



INTERIM SITUATION REPORT, 26 May 2023

(Based on laboratory testing data up until 18 May 2023)

Issued by the National Institute for Communicable Diseases based on laboratory testing data

Highlights

- The NICD has tested 6010 serum samples for measles since epidemiological week 40, 2022, of which 1024 (17%) were confirmed positive, all from outbreak-affected provinces. In the past weeks (week 19 up until week 20, 16/05/2023) there have been 19 laboratory-confirmed measles cases detected across the country, of which the majority were from Limpopo (14).
- The percentage of samples testing positive (PTP) increased from 29% of 65 samples tested in week 18 to 22% of 74 samples tested in week 19.
- Measles outbreak has been declared in all the provinces in South Africa except for the Eastern Cape. In week 19, 16 new cases were reported from Limpopo province. No new cases were reported in Mpumalanga, Northern Cape, Western Cape and KwaZulu-Natal provinces in the past four weeks.
- The measles strain detected in Limpopo province and North West province is genotype D8 which is similar to the strain in Zimbabwe in the 2022 outbreak.
- In the provinces where an outbreak has been declared, the most affected age groups are still the 5-9 year olds (43%) with a considerable proportion of cases reported among the 1-4 (23%) and 10-14 age groups (20%).
- Vaccination campaigns included all children including those aged 1 to 14 years of age and have been extended across provinces so as to obtain improved coverage rates.
- The majority of cases (66%) were reported from primary healthcare facilities, and the highest proportion of cases reported from hospitals (59%) was reported in children under the age of one.
- Nationally, the reproduction number as of 2023-05-11 was estimated to be 0.8 (0.41 – 1.6), suggesting that infection incidence is likely decreasing. There is a 72% chance that the reproduction number was below 1 as of 2023-05-11.
- At the provincial level, the reproduction number as of 2023-05-11 was estimated to be 0.73 (0.48 – 1.1) in Limpopo and 0.69 (0.47 – 1) in Gauteng, suggesting that infection incidence is likely decreasing. Other provinces had too few recent cases for robust reproduction number estimation, suggesting limited ongoing transmission, if any.
- At the district level, the reproduction number as of 2023-05-11 was estimated to be 0.86 (0.62 – 1.2) in Waterberg and 0.57 (0.29 – 1) in Mopani, suggesting that infection incidence is likely decreasing. In contrast the reproduction number was estimated to be 0.36 (0.22 – 0.56) in Greater Sekhukhune and 0.32 (0.14 – 0.62) in Ekurhuleni Metro, suggesting that infection incidence is decreasing. Other districts had too few recent cases for robust reproduction number estimation, suggesting limited ongoing transmission, if any.

Outbreak overview

From epidemiological week 40, 2022 (ending 8 October 2022) to week 20, 2023 the NICD has tested 6010 serum samples for measles of which 1024 (17%) were confirmed measles cases. The number of samples submitted, and percentage of laboratory-confirmed measles positive cases are shown in Figure 1. From epidemiological week 40 of 2022 to week 20 of 2023, 1018 laboratory-confirmed cases were reported from eight provinces with declared measles outbreaks; Limpopo (447 cases), Mpumalanga (108 cases), North West (217 cases), Gauteng (173 cases), Free State (32 cases), Western Cape (14), KwaZulu-Natal (20) and Northern Cape (7) (Table 1). The geographical distribution of cases across South Africa from week 40 of 2022 until week 20 of 2023 is shown in Figure 2. The number of blood samples and throat swabs submitted to the NICD for measles serology and PCR testing increased from 65 in week 18 to 74 in week 19 (Figure 3).

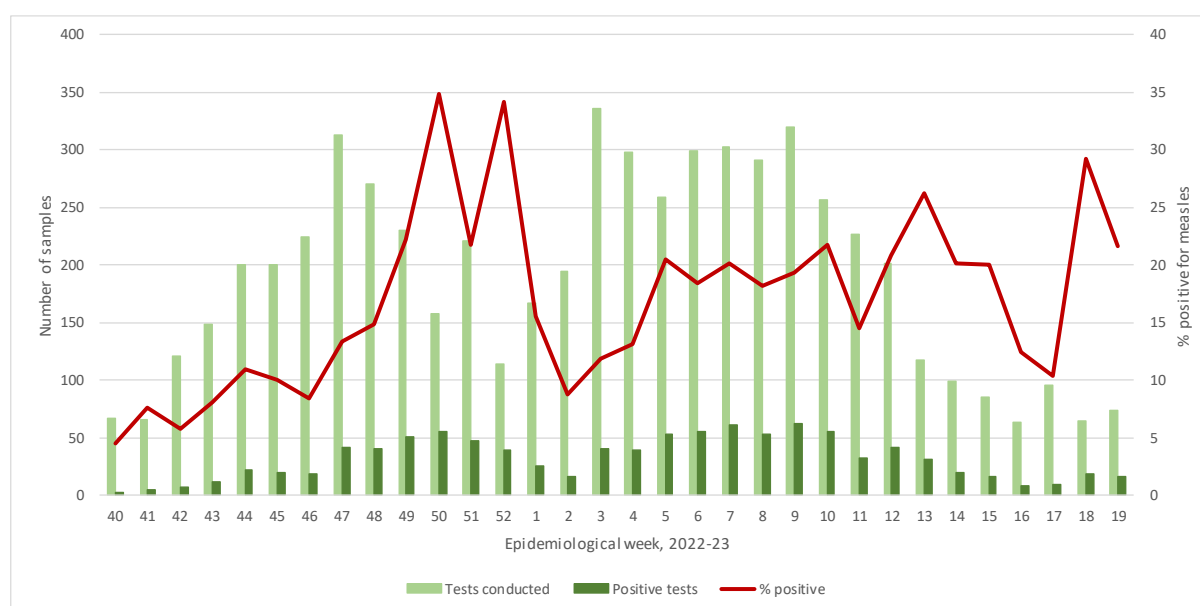


Figure 1. Number of serum samples submitted to the NICD for measles, week 40 2022, until week 19, 2023, and the number (dark green) and % tested positive (red line), by epidemiological week using the date the specimen was collected. *Data from week 20 will be updated in next week's situation report, when complete data from samples collected that week becomes available.

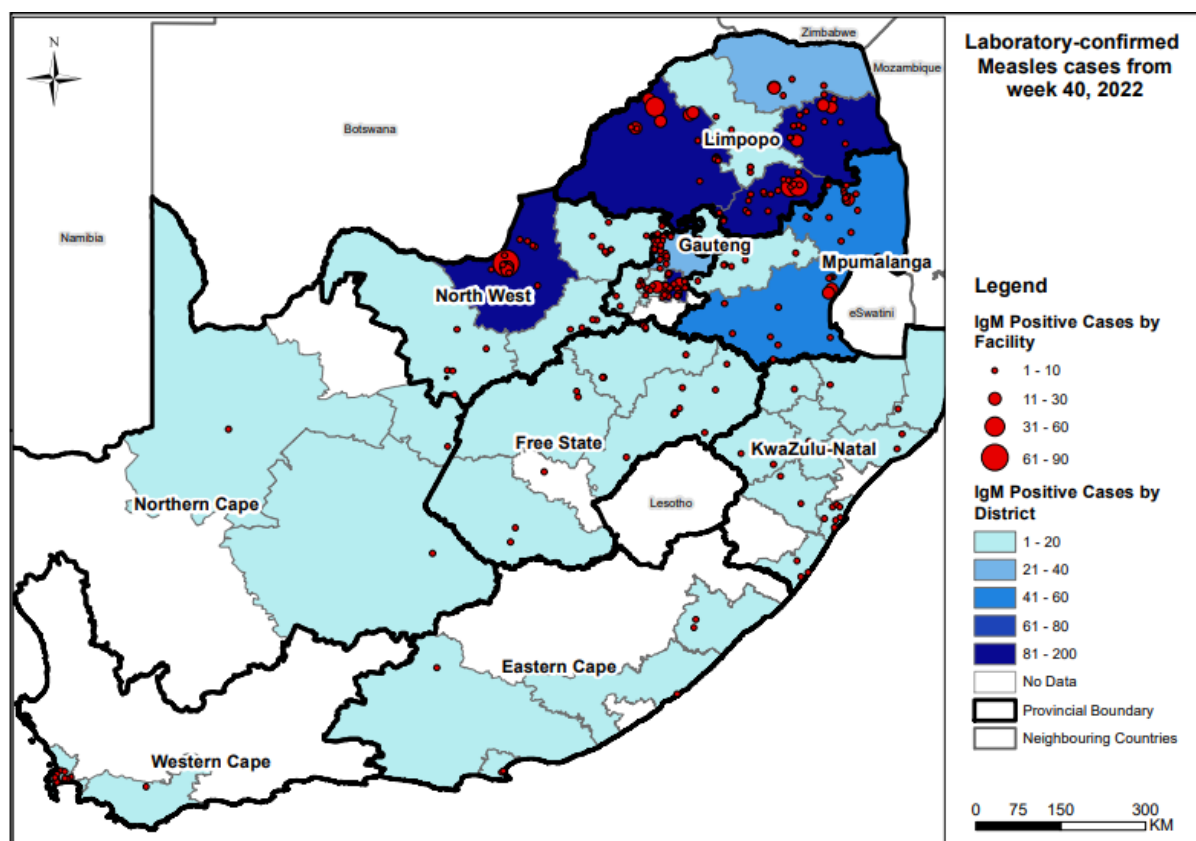


Figure 2. Distribution of laboratory-confirmed measles cases by testing site (red dots – the size of the dot indicates the number of cases from that facility) and district of South Africa (deepening colour of blue indicates the total number of cases by sub-district), from week 40 to week 20, 2023.

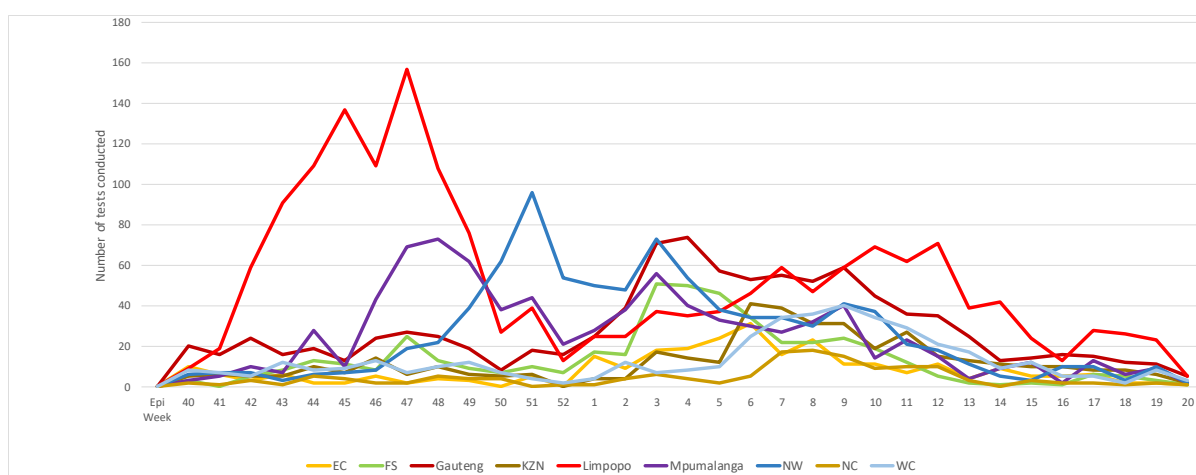


Figure 3. Number measles of tests conducted from week 40 2022, until week 20, 2023, by province and epidemiological week using the date the specimen was collected. *Data from week 20 represent partial data, and will be updated in next week's situation report, when complete data from samples collected that week becomes available.

Reproduction number



The figure below shows the national time-varying reproduction number over the past 90 days. The estimated reproduction number reached a peak of approximately 1.3 in mid-January and has since declined, crossing the threshold value of 1 in mid-February.

Nationally, the reproduction number as of 2023-05-11 was estimated to be 0.8 (0.41 – 1.6), suggesting that infection incidence is likely decreasing.

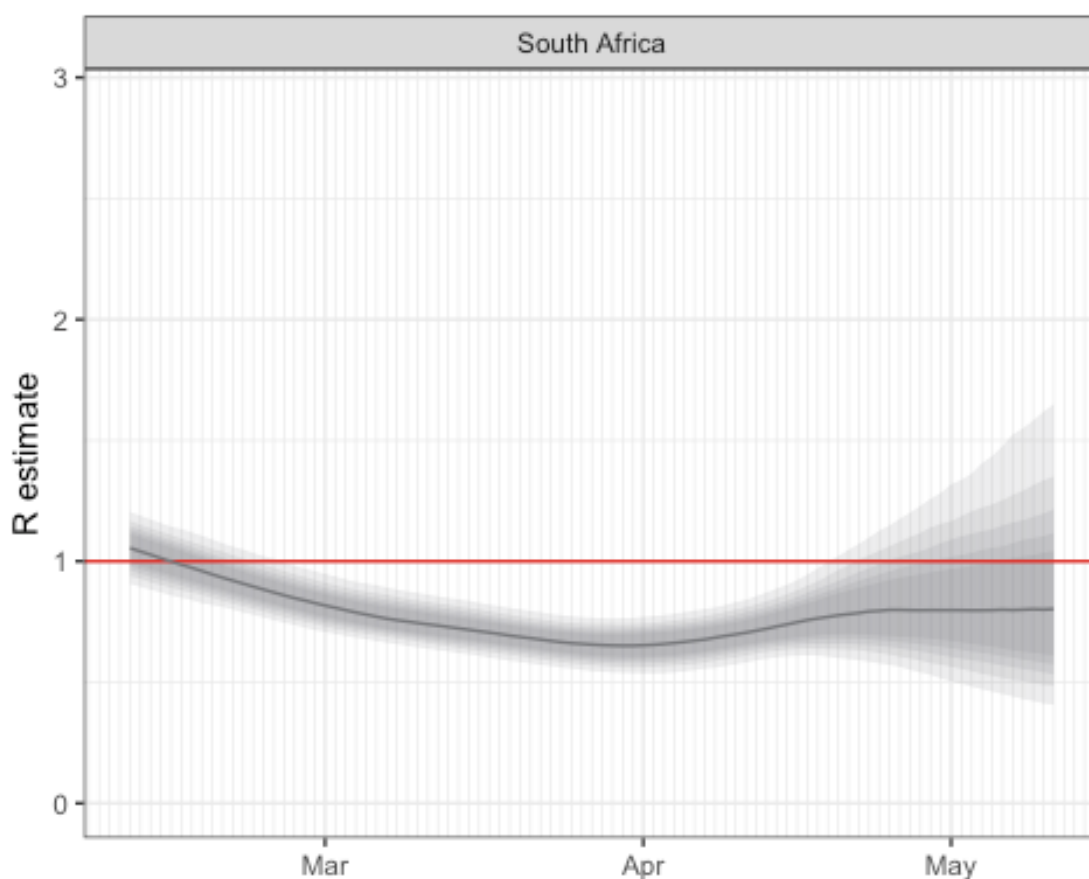


Figure 4. National time-varying reproductive estimate from early December 2022 to early May 2023.

The weekly report on nowcasts and forecasts for measles in South Africa is available at <https://www.sacema.org/sacema-nicd-measles-forecast/>

Table 1. Cases of laboratory-confirmed measles tested by the NICD from all provinces in South Africa from epidemiological week 40, 2022 to week 20, 2023. Outbreak-associated cases are contained within the red bordered cells* (FS=Free State; GT=Gauteng; KZN=KwaZulu-Natal; LP=Limpopo; MP=Mpumalanga NW=North West; NC=Northern Cape, WC = Western Cape). * A measles outbreak is classified as three or more confirmed laboratory measles cases reported within 30 days of onset of disease, in a district. *Data from week 20 represents partial data, and will be updated in next week's situation report, when complete data from samples collected that week becomes available.

Epi Week	EC	FS	GT	KZN	LP	MP	NW	NC	WC	Total
40, 2022			1		2					3
41, 2022					5					5
42, 2022			1		4		1		1	7
43, 2022	1				11					12
44, 2022				1	19	2				22
45, 2022		1	1		12	3	1	1	1	20
46, 2022			1	1	9	8				19
47, 2022		1	2		18	15	4	1	1	42
48, 2022			1		18	17	4			40
49, 2022		3	2	2	10	14	18	1	1	51
50, 2022			3		16	6	30			55
51, 2022		3	3	1	7	5	28			47
52, 2022		2	1		7	5	24	1		40
01, 2023		3	1		7	1	13		1	26
02, 2023		1	2		3	4	7			17
03, 2023	1	4	9		9	5	11		1	40
04, 2023	1	2	10	2	9	5	9		1	39
05, 2023		2	12	2	20	2	14		1	53
06, 2023	1	1	17	3	19	3	10		1	55
07, 2023			19	3	26	2	9	1	1	61
08, 2023	2	1	14	1	20	5	8	2		53
09, 2023		3	19	1	26	4	8		1	62
10, 2023		1	17		27		11			56
11, 2023		1	9	1	22					33
12, 2023			7		29	1	4		1	42
13, 2023			6	1	22		2			31
14, 2023	0		2	1	17					20
15, 2023			3		11	1			2	17
16, 2023			3		5					8
17, 2023					10					10
18, 2023	0	1	4	0	13	0	1	0	0	19
19, 2023	0	2	2	0	12	0	0	0	0	16
20, 2023	0	0	1	0	2	0	0	0	0	3
Total	6	32	173	20	447	108	217	7	14	1024

*Note: Data is subject to change as new results are added or updated. Please contact Mr Tshepo Motsamai (tshepom@nicd.ac.za) to update data elements

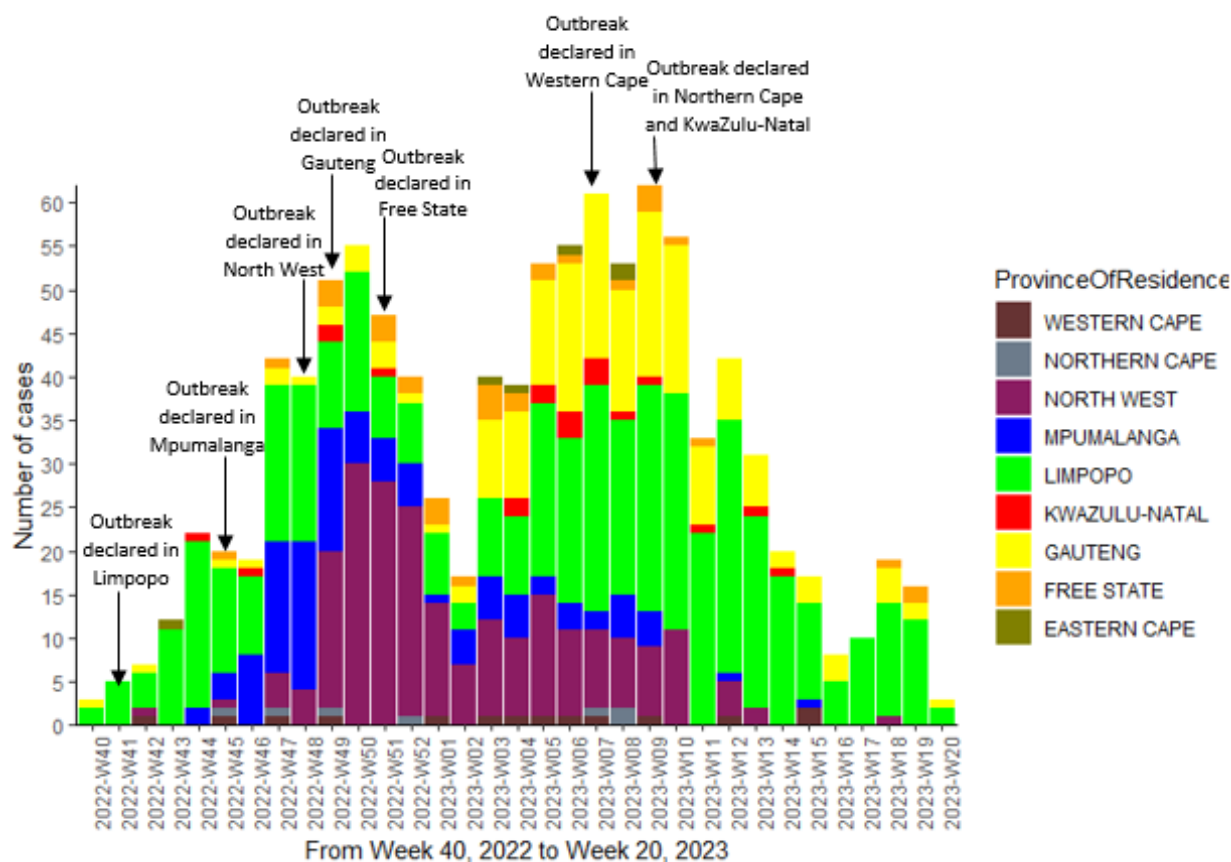


Figure 5. The epidemiological curve of the number of laboratory-confirmed measles cases in South Africa from week 40, 2022 to week 20 2023 (ending week 18 up until week 20, 16/05/2023) by specimen collection dates and by province, indicating the weeks in which outbreaks were declared in Limpopo, Mpumalanga, North West, Gauteng, Free State, Western Cape, Northern Cape and Kwa-Zulu Natal provinces. *Data from week 20 represent partial data, and will be updated in next week's situation report, when complete data from samples collected that week becomes available.

The age of laboratory-confirmed cases across the eight provinces ranges from two months to 67 years (Table 2). The majority of cases 437, (43%) were in the 5-9-year age group, followed by 237 (23%) in the 1-4-year age group and 202 (20%) in the 10-14-year age group. The attack rates are highest among age groups 1-4 and 5-9 (Table 2). In the provinces where a measles outbreak has been declared, 111 (10.9%) of the 1018 cases were vaccinated, 134 (13.2%) were unvaccinated, and the vaccination status of 773 (75.9%) is unknown (Table 3). The age groups with the highest number of vaccinated cases are those aged 1-4 years and those aged 5-9 years (Table 4). Whilst the NICD is presently not able to provide data on hospital admission rates nor on measles mortality rates, Table 5 reflects the number and proportion of laboratory-confirmed measles cases that originate from hospitals as opposed to primary healthcare facilities. Whilst cases that are seen at hospitals may not necessarily be admitted, this proportion gives us an indication of the severity of illness, as patients consulted tertiary care facility.

Table 2. Age distribution of laboratory-confirmed measles cases from epidemiological week 40, 2022 to week 20, 2023, in provinces with a declared measles outbreak with age-specific attack rates.

Age group	FS		GT		LP		MP		NW		WC		NC		KZN		Total	
	# case s	AR	# case s	AR	# case s	AR	# case s	AR	# case s	AR	# case s	AR	# case s	AR	# case s	AR	# case s	AR
<1 year	4	7.51	16	6.07	19	14.4 0	5	5.52	8	9.90	3	2.50	0	0.00	1	0.41	56	5.55
1-4 years	11	5.24	34	3.27	88	16.5 0	32	9.17	56	17.7 9	6	1.29	2	1.97	8	0.83	237	5.96
5-9 years	13	4.87	71	5.66	203	30.4 6	38	8.89	99	25.2 8	1	0.18	3	2.38	9	0.76	437	8.95
10-14 years	4	1.38	29	2.36	106	15.8 8	22	4.75	36	8.82	2	0.34	2	1.59	1	0.08	202	4.07
≥15 years	0	0.00	23	0.19	31	0.79	11	0.32	18	0.60	2	0.04	0	0.00	1	0.01	86	0.22
Total	32	1.10	173	1.07	447	7.52	108	2.29	217	5.18	14	0.19	7	0.53	20	0.17	1018	1.89

FS= Free State; GT= Gauteng; KZN=KwaZulu-Natal; LP=Limpopo; MP=Mpumalanga; NW=North West; WC=Western Cape; NC= Northern Cape; AR = attack rate per 100,000 children within the age-band, denominators from mid-year population estimates, 2022, StatsSA

Table 3. Vaccination status for laboratory-confirmed measles cases from epidemiological week 40, 2022 to week 20, 2023 in provinces with a declared measles outbreak.

Vaccination status	FS	GT	LP	MP	NW	WC	NC	KZN	Total
Vaccinated	9	13	39	15	18	7	3	7	111 (10.9%)
Unvaccinated	3	13	69	18	30	0	0	1	134 (13.2%)
Unknown	20	147	339	75	169	7	4	12	773 (75.9%)
Total	32	173	447	108	217	14	7	20	1018

Table 4: Age distribution of vaccinated persons from epidemiological week 40, 2022 to week 20, 2023 in provinces with a declared measles outbreak.

Age group	FS	GT	LP	MP	NW	WC	NC	KZN	Total
< 1 year	2	2	3	0	0	3	0	0	10
1 – 4 years	2	4	12	2	5	3	0	3	31
5 – 9 years	2	7	18	9	12	1	2	4	55
10 – 14 years	3	0	6	4	1	0	1	0	15
≥15 years	0	0	0	0	0	0	0	0	0
Total	9	13	39	15	18	7	3	7	111

Table 5. The facility type where laboratory-confirmed measles cases have been identified, for epidemiological week 40, 2022 to week 20, 2023, South Africa. Submission of a specimen from a hospital may suggest (but is not firm evidence) that the patient was admitted. The number of admissions will be lower than the number of cases reported from hospitals.

Reporting Health Facility	<1 years	1-4 years	5-9 years	10-14 years	≥15 years	Total
From PHC/CHC/other	23	155	297	139	58	672 (66)
From a hospital (%)	33 (59)	82 (35)	140 (32)	63 (31)	28 (33)	346 (34)
Total	56	237	437	202	86	1018

An overview of the outbreak in the Limpopo Province

In total, 447 cases of laboratory-confirmed measles were reported between epidemiological week 40, 2022 to week 20, 2023 with the majority of the measles cases reported in the Waterberg, Greater Sekhukhune and Mopani districts. Figure 6 shows an epidemiological curve from week 40, 2022 to week 20 of 2023 in Limpopo province. Waterberg district reported the highest number of measles cases which is 175 cases, Mopani district reported 97 cases, Greater Sekhukhune district reported 132 cases, Vhembe district reported 35 cases and Capricorn district reported eight cases. Dilokong hospital reported 54 cases out of the 132 from Greater Sekhukhune. Amongst the 35 cases reported from the Vhembe district, 32 cases originated from Makhado (Louis Trichardt Hospital and Clinic). In Waterberg district, 53 cases of 175 have been reported from Witpoort Hospital in Lephalale. The age of measles cases across Limpopo ranged from 4 months to 42 years.

Measles virus infection affected mostly the age group 5-9 years (Table 2), with an attack rate of 30.46 per 100,000 persons. This was followed by the 1-4 years' age group with an attack rate of 16.50 per 100,000 persons. Of the 447 measles cases in Limpopo province, 339 (76%) had an unknown –vaccination status, 39 (9%) were vaccinated, and 69 (15%) were unvaccinated (Table 3).

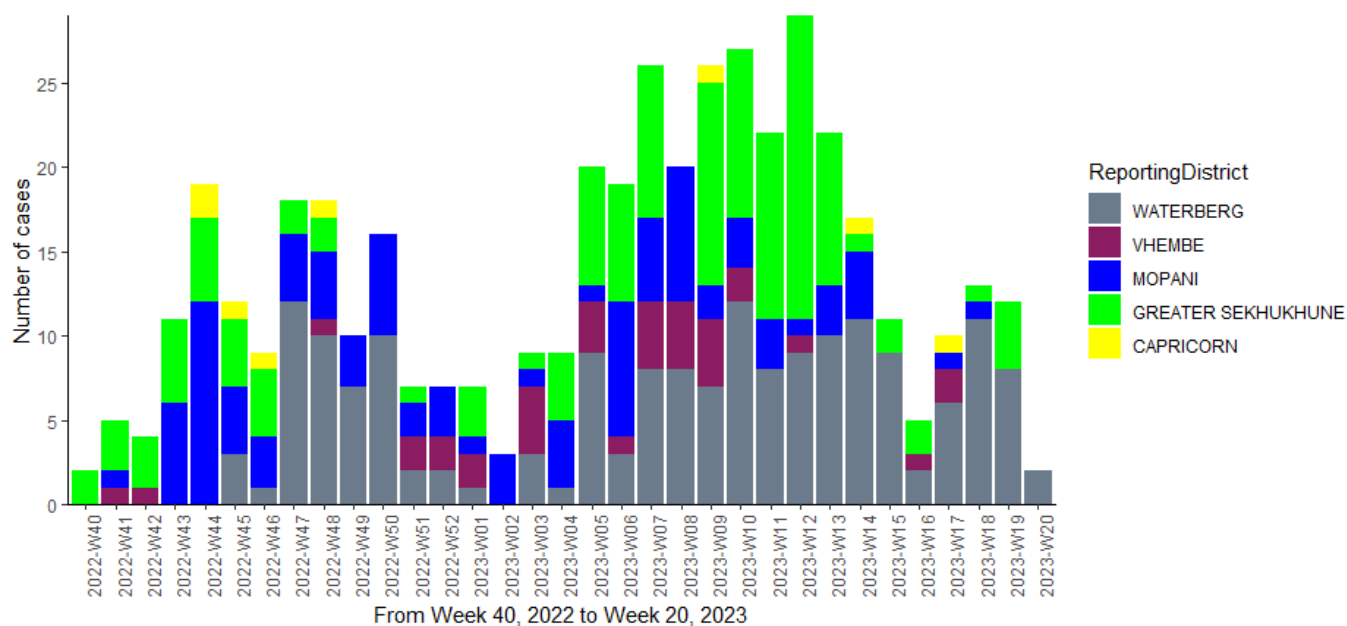


Figure 6. The epidemiological curve of the number of laboratory-confirmed measles cases by districts of Limpopo Province from epidemiological week 40, 2022 to week 20, 2023 by specimen collection dates

*Note: Data is subject to change as new results are added or updated. Please contact Mr Tshepo Motsamai (tshepom@nicd.ac.za) to update data element

North West

A total of 217 laboratory-confirmed measles cases have been reported in North West Province since epidemiological week 40, 2022 (Figure 7). An outbreak was declared in North West province on 02 December 2022 (epidemiological week 48, 2022) after three laboratory-confirmed cases were reported in Ngaka Modiri Molema district. The majority of the laboratory-confirmed cases are among children aged 5-9 years, with 99 cases and an attack rate of 25.28 per 100,000 persons, followed by those aged 1-4 years with 56 cases, with an attack rate of 17.79 per 100,000 persons (Table 2). A total of 18 of the 217 cases were vaccinated and 169 had unknown vaccination status (Table 3). Of these 217 cases, the majority (180) were reported from the Ngaka Modiri Molema district, with 73 cases reported from a single clinic, Lonely Park Clinic in Mahikeng. Twenty two cases were reported from Bojanala Platinum district, eight cases from Dr Kenneth Kaunda district, and seven cases from Dr Ruth Segomotsi Mompati district.

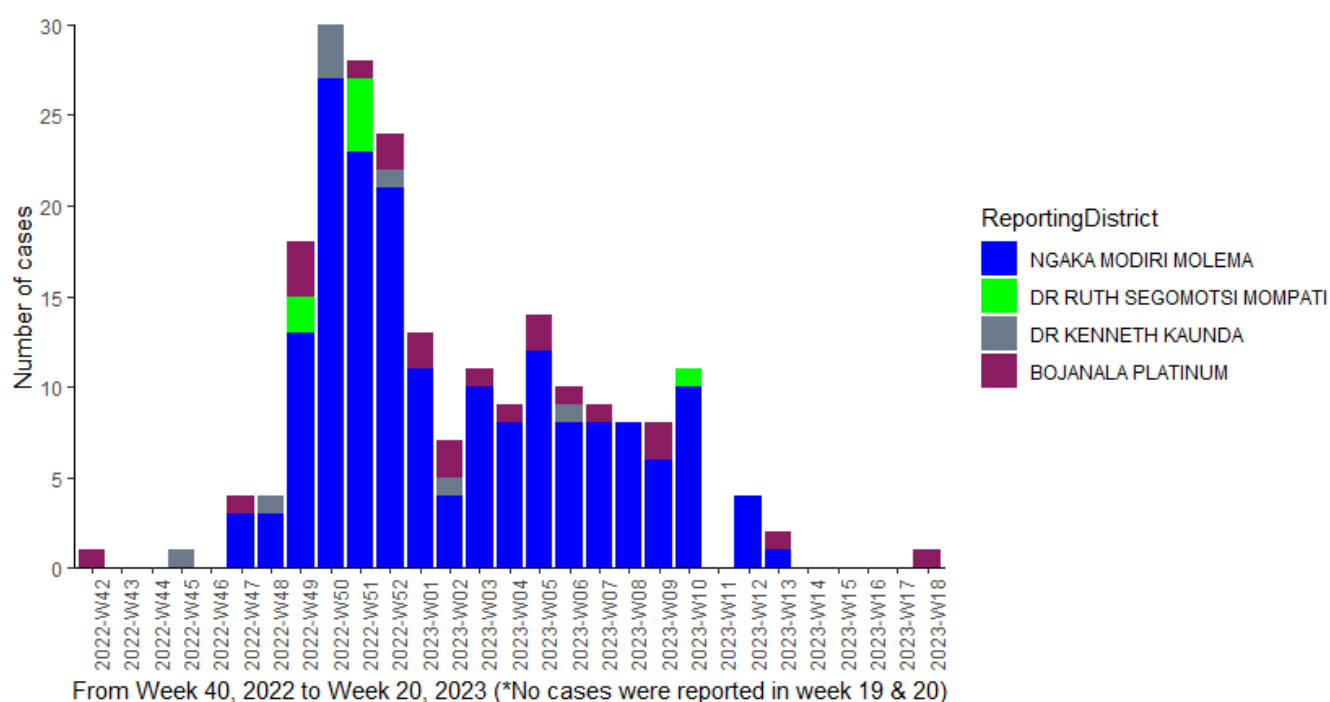


Figure 7. The epidemiological curve of the number of laboratory-confirmed measles cases in districts of North West Province from epidemiological week 42, 2022 to week 20, 2023 by specimen collection date.

Gauteng

A total of 173 laboratory-confirmed measles cases have been reported from epidemiological week 40, 2022 to week 20, 2023 in Gauteng Province displayed in Figure 8. An outbreak was declared on 06 December 2022 (epidemiological week 49, 2022) after three laboratory-confirmed measles cases were reported at a single health facility, Ethafeni clinic in the City of Ekurhuleni Metropolitan Municipality. To date, the majority of cases, 109, have been reported from the City of Ekurhuleni, 35 from the City of Tshwane, 18 cases from the City of Johannesburg, and 11 cases from West Rand. Amongst these 173 cases, 147 have unknown vaccination status while 13 cases were vaccinated (Table 3). Of the 109 cases in Ekurhuleni, 14 were identified at Daveyton's main clinic in Ekurhuleni.

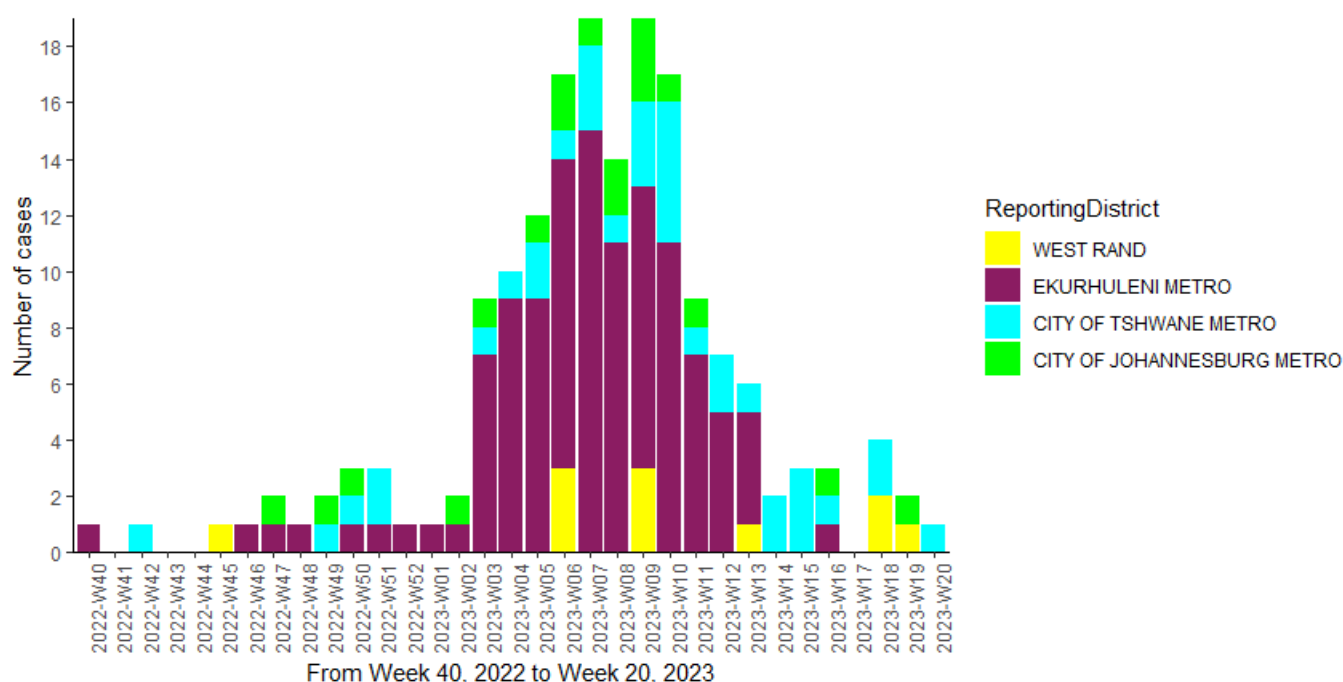


Figure 8. The epidemiological curve of the number of laboratory-confirmed measles cases in districts of Gauteng Province from epidemiological week 40, 2022 to week 20, 2023 by specimen collection dates.

Free State

There are currently 32 laboratory-confirmed measles cases in this province since epidemiological week 40, 2022 (Figure 9). An outbreak was declared on 20 December 2022 (epidemiological week 51, 2022) in Free State province after three laboratory-confirmed measles cases were reported in Thabo Mofutsanyana district. Of the 32 cases, 20 have been reported from Thabo Mofutsanyana district, seven from Fezile Dabi district, two cases from Xhariep district, two cases from Manguang metro and one case from Lejweleputswa district. Of these 20 cases reported from Thabo Mafutsanyana district, five were reported by Bethlehem clinic. The vaccination status of 20 cases is unknown, whereas three cases were not vaccinated, and nine were (Table 3).

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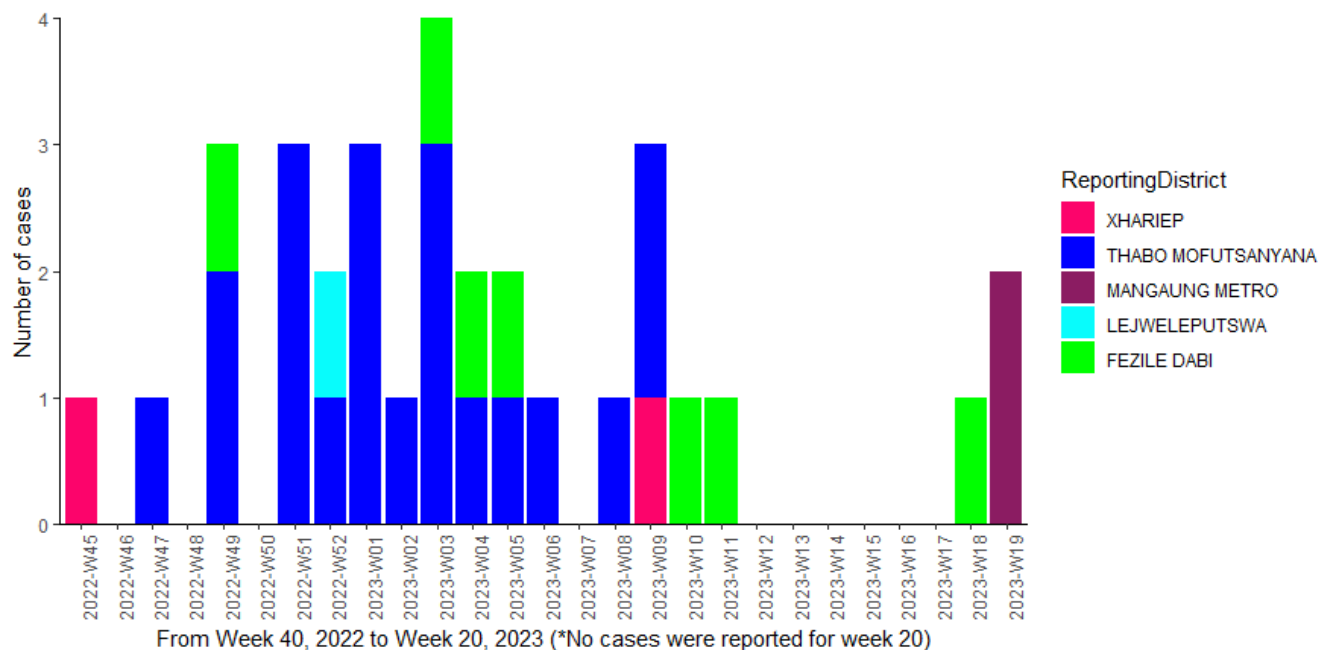


Figure 9. The epidemiological curve of the number of laboratory-confirmed measles cases in districts of Free State Province from epidemiological week 40, 2022 to week 20, 2023 by specimen collection dates.

Conclusion

Overall, the incidence of measles appears to be decreasing across the country, with reproduction numbers for all provinces <1 . Limpopo province is still contributing to cases seen in the previous week. Continuous surveillance for measles cases is recommended. Prevention and control of measles outbreaks can only be achieved through vaccination. The national measles vaccination coverage remain low. It is never too late to vaccinate – children over the age of 6 months to 15 years were targeted in the National supplemental immunization campaign rolled out in all provinces since 06 Feb 2023. The NICD continues to report on a large number of cases with unknown vaccination status. We urge district and province to complete vaccine status on the investigation forms for completeness of data. Clinicians across the country are urged to be on the lookout for measles cases. For more information about measles, case definition, notification, investigation and guidelines for measles management including vaccination, please refer to our website: <https://www.nicd.ac.za/diseases-a-z-index/measles/>. Health care workers are encouraged to submit reports on any adverse events following immunization (AEFI) through the Med Safety application (<https://medsafety.sahpra.org.za/>) or through submitting a case reporting form to their district surveillance officer.