South African Measles and Rubella Monthly surveillance situational report Measles-Rubella rash surveillance data up to 01 January to 16 November 2024

## 1. Summary

From epidemiological week 1 to week 46 of 2024, 626 laboratory-confirmed cases of measles and 10137 cases of rubella were reported by the Measles Reference Laboratory at the National Institute for Communicable Diseases in South Africa, Figures 1 & 3. Sporadic laboratory-confirmed measles cases were reported from week 1 to week 46 with Gauteng province reporting the highest number of measles cases (285). The challenge with some of the referred measles cases with samples to the NICD from the private laboratories based in Gauteng for testing, is that these from other provinces were incorrectly allocated to the City Of Tshwane or the City of Johannesburg due to missing patient information. A total of 104 laboratory-confirmed measles cases. The majority of the reported measles IgM positive specimens were also positive for rubella IgM antibodies which suggests that these are false-positive measles IgM results. Measles and rubella PCR results for these specimens are pending.

With the rubella virus infections of 10137 nationally, rubella circulation has decreased in the Western Cape Province and increased in the North West Province. Other provinces in the country continue to have high rubella positivity rates, including Gauteng Province, KwaZulu-Natal and Northern Cape Province, Figure 3. Gauteng province reported the highest number of rubella cases to date with 2603 cases reported among samples tested up until week 46.

Overall, increasing numbers of blood specimens with or without throat swabs from suspected measles and rubella cases are being submitted to the National Institute for Communicable Diseases for laboratory confirmation from all provinces in the country. As a consequence, measles-rubella testing is delayed, and clinicians are requested to submit specimens from cases **only where the rubella virus is not known to be present.** For example, in schools or creches where fever-rash cases have been identified, and laboratory confirmation indicates that rubella infection is present, no further laboratory testing should be done.

## **Measles Surveillance**

A total of 626 laboratory-confirmed measles cases were reported between epidemiological week 1 and week 46 of 2024 in South Africa, Figure 1. From epidemiological week 1 to week 46, the majority of laboratory-confirmed measles cases (285) were reported in Gauteng province (Table 1).. Laboratory-confirmed measles cases continue to be reported in Gauteng province in all districts except West Rand district which reported the last measles case in week 41 of 2024 (Figure 2).



**Figure 1**. The epidemiological curve shows the number of laboratory-confirmed measles cases by Province in South Africa, from epidemiological week 1–46, 2024 by specimen taken dates. Testing of specimens from epidemiological weeks 41-46 is lagging behind, on account of the number of samples being received each week.

Table 1: Number of laboratory-confirmed	d measles and	rubella cases	by province i	in South	Africa,
01 January to 16 November 2024					

PROVINCE	Measles cases	Rubella cases
Eastern Cape	49	1113
Free State	33	471
Gauteng	285	2603
KwaZulu-Natal	79	1996
Limpopo	13	190

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Mpumalanga	39	665
North West	44	899
Northern Cape	22	862
Western Cape	62	1338
South Africa	626	10137

Measles cases affected mostly children in age groups 1-4 years and 5-9 years followed by 10-14 years (Table 2). Most children reported with measles infection were among age groups that should have been vaccinated during the measles vaccination campaign in 2023. Dual laboratory-confirmed measles and rubella cases have increased in areas where rubella circulation has increased, having an impact on the number of reported measles cases.

	0-6	7-11					>= 50		
	mont	months	1-4	5-9	10-14	15-49	Years		
Province	hs		years	years	years	Years		Unknown	Total
EASTERN CAPE	0	1	18	23	0	0	0	7	49
FREE STATE	1	0	6	20	0	0	0	6	33
GAUTENG	14	7	83	88	0	4	0	89	285
KWAZULU-	0	0	22	41	0	0	0	16	79
NATAL									
LIMPOPO	0	0	9	1	0	0	0	3	13
MPUMALANGA	0	0	17	17	0	0	0	5	39
NORTH WEST	0	0	11	29	0	0	0	4	44
NORTHERN	0	0	6	14	0	0	0	2	22
CAPE									
WESTERN CAPE	0	0	21	23	0	1	0	17	62
South Africa	15	8	193	256	0	5	0	149	626

Table 2: Measles cases by age group in South Africa, 01 January to 16 November 2024

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*Figure 2.* The epidemiological curve of the number of laboratory-confirmed measles in Gauteng province, from epidemiological week 1-46, 2024 by specimen taken dates.

#### 2. Rubella surveillance

Rubella serology testing is conducted at several NHLS laboratories and the NICD. Rubella testing at the NICD is done to differentiate the infection of rubella and measles from fever-rash surveillance samples from patients who meet the suspected measles/rubella case definition. Data reported in the situation report is for samples tested at NICD from measles and rubella rash surveillance.

From week 1 to week 45 of 2024, 10137 laboratory-confirmed rubella cases were reported in South Africa through measles and rubella surveillance, Table 1 & Figure 3. Rubella circulation had increased in Gauteng, Kwazulu-Natal and North West in recent epidemiological weeks, with sustained circulation in Mpumalanga, Northern Cape and Eastern Cape, Figure 3. The Western Cape Province has shown a decrease in the number of reported rubella cases.



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*Figure 3.* The epidemiological curves of the number of laboratory-confirmed rubella cases by Province in South Africa from NICD diagnostic data, from epidemiological week 1- 43, 2024 by specimen taken dates. Testing of specimens from epidemiological weeks 41-45 is lagging behind, on account of the number of samples being received each week.

Rubella infection affected mostly children from 1 to 9 years of age, with the largest number of cases among those aged 5 to 9 years of age (Table 3). Rubella infection poses a risk of congenital rubella syndrome if they are infected in the first trimester of the pregnancy.

PROVINCE	0-6 Months	7-11 Months	1-4 Years	5-9 Years	10-14 Years	15-49 Years	>= 50 Years	UNKNOWN	Total
EASTERN									
CAPE	1	3	405	528	0	0	0	176	1113
FREE STATE	1	0	142	246	0	0	0	82	471
GAUTENG	5	9	739	1293	0	0	1	556	2603
KWAZULU- NATAL	0	4	470	1145	0	1	0	376	1996
LIMPOPO	0	1	45	103	0	0	0	41	190
MPUMALANGA	0	1	182	361	0	0	0	121	665
NORTH WEST	1	1	265	555	0	0	0	77	899
NORTHERN CAPE	0	0	285	437	0	0	0	140	862
WESTERN CAPE	2	4	512	623	0	0	0	197	1338
SOUTH AFRICA	10	23	3045	5291	0	1	1	1766	10137

Table 3: Number of rubella laboratory-confirmed cases by age group, epidemiological week 1-46, 2024

Weekly Positive Rubella Cases by Year **Count of Positive Cases** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 Week Number - 2015 - 2016 - 2017 - 2018 - 2019 - 2023 - 2024

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*Figure 4.* Number of laboratory-confirmed rubella cases by epidemiological week of 2015-2024, omitting the years 2020-2022. \*2024 data is included only up to week 44. The years 2020,2021 and 2022 are omitted from this figure as the total numbers of laboratory-confirmed cases during these years are 126, 20 and 25 cases respectively.

Between September and December there is a seasonal increase in rubella cases. In 2024 there was a marked increase in the number of rubella cases seen during this period, when compared to seasonal increases seen in previous years (Figure 4).

## Conclusion

There has been a marked increase in rubella cases across South Africa, with 10137 cases in 2024. This number exceeds the typical annual number of rubella cases observed since 2015 (Figure 4). A seasonal increase is expected each year, usually between September to December, however the number of cases in 2024 is notably higher than in previous years.

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The reason for this observed increase is that many children entered 2024 without immunity to rubella, either through vaccination or prior exposure to the virus. The rubella vaccine was only introduced into the Expanded Programme on Immunisation in 2024, so a limited number of children have been vaccinated. Additionally, children who were not vaccinated and did not have prior exposure to rubella remain susceptive to infection. The natural transmission of rubella was also interrupted by the non-pharmaceutical interventions implemented during the SARS-CoV-2 pandemic. These interventions led to reduced exposure to the rubella virus, resulting in limited immunity among children, thus increasing their susceptibility to rubella in 2024. The seasonal increase has now exposed the many susceptible children to rubella infection and resulted in the surge in cases that we have observed.

Health awareness is recommended in the areas where rubella cases are circulating. Although rubella infections cause mild disease in adults and children, women in their first trimester of pregnancy who acquire rubella for the first time are at risk of passing rubella onto their foetus, with consequential congenital rubella syndrome (CRS). Healthcare workers should collect urine, throat swabs, and blood sample specimens for diagnostic testing (serology and PCR detection) on infants with suspected CRS and pregnant women in their first trimester of pregnancy, whom either exposed to a case/s of confirmed or suspected rubella. A good clinical history should be obtained from their mothers regarding fever/rash illness during pregnancy. A completed case investigation form for congenital rubella syndrome should be completed along with the submission of clinical samples to the NICD for testing.

Measles circulation continues to be at a low level. As reported, many cases that are measles IgM positive are also positive for rubella IgM. Dual infection in this context is likely to be rubella, but measles infection may be ruled out following measles and rubella PCR, which is not done in real-time.

Routine measles vaccination should be strengthened and measles catch-up doses continue in healthcare facilities for the children who missed their scheduled doses. Vaccinating children with the measles vaccine protects them from severe illness caused by measles virus infection, including severe pneumonia, encephalitis, blindness, deafness, and death. For all measles-positive cases, the public health response should be done as per the EPI(SA) immunisation guideline.

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Measles, acute rubella, and congenital rubella syndrome are notifiable medical conditions. Strengthening surveillance for measles and rubella is recommended to increase the chance of detecting outbreaks and monitoring the effectiveness of routine vaccination programs. Clinicians are encouraged to be on the lookout for measles and rubella cases. Samples should be collected from clinically suspected measles and rubella patients and sent to the NICD as part of the measles and rubella elimination surveillance for laboratory confirmation. Clinicians are urged to be mindful of the clinical context of febrile patients who present with a rash. If rubella is circulating in communities, or if the suspected case has a history of contact with a confirmed case of rubella, it is not necessary to submit samples for clinical testing. However, ALL cases should be notified as suspected fever-rash cases.

Diagnostic testing for fever-rash surveillance includes a completed measles-rubella case investigation form (found at https://www.nicd.ac.za/wp-content/uploads/2023/10/Measles-Rubella-CIF.pdf) and blood for serological testing together with a throat swab or urine for PCR testing. Measles and rubella suspected cases samples should be sent to the NICD for laboratory confirmation. Based on details in the case investigation form and results of serological testing, PCR for measles and/or rubella will be done.