# PARALYSIS SURVEILLANCE FOR POLIO, SOUTH AFRICA, AND OTHER AFRICAN COUNTRIES, 2020

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**Summary**

From January 2020 to December 2020, the South African national non-polio acute flaccid paralysis rate was 2.6/100 000 children under 15 years compared to 3.5/100 000 children in 2019. The country reached the World Health Organization target of 2.0/100 000 population under the age of 15, but did not reach the country's target of 4.0/100 000. Receipt of samples in the laboratory within 72 hours of collection was 36%, below the World Health Organization's target of 80%. No wild-type poliovirus nor vaccine-derived poliovirus was detected in South Africa. Sabin poliovirus type 2 and circulating vaccine-derived poliovirus type 2 (cVDPV2) were detected from 13 African countries, namely Burkina Faso, Angola, Malawi, Ethiopia, Senegal, Côte d'Ivoire Niger, the Democratic Republic of the Congo, Republic of South Sudan, Zambia, Guinea, Sierra Leone and Mali. Sabin 2 and cVDPV2 were the most prevalent poliovirus strains in the African region. The performance of AFP surveillance in 2020 has declined despite the fact that South Africa has achieved the WHO target. There is an urgent need for more African countries to use novel oral poliovirus 2 vaccines to prevent cVDPV2 outbreaks. The percentage of South African samples arriving at

the laboratory within 72 hours was below the WHO target. There is also an urgent need to improve the logistics of sample transportation to the laboratory within the required time. As the Global Polio Eradication Initiative winds down and devolves to regional WHO initiatives, incorporation of national AFP surveillance targets into integrated disease surveillance will require attention.

**Introduction**

The National Institute for Communicable Diseases (NICD) serves as the national polio reference laboratory for acute flaccid paralysis (AFP) surveillance in South Africa and other southern African countries, namely Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia and Swaziland. The NICD additionally serves as the regional reference centre for the polio laboratory network of the World Health Organization (WHO) and conducts molecular characterization of poliovirus isolates from within the African Region.

In 1988, when the Global Polio Eradication Initiative (GPEI) was established, there were an estimated 350 000 cases of wild poliovirus (WPV) types 1, 2, and 3 in more than 125 endemic countries.[1] The global incidence of polio has decreased by 99.9% since then. Two of three wild poliovirus strains are declared globally eradicated: wild poliovirus type 2 in September 2015 and wild poliovirus type 3 in October 2019. In 2020, the African region was declared and certified free of wild poliovirus, a key milestone.[2] Afghanistan and Pakistan are the only two remaining polio-endemic countries in the world, recording 140 wild polioviruses type 1 in 2020.[3] In South Africa, the last wild poliovirus case occurred in 1989.

Many African countries are faced with circulating vaccine-derived poliovirus type 2 (cVDPV2) outbreaks, possibly arising from the emergency use of monovalent oral polio vaccine serotype 2 (mOPV2) during outbreak responses in populations with low coverage of inactivated polio vaccine (IPV). In November 2020, the WHO received an Emergency Use Listing for the use of novel oral polio vaccine serotype 2 (nOPV2) to halt the spread of cVDPV2. The switch from mOPV2 to nOPV2 will significantly reduce the risk of cVDPV2. The nOPV2 vaccine is a modified version of the existing mOPV2, providing comparable protection against poliovirus while being more genetically stable and less likely to revert into a form that can cause paralysis in low immunity settings.[4]

In December 2019, the novel SARS-CoV-2 coronavirus caused a global COVID-19 pandemic. South Africa reported the first COVID-19 case on 05 March 2020 followed by a national lockdown on 27 March 2020. The national lockdown restricted movement that had a notable impact on AFP surveillance.

The aim of this surveillance project was to report the performance of acute flaccid paralysis and environmental surveillance conducted at the National Institute for Communicable Diseases, Johannesburg in 2020.

**Methods**

*Surveillance indicators*

AFP case-based surveillance is conducted nationally in South Africa. An AFP case is defined as acute weakness or paralysis with reduced muscle tone, including Guillain-Barré syndrome, in a person under 15 years of age for any reason other than severe trauma, or paralytic illness in a person of any age in which polio is suspected. AFP Surveillance comprises field and laboratory components.

*Field surveillance*

Cases of AFP from all health facilities were notified to the NICD with samples collected for investigation and completion of case investigation forms. An adequately investigated case required the collection of two stool specimens from an AFP case within 14 days of onset of paralysis. The stool samples should be collected 24-48 hours apart and transported on ice to arrive at the NICD laboratory within 72 hours of collection. AFP cases were detected through active field surveillance, selecting children under the age of 15 years. The WHO non-polio AFP target detection rate for 2020 was 2.0/100 000, while the South African target was 4.0/100 000. For inadequately investigated AFP cases, the National Polio Expert Committee (NPEC) met quarterly for final classification of cases using clinical case notes (Table 1).

*Laboratory methods*

Virus isolation was performed by inoculation of clarified faecal material into cell cultures, followed by microscopic examination of the cells for cytopathic effect, which indicates the presence of suspected poliovirus/es. Intratypic differentiation (ITD) by polymerase chain reaction (PCR) was conducted on suspected poliovirus isolates. Poliovirus type 2 or discordant Sabin-like polioviruses were sequenced to classify them as either WPV, Sabin or VDPV.

*Environmental surveillance*

Environmental surveillance, a supplement to AFP surveillance, was initiated in South Africa in July 2019. In 2020, South Africa expanded polio environmental surveillance to include two sites from each of the eight metropolitan districts, totalling sixteen sites in South Africa. All sites collected sewage samples once a month, meeting the minimum WHO requirements.[5] Results for environmental surveillance are shown in figure 1.

**Table 1.** Polio case classification system used by South Africa's National Polio Expert Committee (NPEC).

| STATUS | CLASSIFICATION | CODE | REASON |
|---|---|---|---|
| **FINAL** | Confirmed (wild type) | A1 | Wild-type poliovirus found in a stool sample of a case or one of the |
| | Confirmed (vaccine-associated) | B1 | Vaccine-type poliovirus found in a stool sample of the case, which has residual paralysis at 60-day follow-up; and is confirmed clinically. |
| | Compatible | C1 | AFP case lost to follow-up at 60 days. |
| | | C2 | Death related to the illness within 60 days. |
| | | C3 | Residual paralysis for which no other medical reason is evident. |
| | Discarded | D1 | No residual paralysis and no wild polio were found in stool samples. |
| | | D2 | Confirmed alternative diagnosis |
| | | D3 | Non-polio enterovirus isolated. |
| | | D4 | No virological investigation and a clinical picture incompatible with polio. |
| | | D5 | Two adequate negative stool specimens with 14 days of onset of paralysis |
| | Denotified | E1 | Not an AFP case |
| **PENDING** | Inadequate Information | F1 | NPEC is unable to make a decision due to the lack of information. The investigating team is given 30 days from the committee meeting to find further details. The final decision is taken at the next NPEC meeting. |
| | 60-day follow-up not yet done | F2 | Final decision is referred to the next NPEC meeting for final decision. |

**Results**

*South Africa*

From 477 AFP cases, 946 stool samples were received for polio isolation, of which 36% were received within 72 hours of collection. Non-polio enteroviruses (NPEVs) were identified in thirty-three samples with a detection rate of 3.5%. Ninety-nine percent of the samples were received on ice, and 94% had results within 14 days.

Samples from four children tested positive for polioviruses. Sabin poliovirus type 1 and/or Sabin poliovirus type 3 were confirmed using Sanger sequencing. Sabin poliovirus type 3 was detected in one case each from Gauteng province, Mpumalanga province and Eastern Cape province, while a fourth child from KwaZulu-Natal Province shed both poliovirus serotypes 1 and 3. No wild-type poliovirus strains nor VDPV were detected in South African samples. Sequencing was performed to determine mutations in the five prime untranslated region of the detected Sabin polioviruses. In three cases, the five prime untranslated region of the detected Sabin poliovirus type 3 had a mutation at position 472 (T472C), a mutation associated with neurovirulence. In one case an additional mutation at position 682 (C682T) was identified in the five prime untranslated region of Sabin poliovirus type 3. One sample was not sequenced at the five prime untranslated region because it had a mixture of poliovirus strains. No children were classified by the NPEC as vaccine-associated paralytic poliomyelitis (VAPP). A summary of the 2020 AFP case classification is listed in Table 2.

**Table 2**. Final classification of South African Acute Flaccid Paralysis (AFP) cases for 2020.

| Classification | Number | Percentage of total (%) |
|---|---|---|
| **Compatible** | 5 | 1.05 |
| **Discarded** | 452 | 94.76 |
| **Denotified (Not AFP)** | 20 | 4.19 |
| **Total** | **477** | **100** |

*African countries supported by NICD*

In 2020, 2102 stool specimens were processed from African countries other than South Africa. From Angola, there were 69 samples (37 cases) in which VDPV2 was identified and 21 samples (11 cases) in which Sabin poliovirus type 2 was detected. One sample from Mozambique tested positive for Sabin

poliovirus type 2. No wild-type poliovirus was detected. The number of samples sequenced from each country is shown in table 4.

*Surveillance indicators*

South Africa's non-polio AFP rate was 2.6/100 000 children under the age of 15 years. This detection rate was above the WHO target; however, it was below the country's target. Free State Province managed to reach both the country and WHO detection rate targets, while Eastern Cape Province, Gauteng Province, Mpumalanga Province and Western Cape Province met only the WHO target. Provinces that performed below the WHO target were Limpopo, KwaZulu-Natal, Northern Cape and North West (Table 3). This was an unusual year for communicable diseases, with many diseases detected at a lower frequency than previous years, including influenza[6], febrile rash (NICD unpublished data) and hepatitis A.[7] The lower non-polio AFP detection rate than previous years may have been due to fewer circulating non-polio enteroviruses or other infectious causes of AFP due to COVID-19 lockdown restrictions as well as reduced health-seeking behaviour. The national stool adequacy rate was 87.5% and above the required 80% target, similar to the previous year.

**Table 3**. South African Acute Flaccid Paralysis (AFP) surveillance indicators for 2020 by province and health district.

| AFP SUMMARY-WEEK 1-52 OF 2020 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Key indicators | | | |
| **Province** | **District** | **Total population** | **Under 15 years** | **Target AFP Case** | **Total AFP Cases Under 15 years** | **Non Polio Detection Rate per 100,000 individuals Under 15 years** | **Stool Adequacy (%)** | **Proportion of samples arriving to the lab within 72 hrs from collection (%)** |
| Eastern Cape | A Nzo DM | 887,061 | 339,805 | 14 | 2 | 0.6 | 100.0 | 0.0 |
| Eastern Cape | Amathole DM | 985,602 | 357,846 | 14 | 6 | 1.7 | 83.3 | 33.3 |
| Eastern Cape | Buffalo City MM | 893,598 | 278,715 | 11 | 1 | 0.4 | 100.0 | 100.0 |
| Eastern Cape | C Hani DM | 826,472 | 272,114 | 11 | 11 | 4.0 | 72.7 | 9.1 |
| Eastern Cape | Joe Gqabi DM | 379,019 | 125,683 | 5 | 1 | 0.8 | 100.0 | 0.0 |
| Eastern Cape | N Mandela Bay MM | 1,333,124 | 393,304 | 16 | 10 | 2.5 | 80.0 | 20.0 |
| Eastern Cape | O Tambo DM | 1,525,948 | 577,804 | 23 | 20 | 3.8 | 72.7 | 13.6 |
| Eastern Cape | Sarah Baartman DM | 537,461 | 164,195 | 7 | 6 | 3.7 | 83.3 | 33.3 |
| **Eastern Cape** | | **7,368,285** | **2,509,466** | **101** | **57** | **2.3** | **80.7** | **26** |
| Free State | Fezile Dabi DM | 509,520 | 138,718 | 6 | 32 | 26.0 | 83.3 | 38.9 |
| Free State | Lejweleputswa DM | 677,535 | 185,327 | 7 | 13 | 9.2 | 64.7 | 52.9 |
| Free State | Mangaung MM | 820,955 | 219,122 | 9 | 27 | 13.7 | 66.7 | 43.3 |
| Free State | T Mofutsanyana DM | 800,201 | 240,587 | 10 | 13 | 5.8 | 78.6 | 50.0 |
| Free State | Xhariep DM | 130,469 | 33,680 | 1 | 1 | 3.0 | 100.0 | 100.0 |
| **Free State** | | **2,938,680** | **817,434** | **33** | **86** | **10.5** | **84.9** | **57** |
| Gauteng | Ekurhuleni MM | 3,643,679 | 885,634 | 35 | 10 | 1.1 | 90.0 | 70.0 |
| Gauteng | Johannesburg MM | 5,401,173 | 1,320,187 | 53 | 38 | 3.0 | 87.2 | 74.4 |

| AFP SUMMARY-WEEK 1-52 OF 2020 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Key indicators | | | | |
| **Province** | **District** | **Total population** | **Under 15 years** | **Target AFP Case** | **Total AFP Cases Under 15 years** | **Non Polio Detection Rate per 100,000 individuals Under 15 years** | **Stool Adequacy (%)** | **Proportion of samples arriving to the lab within 72 hrs from collection (%)** |
| Gauteng | Sedibeng DM | 1,003,535 | 264,894 | 11 | 11 | 4.5 | 83.3 | 58.3 |
| Gauteng | Tshwane MM | 3,606,241 | 916,948 | 37 | 13 | 1.7 | 75.0 | 50.0 |
| Gauteng | West Rand DM | 896,159 | 231,470 | 9 | 5 | 2.2 | 100.0 | 60.0 |
| **Gauteng** | | **14,550,787** | **3,619,133** | **145** | **77** | **2.1** | **90.9** | **63** |
| KwaZulu-Natal | Amajuba DM | 595,573 | 220,570 | 9 | 7 | 3.2 | 71.4 | 14.3 |
| KwaZulu-Natal | eThekwini MM | 3,848,515 | 1,113,002 | 45 | 22 | 2.0 | 95.5 | 13.6 |
| KwaZulu-Natal | Harry Gwala DM | 526,956 | 206,957 | 8 | 1 | 0.5 | 100.0 | 0.0 |
| KwaZulu-Natal | iLembe DM | 724,200 | 237,541 | 10 | 3 | 1.3 | 100.0 | 33.3 |
| KwaZulu-Natal | King Cetshwayo DM | 1,016,001 | 396,218 | 16 | 8 | 2.3 | 66.7 | 11.1 |
| KwaZulu-Natal | Ugu DM | 799,522 | 284,563 | 11 | 3 | 1.1 | 66.7 | 33.3 |
| KwaZulu-Natal | uMgungundlovu DM | 1,191,332 | 384,977 | 15 | 5 | 1.3 | 100.0 | 40.0 |
| KwaZulu-Natal | Umkhanyakude DM | 711,176 | 276,408 | 11 | 9 | 3.6 | 90.0 | 30.0 |
| KwaZulu-Natal | Umzinyathi DM | 586,402 | 222,916 | 9 | 6 | 2.7 | 83.3 | 16.7 |
| KwaZulu-Natal | Uthukela DM | 773,120 | 304,090 | 12 | 11 | 3.6 | 90.9 | 18.2 |
| KwaZulu-Natal | Zululand DM | 904,345 | 337,369 | 13 | 2 | 0.6 | 100.0 | 50.0 |
| **KwaZulu-Natal** | | **11,677,142** | **3,984,611** | **159** | **77** | **1.9** | **89.6** | **24** |
| Limpopo | Capricorn DM | 1,358,841 | 419,721 | 17 | 14 | 3.3 | 92.9 | 21.4 |
| Limpopo | Mopani DM | 1,247,693 | 392,541 | 16 | 9 | 2.3 | 100.0 | 55.6 |
| Limpopo | Sekhukhune DM | 1,266,928 | 431,488 | 17 | 6 | 1.4 | 83.3 | 33.3 |

| AFP SUMMARY-WEEK 1-52 OF 2020 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Key indicators | | | | |
| **Province** | **District** | **Total population** | **Under 15 years** | **Target AFP Case** | **Total AFP Cases Under 15 years** | **Non Polio Detection Rate per 100,000 individuals Under 15 years** | **Stool Adequacy (%)** | **Proportion of samples arriving to the lab within 72 hrs from collection (%)** |
| Limpopo | Vhembe DM | 1,493,306 | 502,816 | 20 | 3 | 0.6 | 66.7 | 0.0 |
| Limpopo | Waterberg DM | 733,144 | 215,671 | 9 | 6 | 2.8 | 83.3 | 33.3 |
| **Limpopo** | | **6,099,912** | **1,962,237** | **79** | **38** | **1.9** | **89.5** | **29** |
| Mpumalanga | Ehlanzeni DM | 1,749,011 | 570,679 | 23 | 17 | 3.0 | 76.5 | 58.8 |
| Mpumalanga | G Sibande DM | 1,229,321 | 347,111 | 14 | 15 | 4.3 | 93.3 | 53.3 |
| Mpumalanga | Nkangala DM | 1,585,460 | 415,084 | 17 | 16 | 3.9 | 100.0 | 37.5 |
| **Mpumalanga** | | **4,563,792** | **1,332,874** | **54** | **48** | **3.6** | **89.6** | **50** |
| North West | Bojanala Platinum DM | 1,779,141 | 500,932 | 20 | 5 | 1.0 | 60.0 | 40.0 |
| North West | Dr K Kaunda DM | 780,166 | 225,511 | 9 | 3 | 1.3 | 100.0 | 66.7 |
| North West | Ngaka Modiri Molema DM | 977,227 | 295,675 | 12 | 9 | 3.0 | 100.0 | 55.6 |
| North West | Ruth Segomotsi Mompati DM | 481,907 | 174,840 | 7 | 0 | 0.6 | 0.0 | 0.0 |
| **North West** | | **4,018,441** | **1,196,958** | **48** | **17** | **1.4** | **88.2** | **41** |
| Northern Cape | Frances Baard DM | 381,764 | 99,455 | 4 | 1 | 2.0 | 50.0 | 0.0 |
| Northern Cape | J T Gaetsewe DM | 248,423 | 77,079 | 3 | 0 | | | 0.0 |
| Northern Cape | Namakwa DM | 113,317 | 28,069 | 1 | 1 | 3.6 | 0.0 | 0.0 |
| Northern Cape | Pixley ka Seme DM | 213,607 | 56,335 | 2 | 0 | 1.8 | 0.0 | 0.0 |
| Northern Cape | ZF Mgcawu DM | 269,163 | 63,450 | 3 | 1 | 1.6 | 100.0 | 0.0 |
| **Northern Cape** | | **1,226,274** | **324,388** | **13** | **3** | **0.9** | **66.7** | **0** |
| Western Cape | Cape Town MM | 4,233,412 | 998,210 | 40 | 27 | 2.7 | 85.2 | 40.7 |

| AFP SUMMARY-WEEK 1-52 OF 2020 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Key indicators | | | | |
| **Province** | **District** | **Total population** | **Under 15 years** | **Target AFP Case** | **Total AFP Cases Under 15 years** | **Non Polio Detection Rate per 100,000 individuals Under 15 years** | **Stool Adequacy (%)** | **Proportion of samples arriving to the lab within 72 hrs from collection (%)** |
| Western Cape | Cape Winelands DM | 946,248 | 243,238 | 10 | 3 | 1.2 | 100.0 | 66.7 |
| Western Cape | Central Karoo DM | 78,205 | 21,624 | 1 | 0 | | | 0.0 |
| Western Cape | Garden Route DM | 641,957 | 158,642 | 6 | 8 | 5.0 | 100.0 | 25.0 |
| Western Cape | Overberg DM | 303,441 | 72,112 | 3 | 3 | 4.2 | 66.7 | 33.3 |
| Western Cape | West Coast DM | 478,050 | 122,832 | 5 | 3 | 2.4 | 100.0 | 66.7 |
| **Western Cape** | | **6,681,313** | **1,616,658** | **65** | **44** | **2.7** | **88.6** | **39** |
| **South Africa** | | **59,124,626** | **17,363,759** | **697** | **447** | **2.6** | **87.5** | **36** |

Non-Polio detection rate: red (0-1.99), yellow (2-3.99), green (4+), and blue (no cases reported).

Stool adequacy: red (<80), green (>80), and blue (no cases reported).

Proportion of samples arriving to the lab within 72 hours from collection: red (<50), yellow (50-79.99), green (80+).

DM = District Municipality; MM = Metro Municipality

**Table 4**. Polioviruses sequenced from acute flaccid paralysis cases and contacts from the Southern African region, 2020.

| Country | Sample Received | Sabin 2 | VDPV 2 |
|---|---|---|---|
| Eswatini | 0 | 0 | 0 |
| Mozambique | 6 | 0 | 0 |
| Burkina Faso | 104 | 22 | 75 |
| Angola | 37 | 11 | 19 |
| Guinea | 44 | 2 | 25 |
| Lesotho | 0 | 0 | 0 |
| Malawi | 3 | 0 | 0 |
| Chad | 6 | 0 | 0 |
| Ethiopia | 59 | 21 | 30 |
| Senegal | 0 | 0 | 0 |
| Cote d'Ivoire | 131 | 33 | 86 |
| Sierra Leone | 3 | 0 | 3 |
| Mali | 47 | 0 | 38 |
| Niger | 41 | 14 | 11 |
| Democratic Republic of the Congo | 325 | 110 | 195 |
| Madagascar | 0 | 0 | 0 |
| Namibia | 1 | 0 | 0 |
| Republic of Sudan | 60 | 5 | 55 |
| Zambia | 17 | 17 | 0 |

*Environmental surveillance*

A total of 101 South African environmental sewage samples was received in 2020. Four samples tested positive for Sabin poliovirus strains (Table 5). The NPEV isolation rate for environmental surveillance was 46% in 202

**Table 5.** Distribution of environmental samples confirmed to be positive for Sabin 1 and Sabin 3, by province, South Africa, 2020.

| Province | District | Site | Poliovirus strains | Number of samples |
|---|---|---|---|---|
| Gauteng | Tshwane | Daspoort | Sabin 1 | 1 |
| Free State | Mangaung | Sterkwater | Sabin 3 | 1 |
| Gauteng | Johannesburg | Northern | Sabin 3 | 2 |

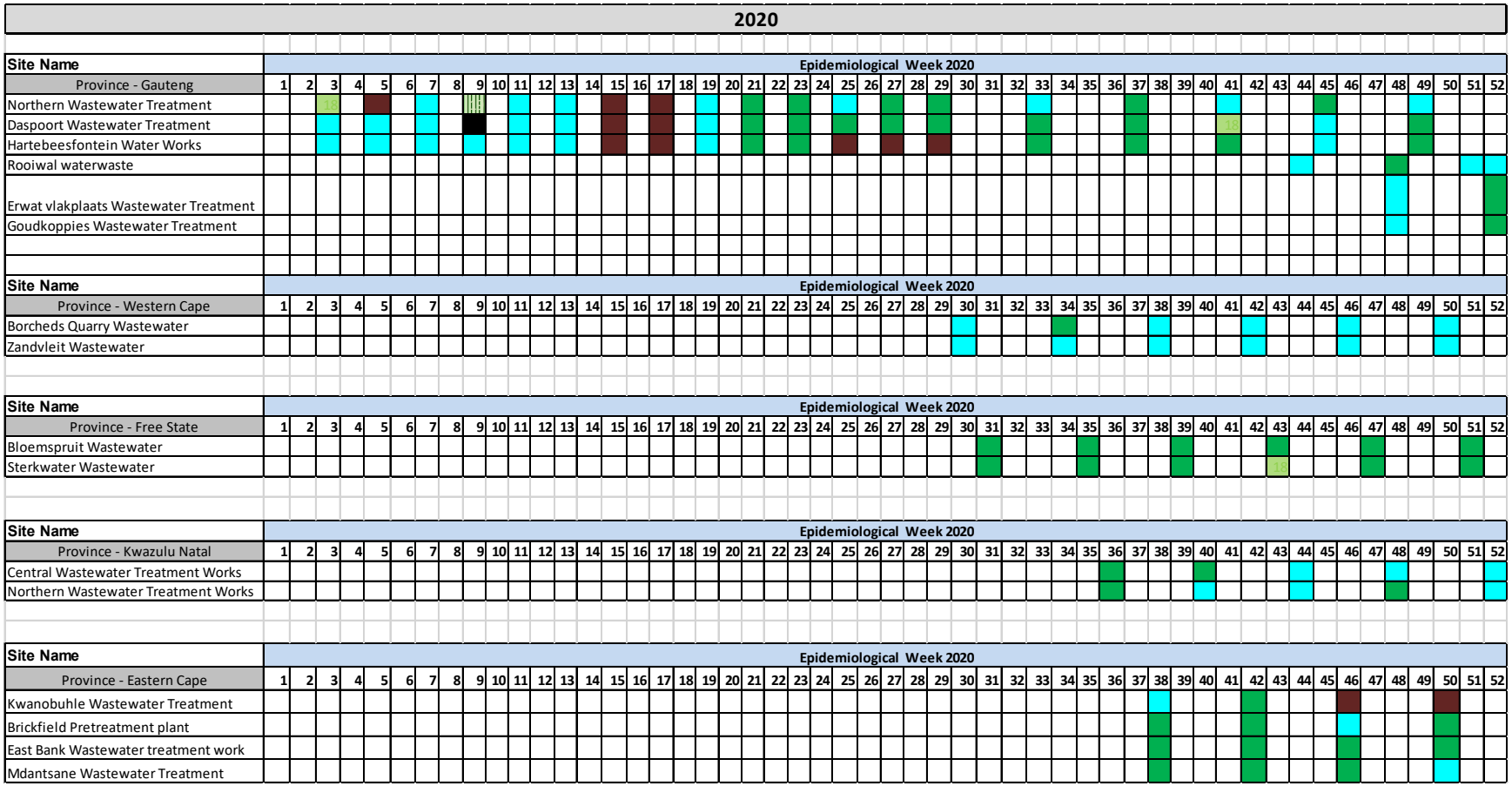


**Figure 1.** Dashboard of poliovirus environmental surveillance conducted in Gauteng, Western Cape, Free State, KwaZulu Natal, and Eastern Cape provinces in 2020. Light green represents Sabin strains, brown represents scheduled but not collected, blue represents non-polio enterovirus, dark green represents negative, black represents non-enterovirus, green with black lines represents Sabin and non-polio enterovirus.

Angola (Figure 2) and Mozambique (Figure 3) sent environmental sewage samples to NICD for poliovirus screening in 2020. In Angola, circulating VDPV2, Sabin poliovirus type 2 and Sabin poliovirus type 3 were detected in weeks 7, 9 and 51, respectively. In Mozambique, five environmental samples tested positive for Sabin polioviruses, three for Sabin poliovirus type 3, and two for Sabin poliovirus type 1.

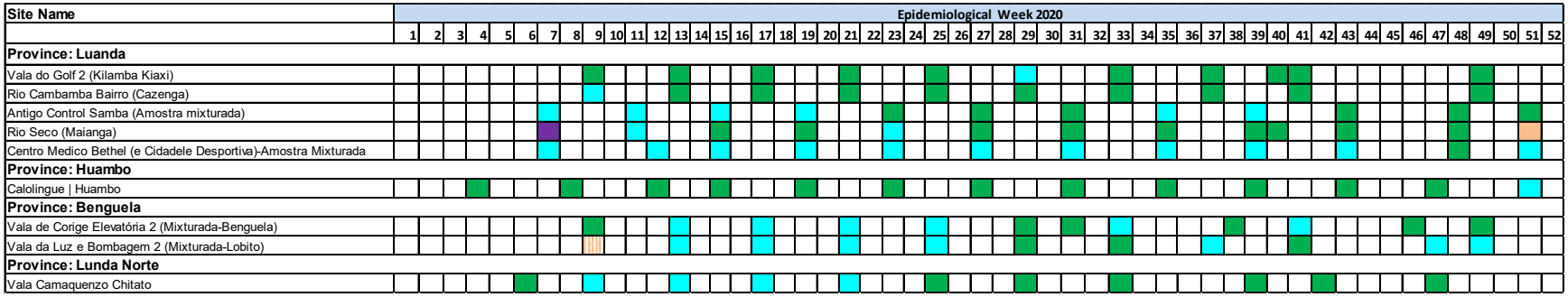


**Figure 2**. Dashboard of poliovirus environmental surveillance conducted in Angola in 2020. Light green represents Sabin, brown represents scheduled but not collected, blue represents non-polio enterovirus, dark green represents negative, purple represents circulating vaccine derived poliovirus type 2, white represents not scheduled, and white with brown lines represents Sabin 2.

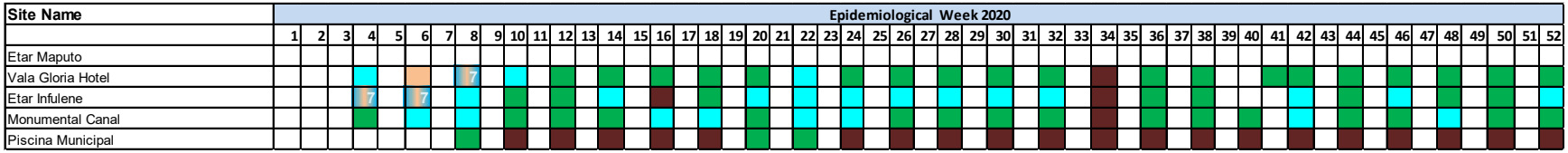


**Figure 3**. Dashboard of poliovirus environmental surveillance conducted in Mozambique in 2020. Light green represents Sabin, brown represents scheduled but not collected, blue represents non-polio enterovirus, dark green represents negative, blue and a brown line represents non-polio enterovirus and Sabin-like, light brown represents Sabin-like, white represents not scheduled.

**Discussion**

During 2020, Sabin poliovirus types 1 and/or 3 were detected from four South African AFP cases. Detection of Sabin strains from stool is usually a coincidental finding in countries using oral polio vaccines. Surprisingly few Sabin poliovirus strains were detected in the environmental sewage surveillance despite frequent isolation in the laboratory of non-polio enteroviruses from sewage samples (Figure 1). In South Africa, OPV is administered to infants at birth and six weeks of age only, therefore the increasing use of disposable nappies for infants may limit the circulation of Sabin poliovirus in the sewage system.

Since the African region was declared wild polio-free, circulating VDPV is the only form of poliovirus affecting the African region.[8] The Democratic Republic of the Congo had the most samples containing circulating VDPV type 2 (Table 4). The high number of Sabin 2 viruses detected in African countries is an indication of interventions to stop circulating VDPV type 2 outbreaks using monovalent oral poliovirus type 2 vaccine.

The prevalence of NPEV in children from low-income countries is high and the laboratory is expected to routinely isolate non-polio enterovirus from AFP cases and environmental surveillance samples.[9] The NPEV rate is not a core AFP indicator; however, it may be used as an indicator to assess the performance of laboratories to isolate enteroviruses.[10] The NPEV in AFP samples was recorded below 10% similar 3.5% in the year 2019. Few enteroviruses were isolated, likely due to restriction of movement preventing circulation of enteroviruses from person to person. The NPEV rate may be influenced by several factors, such as the season of the year, elevation, or population hygiene levels.[11] In environmental samples, the NPEV isolation rate for 2020 was 46%, compared to 87% in 2019. Although the NPEV isolation rate decreased during the COVID-19 lockdown, our environmental surveillance was capable of detecting non-polio enteroviruses which is an indication that our surveillance is sensitive to detect polioviruses.

**Conclusion**

Sabin 2 and circulating VDPV2 were the most prevalent poliovirus strains in the African region. While the African region has been declared wild-type polio-free, the continent still faces the challenge of circulating VDPV2 outbreaks.[2] There is an urgent need for more African countries to use nOPV2 vaccines to prevent circulating vaccine-derived poliovirus type 2 outbreaks.

As we get closer to global eradication, environmental surveillance has proven to be an advantageous tool to monitor poliovirus circulation[9] and lessons learned can be applied to environmental monitoring of other pathogens, including SARS-CoV-2.

The percentage of South African samples arriving at the laboratory within 72 hours was below the WHO target. There is an urgent need to improve the logistics of sample transportation to the laboratory within the required time. Although South Africa has reached the WHO non-polio AFP detection rate, most provinces failed to meet the South African non-polio AFP detection rate. As the Global Polio Eradication Initiative winds down and devolves to regional WHO initiatives, incorporation of national AFP surveillance targets into integrated disease surveillance will require attention.

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