CORONAVIRUS DISEASE (COVID-19) PANDEMIC

Update of COVID-19 in children and adolescents ≤18 years, South Africa, 1 March 2020 – 15 January 2022

As of 15 January 2022, children and adolescents ≤18 years made up 13.5% (2 898 708/21 405 554) of SARS-CoV-2 tests, 11.4% (405 837/3 559 931) of COVID-19 cases, 5.5% (24 550/445 295) of COVID-19 associated admissions and 0.7% (703/23 276) of COVID-19 associated deaths. The latest resurgence in cases (4th wave) started in week 48 of 2021 with the highest peak in percent testing positive (40%) among children aged 13-18 years and highest peak in COVID-19-associated admissions rate among children <1 year (30 admissions per 1 million population). Since week 50 of 2021, there has been a decreasing trend in the testing rate, positivity rate, case numbers, and admissions in individuals ≤18 years. (Figures 4 - 7). To date, the percentage testing positive among children aged ≤18 years was 15.8% and 18.2% among adults ≥19 years.

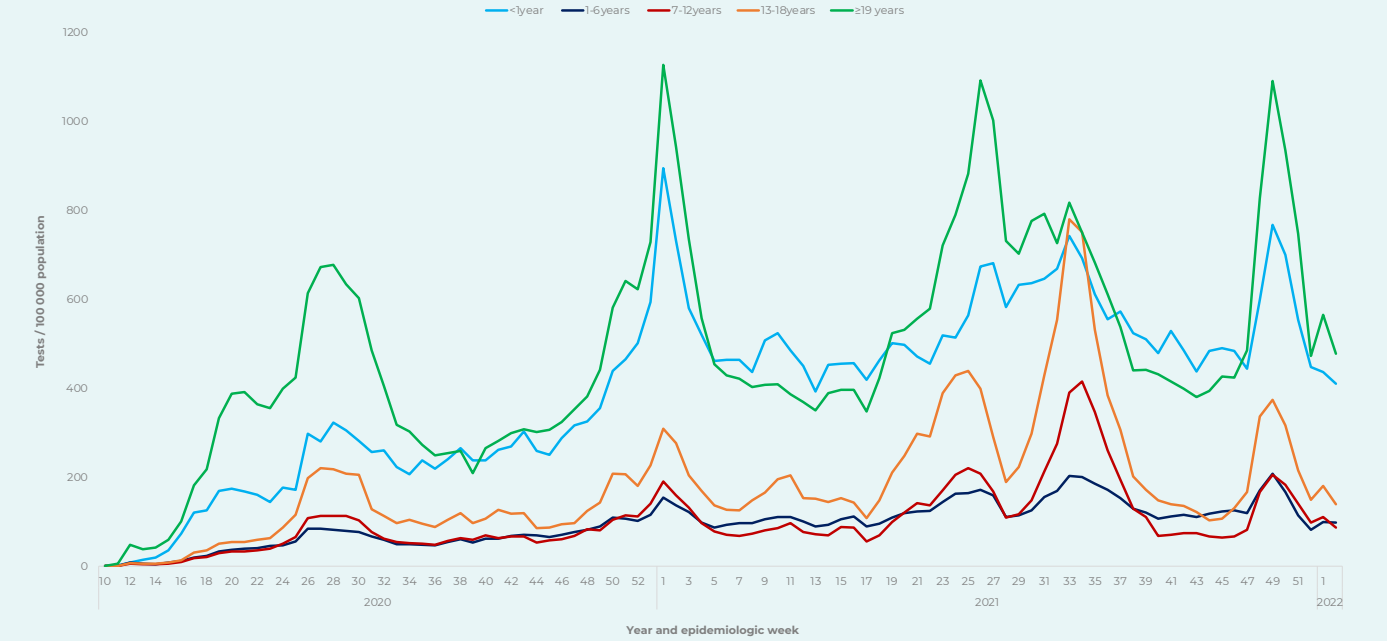

Figure 4. Rate of SARS-CoV-2 testing per 100 000 population by epidemiologic week and age group, South Africa, 1 March 2020 – 15 January 2022

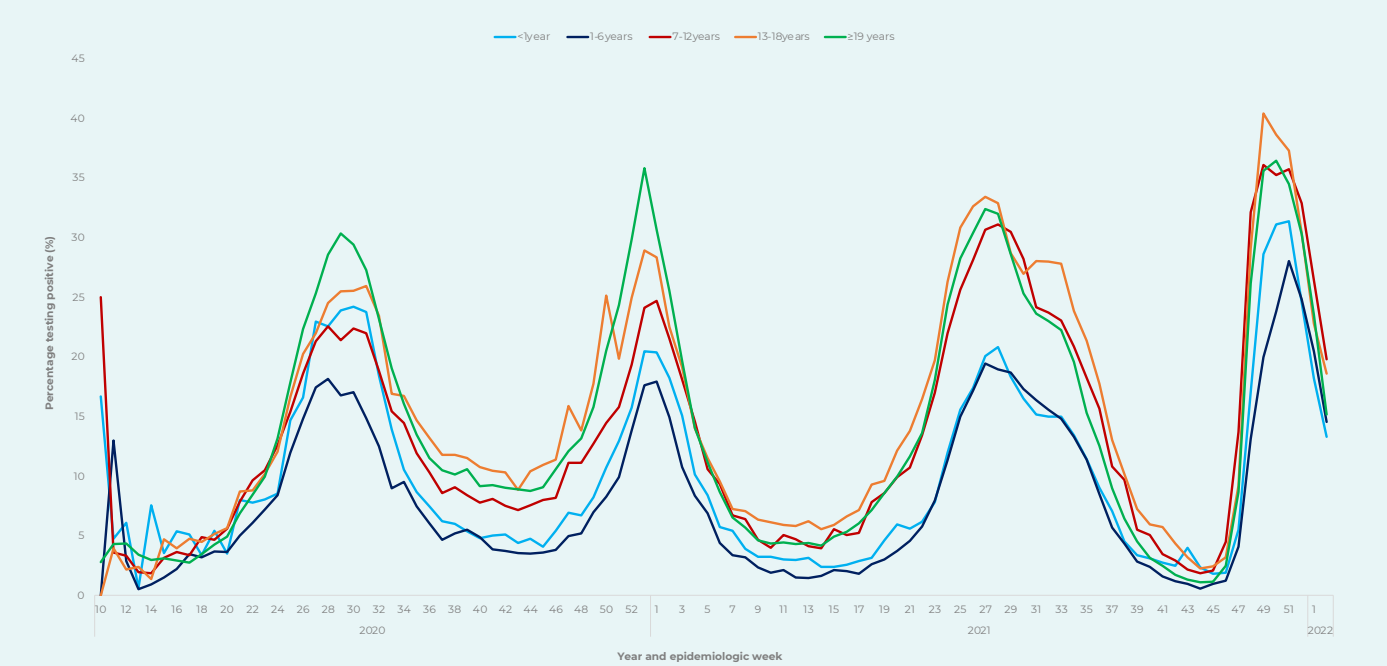

Figure 5. Percentage testing positive by epidemiologic week and age group, South Africa, 1 March 2020 – 15 January 2022

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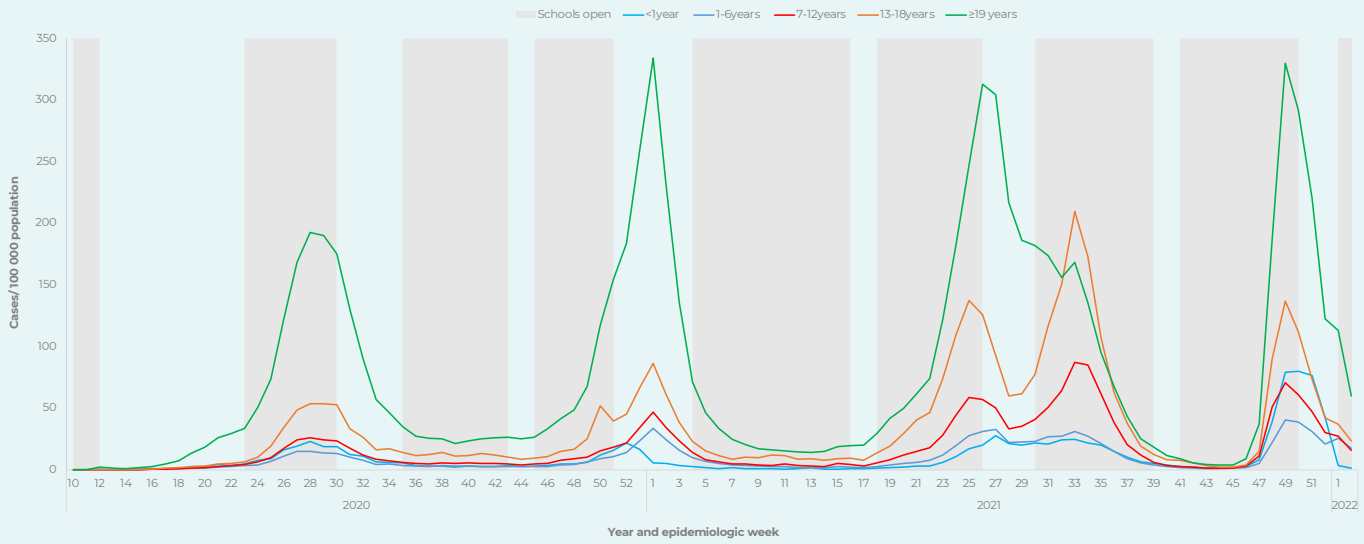

Figure 6. Weekly incidence per 100 000 population of laboratory-confirmed COVID-19 cases by epidemiologic week and age group, South Africa, 1 March 2020 – 15 January 2022

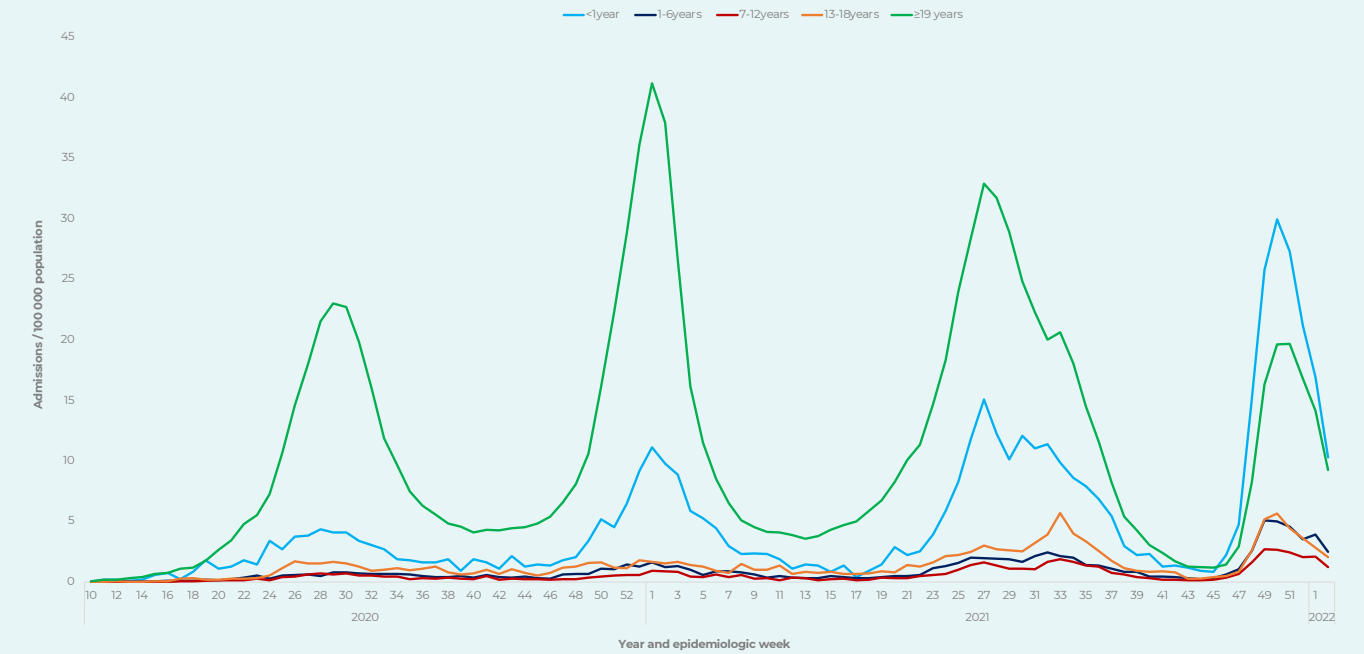

Figure 7. Rate of COVID-19-associated admissions per 1 million population by epidemiologic week and age group, South Africa, DATCOV, 1 March 2020 – 15 January 2022

Children aged ≤18 years compared to adults ≥19 years were almost 5 times as likely to be hospitalized in the 4th wave compared to the 1st wave and were 2.6 times more likely to be hospitalized in the 4th wave compared to the 3rd wave (Table 1). However, regarding testing and being a case, children compared to adults were more likely to be tested or be a case in the 4th wave compared to the 1st wave, but were less likely to be tested or be a case in the 4th wave compared to the 3rd (Table 1).

This update highlights an increase in admissions among children aged ≤ 18 years during the fourth wave compared to earlier waves. During the fourth wave, admissions among children <1 year old, which surpassed those of adults, were possibly influenced by other non-COVID related admissions. The shift in incidence among cases over the different waves to younger age groups may be due to an immunity gap. Continued monitoring of the trends among the school-going age group is important as schools remain open.

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Table 1. Wave analysis among children aged ≤18 years compared to adults aged ≥19 years, 1 March 2020 – 15 January 2022*. *models adjusted for sex, province and laboratory/hospital sector

Tests	1st wave (N = 2415973)	2nd wave (N = 3355943)	3rd wave (N = 6462702)	4th wave (N = 2287243)	Multivariable OR Wave 3 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 3 (95% CI) *
≥19	2166209 (89.7%)	2961798 (88.3%)	5405730 (83.7%)	2003578 (87.6%)	Reference	Reference	Reference
≤18	249764 (10.3%)	394145 (11.7%)	1056972 (16.3%)	283665 (12.4%)	1.66 (1.65-1.67)	1.23 (1.22-1.23)	0.75 (0.74-0.75)

Cases	1st wave (N = 550757)	2nd wave (N = 719278)	3rd wave (N = 1294492)	4th wave (N = 588230)	Multivariable OR Wave 3 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 3 (95% CI) *
≥19	507283 (92.1%)	660589 (91.8%)	1103611 (85.3%)	518574 (88.2%)	Reference	Reference	Reference
≤18	43474 (7.9%)	58689 (8.2%)	190881 (14.7%)	69656 (11.8%)	2.17 (2.15-2.20)	1.62 (1.60-1.64)	0.75 (0.74-0.76)

Admissions	1st wave (N = 70 692)	2nd wave (N = 105 776)	3rd wave (N = 147 159)	4th wave (N = 46 943)	Multivariable OR Wave 3 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 1 (95% CI) *	Multivariable OR Wave 4 vs Wave 3 (95% CI) *
≥19	68530 (96.9%)	102534 (96.9%)	139127 (94.5%)	40728 (86.8%)	Reference	Reference	Reference
≤18	2162 (3.1%)	3242 (3.1%)	8032 (5.5%)	6215 (13.2%)	1.79 (1.70-1.88)	4.89 (4.65-5.14)	2.62 (2.53-2.71)

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS; cherylc@nicd.ac.za

Wastewater surveillance for SARS-CoV-2 successfully heralded the 4th wave of COVID-19

In Gauteng Province, South Africa, the third wave of SARS-CoV-2 in South Africa (predominantly due to Delta variant) ended in week 34 (week starting 22 August, 2021). The incidence of laboratory-confirmed cases remained under 30 cases/week until week 47 (last week of November 2021). Levels of SARS-CoV-2 in wastewater were undetectable or under 1.5 log genome copies/ml in Gauteng Province from week 37 until epidemiological week 42.

In epidemiological week 43-45 of 2021, a first increase in SARS-CoV-2 levels in wastewater from various plants across the province was observed. The first increase in laboratory-confirmed clinical cases was observed in epidemiological week 45 of 2021 (second week of November), by which time 1-3 successive increases in SARS-CoV-2 levels in wastewater had been observed at key plants across the province (Figure 8). The fourth wave officially started in week 47 (4th week of November 2021).

S-gene target failure was detected in clinical samples of laboratory-confirmed SARS-CoV-2 patients in week 46 (3rd week of November), leading to the discovery and characterisation of Omicron variant in week 48 (first week of December 2021). Sequencing and variant analysis of RNA sequences amplified from wastewater samples successfully detected evidence of Omicron in week 47 and 48.

SARS-CoV-2 levels in wastewater were presented to the Technical Working Group (TWG) of the COVID-19 Ministerial Advisory Committee tasked with updating resurgence indicators to support COVID-19 preparedness on 17 November 2021, just prior to the discovery of Omicron. At that stage, members of the TWG, including the South African Centre for Epidemiological Modelling and Analysis (SACEMA) agreed that wastewater-based surveillance was useful, and committed to work with the NICD to support development of more robust wastewater indicators.