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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, 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.

Overview

- The Omicron variant of concern[2] has been detected in 201 countries[3] (up from 193 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.5 (and to a lesser extent BA.4) in many regions, including the Australian Capital Territory (ACT), New South Wales (NSW), Victoria, Canada, Denmark, England, Finland, the Netherlands, Scotland, South Africa and the USA. Genomic surveillance data is not publicly available for Tasmania 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, indicated 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 then declined. BA.5 then caused another wave of cases in most regions included in this report in mid-2022, which have mostly declined. For BA.5, cases in children were lower than for adults. 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] A study found that over half of adults with evidence of recent Omicron infection were not aware that they were infected.[7]

[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
[7] Joung SY, Ebinger JE, Sun N, et al. Awareness of SARS-CoV-2 Omicron variant infection among adults with recent COVID-19 seropositivity. JAMA Netw Open. 2022. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795246

- Hospitalisations in children and adolescents declined after the BA.1 wave, including in children who are too young to be vaccinated, which then increased with the BA.5 wave but has since declined.

New updates

- Trends: During the original variant, Alpha and Delta waves in Iceland, disease severity was similar but incidence was five-fold higher in the Delta wave (3.5 vs 0.73/1000 children per month).[8] MIS-C: In southeast England, MIS-C rates per confirmed SARS-CoV-2 infection in children aged 0-16 years were 56% lower (RR: 0.34, 95% CI: 0.23-0.50) during pre-vaccine Delta, 66% lower (RR: 0.44, 95% CI: 0.28-0.69) during post-vaccine Delta and 95% lower (RR: 0.05, 95% CI: 0.02-0.10) during Omicron.[9]
- Clinical: Analysis of paediatric SARS-CoV-2 cases during the pre-Delta period found that 5.8% of SARS-CoV-2 positive children reported post-COVID-19 conditions (any persistent, new or recurrent health problems) at 90 days post-diagnosis. Characteristics associated with reporting at least one condition included being hospitalised for 48 hours or more compared with no hospitalisation (aOR: 4.59, 95% CI: 2.50-8.44) and being 14 years or older compared with <1 year (aOR: 2.67, 95% CI: 1.43-4.99).[10]
- Clinical/MIS-C: In a cohort study of Danish children and adolescents tested using PCR for SARS-CoV-2, risk of hospitalisation with any variant for 12 hours or more was 0.49% (95% CI: 0.44-0.54%) and 0.01% (n=10/73,187) were admitted to ICU within 30 days of a positive test. MIS-C occurred in 0.05% (n=32/70,666) of Danish children and adolescents within two months of a PCR-confirmed SARS-CoV-2 infection.[11]
- Clinical/long-COVID: Differences between children who have and who have not had COVID-19 are small and probably of limited clinical relevance. Most symptoms were mild and the small excess of non-specific symptoms was accompanied by a higher quality of life in children who have had COVID-19. The overall impact on children of having had COVID-19 is probably small and less than the indirect effects of the pandemic.[12]
- Clinical/long-COVID: In a national cohort of 12,788 adolescents in the UK, those reporting parents experiencing ongoing problems from COVID-19 had a 1.79-fold (95% CI: 1.58-2.02) higher odds of experiencing long-COVID six months after a SARS-CoV-2 PCR test than those reporting parents without ongoing symptoms, independent of age, sex, deprivation and SARS-CoV-2 infection status.[13]

School mitigation measures

- All countries in this report reopened schools during the Omicron period and they have remained open despite rising case numbers with the BA.1/BA.2 and BA.4/BA.5 waves.
- 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 staff in some circumstances. Tasmania requires all close contacts aged 12 years and older to wear masks. No Nordic countries have had mask mandates for children and several countries have never recommended masks for children. England, Scotland, Singapore and South Africa do not have a mask mandate in most places, including schools.
- Finland and Denmark lifted all restrictions in Feb 2022. The ACT, NSW, Tasmania, Victoria, Canada, England, the Netherlands, Scotland, Singapore, South Africa and the USA 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). Canada and the USA are offering vaccination to all children aged 6 months to under 5 years while Australia is only offering vaccination to those in this age group with underlying medical conditions. First dose coverage rates range from ~11-79% among 5-11 year olds and ~53-99% among 12-15 year olds.

[8] Thors V, Bjornsdottir KL, Love T, et al. SARS-CoV-2 infections in Icelandic children: close follow-up of all confirmed cases in a nationwide study. The Pediatric Infectious Disease Journal. 2022. https://journals.lww.com/pidj/fulltext/9900/sars_cov_2_infections_in_icelandic_children__close.124.aspx
[9] Cohen JM, Carter MJ, Cheung CR, et al. Lower risk of multisystem inflammatory syndrome in children with the Delta and Omicron variants of severe acute respiratory syndrome coronavirus 2. Clinical Infectious Diseases. 2022;ciac553. https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac553/6631205
[10] Funk AL, Kuppermann N, Florin TA, et al. Post-COVID-19 conditions among children 90 days after SARS-CoV-2 infection. JAMA Network Open. 2022;5(7):e2223253. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2794484
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[12] Rytter MJH. Difficult questions about long COVID in children. The Lancet Child & Adolescent Health. 2022;6(9):P595-7. https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(22)00167-5/fulltext
[13] Bertran M, Pereira SP, Nugawela MD, et al. Association between parents experiencing ongoing problems from COVID-19 and adolescents reporting long COVID six months after a positive or negative SARS-CoV-2 PCR-test: prospective, national cohort study in England [Preprint]. SSRN. 2022. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4192732

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. Subvariants BA.4, BA.5 and BA.2.12.1 were then detected in the ACT, NSW and Victoria and slowly replaced BA.2. 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. Subvariant BA.5 became the predominant subvariant and caused another wave in Jun-Jul 2022 in the ACT, NSW, Tasmania and Victoria, which has since declined.
- 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.[14]
- 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.[15]
- 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.[16]
- 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.[17]
- 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.[18]
- 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 with BA.1, but this has been a combination of admission for COVID-19 treatment and incidentally testing positive when admitted for an unrelated condition. This declined even in children too young to be vaccinated. However, hospitalisations increased with the BA.5 wave which have now stabilised or declined in most regions.
- In the USA, paediatric hospitalisations during the Omicron wave increased particularly in the 0-4 year age group and were highest in 0-2 year olds.[19] 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).[20] 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.[21]
- 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.[22]

[14] Mallapaty S. Kids show mysteriously low levels of COVID antibodies. Nature. 10 March 2022. https://www.nature.com/articles/d41586-022-00681-8
[15] 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
[16] 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
[17] 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
[18] 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
[19] 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
[20] 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
[21] 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
[22] 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

- 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.[23]

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.[24]
- In Europe, there has not been a substantial increase in excess mortality in children aged 0-14 years throughout the Omicron period.[25]
- 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.[26]
- 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.[27]
- 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.[28]
- 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.[29]
- 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.[30]
- 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.[31]
- 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.[32]
- **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.[33] 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.[34] 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).[35]

[23] 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
[24] 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
[25] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[26] 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
[27] Omicron drives record cases of child COVID hospitalisations. Financial Times. 17 January 2022. https://www.ft.com/content/28be9d3f-0b12-4c33-bda9-fbff375c0b7e
[28] 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
[29] 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
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[31] 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
[32] 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
[33] Does Omicron hit kids harder? Scientists are trying to find out. Nature. 04 February 2022. https://www.nature.com/articles/d41586-022-00309-x
[34] 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
[35] Holm M, Espenhain L, Glenthoj J, et al. Risk and phenotype of multisystem inflammatory syndrome in vaccinated and unvaccinated Danish children before and during the Omicron wave. JAMA Pediatrics. 2022. https://doi.org/10.1001/jamapediatrics.2022.2206

- 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.[36]

[36] 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^
Australia	Omicron BA.5	↓	Not available	134 cases[%]	9
ACT, Australia	Omicron BA.5	↓	↓*	Not reported	0
NSW, Australia	Omicron BA.5	Stable	↑	Not reported	5[b]
TAS, Australia	Not reported	↓	↓*	Not reported	0
VIC, Australia	Omicron BA.4/BA.5	↓	Not available	Not reported	3[b]
Canada	Omicron BA.5	↓	Not available	Not reported	59[b]
Denmark	Omicron BA.5	↓	↓*	44 cases[+]	7[b]
England, UK	Omicron BA.5	↓	↓	Not reported	90[b,#,±]
Finland	Omicron BA.5	Stable	Not available	Not reported	0
Netherlands	Omicron BA.5	↓	↓	Not reported	Not reported
Scotland, UK	Omicron BA.5	↓*	↓*	Not reported	5[a,#]
Singapore	Not reported	↓	↓	5 cases[-]	2
South Africa	Omicron BA.5	Stable	Stable	Not reported	900[b]
USA	Omicron BA.5	↓	↓	8798 cases	1201[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.
[%]MIS-C data is only from the PAEDS Network of seven hospitals.

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). From mid-Jul 2022, the second booster dose is extended to all aged 30 years and older. From early Aug 2022, the primary series is extended to children aged six months to under five years in at-risk population groups.
  - Australia has one of the highest testing rates per capita globally.[37]
  - There have been 9 deaths in children aged 0-9 years and 12 deaths in children aged 10-19 years during the entire pandemic.[38]
  - Excess mortality:
    - Increased by 20.5% in Jan to Feb 2022. COVID-19 was the fourth most common cause of death in Feb.[39] 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.[40]
    - 12.2% above the historical average in Apr 2022.[41] Of all COVID-19 deaths registered by end of Jun 2022, 86% were due to COVID-19, while the remainder had an incidental SARS-CoV-2 infection. 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.[42]
- The **ACT** closed schools for holidays in early Jul and reopened in mid-Jul 2022.
  - Most restrictions have been lifted, except for mask wearing in certain settings only.
  - Schools have mitigation strategies in place, including mask-wearing only for staff in some circumstances and encouraged for high school students.
  - Approximately 79% of 5-11 year olds and >99% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Case numbers increased in all age groups with the BA.5 wave but are now declining in all ages. Case rates are similar in all age groups.
  - Of all the hospitalisations in <17 years, 71% are unvaccinated.
  - There have been no deaths in children throughout the entire pandemic.
- **NSW** closed schools for holidays in late Jun and reopened in mid-Jul 2022.
  - Most restrictions have been lifted, except for mask wearing in certain settings.
  - Schools have mitigation strategies in place, including masks being strongly encouraged indoors for students and staff and RATs for symptomatic individuals and close contacts.
  - Approximately 50% of 5-11 year olds and 82% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Case numbers increased in all age groups with the BA.5 wave but are now stable.
  - Hospitalisations are increasing in the 0-9 and 10-19 year age groups.
  - Four children have died with COVID-19 throughout the entire pandemic.
- **Tasmania** closed schools for holidays in early Jul and reopened in late Jul 2022.
  - Most restrictions have been lifted, except for mask wearing in certain settings.
  - Schools have mitigation strategies in place, including RATs for symptomatic individuals and close contacts, masks required for close contacts aged 12 years and older, and masks strongly encouraged indoors.

[37] 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
[38] Department of Health and Aged Care. Coronavirus disease 2019(COVID-19) epidemiology reports, Australia, 2020-2022. Canberra, Australia: Australian Government; 2022. https://www1.health.gov.au/internet/main/publishing.nsf/Content/novel_coronavirus_2019_ncov_weekly_epidemiology_reports_australia_2020.htm
[39] 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
[40] 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
[41] 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
[42] Australian Bureau of Statistics (ABS). COVID-19 mortality in Australia: deaths registered until 30 June 2022. Canberra, Australia: ABS; 2022. https://www.abs.gov.au/articles/covid-19-mortality-australia-deaths-registered-until-30-june-2022

- Approximately 63% of 5-11 year olds and 86% of 12-15 year olds have received at least one dose of vaccine.
- Genomic surveillance data is not publicly available.
- Case numbers increased in all age groups with the BA.5 wave but have since declined. Hospitalisations increased with the BA.5 wave but are now declining. Amongst children, hospitalisations with and due to COVID-19 are highest in 0-4 year olds.
- There have been no deaths in children throughout the entire pandemic.

- **Victoria** closed schools for holidays in late Jun and reopened in mid-Jul 2022.
  - Most restrictions have been lifted, except for mask wearing in certain settings, including public transport and healthcare facilities.
  - Schools have mitigation strategies in place, including improved ventilation. RAT screening, then subsequently symptomatic/close contact testing, was provided until late Jun 2022. Indoor mask wearing is strongly recommended for all aged >8 years.
  - Approximately 56% of 5-11 year olds and 88% of 12-15 year olds have received at least one dose of a COVID-19 vaccine.
  - Omicron BA.4/BA.5 is the predominant variant.
  - Case numbers increased with the BA.4/BA.5 wave but are now decreasing.
    - 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 increased during the BA.4/BA.5 wave and are now declining.
  - Three children have died with COVID-19 throughout the entire pandemic.
- In **Europe and North America**, many countries and regions experienced a new wave of cases and hospitalisations with the BA.5 wave in mid-2022.
- **Canada** closed its schools for summer holidays in late Jun 2022.
  - 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.5 is the predominant variant.
  - Case numbers increased with the BA.5 wave but are now decreasing.
  - There is no data on hospitalisation trends by age.
  - There have been 59 deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.
- **Denmark** closed its schools for summer holidays in late Jun 2022. Excess mortality in all age groups dramatically declined over the Omicron period but temporarily increased two times over the past four months.[43]
  - All restrictions have been lifted from Feb 2022.
  - Approximately 46% of 5-11 year olds and 80% of 12-15 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Cases increased with the BA.5 wave but are now decreasing, 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 with the BA.5 wave and are now decreasing.
  - There have been seven deaths with COVID-19 in children aged 0-19 years throughout the entire pandemic.
- **England** closed its schools for summer holidays in late Jul 2022. Excess mortality in all age groups continues to dramatically decline over the Omicron period.[44]
  - 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 11% 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.5 is the predominant variant.

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

- 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 then also declined in all age groups, coinciding with the end of provision of free universal testing for the general public. Cases increased in all age groups with the BA.5 wave, with the greatest increase in children amongst 0-4 year olds, but are now decreasing.
  - Case rates are highest in the 50-69 year age group and lowest in the age 2 years to school year 6 group.[45]
- Hospitalisations increased in most age groups with the BA.5 wave, except for 5-14 year olds, but have since decreased. Amongst children, the increase was highest in 0-4 year olds, which also exceeded hospitalisations in 25-54 year olds.
- Deaths are no longer available by age group but total deaths increased with the BA.5 wave and have since decreased.

- **Finland** closed its schools for summer holidays in early Jun 2022. Excess mortality has remained at baseline or slightly elevated throughout the Omicron period.[46]
  - Few restrictions remain in place and masks are only recommended in certain circumstances only.
  - Approximately 25% of 5-11 year olds and 77% of 12-17 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Cases increased with the BA.5 wave and are now peaking.
  - Hospitalisation data by age group is not available.
  - There have been no deaths in children throughout the entire pandemic.
- **The Netherlands** closed its schools for summer holidays in mid-Jul 2022. Excess mortality declined over the Omicron period, which temporarily increased during the BA.2 and BA.5 waves and is now at baseline.[47]
  - Few restrictions remain in place, including advice to test if symptomatic.
  - Approximately 2% of 5-11 year olds and 56% 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. BA.5 then caused a slow increase in cases in Jun-Jul 2022 which have since decreased, although testing rates have greatly decreased since the BA.1 wave.
  - 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. Hospitalisations increased with the BA.5 wave, primarily in the 50+ year age groups, and are now declining. Rates remain stable and lowest in children.
  - The number of deaths with COVID-19 in children is not reported.
- **Scotland** closed its schools for summer holidays in early Jul 2022. Excess mortality in all age groups has remained low and stable over the Omicron period.[48]
  - All restrictions have been lifted, with a recommendation to wear masks in certain locations only. Free PCRs and RATs are no longer available to most people.
  - Approximately 23% 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.
  - Omicron BA.5 is the predominant variant.
  - 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 increased again with the BA.5 wave in Jun-Jul 2022 and are now decreasing.
  - Hospitalisations in children increased with the BA.2 wave but then decreased. Overall hospitalisations increased with the BA.5 wave and are now decreasing. 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.
  - Most restrictions have been lifted, including a recent change to remove mask requirements except in high-risk settings.
  - 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 then increased with the BA.5 wave which is now declining.
  - Overall hospitalisations increased with the BA.5 wave but admissions remained amongst the lowest in children and are now decreasing.

[45] 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
[46] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[47] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps
[48] EuroMOMO. Graphs and maps. Copenhagen, Denmark: Statens Serum Institut (SSI); 2022. https://www.euromomo.eu/graphs-and-maps

  - 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.
  - Two children have died with COVID-19 throughout the entire pandemic.
- **South Africa** closed its schools for holidays late Jun and reopened in mid Jul 2022. Overall excess mortality declined early in the Omicron period, then slightly increased and stabilised since mid-Apr.[49]
  - Most restrictions have been lifted.
  - Approximately 51% of the entire population is fully vaccinated. Vaccination is only offered to those aged 12 years and older.
  - Omicron 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 have since decreased.
  - Overall hospitalisations and deaths increased with the BA.4/BA.5 wave but remained lower than the increase seen with BA.1. Hospitalisations are now low and stable.
  - There have been 900 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 summer holidays from mid-Jun 2022, which varied by location. Excess mortality in all age groups declined over the Omicron period and stabilised (data to early Jun 2022).[50]
  - The US Centres for Disease Control and Prevention (CDC) recommends multi-layered PHSM, but adoption varies by State and Territory.
  - Approximately 3% of <2 year olds, 5% of 2-4 year olds, 38% of 5-11 year olds and 70% of 12-17 year olds have received at least one dose of vaccine.
  - Omicron BA.5 is the predominant variant.
  - Cases increased with the BA.5 wave but are now decreasing.
  - Hospitalisations increased in children, especially in the 0-6 month age group.
  - There have been 1201 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.
  - A total of 8798 cases of MIS-C have been reported, including 71 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.

[49] 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
[50] 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

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

(population 25.8 million)

PHSM[51]

Most restrictions have been lifted and varies by State and Territory.

Schools & mitigation[52]

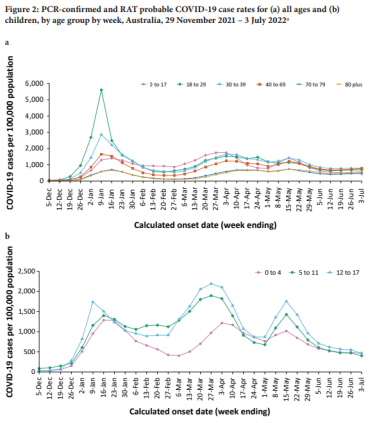
Schools closed for holidays in early Jul and reopened in mid Jul 2022 in most States and Territories. Standard PHSM with variations depending on State and Territory. Vaccination continues to be encouraged.

Vaccination coverage[53]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	52.1	40.6	-
12-15	83.8	79.2	-
16+	97.9	96.2	68.7

Vaccination for 5-11y available from 10 Jan, 6m-<5y at high risk groups from 5 Sep 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, 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, 16-64y at risk of severe disease or with disability from 30 May, all 30y+ from 8 Jul 2022.

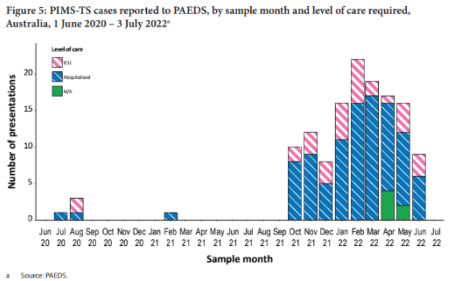
Cases by age group[54]



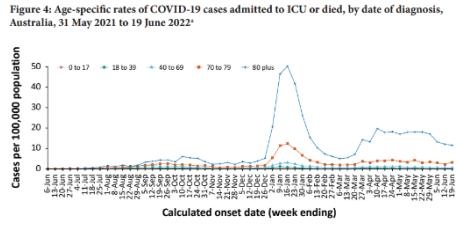
Hospitalisations and deaths by age group[55]

Hospitalisations are not available by age group.

MIS-C:

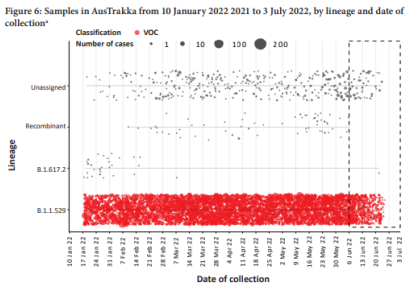


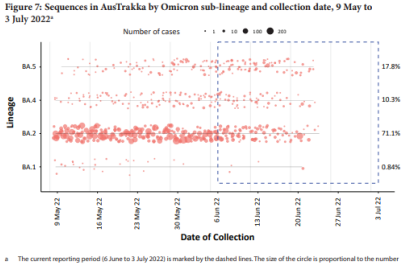
Since the start of the pandemic, 134 cases of MIS-C have been reported through the PAEDS Network, which includes seven hospitals. The majority of cases have occurred in those aged 5 to <12 years (55%), followed by those aged 6 months to <5 years (25%). There have been no MIS-C associated deaths.



There have been 9 deaths in 0-4 year olds, 2 deaths in 5-11 year olds, 3 deaths in 12-15 year olds and 2 deaths in 16-17 year olds since the start of the pandemic. The population mortality rate is 0.6, 0.1, 0.2 and 0.3 per 100,000 population, respectively, in comparison to the population average of 37.9.

Genomic surveillance[56]





Omicron BA.5) is the predominant variant.

[51] https://www.health.gov.au/health-alerts/covid-19/restrictions-and-lockdowns
[52] https://www.dese.gov.au/covid-19/schools
[53] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[54] https://www1.health.gov.au/internet/main/publishing.nsf/Content/novel_coronavirus_2019_ncov_weekly_epidemiology_reports_australia_2020.htm
[55] https://www1.health.gov.au/internet/main/publishing.nsf/Content/novel_coronavirus_2019_ncov_weekly_epidemiology_reports_australia_2020.htm
[56] https://www1.health.gov.au/internet/main/publishing.nsf/Content/novel_coronavirus_2019_ncov_weekly_epidemiology_reports_australia_2020.htm

Australia: Australian Capital Territory

(population 454,000)

PHSM[57]

Most restrictions have been lifted, except for mask wearing in certain settings only.

Schools & mitigation[58]

Schools closed for holidays in early Jul and reopened in mid Jul 2022. Masks are required for staff in some circumstances and encouraged for high school students. Vaccination continues to be encouraged.

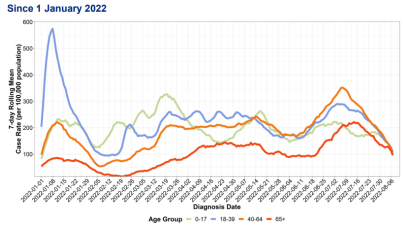
Vaccination coverage[59]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	79.4	69.7	-
12-15	>99.0	>99.0	-
16+	>99.0	>99.0	80.9

Vaccination for 5-11y available from 10 Jan, 6m-<5y at high risk groups from 5 Sep 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, 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, 16-64y at risk of severe disease or with disability from 30 May, all 30y+ from 8 Jul 2022.

Cases by age group[60]

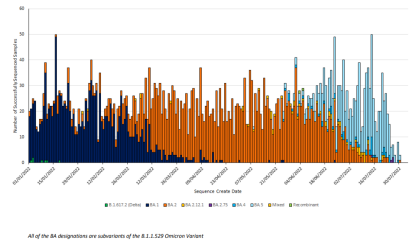
Figure 5: Rolling mean of COVID-19 case rate by age group and diagnosis date[a]



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

Genomic surveillance[63]

Figure 8: Proportion of variant designations of sequenced samples in the ACT since 1 January 2022



All of the BA designations are subvariants of the B.1.1.529 Omicron Variant

Omicron (BA.5) is the predominant variant.

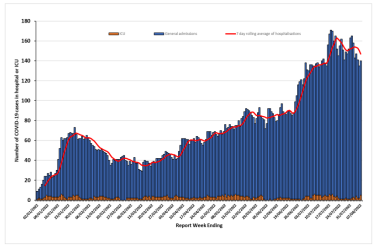
Hospitalisations in children[61]

Table 7: Hospitalised[a] COVID-19 cases[b] by age group and vaccination status

Age Group	Unvaccinated N (%)	1 doses of COVID-19 vaccine N (%)	2 doses of COVID-19 vaccine N (%)	3 doses of COVID-19 vaccine N (%)	4 doses of COVID-19 vaccine N (%)	Unvalidated/ Unknown N (%)	2022 TOTAL
0–17	117 (71%)	12 (7%)	29 (18%)	2 (1%)	0 (0%)	5 (3%)	165 (100%)
18–39	30 (13%)	8 (3%)	104 (45%)	73 (32%)	2 (1%)	14 (6%)	231 (100%)
40–64	38 (12%)	6 (2%)	102 (32%)	143 (45%)	16 (5%)	13 (4%)	318 (100%)
65+	59 (8%)	13 (2%)	169 (24%)	322 (46%)	115 (16%)	24 (3%)	702 (100%)
2022 TOTAL[a]	244 (17%)	39 (3%)	404 (29%)	540 (38%)	132 (9%)	56 (4%)	1,416 (100%)

Notes:
[a]Hospitalisation is defined as a person being admitted to an ACT hospital for any reason and does not differentiate between a person admitted for COVID-19 related reasons or for other reasons.
[b]Cases admitted to an ACT hospital, including those with a residential address in the ACT or another state or territory.
[c]35 cases were admitted to an ACT hospital with admission date prior to the reporting period. This includes 1 case who was admitted to an ICU with an admission date prior to the reporting period. These cases have been added to the total number of hospitalisations and ICU admissions since 1 January 2022.

Figure 7: COVID-19 hospitalisations[a] in the ACT, by date[b], from 1 January 2022



Note:
[a]Hospitalisation is defined as a person admitted to an ACT hospital for any reason and does not differentiate between a person admitted for COVID-19 related reasons or for other reasons. Cases admitted to an ACT hospital includes those with a residential address in the ACT or another state or territory.
[b]Date used in the reporting week refers to the date of publication of COVID-19 hospitalisations on the ACT Health website. Data published on, for example, 17 July 2022 refer to COVID-19 cases in hospital up until 8pm 16 July 2022.

Note: Figure is not available by age group.

Deaths by age group[62]

Table 3: COVID-19 case status by test type

	Test type	WEEK 31 Ending 31/07/2022[a]	WEEK 32 Ending 7/08/2022[ac]	2022 TOTAL[bc]
Cases	PCR	3,183	2,137	115,844
	RAT	2,693	1,804	79,271
	Total	**5,805**	**4,420**	**195,115**
Deaths[d]		6[e]	4	86

Note:
[a]Cases notified to ACT Health during the reporting period.
[b]Total cases since 1 January 2022.
[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]Refers to a COVID-19 death that has been confirmed by ACT Health during the reporting period. The definition of a COVID-19 death for surveillance and reporting purposes is according to the COVID-19 SoNG.
[e] Three deaths occurred in Week 31 which were previously not reported.

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

[57] https://www.covid19.act.gov.au/restrictions/current-restrictions
[58] https://www.education.act.gov.au/public-school-life/covid-school-arrangements
[59] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[60] https://www.covid19.act.gov.au/updates/act-covid-19-statistics
[61] https://www.covid19.act.gov.au/updates/act-covid-19-statistics
[62] https://www.covid19.act.gov.au/updates/act-covid-19-statistics
[63] https://www.covid19.act.gov.au/updates/act-covid-19-statistics

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

Australia: New South Wales

(population 8.1 million)

PHSM[64]

Most restrictions have been lifted, except for mask wearing in certain settings only.

Schools & mitigation[65]

Schools closed for holidays in late Jun and reopened in mid Jul 2022. Masks are strongly encouraged indoors for students and staff and RATs are provided to symptomatic individuals and close contacts. Vaccination and maximising ventilation continue to be encouraged.

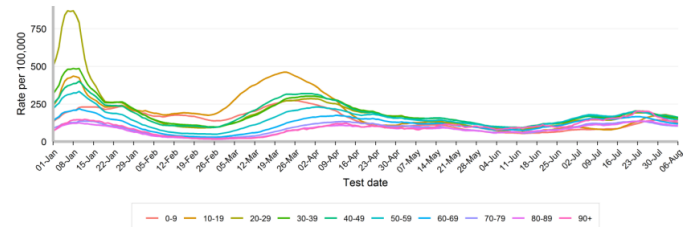
Vaccination coverage[66]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	49.6	39.8	-
12-15	82.2	78.5	-
16+	96.9	95.4	66.0

Vaccination for 5-11y available from 10 Jan, 6m-<5y at high risk groups from 5 Sep 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, 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, 16-64y at risk of severe disease or with disability from 30 May, all 30y+ from 8 Jul 2022.

Cases by age group[67]

Figure 6. Daily seven-day rolling average rate of COVID-19 notifications per 100,000 population, by age group and test date, NSW, 1 January to 06 August 2022

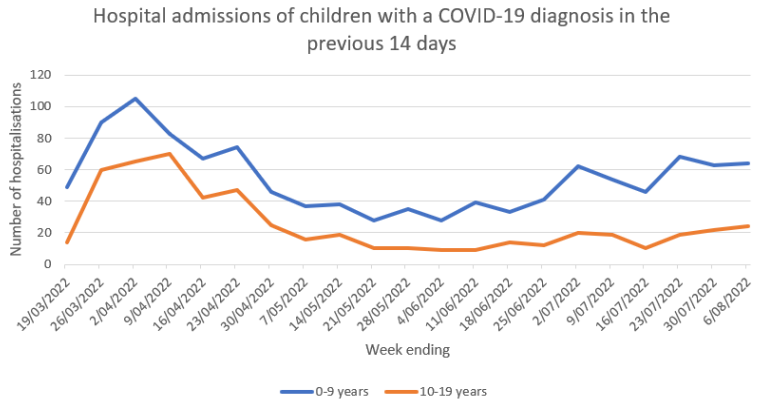


Omicron (BA.5) is the predominant variant.

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 23 July 2022

Variant	Week ending			
	09 July	16 July	23 July	30 July
Omicron (BA.2)	159 (17%)	99 (9.6%)	41 (5.2%)	42 (24.0%)
Omicron (BA.2.12.1)	40 (4.3%)	18 (1.7%)	13 (1.6%)	8 (2.9%)
Omicron (BA.2.75)	4 (0.4%)	5 (0.5%)	3 (0.4%)	9 (3.3%)
Omicron (BA.4)	111 (11.9%)	118 (11.5%)	72 (9.1%)	20 (11.4%)
Omicron (BA.5)	620 (66.2%)	790 (76.7%)	660 (83.7%)	194 (70.5%)
Omicron (BE.1)	1 (0.1%)	0 (0%)	0 (0%)	0 (0%)
Omicron (BE.3)	1 (0.1%)	0 (0%)	0 (0%)	0 (0%)
Dual Infection	0 (0%)	0 (0%)	0 (0%)	2 (0.7%)
Total	936	1030	789	275

Hospitalisations in children and deaths by age group[68,69]



It is not recorded what percentage are incidental hospitalisations.

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

Five 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.

[64] https://www.nsw.gov.au/covid-19/stay-safe/rules
[65] https://education.nsw.gov.au/covid-19/advice-for-families
[66] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[67] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx
[68] Data used to create graph from: https://www.health.nsw.gov.au/Infectious/covid-19/Pages/weekly-reports.aspx
[69] https://www.nsw.gov.au/covid-19/stay-safe/data-and-statistics#toc-covid-19-cases-and-deaths-by-age-group

Australia: Tasmania

(population 558,000)

PHSM[70]

Most restrictions have been lifted, except for mask wearing in certain settings only.

Schools & mitigation[71]

Schools closed for holidays in early Jul and reopened in late Jul 2022. Masks are required for close contacts aged 12+ and strongly encouraged indoors, RATs are provided to symptomatic individuals and close contacts, cohorting and supply of air-purification devices. Vaccination continues to be encouraged.

Vaccination coverage[72]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	62.6	51.9	-
12-15	85.9	81.6	-
16+	>99.0	>99.0	73.6

Vaccination for 5-11y available from 10 Jan, 6m-<5y at high risk groups from 5 Sep 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, 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, 16-64y at risk of severe disease or with disability from 30 May, all 30y+ from 8 Jul 2022.

Cases by age group[73]

1.6 Weekly number of COVID-19 cases per 1,000 people notified in Tasmania since 15 December 2021, by age group

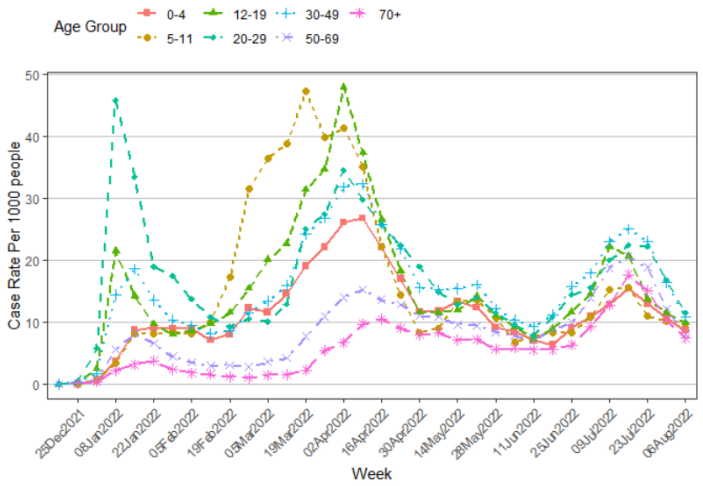
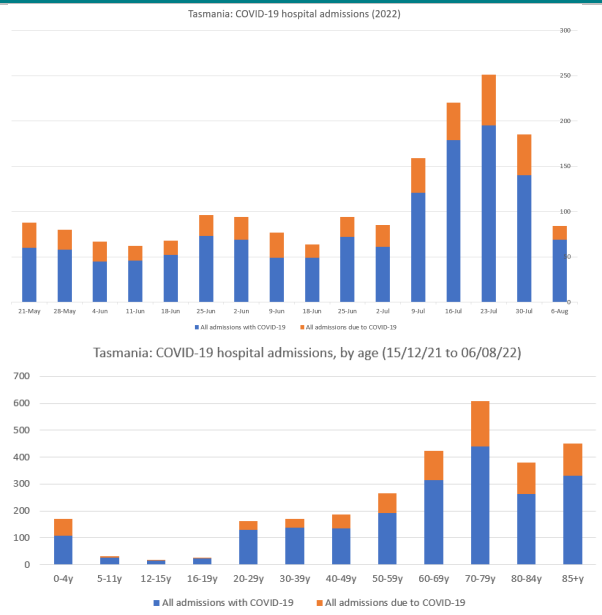


Figure 3: Weekly number of COVID-19 cases per 1,000 people (rate) notified in Tasmania since 15 December 2021, by age group.

Hospitalisations in children and deaths by age group[74]



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

Table 11: All hospital admissions with COVID-19, number of hospital admissions due to COVID-19, number of ICU admissions (for any reason), and deaths for which COVID-19 was a cause or contributing factor from 15 December 2021 to 6 August 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	109 (5.2%)	60 (7.8%)	5 (6.8%)	- (0.0%)
5-11	26 (1.2%)	6 (0.8%)	- (0.0%)	- (0.0%)
12-15	16 (0.8%)	2 (0.3%)	- (0.0%)	- (0.0%)
16-19	22 (1.0%)	3 (0.4%)	2 (2.7%)	- (0.0%)
20-29	129 (6.1%)	32 (4.1%)	8 (10.8%)	- (0.0%)
30-39	138 (6.5%)	33 (4.3%)	3 (4.1%)	1 (0.7%)
40-49	135 (6.4%)	51 (6.6%)	6 (8.1%)	2 (1.4%)
50-59	193 (9.1%)	72 (9.3%)	13 (17.6%)	9 (6.3%)
60-69	314 (14.8%)	110 (14.2%)	14 (18.9%)	20 (14.0%)
70-79	439 (20.7%)	169 (21.8%)	20 (27.0%)	31 (21.7%)
80-84	264 (12.5%)	116 (15.0%)	2 (2.7%)	21 (14.7%)
85+	331 (15.6%)	120 (15.5%)	1 (1.4%)	59 (41.3%)
Unknown	- (0.0%)	- (0.0%)	- (0.0%)	- (0.0%)
Total	2116	774	74	143

*Age group is based on age provided at time of PCR testing or reporting of a positive RAT. Cases may be admitted to hospital more than once. Hospital admissions include cases admitted with COVID-19 or cases diagnosed with COVID-19 after admission. Reason for hospital admission is based on clinician determination at discharge date. Only recorded deaths, where the death was caused or contributed to by COVID-19 have been included.

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

[70] https://www.coronavirus.tas.gov.au/families-community/current-restrictions
[71] https://www.coronavirus.tas.gov.au/families-community/schools-and-childcare
[72] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[73] https://www.coronavirus.tas.gov.au/facts/tasmanian-statistics/weekly-report
[74] Data used to create graph from: https://www.coronavirus.tas.gov.au/facts/tasmanian-statistics/weekly-report

Australia: Victoria

(population 6.5 million)

PHSM[75]

Most restrictions have been lifted, except for mask wearing in certain settings only.

Schools & mitigation[76]

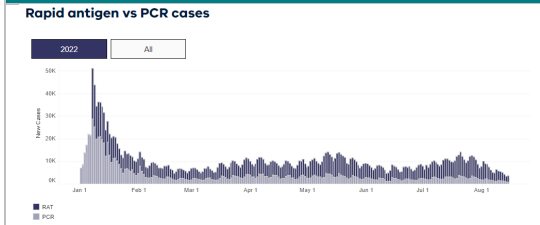
Schools closed for holidays in late Jun and reopened in mid Jul 2022. RATs were provided for close contacts or symptomatic testing until late Jun 2022. Vaccination continues to be encouraged.

Vaccination coverage[77]

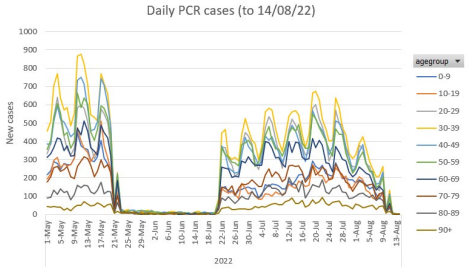
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	55.7	43.4	-
12-15	88.3	84.3	-
16+	96.0	94.5	69.6

Vaccination for 5-11y available from 10 Jan, 6m-<5y at high risk groups from 5 Sep 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, 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, 16-64y at risk of severe disease or with disability from 30 May, all 30y+ from 8 Jul 2022.

Cases by age group[78]



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 below.



As of late Jul 2022, approximately 89% of clinical samples were Omicron subvariants BA.4/BA.5. Approximately 87% of sewerage samples were BA.4/BA.5, increasing from 40% in late Jun.[82]

Hospitalisations in children[79]

Current cases in hospital: 571
Current cases in ICU: 20
No age breakdown

Deaths by age group[80,81]

People who have passed away with COVID-19

15/08/2022

Age group	Total
0-9	1
10-19	2
20-29	10
30-39	25
40-49	50
50-59	172
60-69	351
70-79	977
80-89	1847
90+	1520
Total	4955

Three 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.

[75] https://www.coronavirus.vic.gov.au/staying-safe
[76] https://www.coronavirus.vic.gov.au/parents-carers-and-guardians
[77] https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update
[78] Data used to create graph from: https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[79] https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data
[80] https://www.coronavirus.vic.gov.au/additional-covid-19-case-data#cases-in-hospital
[81] https://www.coronavirus.vic.gov.au/additional-covid-19-case-data
[82] https://www.health.vic.gov.au/covid-19/covid-19-chief-health-officer-update

Canada

(population 38 million)

PHSM[83]

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

Schools & mitigation[84]

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[85]

Age group (years)	1st dose (%)	Fully vacc.* (%)	3rd/booster (%)
5-11	55.7	42.4	0.1
12-17	87.7	83.9	18.8
Total pop.	85.0	81.9	49.3

*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[86]

Figure 3. COVID-19 cases (n=4,006,310 [1]) in Canada by date [2] as of August 12, 2022, 9 am EST (by age - 10 year groups)

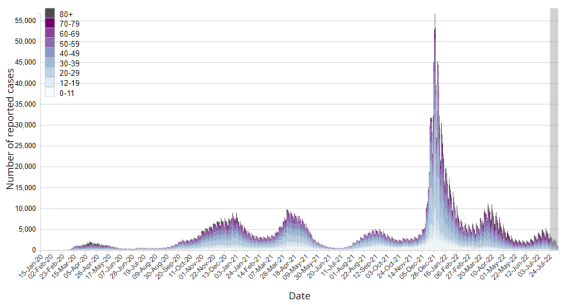
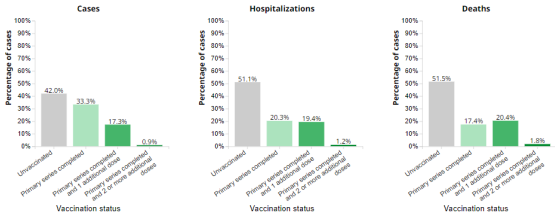
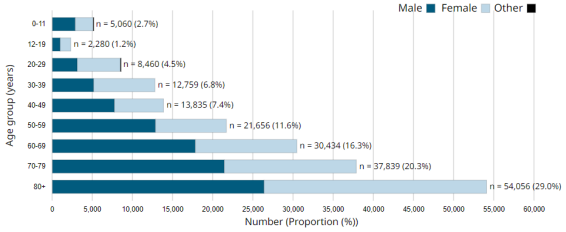


Figure 5. Distribution of confirmed COVID-19 cases reported to PHAC by vaccination status as of July 17, 2022



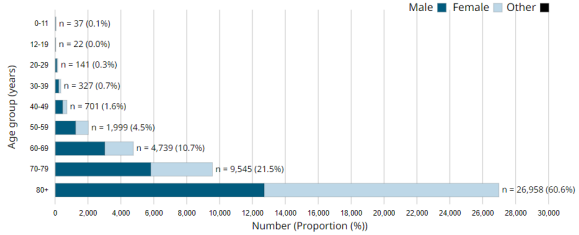
Hospitalisations in children[87]

Figure 7. Age and gender [3] distribution of COVID-19 cases hospitalized in Canada as of August 12, 2022, 9 am EST (n=186,379 [1])



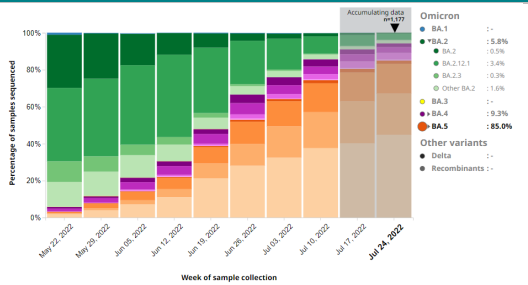
Deaths by age group[88]

Figure 7. Age and gender [3] distribution of COVID-19 cases deceased in Canada as of August 12, 2022, 9 am EST (n=44,469 [1])



There have been 59 deaths with COVID-19 in children aged 0-19y throughout the pandemic.

Genomic surveillance[89]



Omicron (BA.5) is the predominant variant.

[83] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html
[84] https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/planning-2021-2022-school-year-vaccination.html
[85] https://health-infobase.canada.ca/covid-19/vaccination-coverage/
[86] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[87] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[88] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html
[89] https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html

Denmark

(population 5.9 million)

PHSM[90]

All restrictions lifted from Feb 2022. Testing is no longer recommended except for people at high risk of severe disease.

Schools & mitigation[91]

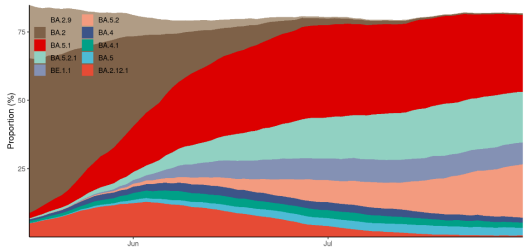
Schools closed for holiday from late Jun 2022. Standard PHSM, masks are encouraged in some situations.

Vaccination coverage[92]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/ booster (%)
5-11	45.6	37.8	-
12-15	79.9	78.1	0.4
16-19	89.2	88.1	46.4
12+	81.5	80.1	61.8

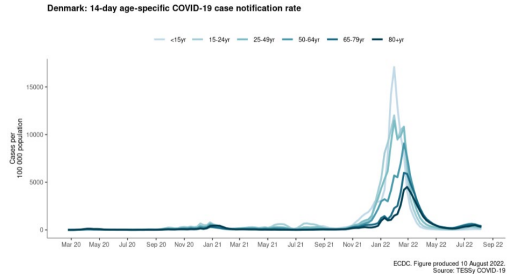
Commenced 3rd/booster vaccination for people 65y+ in late Oct and for all adults from late Nov 2021. Vaccination for 5-11y age group commenced late Nov 2021.

Genomic surveillance[93]



Omicron (BA.5) is the predominant variant.

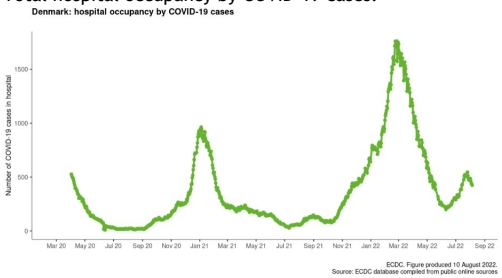
Cases by age group[94]



Hospitalisations in children[95]

Not reported by age

Total hospital occupancy by COVID-19 cases:

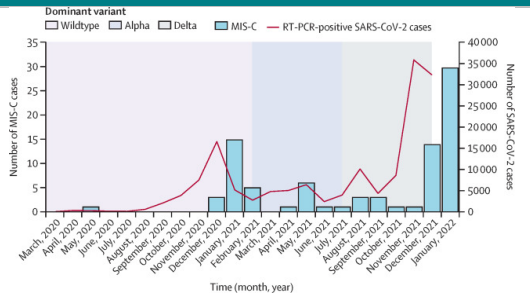


It is not recorded what percentage are incidental hospitalisations.

Deaths by age group[96]

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

MIS-C[97]



[90] https://en.coronasmitte.dk/rules-and-regulations
[91] https://en.coronasmitte.dk/rules-and-regulations
[92] https://experience.arcgis.com/experience/9824b03b114244348ef0b10f69f490b4/page/page_3/
[93] https://covid19genomics.dk/statistics
[94] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[95] https://covid19-country-overviews.ecdc.europa.eu/countries/Denmark.html
[96] https://covid19.ssi.dk/overvagningsdata/ugentlige-opgorelser-med-overvaagningsdata
[97] https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(22)00100-6/fulltext

England, UK

(population 56.6 million)

PHSM[98]

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[99]

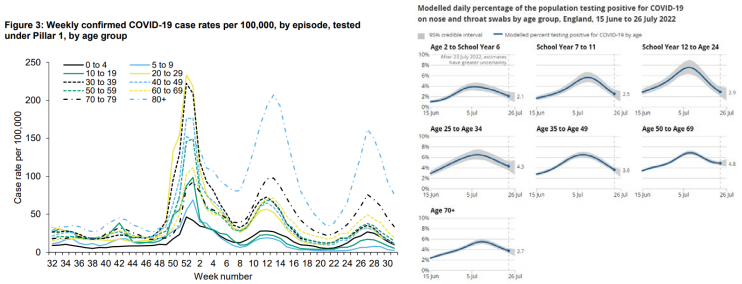
Schools closed for holidays from late Jul 2022. Standard PHSM only.

Vaccination coverage[100]

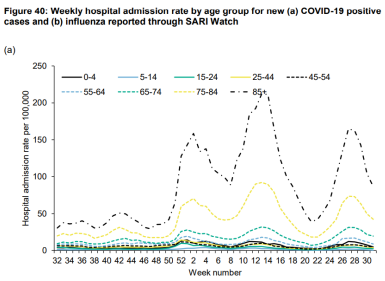
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	10.6	3.8	-
12-15	52.6	38.3	0.8
16-17	65.0	51.3	14.5
12+	93.4	87.9	69.1

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[101,102]

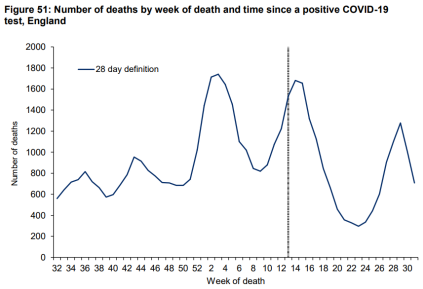


Hospitalisations in children[103]



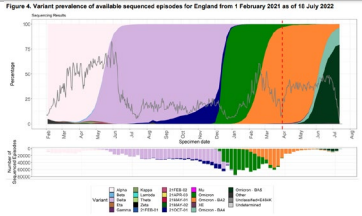
It is not recorded what percentage are incidental hospitalisations.

Deaths by age group[104]



Note: Deaths are no longer available by age group.

Genomic surveillance[105]



Omicron (BA.5) is the predominant variant.

[98] https://www.gov.uk/guidance/living-safely-with-respiratory-infections-including-covid-19
[99] https://www.gov.uk/government/publications/emergency-planning-and-response-for-education-childcare-and-childrens-social-care-settings
[100] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=England
[101] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[102] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/previousReleases
[103] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[104] https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season
[105] https://www.gov.uk/government/publications/investigation-of-sars-cov-2-variants-technical-briefings

Finland

(population 5.5 million)

PHSM[106]

All restrictions have been lifted from Jul 2022. Masks are recommended in certain circumstances only.

Schools & mitigation[107]

Schools closed for holidays in early Jun 2022.

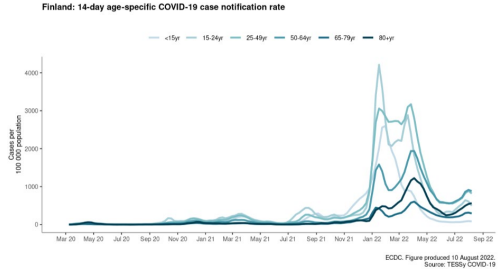
Standard PHSM, cohorting and ventilation.

Vaccination coverage[108]

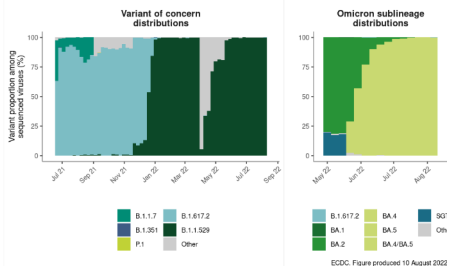
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	25.4	13.6	-
12-17	77.3	71.0	3.9
18+	89.8	87.6	65.8

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[109]



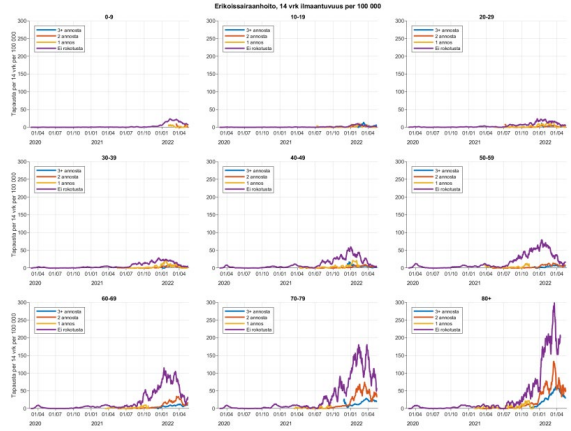
Genomic surveillance[113]



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

Hospitalisations in children[110]

Rate of admission to specialist care by age group:



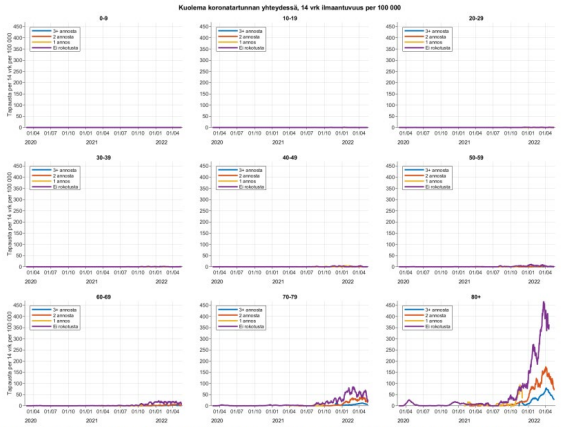
Kuvaaja 7. Erikoissairaanhoidon ilmaantuvuus (tapausta / 100 000 henkilöä / 14 vuorokautta) ikäryhmittäin rokotusstatuksen mukaan.

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

Note: Data to Report #21, 10 Jun 2022

Deaths by age group[111,112]

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

[106] https://valtioneuvosto.fi/en/information-on-coronavirus/current-restrictions
[107] 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
[108] https://sampo.thl.fi/pivot/prod/en/vaccreg/cov19cov/summary_cov19ageareacov
[109] https://covid19-country-overviews.ecdc.europa.eu/countries/Finland.html
[110] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[111] https://experience.arcgis.com/experience/92e9bb33fac744c9a084381fc35aa3c7
[112] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta
[113] https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta/koronaviruksen-seuranta

Netherlands

(population 17.4 million)

PHSM[114]

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

Schools & mitigation[115]

Schools closed for holiday in mid-Jul 2022.

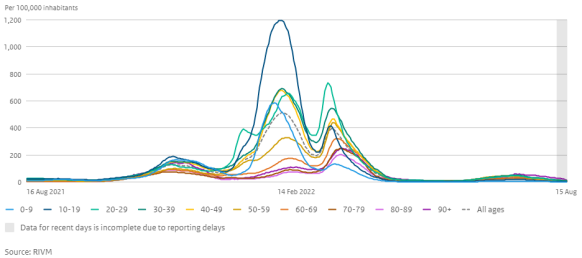
Standard PHSM, symptomatic RAT testing and improved ventilation.

Vaccination coverage[116]

Age group (years)	Fully vacc. (%)	3rd/booster (%)
5-11	2.0	-
12-17	56.0	2.0
18+	82.8	63.9

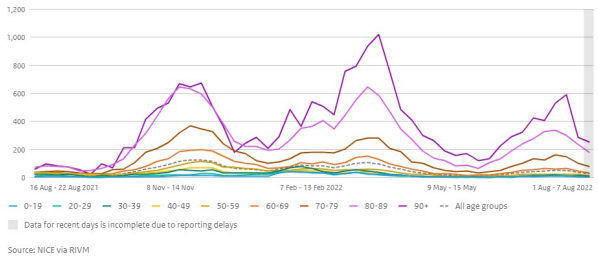
Note: The Netherlands also uses the J&J/Janssen vaccine which is a single-dose vaccine. Third/booster dose available for all 18y+. Vaccine offered to 12-17y from early Jul 2021 and 5-11y from mid-Jan 2022.

Cases by age group[117]



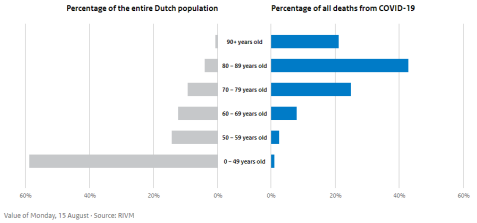
Hospitalisations in children[118]

Per 1,000,000



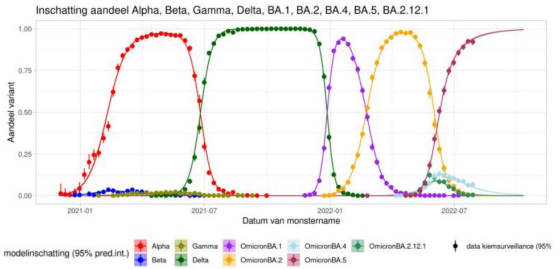
It is not recorded what percentage are incidental hospitalisations.

Deaths by age group[119]



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[120]



Omicron (BA.5) is the predominant variant.

[114] https://www.government.nl/topics/coronavirus-covid-19/tackling-new-coronavirus-in-the-netherlands/coronavirus-measures-and-advice-in-brief
[115] https://www.rivm.nl/en/coronavirus-covid-19/children-and-covid-19
[116] https://coronadashboard.government.nl/landelijk/vaccinaties
[117] https://coronadashboard.government.nl/landelijk/positief-geteste-mensen
[118] https://coronadashboard.government.nl/landelijk/ziekenhuis-opnames
[119] https://coronadashboard.government.nl/landelijk/sterfte
[120] https://www.rivm.nl/en/coronavirus-covid-19/virus/variants

Scotland, UK

(population 5.5 million)

PHSM[121]

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

Schools & mitigation[122]

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

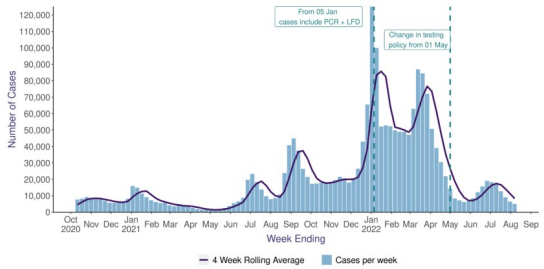
Vaccination coverage[123]

Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
5-11	22.6	9.3	-
12-15	66.7	48.9	1.4
16-17	80.5	61.5	23.0
12+	95.0	89.3	75.0

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[124]

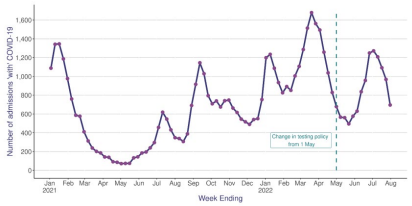
Figure 7: Number of positive cases per week with 4-week average, by specimen date



Data is no longer available by age group.

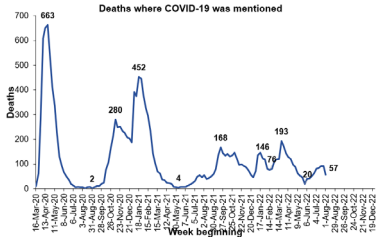
Hospitalisations[125]

Figure 12: Trend of hospital admissions 'with' COVID-19 in Scotland[1,2]



Data is no longer available by age group.

Deaths[127]



Data is no longer available by age group.
There have been 5 deaths due to COVID-19 in children aged 0-14y since the beginning of 2021.

Genomic surveillance[126]

Figure 1: Frequency of BA.2, BA.4, BA.5 and other sequencing results by collection week (week beginning 02 May 2022 to week beginning 18 July 2022)

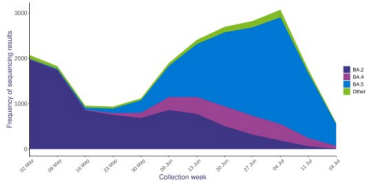
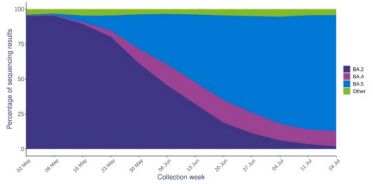


Figure 2: Proportion of BA.2, BA.4, BA.5 and other sequencing results by collection week (week beginning 02 May 2022 to week beginning 18 July 2022)



Omicron (BA.5) is the predominant variant.

[121] https://www.gov.scot/coronavirus-covid-19/
[122] https://www.gov.uk/government/publications/emergency-planning-and-response-for-education-childcare-and-childrens-social-care-settings
[123] https://coronavirus.data.gov.uk/details/vaccinations?areaType=nation&areaName=Scotland
[124] https://publichealthscotland.scot/our-areas-of-work/covid-19/covid-19-data-and-intelligence/covid-19-weekly-report-for-scotland/
[125] https://publichealthscotland.scot/our-areas-of-work/covid-19/covid-19-data-and-intelligence/covid-19-weekly-report-for-scotland/
[126] https://publichealthscotland.scot/our-areas-of-work/covid-19/covid-19-data-and-intelligence/covid-19-weekly-report-for-scotland/
[127] 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[128]

Most restrictions have been lifted. Recommendation for masks in certain locations only.

Schools & mitigation[129]

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

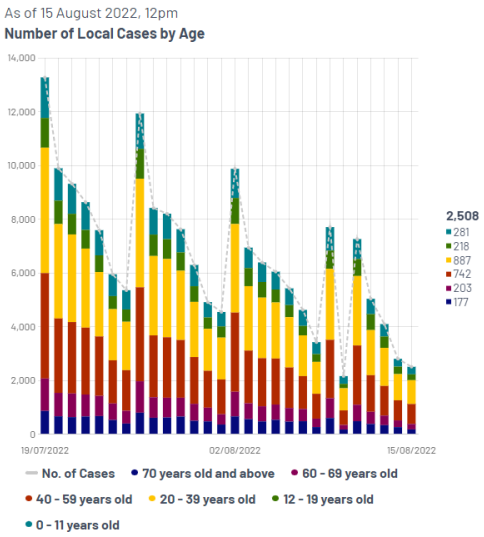
Standard PHSM only, symptomatic RAT testing.

Vaccination coverage[130]

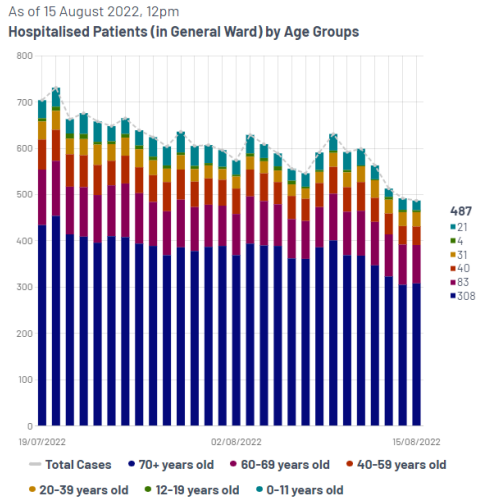
Age group (years)	1st dose (%)	2nd dose (%)	3rd/booster (%)
Total pop.	93.0	93.0	79.0

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[131]

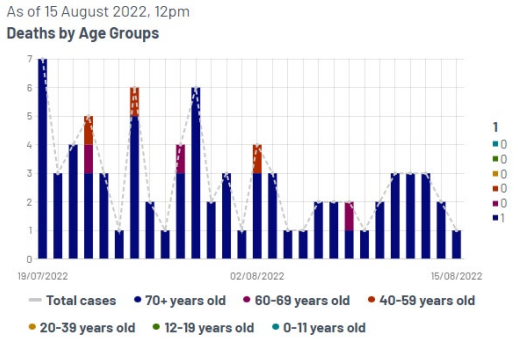


Hospitalisations in children[132]



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[133]



There have been two deaths due to COVID-19 in children throughout the entire pandemic.

[128] https://www.moh.gov.sg/covid-19-phase-advisory
[129] https://www.moe.gov.sg/faqs-covid-19-infection
[130] https://www.moh.gov.sg/
[131] https://www.moh.gov.sg/
[132] https://www.moh.gov.sg/
[133] https://www.moh.gov.sg/

South Africa

(population 60.4 million)

PHSM[134]

Most restrictions have been lifted.

Schools & mitigation[135]

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

Vaccination coverage[136]

Age group (years)	Fully vaccinated* (%)
18+	51.0

*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[137]

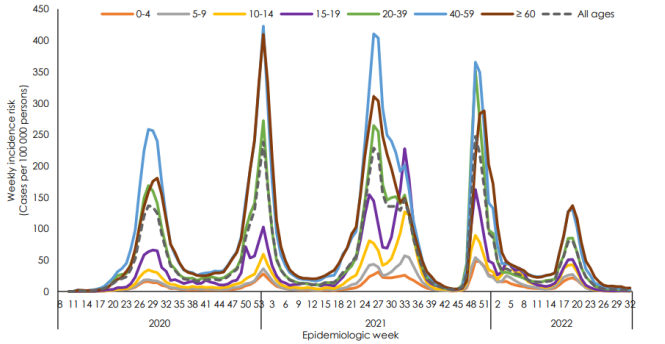
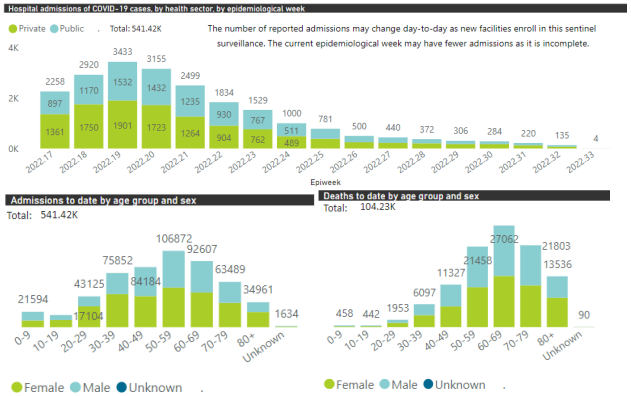


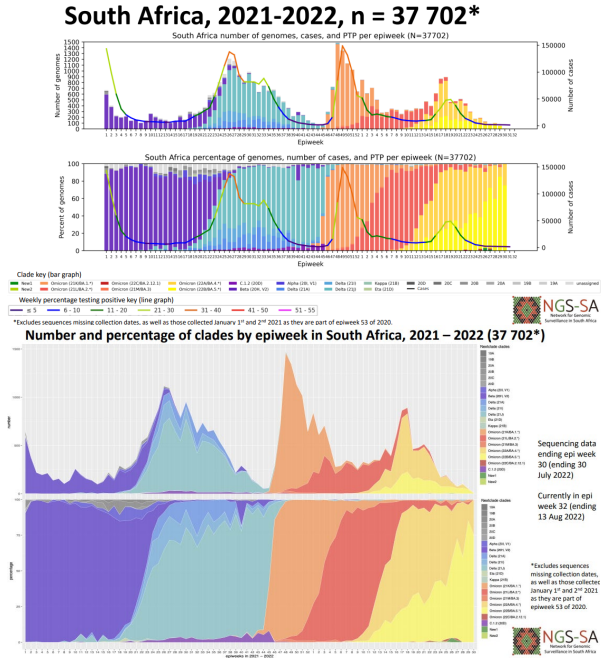
Figure 3: Weekly incidence risk of laboratory-confirmed cases of COVID-19 by age group in years and epidemiologic week South Africa 3 March 2020 – 13 August 2022 (n = 3 971 513, 36 866 missing age)

Hospitalisations in children and deaths by age group[138]



Total of 900 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[139]



Omicron (BA.5) is the predominant variant.

[134] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[135] https://www.gov.za/covid-19/resources/regulations-and-guidelines-coronavirus-covid-19
[136] https://sacoronavirus.co.za/latest-vaccine-statistics/
[137] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/weekly-epidemiological-brief/
[138] https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/daily-hospital-surveillance-datcov-report/
[139] 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[140]

The US CDC recommends indoor mask wearing in areas of high community transmission and symptomatic testing, but adoption varies by State/Territory.

Schools & mitigation[141]

Schools closed for holiday in mid-Jun 2022.

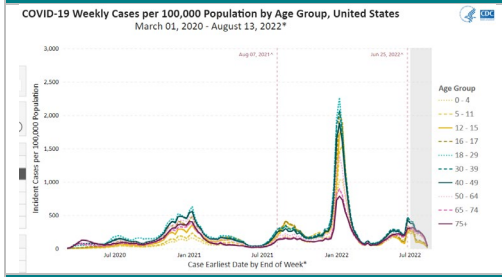
Standard PHSM, masks encouraged, PCR & RAT screening in areas of high community transmission or in response to outbreak, but adoption varies by State/Territory.

Vaccination coverage[142,143]

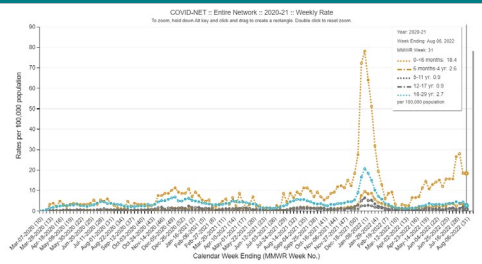
Age group (years)	1st dose (%)	Fully vaccinated* (%)	3rd/booster (%)
<2	3.1	0.4	-
2-4	5.2	0.9	-
5-11	37.6	30.2	11.8
12-17	70.4	60.2	27.9
18+	90.0	77.2	51.4

*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, 5-11y from Nov 2021 and 6m-5y from Jul 2022.

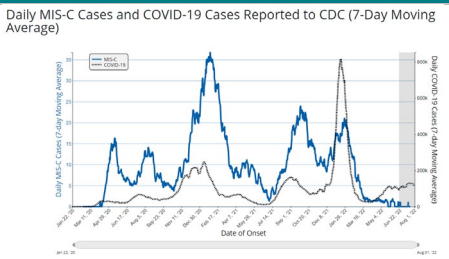
Cases by age group[144]



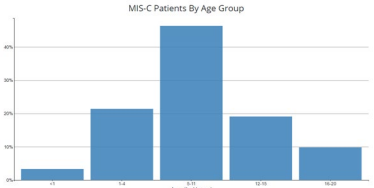
Hospitalisations in children[149]



MIS-C[145]

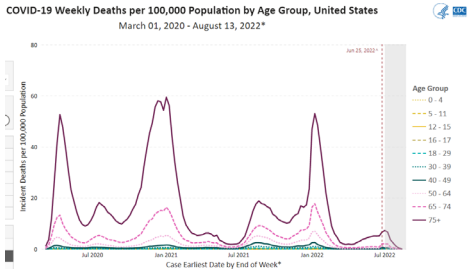


The shaded area on the right side of the figure represents the most recent six weeks of data, for which reporting of MIS-C cases is still incomplete.



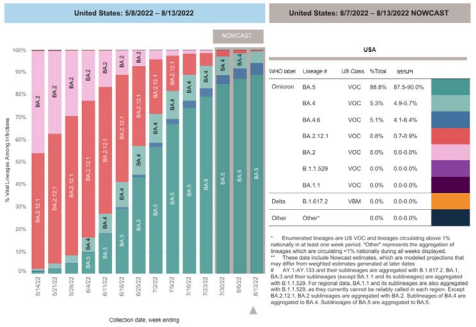
There have been 8798 cases of MIS-C throughout the entire pandemic, including 71 deaths. The median age of MIS-C cases was 9y and half were between 5-13y.

Deaths by age group[146,147]



Total 1201 deaths with COVID-19 in children 0-17y throughout the entire pandemic, accounting for 0.1% of all deaths in the US.

Genomic surveillance[148]



Omicron (BA.5) is the predominant variant.

[140] https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html
[141] https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-guidance.html
[142] https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total
[143] https://covid.cdc.gov/covid-data-tracker/#vaccination-demographics-trends
[144] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[145] https://covid.cdc.gov/covid-data-tracker/#mis-national-surveillance
[146] https://covid.cdc.gov/covid-data-tracker/#demographicsovertime
[147] https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm
[148] https://covid.cdc.gov/covid-data-tracker/#variant-proportions
[149] https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html

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