NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

SOUTH AFRICAN MEASLES OUTBREAK 2023

INTERIM SITUATION REPORT, 2 FEBRUARY 2023

(Based on laboratory testing data up until 28 January 2023)

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

Highlights

- The NICD has currently tested 3156 serum samples for measles of which 459 (14.5%) were confirmed positive from epidemiological week 40, 2022. In the past weeks (week 03 up until mid-week 04, 2023), there have been 43 new laboratory-confirmed measles cases detected across the country.
- In outbreak-affected provinces, a total of 441 measles cases have been detected from week 40 of 2022 until week 04 of 2023.
- In Gauteng Province, in weeks 03 and 04, 2023, 6 cases were notified at clinics in Daveyton, Ekurhuleni (3 from Daveyton Main clinic, two from Philip Moyo Clinic, one from Crystal Park Clinic) and 3 from the Germiston area (1 from Bertha Nxowa Hospital, one from Germiston City clinic and 1 from Wannenburg clinic). A single case was identified in Soshanguve, City of Tshwane.
- In North West province, in weeks 03 and 04, 12 of 15 cases originate from Mahikeng (Lonely Park, Mocoseng and Setlopo clinics, and Mahikeng provincial hospital). Two cases are reported from Ramabesa clinic and Makapanstad health Centre in Bojanala
- Amongst the 11 cases reported from Limpopo province, in weeks 03 and 04, three are from Giyani (Mapayeni clinic) and two from Makhado (Louis Trichardt Hospital and Clinic)
- The age distribution and origin of cases remain largely unchanged with the majority of measles cases in outbreak-affected provinces being among the 5-9 year age group (39%), and the highest proportion of cases arising from hospitals as opposed to primary health clinics in the under-1 year age group (54%). However, there is a significant number of cases in the 10–14-year age group (17%), justifying the need for a vaccination campaign to include this age group.
- Members of the public are urged to ensure their children are vaccinated against measles.

Outbreak overview

From epidemiological week 40, 2022 (ending 8 October 2022) to week 04, 2023 (ending 28 January 2023) the NICD has tested 3156 serum samples for measles of which 459 (14,5%) were confirmed measles cases (Table 1). The number of samples submitted, number and percentage that tested positive are shown in Figure 1. From epidemiological week 40 of 2022 to week 04 of 2023, 441 laboratory-confirmed cases were reported from five provinces with declared measles outbreaks in Limpopo (158 cases), Mpumalanga (86 cases), North West (147 cases), Gauteng (30 cases), and Free State (20 cases) (Table 2). The geographical distribution of cases across South Africa from week 40 of 2022 until week 04 of 2023 is shown in Figure 2. The number of cases continues to increase daily as blood and throat swabs are submitted to the NICD for measles serology and PCR testing.

*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

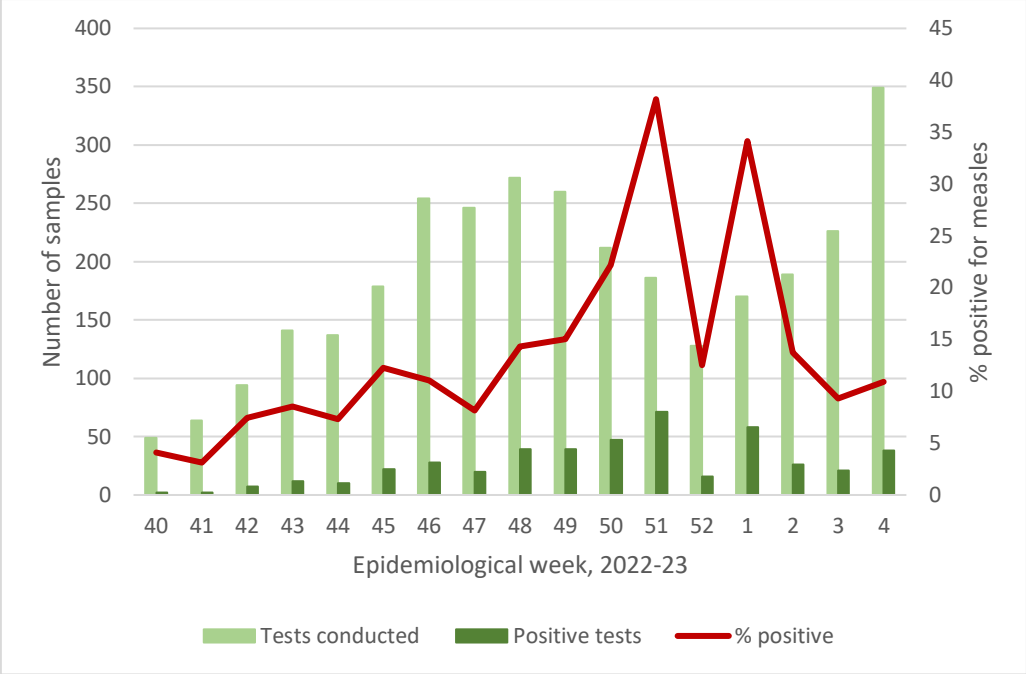

Figure 1. The number of serum samples submitted to the NICD for measles, week 40 2022, until week 04, 2023 and the number (dark green) and % tested positive (red line), by epidemiological week using the date the specimen was tested.

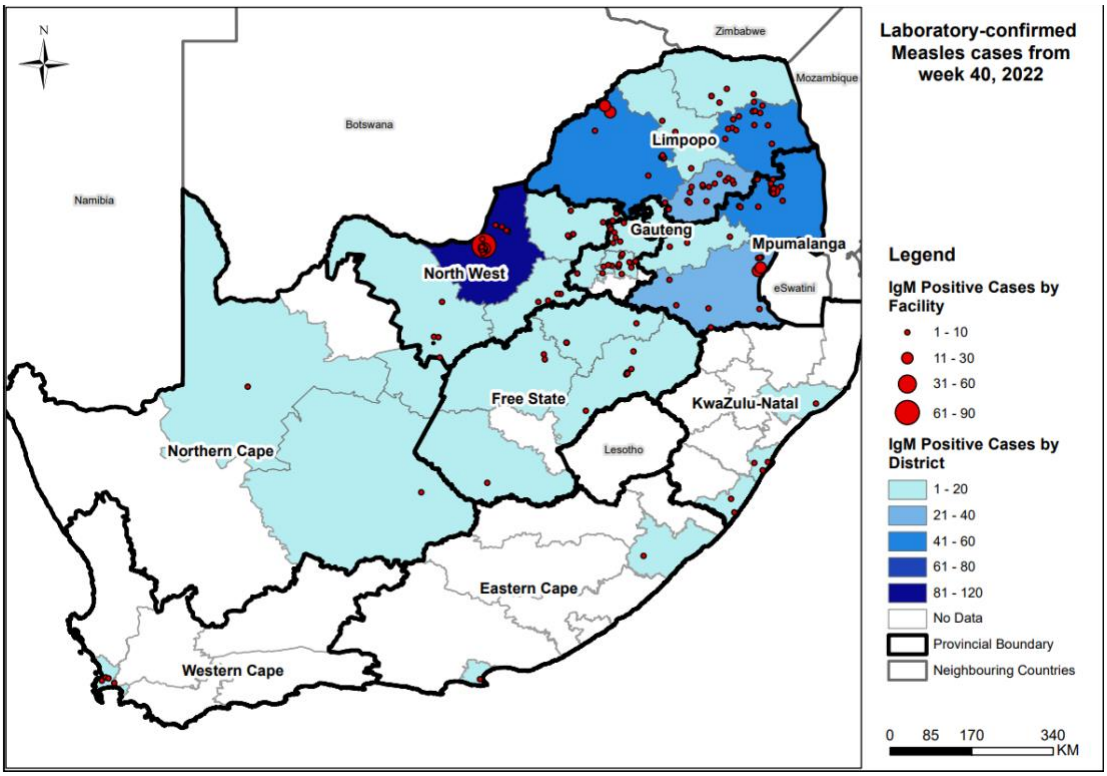

Figure 2. Distribution of laboratory-confirmed measles cases by testing site (red dots – the size of the dot indicates the number of cases from that facility) and district of South Africa (deepening colour of blue indicates the total number of cases by sub-district), from week 40 to week 04, 2023

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Table 1. Cases of laboratory-confirmed measles tested by the NICD from all provinces in South Africa from epidemiological week 40, 2022 to week 04, 2023. Outbreak-associated cases are contained within the red bordered cells* (EC=Eastern Cape; FS=Free State; GP=Gauteng; KZN=KwaZulu-Natal; LP=Limpopo; MP=Mpumalanga NW=North West; NC=Northern Cape). * A measles outbreak is classified as three or more confirmed laboratory measles cases reported within 30 days of the onset of disease, in a district.

Epi Week	EC	FS	GP	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	32			57
51, 2022		4	3	1	7	5	28			48
52, 2022		2	1		6	5	24	1		39
01, 2023		3	1		7	1	13		1	26
02, 2023		1	2		3	4	7			17
03, 2023	1	4	9		8	5	11		1	39
04, 2023*		1	2	1	3	1	4			12
Total	**2**	**20**	**30**	**6**	**158**	**86**	**147**	**4**	**6**	**459**

*inclusive of samples submitted up until week 04

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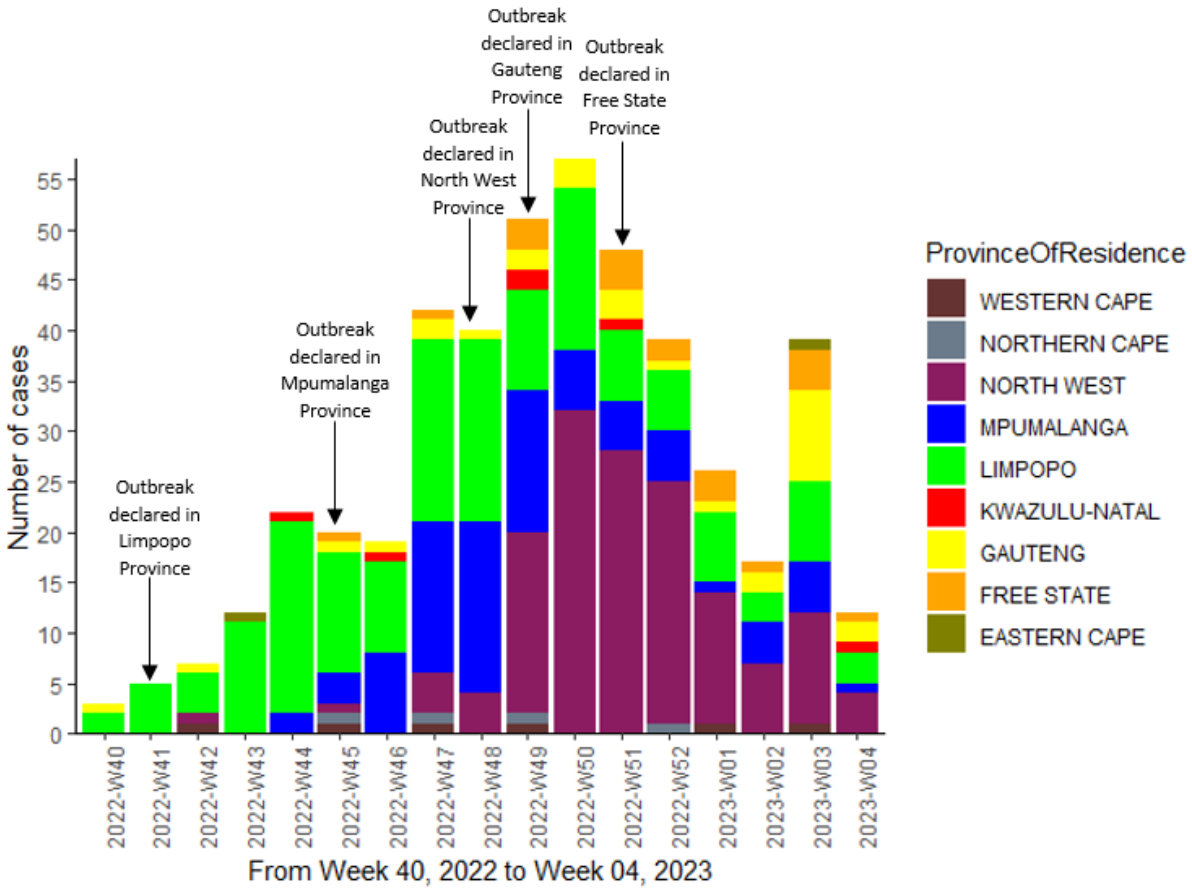

Figure 3. The epidemiological curve showing the number of laboratory-confirmed measles cases in South Africa from week 40, 2022 to week 04, 2023 (ending 08 October 2022 – ending 28 January 2023) by specimen collection dates and by province, indicating the weeks in which outbreaks were declared in Limpopo, Mpumalanga, North West, Gauteng and Free State provinces.

The age of laboratory-confirmed cases across the five provinces ranges from two months to 60 years (Table 2). The majority of cases 172, (39%) were in the 5-9-year age group, followed by 131 (30%) in the 1-4-year age group and 74 (17%) in the 10-14-year age group. The attack rates are highest among age groups 1-4 and 5-9 (Table 2). Of the 441 cases in the provinces where the measles outbreak has been declared, the vaccination status of 80 (20%) was known, of whom 35 (44%) were vaccinated (Table 3). Whilst the NICD is presently not able to provide data on hospital admission rates nor on measles mortality rates, Table 4 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 facilities. Admitted patients will be a subset of these cases.

Table 2. Age distribution of laboratory-confirmed measles cases from epidemiological week 40, 2022 to week 04, 2023, in provinces with a declared measles outbreak with age-specific attack rates.

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Age group	FS		GP		LP		MP		NW		Total	
	# cases	AR	# cases	AR	# cases	AR	# cases	AR	# cases	AR	**# cases**	**AR**
<1 year	2	3.76	5	1.90	9	6.82	5	5.52	7	8.66	**28**	**4.51**
1-4 years	8	3.81	7	0.67	47	8.81	26	7.45	43	13.66	**131**	**5.35**
5-9 years	8	3.00	10	0.80	59	8.85	29	6.78	66	16.85	**172**	**5.72**
10-14 years	2	0.69	2	0.16	29	4.35	18	3.89	23	5.64	**74**	**2.42**
≥15 years	0	0	6	0.05	14	0.36	8	0.24	8	0.27	**36**	**0.15**
Total	**20**	**0.68**	**30**	**0.19**	**158**	**2.66**	**86**	**1.82**	**147**	**3.51**	**441**	**1.30**

FS= Free State; GP= Gauteng; KZN=KwaZulu-Natal; LP=Limpopo; NW=North West; 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 04, 2023 in provinces with a declared measles outbreak.

Vaccination status		FS	GP	LP	MP	NW	Total
Vaccination status known		7	2	28	26	17	80
Vaccination status unknown		13	28	130	60	130	361
Vaccinated cases (% of known status)		4	2	14	9	6	35 (44%)
Age distribution of vaccinated persons	*<1 year*	1	2	1	0	0	4
	1-4 years	1	0	7	1	3	12
	5-9 years	0	0	5	5	3	13
	10-14 years	2	0	1	3	0	6
	≥15 years	0	0	0	0	0	0
Total		**20**	**30**	**158**	**86**	**147**	**441**

Table 4. The facility type where laboratory-confirmed measles cases have been identified, for epidemiological week 40, 2022 to week 04, 2023, South Africa. Submission of a specimen from a hospital may suggest (but is not firm evidence) that the patient was admitted.

Reporting Health Facility	<1 year	1-4 years	5-9 years	10-14 years	≥15 years	Total
From PHC/CHC/other	13	94	127	56	27	317
From a hospital (%)	15 (54)	37 (28)	45 (26)	18 (24)	9 (25)	124 (28)
Total	**28**	**131**	**172**	**74**	**36**	**441**

An overview of the outbreak in the Limpopo Province

In total, 158 cases of laboratory-confirmed measles were reported between epidemiological week 40, 2022 to week 04, 2023 with the majority of the measles cases reported in the Greater Sekhukhune,

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Mopani and Waterberg districts. Amongst the 11 cases reported in weeks 03 and 04, three are from Giyani (Mapayeni clinic) and two from Makhado (Louis Trichardt Hospital and Clinic). Figure 4 displays an epidemiological curve from week 40, 2022 to week 04 of 2023 in Limpopo province. In total, Mopani district has reported 56 cases, Waterberg district has reported 50 cases, Greater Sekhukhune district has reported 35 cases, Vhembe district has reported 12 cases and Capricorn district reported five cases. 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 8.85 per 100,000 persons. The 1-4 age group had a similar attack rate of 8.81 per 100,000 persons. Of the 158 measles cases in Limpopo province, 130 (82%) had an unknown vaccination status, 14 (9%) were vaccinated, and 14 (9%) were unvaccinated (Table 3). In the Waterberg district, 26 cases of 50 have been reported from Witpoort Hospital in Lephalale.

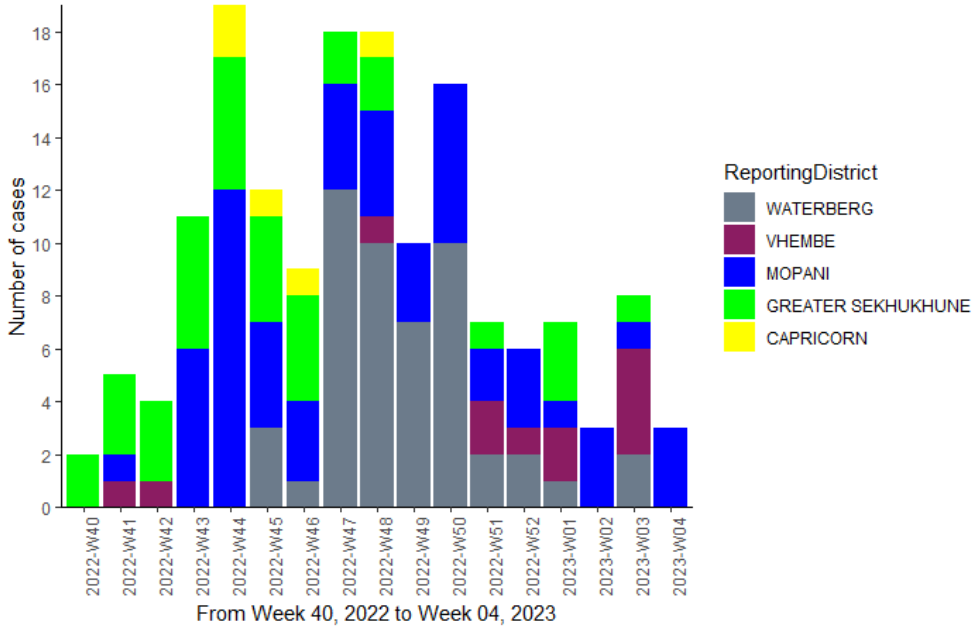

Figure 4. The epidemiological curve showing the number of measles cases by districts of Limpopo Province from epidemiological week 40, 2022 to week 04, 2023 by specimen collection dates

Mpumalanga

In total, 86 cases of laboratory-confirmed measles have been reported since epidemiological week 40, 2022. The measles outbreak was declared in Mpumalanga province on 11 November 2022 (epidemiological week 45, 2022). Figure 5 shows an epidemiological curve for Mpumalanga province from week 44, 2022 to week 04, 2023, with Ehlanzeni and Gert Sibande districts reporting the majority of cases, 44 and 37, respectively. Dwarsloop clinic reported 17 of the 44 cases from the Ehlanzeni district, while Dundonald clinic reported 12 out of the 37 cases from the Gert Sibande district.

The age of cases across Mpumalanga ranged from 4 months to 60 years. The most affected age group by the measles outbreak is 5-9 years (Table 2), with an attack rate of 6.78 per 100,000 persons. Of the 86 cases, 60 had an unknown vaccination status, nine were vaccinated and 17 were unvaccinated (Table 3).

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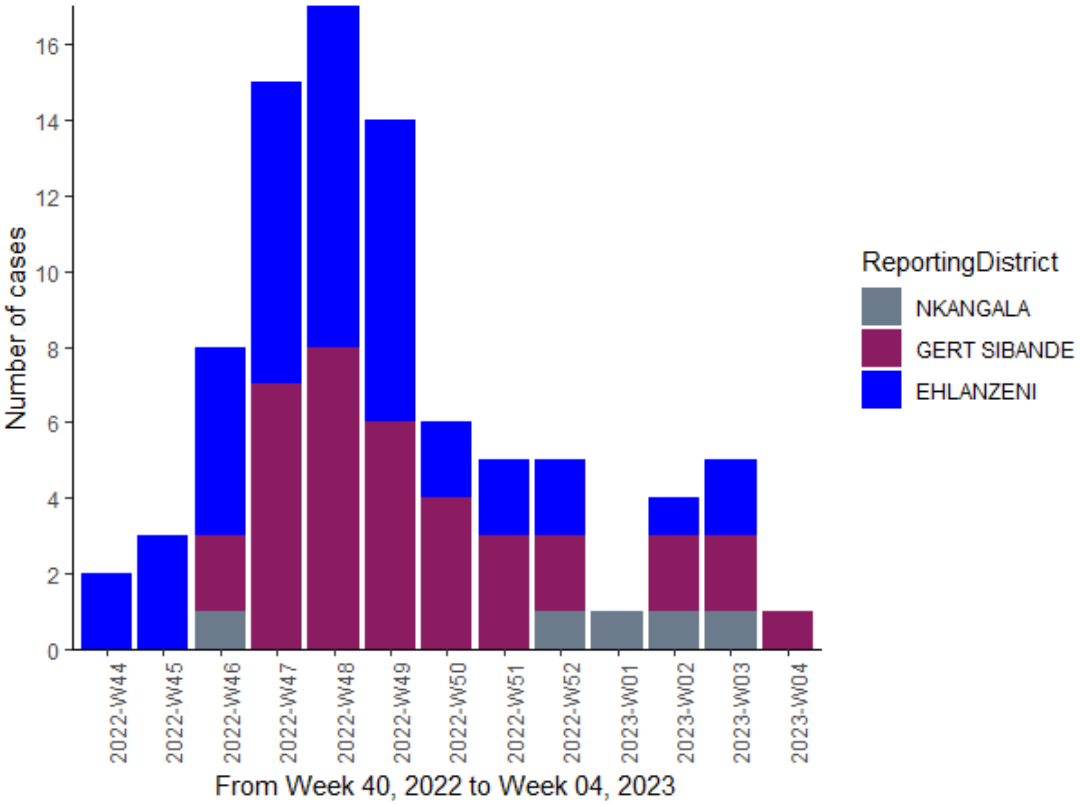

Figure 5. The epidemiological curve shows the number of measles cases in districts of Mpumalanga Province from epidemiological week 44, 2022 to week 04, 2023 by specimen collection dates.

North West

A total of 147 cases have been reported in North West Province since epidemiological week 40, 2022 (Figure 6). An outbreak was declared in North West province on 02 December 2022 after three laboratory-confirmed cases were reported in Ngaka Modiri Molema district. Fifteen cases were reported in weeks 03 and 04, of which 12 originate from Mahikeng (Lonely Park, Mocoseng and Setlopo clinics, and Mahikeng provincial hospital). Two cases are reported from Ramabesa clinic and Makapanstad health Centre in Bojanala. Most of the laboratory-confirmed cases are among children aged 5-9 years, with an attack rate of 16.85 per 100,000 persons, followed by those aged 1-4 years, with an attack rate of 13.66 per 100,000 persons (Table 2). Six of the 147 cases were vaccinated and 130 had unknown vaccination status (Table 3). Of these 147 cases, 120 were reported from the Ngaka Modiri Molema district, with 65 cases reported from a single clinic, Lonely Park Clinic in Mahikeng.

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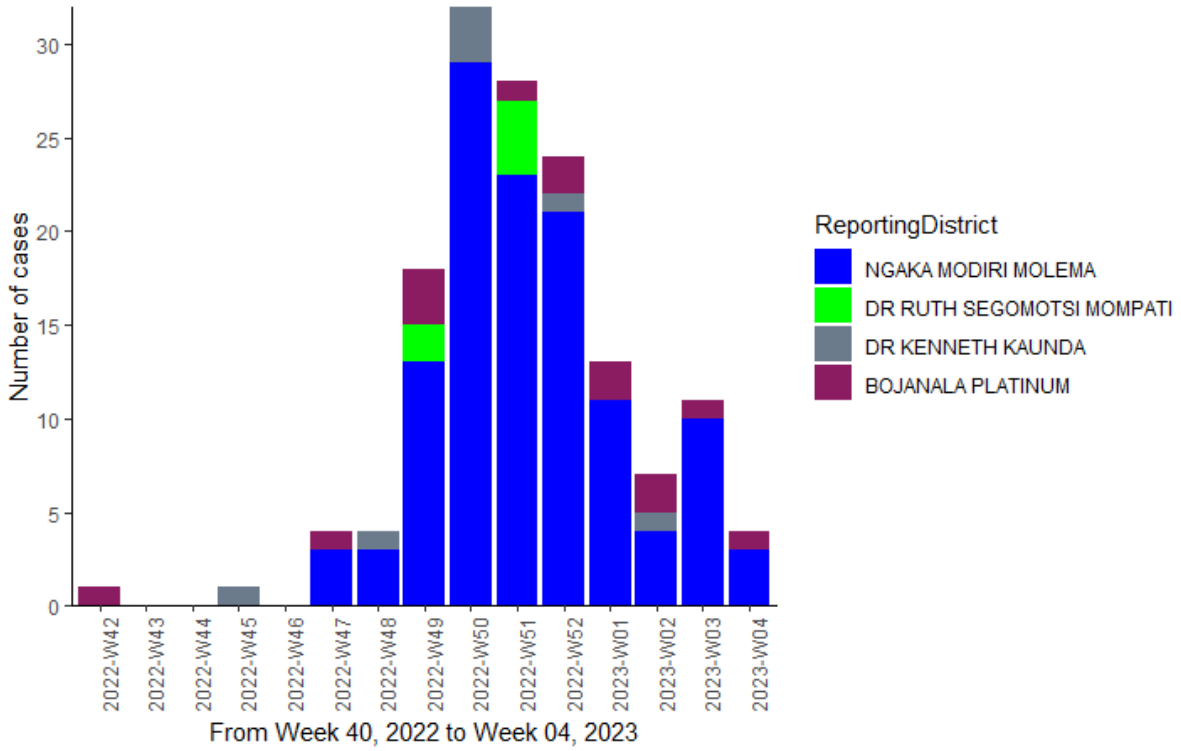

Figure 6. The epidemiological curve showing the number of measles cases in districts of North West Province from epidemiological week 42, 2022 to week 04, 2023 by specimen collection dates

Gauteng

A total of 30 laboratory-confirmed cases have been reported from epidemiological week 40, 2022 to week 04, 2023 in Gauteng Province displayed in Figure 7. An outbreak was declared on 06 December 2022 after three laboratory-confirmed cases were reported at a single health facility, Ethafeni clinic in the City of Ekurhuleni Metropolitan Municipality. To date, 18 cases have been reported from the City of Ekurhuleni, six from the City of Tshwane and five cases from the City of Johannesburg. Among these cases, 28 have unknown vaccination status while two were vaccinated (Table 3). In weeks 03 and 04, 2023,6 cases have been identified at clinics in Daveyton, Ekurhuleni (3 from Daveyton Main clinic, two from Philip Moyo Clinic, one from Crystal Park Clinic) and 3 from the Germiston area (from Bertha Nxowa Hospital, one from Germiston City clinic and 1 from Wannenburg clinic).

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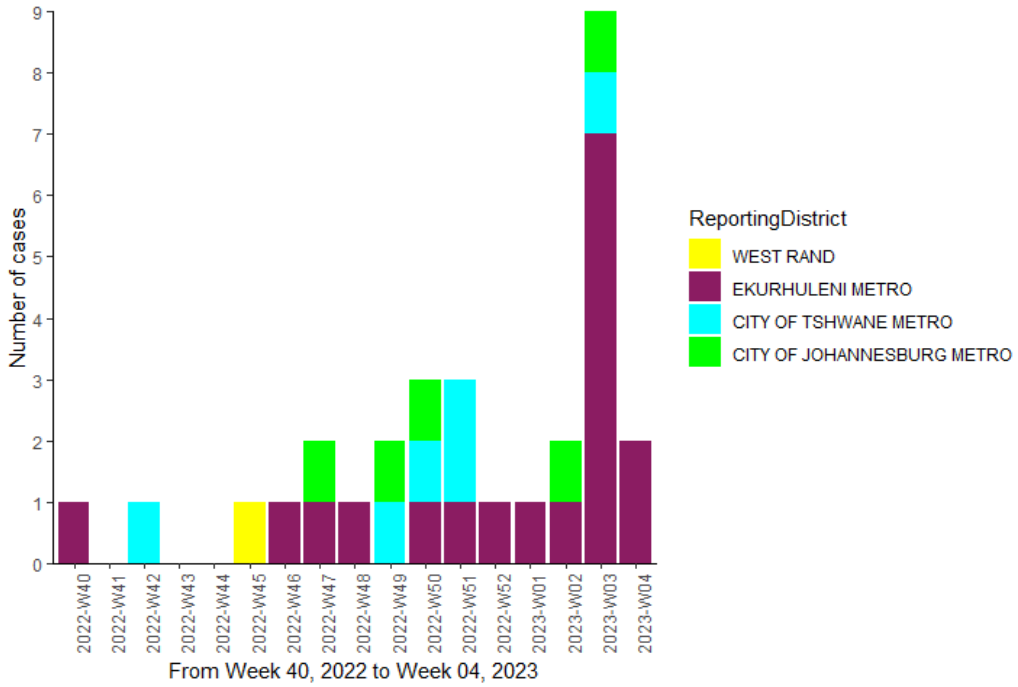

Figure 7. The epidemiological curve showing the number of measles cases in districts of Gauteng Province from epidemiological week 40, 2022 to week 04, 2023 by specimen collection dates

Free State

There are currently 20 laboratory-confirmed cases in this province since epidemiological week 40, 2022. An outbreak was declared on 20 December 2022 in Free State province after three laboratory-confirmed cases were reported in the Thabo Mofutsanyana district. 15 cases have been reported from the Thabo Mofutsanyana district, three from the Fezile Dabi district, and one each from the Lejweleputswa and Xhariep districts. Bethlehem clinic reported six of these 15 cases reported from the Thabo Mafutsanyana district. The vaccination status of 13 cases is unknown, whereas three cases were not vaccinated, and four were (Table 3).

Conclusion

The total number of laboratory-confirmed measles cases continues to increase. The number of specimens submitted for testing has increased. With inland schools having returned during epidemiological week 02, 2023, it remains critical detecting cases over the next 2-3 weeks, as the incubation period of measles is 9-14 days. The NICD continues to support the planned vaccination campaigns as these are the only way to prevent measles transmission and further morbidity and mortality.

Prevention and control of measles outbreaks can only be achieved through vaccination. Caregivers and parents are advised to review their child's vaccination records and confirm that they have received the measles vaccine. It is never too late to vaccinate – children who have not been vaccinated may receive the measles vaccine at any age over 6 months, and free of charge at primary health services. Clinicians across the country are urged to be on the lookout for measles cases. It is understood that the health departments in the respective provinces have commenced with or are planning immunisation campaigns. 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/.

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