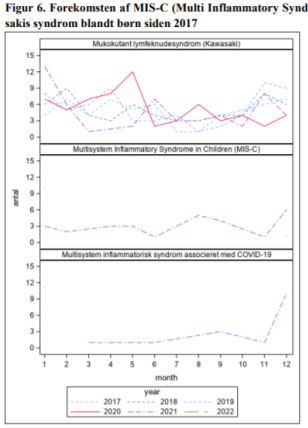


Deaths by age group[84]

Total of 7 deaths with COVID-19 in children aged 0-19y throughout the pandemic.

MIS-C[85]

Prevalence of MIS-C and Kawasaki syndrome in children since 2017



Data to Report #10, 14 Feb 2022

[78] https://en.coronasmitte.dk/rules-and-regulations
[79] https://en.coronasmitte.dk/rules-and-regulations
[80] https://experience.arcgis.com/experience/9824b03b114244348ef0b10f69f490b4/page/page_3/
[81] https://covid19genomics.dk/statistics
[82] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[83] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[84] https://covid19.ssi.dk/overvagningsdata/ugentlige-opgorelser-med-overvaagningsdata
[85] https://www.sst.dk/-/media/Udgivelser/2022/Corona/Vaccination/Notat-vaccination-af-boern-5-11-aar.ashx

England, UK

(population 56.6 million)

PHSM[86]

Most restrictions have been lifted. Some remain in place including advice to wear masks in high-risk situations. Free PCRs and RATs are no longer available to most people.

Schools & mitigation[87]

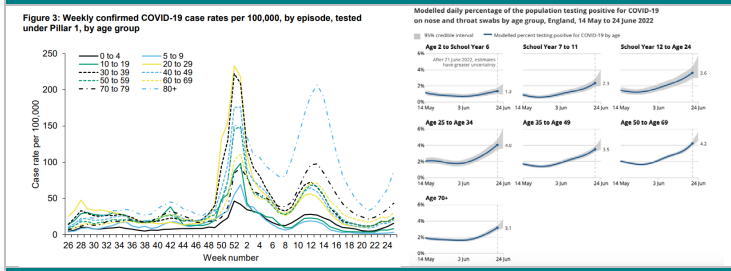
Schools closed for holidays from early to mid-Apr and late May to early Jun 2022. Standard PHSM only.

Vaccination coverage[88]

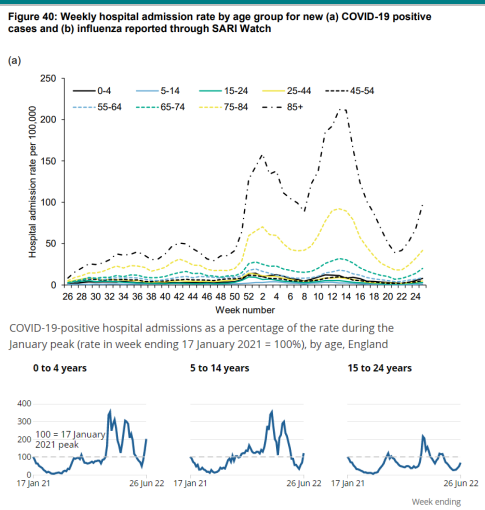
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	9.7	0.5	-
12-15	53.2	35.8	0.6
16-17	65.4	50.4	13.8
12+	93.2	87.2	68.7

Third/booster dose available for all 16y+ and other high-risk groups. Vaccination for 16-17y commenced mid-Aug, 12-15y mid-Sep 2021 (initially as single dose) and 5-11y late Feb 2022.

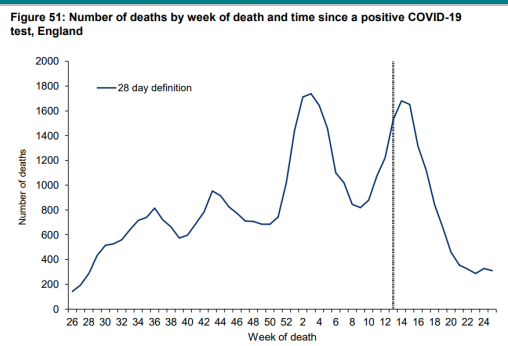
Cases by age group[89,90]



Hospitalisations in children[91,92]

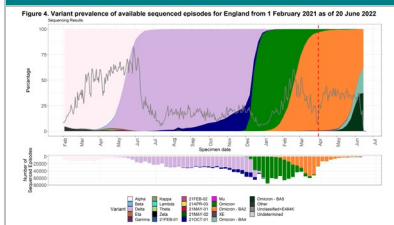


Deaths by age group[93]



Note: Deaths are no longer available by age group.

Genomic surveillance[94]



Omicron (BA.2 and BA.5) is the predominant variant.

[86] https://www.gov.uk/guidance/living-safely-with-respiratory-infections-including-covid-19
[87] https://www.gov.uk/government/publications/emergency-planning-and-response-for-education-childcare-and-childrens-social-care-settings
[88] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=England
[89] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[90] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/previousReleases
[91] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[92] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19latestinsights/hospitals
[93] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[94] https://www.gov.uk/government/publications/investigation-of-sars-cov-2-variants-technical-briefings

Finland

(population 5.5 million)

PHSM[95]

Gradual easing of restrictions from Feb 2022. Masks are no longer required but recommended if symptomatic or a close contact.

Schools & mitigation[96]

Schools closed for holidays in early Jun 2022.

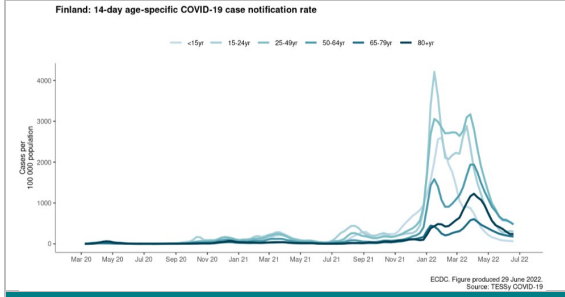
Standard PHSM, cohorting and ventilation.

Vaccination coverage[97]

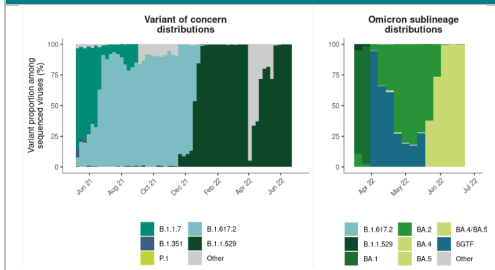
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	25.9	13.5	-
12-17	78.1	72.0	3.6
18+	89.7	87.6	65.3

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

Cases by age group[98]



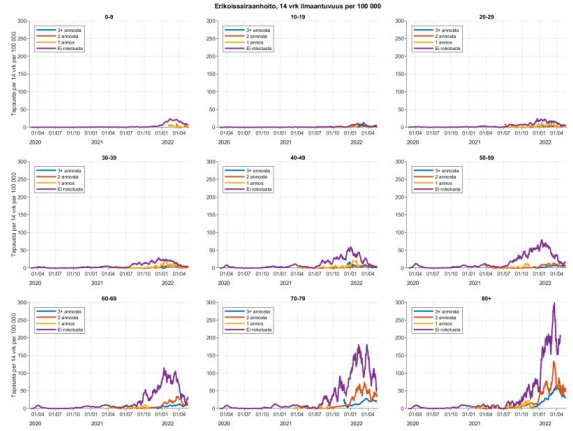
Genomic surveillance[102]



Omicron (BA.4/BA.5) is the predominant variant.

Hospitalisations in children[99]

Rate of admission to specialist care by age group:



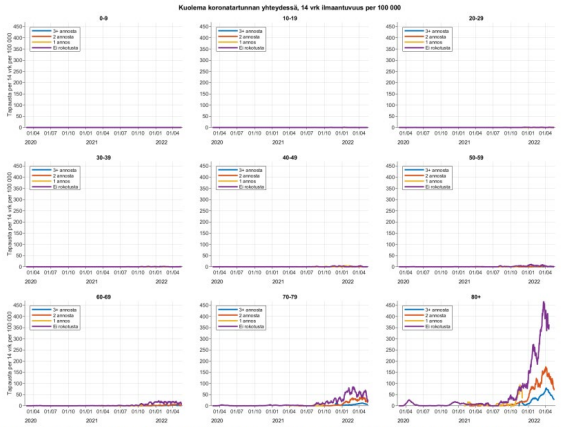
Kuvaaja 7. Erikoissairaanhoidon ilmaantuvuus (tapausta / 100 000 henkilöä / 14 vuorokautta) ikäryhmittäin rokotusstatuksen mukaan.

Purple (unvaccinated); yellow (single dose); red (two doses); blue (three doses)

Note: Data to Report #21, 10 Jun 2022

Deaths by age group[100,101]

Rate of deaths by age group:



Kuvaaja 15. Covid-19-tartunnan yhteydessä tapahtuneiden kuolemien ilmaantuvuus (tapausta / 100 000 henkilöä / 14 vuorokautta) ikäryhmittäin rokotusstatuksen mukaan.

Purple (unvaccinated); yellow (single dose); red (two doses); blue (three doses)

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

Note: Data to Report #21, 10 Jun 2022

[95] https://valtioneuvosto.fi/en/information-on-coronavirus/current-restrictions
[96] https://okm.fi/documents/1410845/65547855/MoEC+THL+recommendations+to+education+and+early+childhood+education+and+care+1.3.2022.pdf/61cad874-6b78-84e4-a885-3a61ca69cd10
[97] https://sampo.thl.fi/pivot/prod/en/vaccreg/cov19cov/summary_cov19ageareacov
[98] https://covid19-country-overviews.ecdc.europa.eu/countries/Finland.html
[99] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[100] https://experience.arcgis.com/experience/92e9bb33fac744c9a084381fc35aa3c7
[101] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[102] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta

Netherlands

(population 17.4 million)

PHSM[103]

Most restrictions have been lifted. Some remain in place including advice to test if symptomatic.

Schools & mitigation[104]

Schools closed for holiday in mid-Jul 2022.

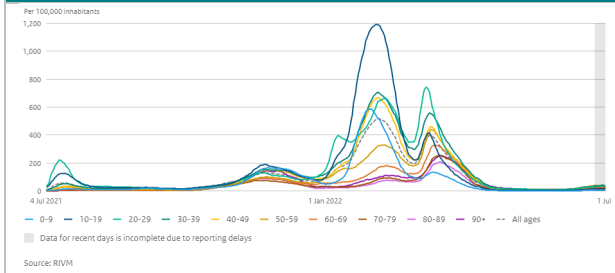
Standard PHSM, symptomatic RAT testing and improved ventilation.

Vaccination coverage[105]

Age group (years)	Fully vacc. (%)	3rd/booster (%)
5-11	4.0	-
12-17	66.0	2.0
18+	83.1	64.2

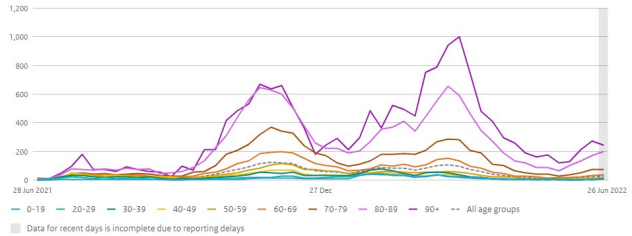
Note: The Netherlands also uses the J&J/Janssen vaccine which is a single-dose vaccine. Third/booster dose available for all 18y+. Vaccine offered to 12-17y from early Jul 2021 and 5-11y from mid-Jan 2022.

Cases by age group[106]

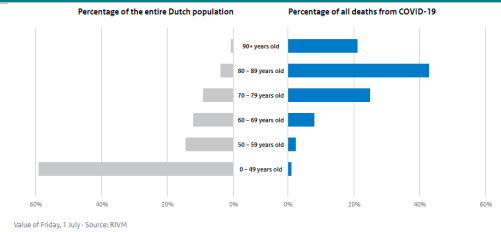


Hospitalisations in children[107]

Per 1,000,000

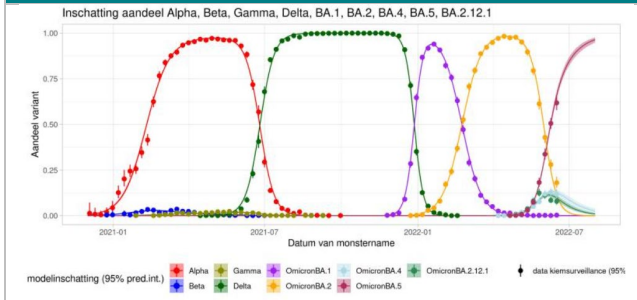


Deaths by age group[108]



The number of deaths in children is not known as the Netherlands provides a total sum of all deaths between 0-49 years.

Genomic surveillance[109]



Omicron (BA.5) is the predominant variant.

[103] https://www.government.nl/topics/coronavirus-covid-19/tackling-new-coronavirus-in-the-netherlands/coronavirus-measures-and-advice-in-brief
[104] https://www.rivm.nl/en/coronavirus-covid-19/children-and-covid-19
[105] https://coronadashboard.government.nl/landelijk/vaccinaties
[106] https://coronadashboard.government.nl/landelijk/positief-geteste-mensen
[107] https://coronadashboard.government.nl/landelijk/ziekenhuis-opnames
[108] https://coronadashboard.government.nl/landelijk/sterfte
[109] https://www.rivm.nl/en/coronavirus-covid-19/virus/variants

Scotland, UK

(population 5.5 million)

PHSM[110]

All restrictions have been lifted. Recommendation for masks in certain locations. Free PCRs and RATs are no longer available to most people.

Schools & mitigation[111]

Schools closed for holiday from early Jul 2022. Standard PHSM only.

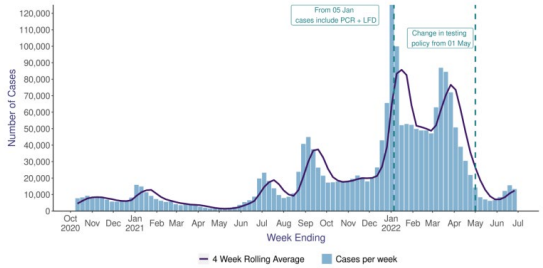
Vaccination coverage[112]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	21.3	3.4	-
12-15	67.2	47.7	1.4
16-17	80.7	60.7	22.2
12+	94.8	88.6	74.6

Third/booster dose available for all 18y+ and other high-risk groups.
Vaccination for 16-17y commenced mid-Aug, 12-15y mid-Sep 2021 (initially as single dose) and 5-11y late Feb 2022 (coverage data not available).

Cases[113]

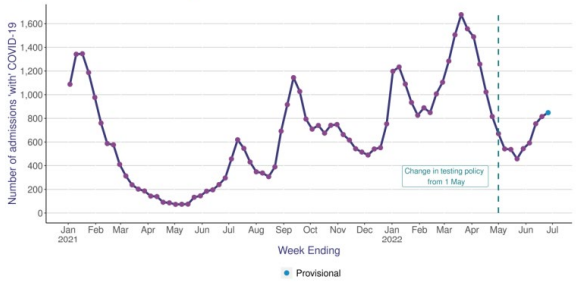
Figure 1: Number of positive cases per week with 4-week average, by specimen date



Data is no longer available by age group.

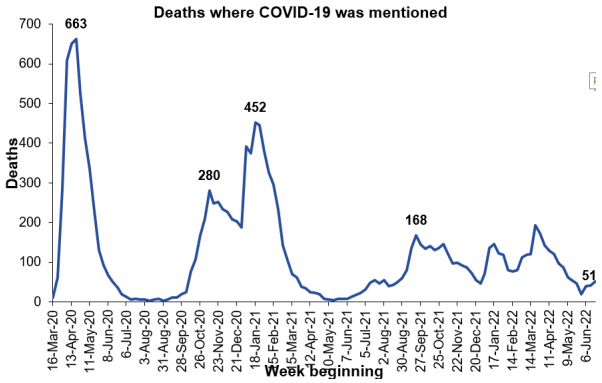
Hospitalisations[114]

Figure 7: Trend of hospital admissions 'with' COVID-19 in Scotland



Data is no longer available by age group.

Deaths[115]



Data is no longer available by age group.
There have been 5 deaths due to COVID-19 in children aged 0-14y in the past year.

[110] https://www.gov.scot/coronavirus-covid-19/
[111] https://www.gov.uk/government/publications/emergency-planning-and-response-for-education-childcare-and-childrens-social-care-settings
[112] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=Scotland
[113] https://publichealthscotland.scot/our-areas-of-work/covid-19/covid-19-data-and-intelligence/covid-19-weekly-report-for-scotland/
[114] https://publichealthscotland.scot/our-areas-of-work/covid-19/covid-19-data-and-intelligence/covid-19-weekly-report-for-scotland/
[115] 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[116]

From late Apr 2022, restrictions have eased further to include mask-wearing indoors only, advice to work from home removed, physical distancing requirements removed, and density limits removed.

Schools & mitigation[117]

Schools closed for holidays from late May to late Jun 2022.

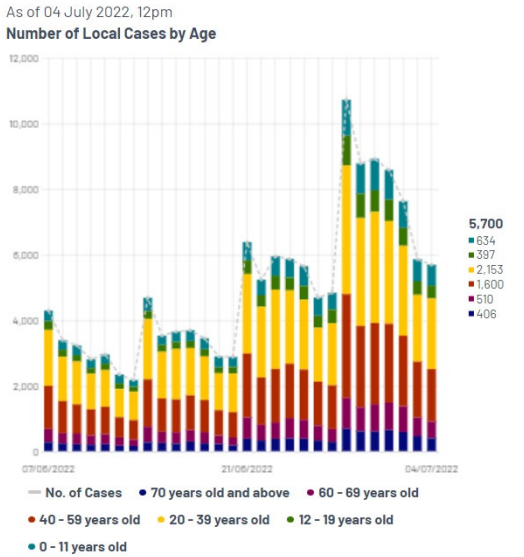
Standard PHSM, masks continue to remain indoors for all students and staff, symptomatic RAT testing.

Vaccination coverage[118]

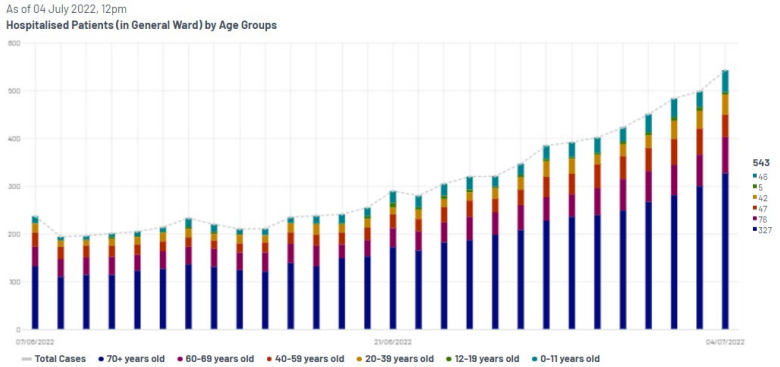
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
Total pop.	93.0	92.0	78.0

Third/booster dose available for all aged 12y+. Vaccination for 12y+ commenced early June and 5-11y late Dec 2021. From 14 Feb 2022, all 18y+ must receive a booster dose within 270 days of their 2nd dose to be considered fully vaccinated. The same applies to all 12-17y from 14 Mar 2022.

Cases by age group[119]

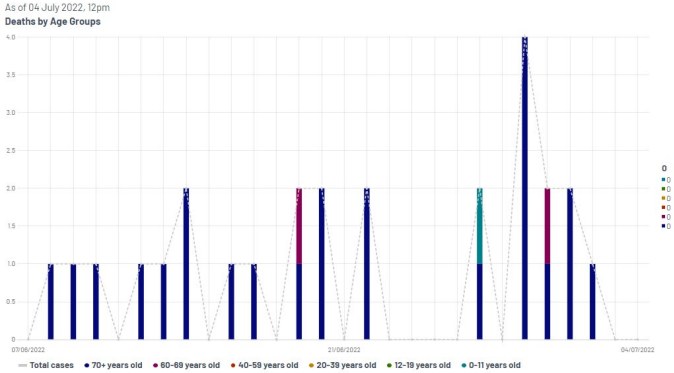


Hospitalisations in children[120]



One child was admitted to ICU due to MIS-C and there have been five reported cases of MIS-C throughout the entire pandemic, last reported 8 Nov 2021.

Deaths by age group[121]



There has been 1 death due to COVID-19 in children throughout the entire pandemic.

[116] https://www.moh.gov.sg/covid-19-phase-advisory
[117] https://www.moe.gov.sg/faqs-covid-19-infection
[118] https://www.moh.gov.sg/
[119] https://www.moh.gov.sg/
[120] https://www.moh.gov.sg/
[121] https://www.moh.gov.sg/

South Africa

(population 60.4 million)

PHSM[122]

Further easing of restrictions from late Jun 2022, including removal of requirement to wear masks.

Schools & mitigation[123]

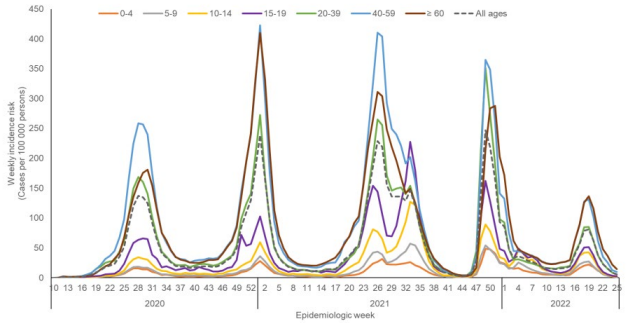
Schools closed for holiday in late Jun 2022. Standard PHSM and masks no longer required.

Vaccination coverage[124]

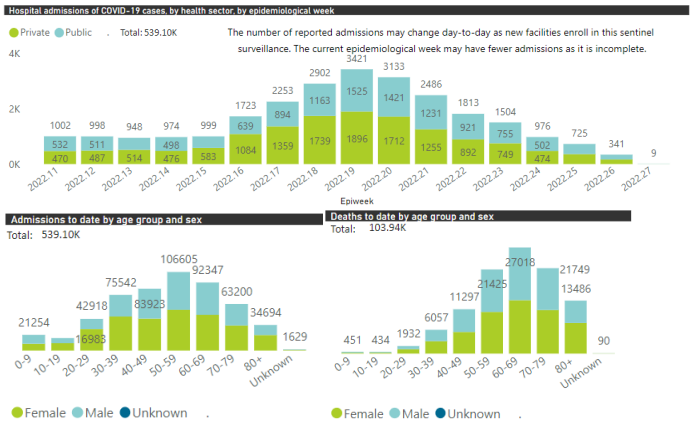
Age group (years)	Fully vaccinated* (%)
18+	50.6

*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.

Cases by age group[125]

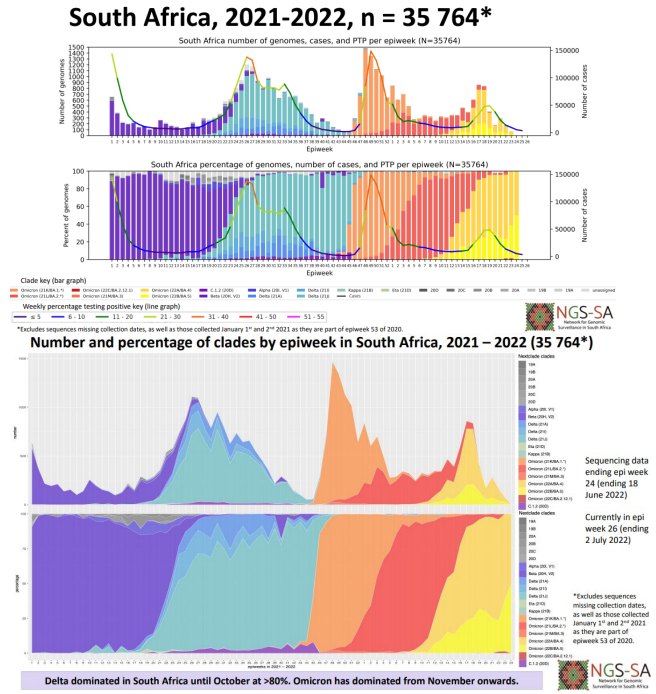


Hospitalisations in children and deaths by age group[126]



Total of 885 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[127]



Omicron (BA.4/BA.5) is the predominant variant.

[122] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[123] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[124] https://sacoronavirus.co.za/latest-vaccine-statistics/
[125] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/weekly-epidemiological-brief/
[126] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/daily-hospital-surveillance-datcov-report/
[127] 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[128]

The US CDC recommends indoor mask wearing for all aged 2y+ in areas of high community transmission, physical distancing, hand & surface hygiene, TTIQ, but adoption varies by State/Territory.

Schools & mitigation[129]

Schools closed for holiday in mid-Jun 2022.

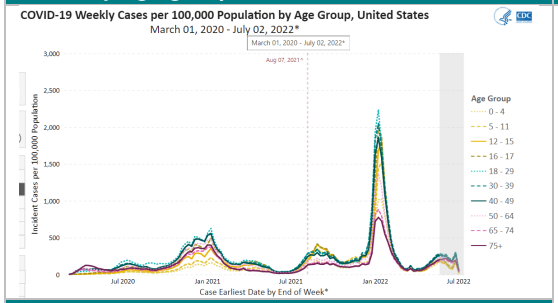
Standard PHSM, cohorting, masks, PCR & RAT screening in areas of medium or high community transmission, but adoption varies by State/Territory.

Vaccination coverage[130,131]

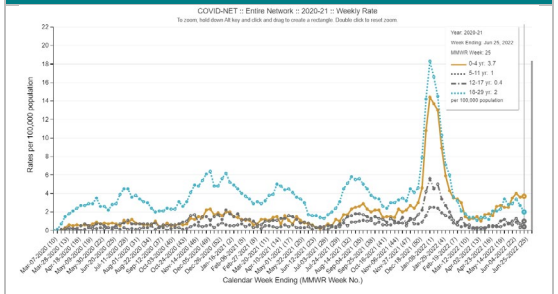
Age group (years)	1st dose (%)	Fully vaccinated* (%)	3rd/booster (%)
5-11	36.5	29.8	-
12-17	69.9	59.9	27.4
18+	89.6	76.8	51.1

*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 and 12y+ from early Jan 2022. Vaccination offered to 12y+ from May and 5-11y from Nov 2021.

Cases by age group[132]

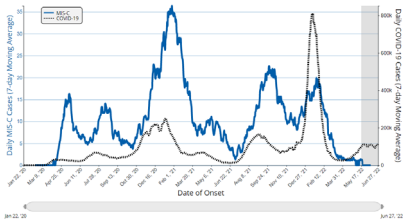


Hospitalisations in children[138]

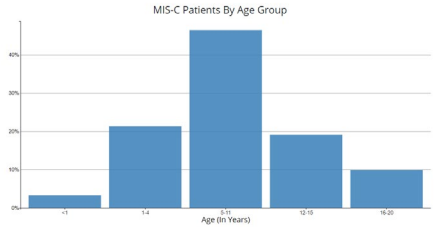


MIS-C[133]

Daily MIS-C Cases and COVID-19 Cases Reported to CDC (7-Day Moving Average)

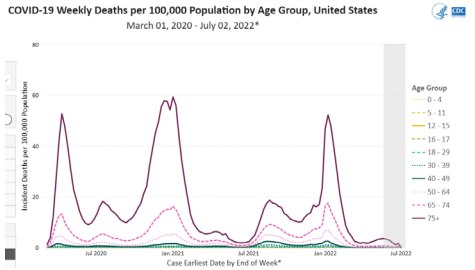


The shaded area on the right side of the figure represents the most recent six weeks of data, for which reporting of MIS-C cases is still incomplete.



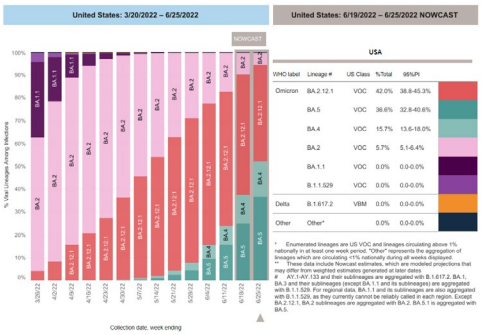
There have been 8639 cases of MIS-C throughout the entire pandemic, including 70 deaths. The median age of MIS-C cases was 9y and half were between 5-13y.

Deaths by age group[134,135]



Total 1063 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[137]:
e.g. Texas (n=150); California (n=71); New York City (n=36); Alaska (n=2); District of Columbia (n=0)

Genomic surveillance[136]



Omicron (BA.2.12.1/BA.5) is the predominant variant.

[128] https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html
[129] https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-guidance.html
[130] https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total
[131] https://covid.cdc.gov/covid-data-tracker/#vaccination-demographics-trends
[132] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[133] https://covid.cdc.gov/covid-data-tracker/#mis-national-surveillance
[134] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[135] https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm
[136] https://covid.cdc.gov/covid-data-tracker/#variant-proportions
[137] https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/
[138] https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html

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. [139]

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

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