
# NATIONAL POLIO OUTBREAK PREPAREDNESS AND RESPONSE PLAN

**Country: SOUTH AFRICA**

**Updated on: 31 MARCH 2016**

South Africa has been polio-free since 1989. The National Polio Outbreak Preparedness and Response Plan has been developed so the country is prepared for a possible renewed outbreak of wild poliovirus (WPV) or vaccine derived polio virus (VDPV), following WPV importation or emergence of circulating VDPV (cVDPV). The occurrence of a polio case due to WPV or cVDPV in SA will be considered as a national public health emergency, urgently requiring a rapid and high-quality immunization response. This document is developed in line with the recently published Standard Operating Procedures for poliovirus outbreak response and operational guidelines on polio outbreak response[1].

This National Polio Outbreak Preparedness and Response Plan is reviewed by the National Certification Committee (NCC) and submitted to the African Regional Certification Commission (ARCC) as part of the ''Annual update of the National documentation for certification of polio eradication''.

Distribution:

- MoH
- IHR Focal point
- WHO
- UNICEF

[1] GPEI's technical guidance for outbreak response, including the Standard Operating Procedures (SOPs) http://www.polioeradication.org/Resourcelibrary/Resourcesforpolioeradicators/Technicalguidelines.aspx

# MEMBERS OF NATIONAL CERTIFICATION COMMITTEE (NCC)

Members of National Certification Committee (NCC):

1. Name: Dr Ngokoana Esther Khomo ( Chairperson )

   Position: Community Health Specialist

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2. Name: Prof Andy Beke

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3. Name: Prof Samuel Risenga

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4. Name: Dr Ntshengedzeni Maligavhada (appointed April 2015)

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   Position: Paediatrician

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   Signature: _____

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## ACRONYMS

| | |
|---|---|
| AEFI | Adverse event following immunisation |
| AFP | Acute flaccid paralysis |
| ARCC | African Regional Certification Committee |
| aVDPV | Ambiguous vaccine-derived poliovirus |
| CDC | US Centers for Disease Control and Prevention |
| CHC | Community health centre |
| DHIS | District Health Information System |
| cVDPV | Circulating vaccine-derived poliovirus |
| EPI | Expanded program on immunisation |
| EPI-SA | The expanded program on immunisation in South Africa |
| EOMG | Eradication and Outbreak Management Group |
| ERF | Emergency Response Framework |
| GPEI | Global Polio Eradication Initiative |
| GPLN | Global Polio Laboratory Network |
| IEC | Information, education and communication |
| IHR | International Health Regulations |
| IPV | Inactivated polio vaccine |
| iVDPV | Immunodeficiency-associated vaccine-derived poliovirus |
| MNORT | Multisectoral national outbreak response team |
| NCC | National Certification Committee |
| NICD | National Institute of Communicable Diseases |
| NPEC | National Polio expert committee |
| NTF | National task force for laboratory containment |
| NDP | National Development Plan |
| OPV | Oral polio vaccine |
| PHC | Primary health care |
| PHEIC | Public health emergency of international concern |
| SA | South Africa |
| SABC | South African Broadcasting Coorperation |
| SIA | Supplementary immunization activity |
| SITREP | Situation report |
| SOP | Standard Operating Procedure |
| UN | United Nations |
| UNICEF | United Nations Children's Fund |
| VDPV | Vaccine-derived poliovirus |
| WHO | World Health Organization |
| WPV | Wild poliovirus |

# 1 COUNTRY BACKGROUND

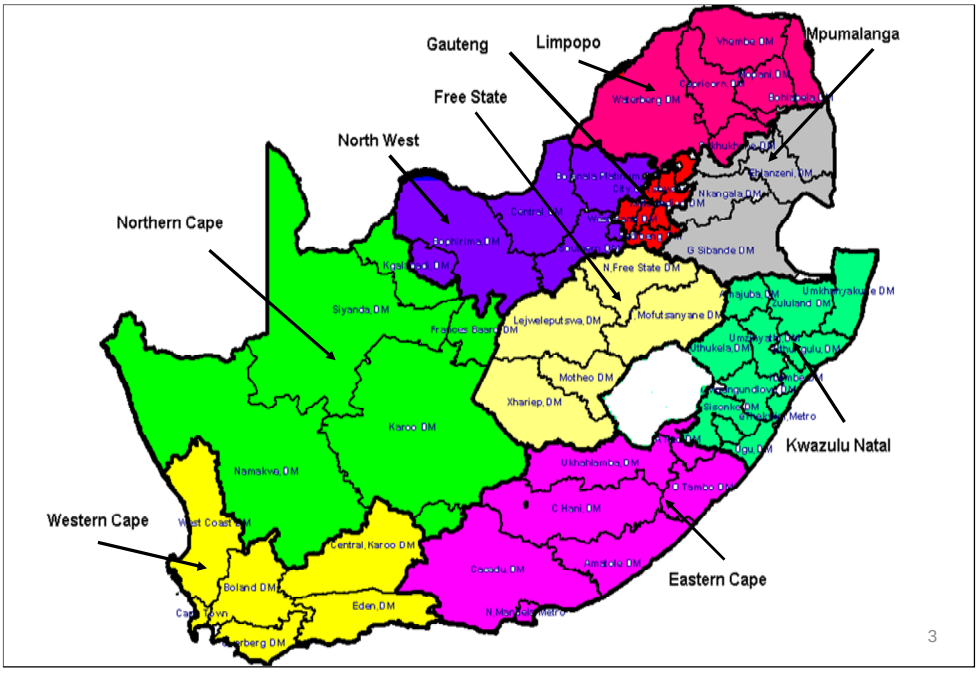
The Republic of South Africa is a middle income country. The total population is estimated to be around 54,4 million (Source: DHIS projections for 2015 from STATS SA Census 2011). The under 1 year population is 1 022 111. About 43% of the total population resides in rural areas. The table below indicates the population data for 2015.

**Table 1: Population data for the year 2015**

| | Total population | Population aged <15 years | Population aged < 5 years | Population aged < 1 year |
|---|---|---|---|---|
| Number of persons | 54432253 | 15454330 | 5201598 | 1022111 |
| % of total population | 100% | 28.39% | 9.55% | 1.87% |

There are nine provinces, 52 districts and 248 health sub-districts. The nine provinces are: Eastern Cape, Free State, Gauteng, KwaZulu Natal, Limpopo, Mpumalanga, Northern Cape, North West and Western Cape. 8 of the 52 districts are metropolitan districts: 2 in the Eastern Cape (Nelson Mandela and Buffalo City), 1 in Free State (Mangaung), 3 in Gauteng (Tshwane, Johannesburg and Ekurhuleni); 1 in KwaZulu Natal (eThekwini) and 1 in Western Cape (City of Cape Town). .

**Figure 1: Map of South Africa**



## 1.1 Structure of the immunisation system in South Africa

South Africa has been providing routine vaccination for the basic 6 conditions (TB, Polio, Measles, Diphtheria, Pertussis and Tetanus) since the inception of the EPI in the mid 1970's.

EPI-SA falls under the Child, Youth and School Health cluster within the National Department of Health. The immunisation program in South Africa (EPI-SA) includes both public and private sector, with emphasis on the administration of vaccines in safe and appropriate conditions and the detection and reporting of the EPI targeted diseases, including Adverse Events Following Immunisation (AEFI). The programme has been dynamic in not only increasing access and coverage of the traditional vaccines but also in introducing new vaccines. Accordingly, new vaccines: Hepatitis B, Haemophilus influenza type B, Rotavirus, Pneumococcal Conjugate Vaccine and the Human Papillomavirus vaccine were introduced into the routine EPI schedule in the past decade. The immunisation schedule in SA is shown in table 2 below.

**Table 2: The immunisation schedule in South Africa**

| Age | Antigens |
|---|---|
| Birth | OPV 0, BCG |
| 6 weeks | OPV 1, DTaP-IPV / / Hib-HepB 1, , RV 1, PCV 1 |
| 10 weeks | DTaP-IPV / / Hib-HepB 2, |
| 14 weeks | DTaP-IPV / / Hib-HepB 3, , RV 2, PCV 2 |
| 6 months | Measles 1 |
| 9 months | PCV3 |
| 12 months | Measles 2 |
| 18 months | PCV3 |
| 6 years | Td |
| 12 years | Td |
| Grade 4 girls, aged 9 years and older in public sector schools only | HPV |

The Government of South Africa recognizes that immunisation is a key child survival intervention critical to the reduction of child mortality and morbidity. It is therefore highly committed to promote and strengthen the immunisation programme in the country, which is demonstrated by the fact that all costs for vaccine procurement and delivery are fully funded by the government.

**Immunisation services provision at all levels**

It is the policy of the Department of Health that immunisation services for children and women should be available at all public health facilities. (clinics, hospitals and community health centres), as part of the free primary health care services for all. Immunisation services are rendered at fixed facilities (>3000 clinics, >250 community health centres,>180 satellite clinics and >800 mobile services).

Though EPI is a stand-alone program at national level, it is fully integrated with other child survival interventions such as Integrated Management of Childhood Illness (IMCI), prevention of mother to child transmission (PMTCT), and nutrition among others.

On 25 September 2015, the United Nations General Assembly adopted the new development agenda "Transforming our world: the 2030 agenda for sustainable development". The sustainable development goals comprise 17 goals and 169 targets. There is one specific goal for health namely: *"Ensure healthy lives and promote well-being for all at all ages"*. This goal has 13 targets. One of the targets of which immunization is key is: *By 2030, end preventable deaths of newborns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-five mortality to at least as low as 25 per 1000 live births.*

There are EPI indicators in key policy documents in SA as shown in the table 3 below.

**Table 3: EPI in key policy documents**

| | Indicator | Baseline | Target | Reference |
|---|---|---|---|---|
| 1 | Immunization coverage for children under 1 year (Annualised) | 83.38% in 2013/14 | 95% in 2019/20 | Department of Health Strategic Plan ( 2015-2020) |
| 2 | DTaP-IPV/ / Hib 3 – Measles 1st dose drop-out rate | 8% in 2013/14 | <5 % in 2019/20 | Department of Health Strategic Plan ( 2015-2020) |
| 3 | Measles 2nd dose coverage | 75 % in 2013/14 | 90 % in 2019/20 | Department of Health Strategic Plan ( 2015-2020) |
| | Confirmed measles case incidence per million total population | <5/million | <1/million | Department of Health Strategic Plan ( 2015-2020) |
| 4 | Ensure high coverage with pneumococcal and rotavirus vaccines | 75% | 95% in 2016 | Strategic Plan for Maternal, Newborn and Women's Health (MNCWH) AND Nutrition in SA (2012 -2016) page 37 |
| 5 | National Immunisation coverage (children under 1 year) | 86.39% (estimated 2014/15) | 93% (2017/18) | Annual Performance Plan 2015/16-2017/18 |
| 6 | Hexavalent 3 to Measles 1 drop-out rate | 7% (estimated 2014/15) | 5% (2017/18) | Annual Performance Plan 2015/16-2017/18 |
| 7 | Confirmed measles case incidence per million total population | <4/ 1000000 (estimated 2014/15) | <1/1000000 | Annual Performance Plan 2015/16-2017/18 |
| 8 | Measles immunization coverage (2nd dose) | 79% (estimated 2014/15) | 88% (2017/18) | Annual Performance Plan 2015/16-2017/18 |

**National Development Plan Vision 2030**

The National Development Plan (NDP) sets out nine (9) long-term health goals for South Africa. Five of these goals relate to improving the health and well-being of the population, and the other four deal with aspects of health systems strengthening.

The NDP states that by 2030, South Africa should have:

1. Raised the life expectancy of South Africans to at least 70 years;
2. Progressively improve TB prevention and cure
3. Reduce maternal, infant and child mortality
4. Significantly reduce prevalence of non-communicable diseases
5. Reduce injury, accidents and violence by 50 percent from 2010 levels
6. Complete Health system reforms
7. Primary healthcare teams provide care to families and communities
8. Universal health care coverage
9. Fill posts with skilled, committed and competent individuals

The EPI programme contributes to the goal 1 of raising the life expectancy of South Africans by reducing the occurrence of premature deaths due to vaccine preventable diseases and goal 3 of reducing maternal, infant and child mortality.

## 1.2 AFP surveillance and polio history in the country

In line with the Global Polio Eradication Initiative established in 1988, South Africa has made significant progress in realizing the objectives. The last confirmed case of wild poliovirus in South Africa was in 1989.

Active case based surveillance for Acute Flaccid Paralysis (AFP) was introduced in 1997 and the target indicators for high quality AFP surveillance were achieved and maintained throughout the years at national level (2.4/100 000 in 2012, 2.6/100 000 in 2013, 2.5/100 000 in 2014 and 3.0 in 2015). However the disaggregated district level data indicates that there are districts that fail to achieve the target indicators.

In 2006, South Africa presented a country report to the Africa Region Certification Commission (ARCC). Based on the report the ARCC made the conclusion that South Africa has interrupted the circulation of wild poliovirus and is free of indigenous transmission. However the risk of importation still remains high because of continued transmission in some countries, the high degree of movement and migration of people to South Africa and the sub-optimal immunisation coverage and surveillance indicators in some districts.

It should be noted that there is a progressive increase in the IPV3–containing vaccine immunisation coverage at national level from 83% in 2012 to 95% in 2014 (Table 3)

Mass immunisation campaigns have been conducted every 3-4 years to supplement the routine immunisation. The last SIA was conducted in 2013 with an OPV national coverage of 94% in the first round and 79% in the second round.

**Table 4: Performance and government expenditure 2012-2015**

| Indicators | National | | | |
|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 |
| IPV3 (Hexavalent) coverage | 83% | 91% | 95% | 93.8% |
| Non polio AFP rate per 100,000 children under 15 yrs. of age | 2.4 | 2.6 | 2.5 | 3.0 |
| Extent: NID / SNID<br>No. of rounds<br>Coverage range | 0 | SIA<br>Polio first round: 94%<br>Polio second round:79% | 0 | 0 |
| % Fully Immunized Child | 84% | 84% | 87% | 91.7% |
| Government expenditures on vaccines | R1,01billion | R1,18 billion | R1,48 billion | R1,48 billion |

## 1.3 At risk populations and security situation

Below is a description of the at risk populations in South Africa.

### 1.3.1 Remote areas, difficult to access as they are in deep rural, mountainous areas with poor or no roads and thus have isolated communities

- Eastern Cape: Amatole, Alfred Nzo Districts; Mbashe, Nyandeni, Qaukeni and Mnquma Sub-Districts in OR Tambo District
- KwaZulu-Natal: iLembe, uMzinyathi, Harry Gwala District, Amajuba, uMkhanyakude, Umhlaba uyalingana, and Zululand DM
- Limpopo: Greater Sekhukhune and Vhembe
- Northern Cape: Siyanda and Namakwa

### 1.3.2 Inner City slums, Informal settlements, nomads and high mobility groups

- Mainly populations with foreigners, poor hygiene sanitation and water, living in abandoned buildings and mine dumps: with no fixed addresses
- Gauteng: Mainly in Johannesburg, Tshwane and Ekurhuleni, but also West Rand and Sedibeng
- Kwazulu-Natal: Durban Inner City

- Western Cape: City of Cape Town
- In all cities, towns, villages and even rural areas throughout South Africa

### 1.3.3 Farm areas: Farmers may not release workers to take children for routine health services

- All provinces are affected by farming areas mainly: Western Cape, Free State, Limpopo and Mpumalanga.

### 1.3.4 Provinces bordering neighbouring countries

- Eastern Cape and Free State sharing borders with Lesotho,
- KwaZulu-Natal with Lesotho, Mozambique and Swaziland
- Limpopo with Botswana, Mozambique and Zimbabwe
- Mpumalanga with Swaziland and Mozambique
- Northern Cape with Namibia and Botswana

# 2 INTRODUCTION

The National Polio Outbreak Preparedness and Response Plan for South Africa provides precise details for responding to a polio outbreak that are consistent with the International Health Regulations (IHR), the provisions of the Emergency Response Framework (ERF), previous resolutions of the World Health Assembly on polio outbreak response, and past experience of the GPEI in successfully interrupting polio outbreaks.

This document provides guidelines that must be followed should a polio outbreak occur in SA so that the government can mount a rapid and effective response to interrupt poliovirus transmission (within four months/120 days) and prevent any further spread. The guidelines provide descriptions of the critical actions needed in responding to a polio outbreak. The guidelines clearly detail the roles and responsibilities of all role players with clear timelines and quality expectations. They provide a standard against which the outbreak response can be assessed.

The objectives of the National Polio Outbreak Preparedness and Response Plan for South Africa are:

- To ensure that any suspected or confirmed case of wild poliovirus and circulating vaccine derived polio virus (cVDPV) is promptly detected and investigated.
- To ensure that appropriate measures are put in place to adequately respond to importations and adequately prevent the spread of any imported wild poliovirus.
- To ensure a high level of immunity with polio vaccine that will prevent ongoing transmission of imported wild poliovirus.
- To intensify surveillance efforts for AFP and suspected polio cases in the event of a wild polio case or cVDPV
- To promptly put all the Health Care Workers, Health Managers and the public on high alert for Acute Flaccid Paralysis (AFP) and suspected polio cases in the event of a wild polio case or cVDPV.

This document is developed in line with recently published Standard Operating Procedures for poliovirus outbreak response and operational guidelines on polio outbreak response[2].

[2] GPEI's technical guidance for outbreak response, including the Standard Operating Procedures (SOPs), at http://www.polioeradication.org/Resourcelibrary/Resourcesforpolioeradicators/Technicalguidelines.aspx

The following are the possible scenarios for a renewed polio outbreak in South Africa:

- WPV importation from a remaining endemic or other infected area
- Emergence of VDPV
- Detection of WPV or VDPV in environmental samples (Note: Environmental Surveillance is not yet implemented in SA)
- WPV case due to breach of laboratory containment

# 3 MANAGEMENT AND ACCOUNTABILITY

## 3.1 Management structure

**Table 5: Decision making bodies**

| | COMMITTEE | KEY ROLES | CHAIRPERSON |
|---|---|---|---|
| **1** | Multi-sectoral national outbreak response team (MNORT) | Responsible for the response by the National Department of Health to all outbreak prone conditions. This team will coordinate and lead in conjunction with National EPI Programme the response activities in a poliovirus event or polio outbreak | Dr Frew Benson |
| **2** | Provincial outbreak response teams (PORT) | Responsible for the response by the Provincial Department of Health to all outbreak prone conditions. This team will coordinate and lead the provincial response activities in a poliovirus event or polio outbreak under guidance from the MNORT | Provincial Communicable disease control coordinators |
| **3** | National Institute of communicable diseases | This is the WHO-accredited regional reference laboratory where virological testing of all specimens from AFP cases is done. The NICD will provide all the laboratory support and expertise in the event of a poliovirus event or polio outbreak | Prof Schabir Madhi |
| **4** | National Certification Committee (NCC) | This is the committee responsible for providing guidance to SA on implementing the Polio Eradication Initiative (PEI) activities as well as submitting the annual update report to the ARCC | Dr NE Khomo |
| **5** | National Task Force (NTF) | This is a sub-committee of the NCC. The NTF is responsible for overseeing and providing technical expertise on the laboratory containment activities in SA | Prof Jeffrey Mphahlele |
| | National Polio Expert Committee (NPEC) | This is a committee that is responsible for providing the final classification of all AFP cases based on the virology test results | Prof John Matjila |
| | National Advisory Group on Immunisation (NAGI) | This is the committee that is responsible for providing technical advice to the SA Minister of Health on immunisation related matters | Prof Greg Hussey |

## 3.2 Confirmation of a poliovirus event or polio outbreak

The poliovirus event and polio outbreak are two separate scenarios. Below are the definitions of a poliovirus event and a polio outbreak

### 3.2.1 Poliovirus event

A poliovirus event is detection of WPV* in a single environmental sample with no evidence of local transmission or detection of VDPV** in an acute flaccid paralysis (AFP) case, environmental sample or other sample, **with no further detection of a related virus or other evidence suggesting established community-level circulation.**

### 3.2.2 Polio outbreak

**A** poliovirus outbreak is:

- a single or multiple case(s) of poliomyelitis due to WPV* or cVDPV***;
- a positive environmental sample for WPV / VDPV given that:
  - two or more separate samples contain WPV / VDPV with genetic sequencing information that **indicates sustained local transmission;** or
  - a single sample is positive for WPV / VDPV and follow-up investigation identifies polio compatible cases or WPV / VDPV infected persons.

*Isolation of WPV is confirmed by the Global Polio Laboratory Network (GPLN) or validated by the GPLN if isolated via a non-network laboratory or facility.
**VDPV is confirmed by isolation of VDPV by the GPLN or validated by the GPLN if isolated via a non-network laboratory or facility. VDPVs can be classified as ambiguous (aVDPV), immunodeficient (iVDPV) or circulating (cVDPV) upon receipt of full laboratory and epidemiologic analysis.
***cVDPV is confirmed by isolation of VDPV by the GPLN or via a GPLN validated process from an AFP case along with detection of genetically related VDPVs from either another APF case or other sources (environmental samples, community samples from healthy individuals) indicating community-level circulation.

Testing and confirmation of WPV and VDPV is done at the Regional Reference Laboratory in South Africa; the National Institute of Communicable Diseases

**KEY DEFINITIONS**

A **POLIOVIRUS EVENT** is detection of WPV in a single environmental sample with no evidence of local transmission or detection of VDPV in an acute flaccid paralysis (AFP) case, environmental sample or other sample, with no further detection of a related virus or other evidence suggesting established community-level circulation.

A **POLIOVIRUS OUTBREAK** is:

- a single or multiple case(s) of poliomyelitis due to WPV or cVDPV;
- a positive environmental sample for WPV/VDPV given that:
  - two or more separate samples contain WPV/VDPV with genetic sequencing information that indicates sustained local transmission; or
  - a single sample is positive for WPV/VDPV and follow-up investigation identifies polio compatible cases or WPV/VDPV infected persons.

## 3.3 Notification

Below is a summary of how a poliovirus event or polio outbreak will be notified nationally and internationally

**Immediately upon detection of WPV or cVDPV by NICD**

NICD to immediately notify MNORT chair

**Contact details**

Dr Frew Benson
Chief Director: Communicable Diseases Control
National Department of Health, South Africa
Tel: +27 12 395 8094
Mobile: +27 82 372 4199
email: bensonf@health.gov.za

**Within 24 hours**

- All MNORT members notified
- All provincial outbreak response teams (PORT) notified
- WHO country office notified

## 3.4 Notification to WHO

The IHR focal person in South Africa is Dr Frew Benson. The IHR focal person will notify WHO within 24 hours

## 3.5 Declaration of the outbreak as a 'National public health emergency'

The MNORT will issue media releases for the South Africa Broadcasting Corporation (SABC) and all national radio stations and print media under guidance from the Minister of Health. Provinces are required to communicate via the National office: The MNORT Chairperson or the National Communications office should they find it appropriate to issue provincial media statements. The MNORT, will identify the relevant national experts to answer technical questions from the media.

## 3.6 Response operation decision

The Multi-sectoral National Outbreak Response Team (MNORT) is responsible for the response to all outbreak prone conditions. In case of a polio outbreak, this team in collaboration with the National Institute for Communicable Diseases (NICD) will lead the response.

The MNORT Team has experts and representatives from a diverse background. The members are from the following directorates and fields: NICD, Communicable Disease Control, Expanded Programme on Immunisation (EPI), Public Health Promotion, Port Health, Emergency Services, Environmental Health, Pharmaceutical Services, Communication, Quality Assurance, Health Information, Epidemiology & Research and the private sector (pharmaceutical companies and private hospitals).

MNORT holds meetings on the second Wednesday of every month.

However, when there is an outbreak, urgent meetings will be convened within 24 hours, and thereafter frequency of meetings is determined based on the situation of the outbreak.

All Provinces have their own outbreak response teams. It is necessary that one outbreak response team is responsible for all the outbreak prone conditions such as cholera and meningitis to ensure proper coordination. These teams will be used for the Provincial response to a polio outbreak. The Provincial Outbreak Response teams should have the same complement of expertise as the MNORT. The MNORT should give full support to all provincial outbreak teams.

MNORT together with the PORT will conduct an initial investigation within 24 hours. The MNORT with the inputs from international experts and in conjunction with the provinces will decide on an emergency plan of action.

## 3.7 Emergency Operation Centre (EOC) or Polio Control Room (PCR)

Upon receiving confirmation of wild polio case or a VDPV from the NICD, the chairperson of the MNORT will officially re-activate the National Health Operating Centre (NATHOC) at NDOH and the Emergency Operation Centre at the NICD.

## 3.8 Partner coordination

The MNORT chair or designee will be responsible for partner notification and coordination. Below are the polio eradication partners in South Africa who would be notified and requested to facilitate in the response.

**Table 6: Polio eradication partners**

| | Partner | Contact details |
|---|---|---|
| 1 | World Health Organisation | Dr Sarah Barber<br>WHO Country representative<br>barbers@who.int<br>012 305 7701 |
| 2 | UNICEF | Mr Herve Ludovic De Lys<br>UNICEF country representative<br>hdelys@unicef.org |
| 3 | US Centre for Disease Control and Prevention | Dr Seymour Williams, MD MPH<br>Country Director, Division of Global Health Protection<br>Co-director, South African Global Disease Detection Center<br>Acting Resident Advisor, South Africa Field Epidemiology Training Program<br>HHS/CDC- South Africa<br>Tel: +27-124-24-9007<br>Cell: +27-82- 524-4459<br>Email: sjw9@cdc.gov |
| 4 | Rotary International | Ms Sue Paget<br>Rotary International South Africa<br>spaget@rffa.org |

## 3.9 Communication and media management

Once an outbreak has been declared, the media will be notified as described in 3.5 above.

## 3.10 Vaccine registration or licensing

The following vaccines are registered in South Africa and in use by the EPI program: tOPV (use ending on 19 April 2016) bOPV (use starting on 20 April 2016), and the hexavalent vaccine; Hexaxim which contains IPV together with Diptheria, acellular pertussis, tetanus, hepatitis B and haemophillus influenza type B). If the outbreak response requires the use of a vaccine that is not yet registered in South Africa (e.g.

mOPV2); an urgent section 21 application will be done to the South Africa Medicines Control Council to procure the vaccine.

### 3.11 Procurement of vaccine and logistics

In the event of a polio outbreak; the national cold chain and logistics manager will provide estimates of the required vaccines based on the MNORT decisions of what age group to vaccinate and which vaccine to use. BIOVAC in collaboration with; WHO and UNICEF supply division will urgently assist with the procurement of additional vaccine stock while the initial response uses the buffer stock available at BIOVAC and provincial depots.

### 3.12 Funding and resources

There is no special budget set aside by NDOH for an outbreak response. However, budgets are allocated forstaff salaries, transport, meetings and operational costs and training. Specific costs such as those for vaccination and contact prophylaxis costs are covered by provincial vaccine and drug budgets.

# 4 RISK ASSESSMENT

## 4.1 Detailed case investigation

The MNORT, with technical guidance from external experts will investigate the first case. After MNORT and PORT have been convened, some
members of MNORT will join the PORT to provide technical guidance on further investigation of the case.

The MNORT and PORT have 3 main areas of responsibility:

1. Clinical investigation of the case
2. Epidemiological investigation of the case
3. Planning the immunisation campaign

The important details for case investigation and documentation include age, location, travel history and immunisation status of the case. The clinical history on the onset of paralysis and how the paralysis progressed should be elicited. The clinical history should also elicit any recent medical and surgical procedures including injections and dental procedures. A full clinical examination should be conducted with special investigations, as physicians consider appropriate. The clinical examination and investigations should also include a workup for immunodeficiency.

Epidemiological investigation of the case is conducted to search for additional unrecognised and unreported cases in the area, to ensure early detection and control spread. Field visits should be conducted to check on immediate contacts over the last month, to determine if any of these contacts have developed relevant symptoms. Siblings and close contacts of the case and suspected cases with minor symptoms should have stool specimens collected and sent to the NICD.

The search for additional unrecognised cases will include children in the neighbourhood, playmates, and schoolmates - especially those in the same class as the case and relatives the case would have had contact within a month before and after the onset of paralysis. For the pre-school going age, other children at pre-schools/crèches should also be checked for the symptoms and have specimens collected if they have the symptoms.
The epidemiological investigation should include conducting record reviews, looking for AFP cases in health facilities serving the area, interviews with health professionals, Community Health Workers and with Traditional Health Practitioners in the district where the case originated.

## 4.2 Risk of spread and grading of the outbreak

The assessment of risk of spread and subsequent 'grading' of the outbreak will be conducted by the MNORT in coordination with the GPEI's Eradication and Outbreak

management group (EOMG). Grading of the outbreak is the responsibility of the Eradication and Outbreak Management Group (EOMG) within 72 hours of notification of the outbreak.

This grading is based on:

- a completed risk assessment and case investigation;
- population immunity in the affected area (from the AFP database and routine immunization coverage);
- the existence of vulnerable populations (refugees, internally displaced persons, significant nomadic groups, access-compromised population groups);
- the security situation, including the presence of armed conflict or significant areas of insecurity or inaccessibility;
- the multi-country risk, including travel links;
- the country's capacity to respond rapidly and effectively

The grade will be updated at least once every three months or whenever a significant change occurs.

### 4.2.1 Grade definition

The polio outbreak grades and definitions are:

- Grade 1: Minimal risk of continuation and international spread of transmission due to good population immunity, no major vulnerable population cluster, no security threat or access challenge and robust health infrastructure for response
- Grade 2: Moderate risk of continuation and international spread of transmission due to gaps in population immunity, weaknesses in the immunization system and in-country response infrastructure, major vulnerable threat or access challenge
- Grade 3: Significant risk of continuation and international spread of transmission due to significant gaps in population immunity, major vulnerable population clusters, a history of multi-country involvement, serious deficiencies in local in-country response capacities, high security threats and access challenges, and/or a complex humanitarian emergency

# 5 RESPONSE PLAN

## 5.1 Development of detailed response plan following an outbreak or event

### 5.1.1 Responding to a poliovirus event

Upon receiving a report of a poliovirus event, the GPEI will support the country with technical guidance to investigate, assess and monitor the event.

- The poliovirus event will trigger putting the surveillance system on high alert to detect any signs of poliovirus transmission.
- A detailed investigation of the case and community and a travel history will be urgently conducted.
- The community should be searched for unreported cases, with visits to health-care facilities and other health-care providers, including traditional healers.
- Immunization response planning will begin in case the investigation and evaluation identify that the event is actually a polio outbreak.

### 5.1.2 Responding to a polio outbreak

Upon receiving a report of a polio outbreak, the GPEI will support the country with technical guidance to investigate, assess and monitor the event.

**STEP 1: Declaration of a public health emergency**

Declaration of a public health emergency will be made by the Minister of Health or his/her designee

Mobilization of an "all-of-government" response with both financial and human (multisectoral) resources

Full implementation of requirements under the IHR and Public Health Emergency of International Concern (PHEIC).

**STEP 2: Convene the Outbreak response team**

The MNORT and the PORT should be convened within 24 hours of a confirmed case as described in 4.1 above.

Technical guidance will be sought from experts such as the GPEI and WHO on decision-making on the response operation.

**STEP 3: Conduct Individual Case Investigation**

The details are covered in 4.1 above.

**STEP 4: Conduct a Field Epidemiological Case Investigation**

The details are covered in 4.1 above. In addition, the immunisation status of the area will be assessed at all levels. It will be important to ascertain what the population

immunity in that area is. This will be assessed using the routine coverage data and the coverage of any campaigns conducted; national or sub-national.

The hospital where the case was admitted must also check for any other missed cases or cases that might have developed in the ward due to nosocomial infections. All hospitals in the district with a confirmed case will conduct record reviews for AFP cases going at least 3 months back. All hospitals in the country should conduct full investigations for polio in all cases of AFP, collecting two stool specimens for each case. When a confirmed case has been admitted, it may be necessary to take stool specimens from the other children who are in the same cubicle (ward subdivision with) and those the case might have had close contact with (e.g. during meals, bath time & play time, etc.).
All hospitals must implement Infection Control Guidelines .

**STEP 5: Prevent Community Spread**
Quarantine is of no community value and is thus not necessary. By the time a case is detected and confirmed, viral shedding has been going on for some time and many contacts may have been infected before poliomyelitis is diagnosed.

In communities with modern and adequate sewage disposal systems, faeces and urine can be discharged directly into the sewage disposal system without preliminary disinfection. Immunisation of family and other close contacts is recommended, even though it will not contribute to immediate control. In households where the family members are immigrants and thus have no proof of immunisation all household members should be vaccinated including adults.

## 5.2 AFP Surveillance enhancement

In response to a confirmed wild poliovirus case, surveillance activities for Acute Flaccid Paralysis should be intensified. Whilst all HCWs will be on high alert and would have been notified to detect and investigate cases, dedicated and additional surveillance efforts are needed.

### 5.2.1 Intensified Surveillance Activities

The following activities are recommended to intensify AFP surveillance efforts. In the event of a polio outbreak, all provinces and districts should conduct these activities. Provinces and districts that are considered at high risk and the district where the confirmed polio case originated should be vigilant in ensuring that these guidelines are strictly followed.
AFP surveillance should be enhanced to an annualized rate of greater than four non-polio AFP cases per 100 000 children aged under 15 years in every district, for the duration of the outbreak and for at least 12 months after the last case. This entails:

- immediately notifying all districts and informing staff that an outbreak has been detected;

- activating case-finding exercises at all surveillance sites and conducting a retrospective record review;
- providing sensitization training on AFP surveillance to all health-care workers and developing an outbreak monitoring system for weekly surveillance reporting from all reporting units including zero reports;
- expanding the contact sampling of all AFP cases from "infected" and "immediate" risk districts until the end of the outbreak;
- ensuring that AFP case-finding is integrated into SIA activities;
- ensuring that laboratory services are strengthened to handle the additional workload, and maintaining the rapid reporting of results throughout the duration of the outbreak.

District offices must ensure that all hospitals within the District have adequate case investigation forms to report the cases.
District offices must ensure that all hospitals have the protocol on the investigation of AFP cases, clearly displayed in all paediatric wards, paediatric outpatients, admission wards and adult medical wards.
Provincial and district l offices must conduct intensive sensitisation sessions for all health professionals, traditional healers, homeopaths, spiritualists and other caregivers.
Enhanced surveillance will be maintained for a period of 12 months or more after the last wild polio case is detected.

### 5.2.2 High Risk –"Hot" AFP Cases

All active surveillance sites and all health workers and surveillance officers will be instructed to fully investigate AFP cases considered to be of special concern because of significant likelihood of polio. "Hot" AFP cases should be immediately notified to the National and Provincial offices. This investigation will be both clinical and epidemiological, meaning that active case searches in the community where the case originated should be conducted.

A high risk AFP case is defined as:

- Any suspected polio case that is an AFP case that presents with fever at onset of paralysis that progresses within 3 days
- Any AFP case less than 5 years that is not fully vaccinated for age
- Any AFP case that has history of recent travel to a polio endemic country or country experiencing importation / wild poliovirus circulation
- Any case that has had contact with persons who have travelled to or contact with persons from polio endemic countries
- Any AFP case that comes from a cluster of AFP cases

- Any AFP case that comes from a District or area bordering a country that has wild poliovirus circulation / importation
- Any AFP case that is an immigrant and or part of a refugee population

## 5.3 Laboratory capacity strengthening

The laboratories that have handled the specimens from a wild poliovirus confirmed case need specific attention.

Materials collected from the gastrointestinal tract, especially faeces, and also throat and nasopharyngeal swabs may be contaminated with the virus. The laboratories that would have handled such materials (apart from the NICD) will be visited by the laboratory containment committee (NTF) to provide advice regarding the storage and destruction of all contaminated or potentially contaminated materials.

All material needed for the case investigations will be sent to the NICD using the appropriate transport media and biosafety measures. The NICD will handle the infectious or potentially infectious material at the appropriate biosafety level as stipulated by the WHO.

As South Africa is embarking on laboratory containment activities, which involves destruction of all infectious and potentially infectious material, the destruction methods used in the case of such a response will be in keeping with those used in the Laboratory Containment activities that are prescribed by the Global Certification Commission and detailed in the Global Action Plan III (GAP III) document.

The laboratories will write a report on the handling of the specimens related to the case and methods used in destruction of the appropriate materials.

## 5.4 Immunization response (SIAs)

The decision to conduct supplementary immunisation activities at provincial or national level will be guided by the MNORT in conjunction with international experts.
WHO has made recommendations for polio free countries on responding to polio importations and the World Health Assembly (WHA) has adopted these recommendations.

The WHO recommendations for poliovirus importations are:

Upon confirmation of a poliovirus outbreak, countries should plan an immunization response that:

- is rapid (initiated no more than 14 days from confirmation of the poliovirus outbreak);
- is large scale (including a minimum of 2 million individuals);
- includes multiple supplementary immunization activities (SIAs), with a minimum of five planned at the start of the outbreak;
- plans the first three SIAs preferably at two- to three-week intervals maximum;
- targets an expanded age group beyond children aged under 5 years (at least one of the response SIAs should cover individuals aged up to at least 10 years; in many settings this has successfully included adults or even the entire population);
- pays special attention to populations at highest risk (high-risk populations particularly vulnerable to poliovirus circulation should be identified and targeted with focused vaccination and social mobilization approaches; these include mobile groups, refugees, internally displaced persons, minorities, etc.);
- is monitored and improved to reach increasing numbers of children (the immunization activity should be independently monitored and should aim to reach at least 95% of the target population).

The decision to conduct a nationwide campaign will be influenced by the level of immunity in the country and thus the perceived risk for further spread of the virus. The routine immunisation coverage and the coverage reached during immunisation campaigns (supplementary immunisation activities) will inform this decision. SA has had SIAs every 3 - 4 years since 1996 and therefore has gained sufficient experience in conducting nationwide campaigns.

### 5.4.1 Supplementary Campaigns in High Risk Areas

Once there is a confirmed polio outbreak, the main concern is that areas with low routine IPV3 coverage are at high risk of spreading the virus should anyone in that area be infected. This necessitates the analysis of routine coverage data to determine the districts and sub-districts that are at highest risk. The coverage reached during previous supplementary immunisation activities should also be analysed. The national EPI data manager and all the provincial EPI managers will conduct an analysis of routine data to determine which districts have IPV3 coverage below 80%.

There are factors other than the routine coverage figures that will put certain areas at high risk of importation and of spreading wild poliovirus that should be considered for the decision to conduct supplementary immunisation activities and specific targeted surveillance efforts.

The following factors put districts/sub-districts at high risk of importation and of spread of wild poliovirus:

- Districts bordering on neighbouring countries and countries that have had importations,
- Districts with ports and border gates,
- Districts with international airports,
- Districts with large numbers of people living in informal settlements
- Districts with large numbers of immigrants
- Districts with communities that do not have a proper sanitation systems
- Districts that have had cases classified by the Polio Expert Committee as compatible

Districts or areas with any of these characteristics should be strongly considered for supplementary immunisation campaigns and also be targeted for aggressive surveillance activities.

When supplementary immunisation campaigns are planned, special attention must be paid to micro planning to ensure that every child is reached. Thus specific attention is paid to hard to reach and zero dose children. The campaign will only be effective if 95% coverage is reached.

In hard to reach areas or specific situations consider door-to-door campaigns. It may be advisable to also have door-to-door social mobilisation activities.

## 5.5 Immunization system strengthening

During the outbreak and post the outbreak period districts should ensure reporting at all levels (health facility to district, district to province and province to national level) in keeping with the surveillance indicators (completeness and timeliness). In addition, surveillance should be strengthened at ports of entry to include all travellers.

## 5.6 Vaccination of travelers

In May 2014, the WHO Director-General declared the international spread of WPV to be a public health emergency of international concern (PHEIC). The endorsed recommendations from the Emergency Committee convened under the IHR include vaccination recommendations for travel from infected countries and countries exporting

WPV. The recommendations also call for an outbreak response assessment within one month of the detection of the index case in any state that becomes newly infected. This signals an increased urgency for providing robust support to polio-free countries experiencing WPV introduction.

In keeping with the need to reduce the risk of further international spread of wild poliovirus, South Africa will adhere to the International Travel Regulations as they relate to polio. Once there has been a confirmed polio case, there will be monitoring of the immunisation status of international travellers from polio affected countries and to polio affected countries. Polio affected countries refer to a country that has ongoing transmission of wild poliovirus or a country affected by importations, resurgence and experiencing outbreaks of wild poliovirus.

South Africans travelling to polio affected countries will be encouraged to receive full vaccination cover before departure.

## 5.7 Polio case management

Infection Control Guidelines for Polio should be implemented. These guidelines will include the following but are not limited to:

- All confirmed wild poliovirus cases should be isolated within the hospital setting.
- All suspected polio cases must be admitted to hospital, and all the patients in hospital that have had contact or originate from the same neighbourhood as the confirmed case should also be isolated.
- Simple infection control practices and universal precautions need to be strictly adhered to.
- Hand washing should be observed; between handling of patients, before and after feeds, after nappy changes, after helping children with the toilet, etc.
- Normal disinfection of hospital linen and bedclothes before washing is sufficient. Throat discharges, faeces and articles soiled herewith should be disinfected.
- All instruments used on the suspected and confirmed cases must be disinfected.

# 6 RESPONSE TO POLIOVIRUS TYPE 2 OUTBREAKS OR EVENTS POST-SWITCH

## 6.1 Response

In the event of a type 2 outbreak or events post the switch; the procedures for outbreak response detailed in 5.1 to 5.7 above will be followed.

## 6.2 Need for close international consultation

The MNORT South Africa will plan the response to a type 2 poliovirus event or outbreak closely following established international protocols for notification, risk assessment and response of post-switch poliovirus type 2 outbreak response3, in close consultation with the GPEI / WHO.

## 6.3 Communication

The MNORT will issue media releases for the South Africa Broadcasting Corporation (SABC) and all national radio stations and print media under guidance from the Minister of Health. Provinces are required to communicate via the National office, the MNORT Chairperson or the National Communications office should they find it appropriate to issue provincial media statements. The MNORT, will identify the relevant national experts to answer technical questions from the media.

[3] http://www.who.int/immunization/sage/meetings/2014/october/6_Type_2_response_protocol_14_oct_clean.pdf?ua=1

# 7 ASSESSMENT OF OUTBREAK RESPONSE AND DOCUMENTING INTERRUPTION

## 7.1 Outbreak or event assessment

## 7.2 Documentation of interruption

The Polio Eradication & Endgame Strategic Plan 2013-2018 aims to stop any new polio outbreak within 120 days of confirmation of the index case. Outbreaks will be declared closed if no transmission is detected for six months, with all subnational areas achieving sensitive surveillance after an external assessment following the end of the outbreak.

At the end of the outbreak as defined above, the MNORT chairperson will report to the National Certification Committee (NCC) who will officially notify the African Regional Certification Commission (ARCC) via the WHO country office.

# 8 ACTIVITY CALENDER

## 8.1 Summary of key activities with timelines

| | Timeline and activities | Responsible person |
|---|---|---|
| 1 | **WITHIN 24 HOURS**<br>• Convene an urgent MNORT meeting<br>• Notify all provincial outbreak response teams<br>• Notify WHO who in turn notify the GPEI's EOMG and relevant staff who will be involved in supporting the outbreak response<br>• Establish the Emergency Operation Centre or polio control room at the NDOH<br>• Initiate full clinical, epidemiological and social investigation of the outbreak, including a field investigation | Dr. Nonhlanhla Dlamini and Dr. Frew Benson |
| 2 | **WITHIN 72 HOURS**<br>• Finalize and share the report on the initial clinical, epidemiological and social investigation of the outbreak and the assessment of the case or case cluster's social profile with the government, GPEI partners and the EOMG<br>• Convene a meeting of all the key stakeholders at the national level on the initial outbreak response plan with feedback from provinces, and communicate it to the provinces and districts involved in the outbreak response<br>• Work with partners to conduct a press brief / media release, if appropriate<br>• Develop an initial immunization response plan with identified outbreak zones and send to GPEI's EOMG to guide grading and funding, and vaccine approval<br>• Start preparations for the first outbreak response immunization activity by establishing outbreak task forces at the national and district levels to develop microplans with vaccines, logistics as well as a social | Dr. Nonhlanhla Dlamini and Dr. Frew Benson |

| | Timeline and activities | Responsible person |
|---|---|---|
| | mobilization component, and communicate with authorities, conduct training of front-line workers (vaccinators, supervisors and social mobilizers) and monitor activities<br>• Compile and produce a SITREP using a standard format, as well as a media brief and other communication and advocacy products.<br>• Initiate enhanced surveillance activities, including actively looking for AFP case, retraining health workers and taking samples from contacts of all AFP cases | |
| | **WITHIN 14 DAYS**<br>• Establish a weekly meeting with key stakeholders in the country (the outbreak response) to coordinate and implement the outbreak response plan<br>• Conduct weekly meetings with all key stakeholders on the outbreak response plan and coordination<br>• Hold weekly conference calls with GPEI partners and regional and country offices<br>• Finalize the six-month outbreak response plan document and make it available to all partners<br>• Fully implement the comprehensive six-month outbreak response plan | Dr. Nonhlanhla Dlamini and Dr. Frew Benson |
| | **FROM 14 DAYS**<br>Conduct SIAs according to the response plan:<br>• conduct activities to improve the quality of SIAs including detailed microplanning with special attention to high-risk populations, and tailor social and community mobilization interventions;<br>• conduct vaccinator and supervisor training, using local language modules and including interpersonal communication skills;<br>• establish / strengthen supervision, monitoring and review meetings;<br>• fully implement independent monitoring, including | Dr. Nonhlanhla Dlamini and Dr. Frew Benson |

| | Timeline and activities | Responsible person |
|---|---|---|
| | relevant social data on refusals and reasons for missed children and other social barriers that may slow progress;<br>• initiate special vaccination and communication strategies to reach missed children.<br>• Maintain enhanced surveillance activities, including actively looking for AFP cases, retraining health workers and taking samples from contacts of all AFP cases<br><br>Continue producing a weekly SITREP using a standard format, with epidemiological and social data, as well as a media brief and other communication and advocacy products<br><br>Ensure surveillance, SIA and monitoring data are completed and sent to WHO regional offices/headquarters and UNICEF regional offices/headquarters according to agreed timelines (within 14 days for all SIAs, and at least weekly for AFP data) | |