

Compendium of Guidelines on Major Communicable Diseases

Ministry of Health and Wellness

Communicable Diseases Control Unit (CDCU)

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1.0 NATIONAL PREPAREDNESS AND RESPONSE PLAN FOR POLIOMYELITIS

1.1 Introduction and background information

Poliomyelitis is a debilitating disease caused by a poliovirus which is transmitted mainly by the faeco-oral route and affecting the nervous system resulting in paralysis. Children under 15 years are mostly affected with lower limb palsies.

The World Health Organisation launched the Global Polio Eradication Initiative (GPEI) in 1988 for the eradication of poliomyelitis. In 2013 it embarked on the Polio Eradication and Endgame Strategic Plan 2013-2018 for the total elimination of polio across the world.

Mauritius was having epidemics of polio in the 1940s and 1950s and the last case of polio was reported in July 1967. Since then, Mauritius has been free of the disease.

As polio is still endemic in two countries (Pakistan and Afghanistan), the risk of importation of the virus is an event that merits due consideration for any country. The National Preparedness and Response Plan for Poliomyelitis address the strategies to be adopted in the likelihood of such an event in Mauritius to contain and prevent any local transmission of poliovirus.

A single case of poliomyelitis would qualify as an event of national public health emergency and would activate the plan.

The plan has three phases:

1. Preparedness and planning phase with the setting up of:
 - The National Task Force on Poliomyelitis
 - The Intersectoral Committee
 - The Emergency and Response Committee
 - The Rapid Response Team
2. Containment phase
 - With case detection, isolation and contact tracing
 - Enhanced surveillance
 - Massive mop-up immunization campaigns
3. Outbreak cessation phase

- Documentation of cessation of the outbreak following twelve months of enhanced surveillance.

Poliovirus Poliomyelitis (polio) is a highly infectious disease caused by poliovirus, a small, non-enveloped enterovirus of the family Picornaviridae. Poliovirus infection occurs principally person-to-person via the faecal-oral route. The virus is ingested and replicates in the gut, mostly without causing symptoms, and then is excreted in faeces. Poliovirus is readily shed from symptomatic and asymptomatic cases: it is detected in the nasopharynx for up to two weeks after infection and virus are shed in the faeces for up to 5–6 weeks or significantly longer in those individuals who are immunosuppressed. Vaccination may attenuate virus shedding. There are three serotypes of poliovirus (serotypes 1, 2 and 3).

The incubation period is commonly 7-14 days for paralytic cases but can range from 3-possibly to 35 days. Cases are most infectious during the days before and after onset of symptoms and the period of communicability occur for the period of time the virus is excreted. Transmission can be enhanced by poor sanitation.

Mauritius is a country with an efficient and excellent immunization program reaching over 95% of the children immunized with all childhood vaccines (inclusive of both public and private sectors).

There has been a routine notification of Poliomyelitis cases in Mauritius in the year 1945 with the beginning of Polio epidemics. In fact, according to previous health reports there is evidence that a project analogous to AFP Surveillance was in place since 1925, but reporting was in the form of infantile paralysis (Public Health Ordinance 1925).

Mauritius has introduced Acute Flaccid paralysis [AFP] surveillance in 2003. The surveillance is being carried out for children aged less than 15 years. The surveillance covers exhaustively and methodically all the districts of the country. All activities of the AFP surveillance are carried out under the aegis of the Ministry of Health & Wellness, thus making full use of the existing health system, in terms of infrastructure, qualified and experienced human resources and also the available logistic support.

Every week, six Senior Public Health Nursing Officers undertake regular visits to a total of 22 AFP Surveillance sites (scattered evenly in the 6 health regions, under the supervision of a National Surveillance Officer. All Acute Flaccid Paralysis (AFP) cases in Mauritius are admitted either in a government hospital or in a private health institution (private clinic). There are 5 Regional Hospitals in Mauritius evenly distributed over the island: the Jawarharlal Nehru Hospital catering for the catchment population of the districts of Grand Port and Savanne; the Bruno Cheong Hospital for the districts of Flacq and Moka; the Sir Seewoosagar Ramgoolam National Hospital for the districts of Pamplemousses and Riviere du Rempart, the Dr A. G. Jeetoo Hospital for the districts of Port Louis and part of Plaines Wilhems district while the Queen Victoria Hospital covers the Black River district and the remaining part of Plaines Wilhems district. In addition there are 12 small sized private clinics which are also covered during this exercise. Rodrigues Island is the 6th health Region with 3 surveillance sites.

The Senior Public Health Nurse (SPHN) visits the wards of the hospitals/clinics and meets the staff enquiring about any admitted paralysis or weakness cases. For any AFP case the SPHN immediately notifies the Virology Unit situated at Central Health Laboratory, Victoria Hospital, collects 2 stool specimens (8-10 grams each) within 14 days of onset of symptoms and send these in an icebox (below 4°C) to the Laboratory accompanied with a duly filled data collection form .The Virology Unit at Victoria Hospital makes a booking by DHL for the shipment by air on the earliest flight to Institut Pasteur Madagascar. The clinical scientist at the Virology Laboratory ships the stools to Institut Pasteur Madagascar by triple packing using a Biosafety Cabinet level 2 (BSL-2). The National AFP Surveillance Officer is also notified and a regular follow up on the clinical evolution of the case is undertaken by the Senior Public Health Nurse. The Institut Pasteur Madagascar sends a report by post within 14 days of receipt of the stool specimens. These results are then communicated by the clinical scientist to the respective hospital and the Senior Public Health Nurse following the case, who in turn informs the National AFP Surveillance Officer.

A follow up of the case by the SPHNO and treating doctor is made at 60 days for any residual paralysis and the findings documented.

The National AFP Surveillance Officer after receiving the full documentation about the case convenes a meeting with the National Polio Expert Committee (NPEC) together with the

AFP Secretariat for classification of the AFP case as polio, polio-compatible or non-polio AFP and submits a report to the National Certification Committee (NCC). Regular meetings are also held by members of the National Task Force for Containment (NTFC) Committee which then reports to the NCC. The NCC submits a final report to the WHO AFRO - Regional Certification Commission (RCC).

1.2 Potential Scenarios for a Poliomyelitis Outbreak in Mauritius

There are several possible presentation scenarios for a case of poliovirus infection in Mauritius and the most likely are presented below.

Scenario 1- Importation of wild poliovirus from an endemic country or a country with recently imported poliovirus;

Scenario 2- Importation of VDPV from a country that has circulating VDPV;

Scenario 3- Wild poliovirus isolated from the stools of an individual with no neurological symptoms or history of recent travel to a polio endemic area

Scenario 4- Wild poliovirus isolated from sewage or environmental samples

Scenario 5- A case of vaccine associated poliovirus (VAPV).

Confirmation of a polio outbreak would require one of the following conditions to be met: multiple detection of wild polioviruses or VDPV in the environment; detection of a number of genetically distinguishable wild polioviruses or VDPV; and cases of paralytic polio or isolation of wild poliovirus or VDPV from infected person/persons.

2.0 POLIO OUTBREAK RESPONSE PLAN

2.1 Setting up of a National Task Force on Poliomyelitis

The national response plan would be activated by The Honorable Minister of Health and Wellness as Chair of the National Task Force on Poliomyelitis. This Task Force would be convened within 24 to 48 hours following the notification of a case of poliomyelitis by the Director General Health Services. The National Task Force on Poliomyelitis would oversee all operations relating to outbreak response and also would declare the end of the outbreak.

This committee will examine all the facts concerning any confirmed case of Poliomyelitis that has been declared in the Republic of Mauritius and develop the following strategies:

- 1) Establish an Emergency Response and Monitoring Committee with Rapid Response Teams.
- 2) Conduct an initial investigation;
- 3) Make a complete risk assessment within 72 hours of confirmation of the index case;
- 4) Reinforce laboratory capacity and to inform Institut Pasteur Madagascar for a potential surge in stool samples for analysis.
- 5) Implementation of a minimum of three large-scale rounds of immunization:
 - conducting first-round supplementary immunization activities within two weeks of confirmation of the index case, with an interval of two to three weeks between subsequent rounds;
 - using a type-specific monovalent oral poliomyelitis vaccine or another composition of vaccine if appropriate;
 - targeting all children aged younger than five years in the affected and adjacent geographical areas;
 - ensuring that at least 95% immunization coverage has been reached;
- 6) Reinforce surveillance for acute flaccid paralysis for the duration of the outbreak and at least 12 months immediately thereafter; and
- 7) Sustain high coverage of routine oral poliomyelitis immunization of at least 80% and highly sensitive disease surveillance.
- 8) Calculation of the overall budget for the Action Plan with the following main activities:
 - Enhancing Surveillance
 - Funding for increased laboratory investigations and vaccines

- Supplementary Immunisation activities
- Transport expenses
- Training
- Communication

The Emergency Response and Monitoring Committee will report to the National Task Force on Poliomyelitis and will be chaired by the Director Health Services Preventive. The Emergency Response and Monitoring Committee would rapidly set up Rapid Response Teams (RRT) for outbreak investigations and timely response. The Committee through the Communicable Disease Control Unit at MOH will be coordinating the activities of the Rapid Response Teams operating at regional level. To ensure that these processes are carried out rapidly and competently, the Emergency Response and Monitoring Committee will meet immediately (within 24hrs). The Committee is managerially and technically responsible for implementing the action plan and for coordinating all relevant activities during implementation.

The Emergency Response and Monitoring Committee will be advising on and monitoring the activities of the Rapid Response Team/s including the following:

- Data collection and retrieving reports from the Rapid Response Team from the periphery
- Identification of high risk groups
- Assess the risk (with environmental profile)
- Mapping and target population for immunization determined with immunization supervisors and independent monitors.
- Communication with health professionals and the public
- Review the national emergency action plan (reviewing and updating the existing polio preparedness plan)
- Providing logistics to the RRT
- Epidemiological and environmental surveillance
- Reporting to the National Task Force on Poliomyelitis
- Document cessation of transmission

The Rapid Response Team (RRT) will initiate investigations of the index case, trace contacts, identify “hot cases”, organize collection and transport of stools samples, assess

vaccination status and implement supplementary immunization activities amongst others. The RRT will provide information and feedback daily to the Emergency Response and Monitoring Committee at headquarters.

A “hot case” is defined as a case of acute flaccid paralysis with fever which occurs in a child who has received less than three doses of poliovirus vaccine, has travelled from a polio-infected area or is a member of a high-risk group. Hot cases also include acute flaccid paralysis cases of any age that are clinically suspected to be poliomyelitis.

Once an acute flaccid paralysis case is flagged as “hot”, it is given top priority in the surveillance system to obtain final laboratory results as soon as possible.

This public health response to a case of suspected poliomyelitis in Mauritius would require the active participation of various stakeholders in the investigation of a suspected case of polio based on a communicable disease outbreak investigation, identifying the sequence of actions, roles and responsibilities, timing of events and critical success factors. Actions are not intended to be strictly sequential; some will occur in parallel.

2.2 Epidemiological Investigation of Poliovirus Infection

The public health response to a confirmed case of polio will be coordinated by the Ministry of Health in the affected area.

Any diagnosis of polio in Mauritius will be of international significance, so it will be imperative to ensure a nationally consistent approach to the release of information and an effective national response, as well as international reporting via the WHO IHR Focal Point. All cases of polio must be reported to the WHO as per WHO International Health Regulations.

A suspected case of poliomyelitis is considered a public health emergency. Rapid Response Teams will be required at regional levels of the public health system. The primary response will be driven at the regional level with overarching coordination by the Emergency Response and Monitoring Committee at national level (Communicable Disease Control Unit at headquarters as the Incident Room).

The major considerations include not only where the infection may have been acquired, but any potential for transmission within Mauritius. The Rapid Response Team response will need to review the patient records and ensure that the following information has been collected for the index case:

1. Age of patient, date of onset of paralysis;
2. Residence or travel to a polio endemic country, or one that has recently reported imported cases or VDPV;
3. Vaccination status, including timeframes and the vaccine used (OPV or IPV);
4. Contact with persons recently immunized with OPV or persons who have recently travelled to a polio endemic country, or one that has recently reported imported cases or VDPV, or a country that uses OPV;
5. Potential for further spread: health care workers and people who have contact with children, or are involved in food preparation have a greater chance of spreading infection to a larger number of people;
6. Potential for exposure to laboratory strains of poliovirus; and
7. Vaccination status of contacts.

The epidemiological investigation and collection of stool specimens may involve the local community, including childcare facilities, schools and other community groups.

The epidemiological investigation aims to establish where the infection was acquired and to where it may have spread. If the initial infected patient does not have a travel history that indicates they have acquired the infection overseas, or potential for laboratory exposure, the epidemiological investigation becomes extremely urgent to establish where the infection was acquired and to inform public health containment strategies.

The short incubation period and ability for asymptomatic patients to shed virus may mean that many individuals are exposed to the virus before a case of AFP is detected. Laboratory testing of stool specimens is required to confirm poliovirus infection and to determine whether a poliovirus is a wild or vaccine strain.

All wild poliovirus isolations would necessitate an immediate public health response.

The response to isolation of a vaccine strain of poliovirus may vary according to the perceived risk for further person-to-person transmission. Isolation of a VDPV would be considered on same level as for isolation of a wild poliovirus, while the response to isolation of an OPV strain from a potential case of VAPP may not be as comprehensive (would necessitate expert opinion).

Since more specific laboratory tests are needed to differentiate a VDPV from an OPV strain of poliovirus, the initial public health response should assume isolation of a VDPV until laboratory results indicate otherwise.

Cases that cannot be confirmed due to the absence of virological evidence but are considered clinically as polio-compatible (i.e. from AFP Surveillance Algorithm for classification of AFP cases) would also initiate response under this plan.

The containment of a potential outbreak of poliovirus will include the following:

- Isolation of infected individuals
- Tracing and management of potential contacts
- Cleaning and disinfection;
- Immunisation
- Education and increased surveillance

Because preparation of the supplementary immunization activities (mass campaigns) is the largest and most complex activity of the emergency response and certain decisions (such as ordering oral poliovirus vaccine and mobilizing funds) should be made as soon as possible, planning the supplementary immunization activities dominates emergency response planning.

A risk assessment and grading of the outbreak would be performed upon WHO expert assessment and advice.

Major elements of the mass campaign, will include:

- a. Immunisation
- b. Enhancing surveillance
- c. Planning communication strategies

- d. Planning training activities for staff
- e. Data analysis, information sharing and timely reporting
- f. Conducting the final evaluation
- g. Preparing a draft report
- h. Present the report to the Polio National Certification Committee
- i. The NCC sends report to the Regional Certification Commission at WHO-AFRO.

2.3 Immunisation

The timeliness and extent of the immunization activities will largely determine the outcome of the response.

All children aged less than five years in the affected and adjacent geographical areas would be targeted for immunization. However, the target age group may need to be expanded depending on the results of case investigation(s) and the population immunity profile. Mauritius having been polio-free for many decades may need to vaccinate older age cohorts, particularly if cases include older children, teenagers or adults.

The following strategies for mass immunization would be considered:

- house to house,
- health facility based,
- mobile teams or different combinations.

Mauritius with a well-established health infrastructure may consider applying a combined strategy using facility-based, outreach and mobile team approaches.

The response would consist of at least two large-scale rounds of immunization. The optimum timeline indicates that the first round should be conducted within two to three weeks after the index case is confirmed with an interval of 2 to 3 weeks between the rounds.

2.4 Monitoring and supervision of supplementary immunization activities

High-quality supervision is an indispensable part of supplementary immunization activities. The minimum requirements for quality are a sufficient number of supervisors,

correct training, appropriate tools and means of transport. Supervisors would plan and oversee the delivery of oral poliovirus vaccine, review daily plans with the teams, ensure that plans are implemented, take corrective action when necessary and solve problems for teams.

Simple action-oriented supervisory checklists would be designed for an effective daily reporting. For maximum effectiveness, monitoring would be conducted both during vaccination activities and afterwards. Independent observers should carry out monitoring in addition to health ministry staff. The independent observers would be recruited from other Ministries and from NGOs or from other departments of the health ministry. Independent monitoring has proven an important factor in the rapid detection of problems.

Just before the national immunization day, all monitors would be thoroughly briefed on the areas to be monitored and on the methods of monitoring.

Daily feedback from all monitors to the health ministry would be established so that the immediate action can be taken. The monitors would report to the local Rapid Response Team and to the Emergency Response and Monitoring Committee at central level by phone and /or fax.

Given the short time for preparation and training and the urgency of the intervention, the following indicators would be used:

- the number of children immunized and missed on any given day per age group (0–11 months old and 12–59 months old) in a given area;
- the reasons for non-vaccination; and
- the quality of house and finger marking.

Surveys using simple convenience samples during and immediately after completion of the campaign would be useful for getting an indication of areas where all target children have not been reached. Strategies for selecting convenience samples will include interviewing parents of targeted children residing near the health post, at the extreme end of the catchment area, of poorer sections or disadvantaged groups of the community.

2.5 Environmental Surveillance

A risk assessment for the shedding of WPV and VDPV from potentially infected individuals will be undertaken. The index case of a WPV importation or person infected with a VDPV would be isolated in hospital until virus shedding ceased. While close contacts were being tested for secondary cases, the ramification of potentially shedding WPV or VDPV into the local sewerage network would need to be assessed. Similarly the variable condition of septic tanks may be considered a potential public health threat if a WPV or VDPV infection was subsequently identified in a contact that had used this system.

Where the potential risk of poliovirus transmission by environmental sources was determined to be high, preventative strategies such as the installation of a sewerage trap should be investigated and environmental samples of sewage collected at the inlet to wastewater plants prior to treatment would be sent for examination for poliovirus at Institut Pasteur Madagascar.

2.6 Evaluation of supplementary immunization activities

The activity must be reviewed during and immediately after each round for corrective action. Monitoring and anecdotal data would be reviewed at all levels – district, and national – to look for areas where children might have been missed to ensure that these missed children are covered subsequently.

2.7 Immunisation of travelers

Incoming travellers from abroad would be requested to be immunized against polio before their arrival in Mauritius. Outgoing travellers would be provided with oral OPV/IPV at the International Vaccination Centre (a Government facility), Port Louis free of charge between 4 weeks and 12 months before departure or at any time prior to departure in case of last minute unavoidable travel if they have not received a dose of vaccine in the last 12 months. They will also be issued an International Vaccination Certificate documenting the vaccination done.

2.8 Documentation of cessation of transmission

Enhanced surveillance (reinforced active case detection, examination of records at Accident and Emergency Departments of all Hospitals/clinics and health centres) would continue for the next 12 months after the last case of poliovirus or paralytic poliomyelitis. An important part of the response to the importation of wild poliovirus or an outbreak is properly documenting that wild poliovirus transmission has been interrupted after the enhanced surveillance period.

The epidemiological background of case investigations, surveys, laboratory results, immunization responses and results of enhanced surveillance would require a detailed documentation. The report summaries all findings and activities for the twelve months after the last case has been detected.

This report will be prepared by the Emergency Response and Monitoring Committee and submitted to the National Certification Commission. The NCC following expert consultation with the Regional Certification Commission AFRO then informs the National Task Force on Poliomyelitis which subsequently declares the end of the outbreak.

3.0 INFLUENZA A H1N1 (Now referred to as Seasonal Flu)

3.1 Introduction and background information

Diseases due to human influenza viruses have huge health and socio-economic consequences. Two forms of influenza diseases are known: seasonal and pandemic.

Seasonal influenza occurs every year in the winter months of temperate climates; it can cause death among persons with pre-existing diseases such as chronic heart disease, cancer and immunosuppressed and is also responsible for workday's loss and absenteeism from school.

A yearly vaccine is available for the prevention of seasonal influenza. Periodically the seasonal human influenza combines with an animal influenza virus to generate a novel virus that results in a pandemic, with the diseases spreading across the globe in all age groups and during any time of the year. Major past epidemics of the past include the Spanish influenza of 1918, that was responsible for over 40 million deaths and the Asian flu in 1957 and the Hong Kong flu in 1968 causing over million deaths each. Besides disease and deaths, pandemic influenza has huge socio-economic impacts by: putting pressure on health system, disruption of trade commerce; restriction of travel, border closing, social disruption and mass panic.

There is no accurate way to predict the arrival of a pandemic strain of influenza besides active surveillance. In 2003, the world saw the emergence of an avian influenza, H5N1 that is entrenched in the poultry populations of Asia. The H5N1 virus is associated with high mortality and it has pandemic potential, although it has not spread across the globe. Since April 2009, a novel human virus, H1N1 emerged simultaneously in USA, Mexico and Canada.

3.2 Overview

Influenza A H1N1 forms part of the seasonal influenza and circulates with the other 2 viruses A H3N2 and B. Yearly vaccination programs are being done by the Ministry of Health and Wellness and Ministry of Social Security, National Solidarity and Reform Institutions. Sensitization campaigns on radios and television programs are ongoing. Surveillance of influenza like illness is also ongoing by the Ministry of Health and Wellness.

4.0 Middle East Respiratory Syndrome coronavirus (MERS- CoV)

4.1 Introduction and background information

Middle East respiratory syndrome (MERS) is a viral respiratory disease caused by a novel coronavirus (Middle East respiratory syndrome coronavirus, or MERS-CoV) that was first identified in Saudi Arabia in 2012.

Coronaviruses are a large family of viruses that can cause diseases ranging from the common cold to Severe Acute Respiratory Syndrome (SARS). The clinical spectrum of MERS-CoV infection ranges from no symptoms (asymptomatic) or mild respiratory symptoms to severe acute respiratory disease and death. A typical presentation of MERS-CoV disease is fever, cough and shortness of breath. Pneumonia is a common finding, but not always present. Gastrointestinal symptoms, including diarrhoea, have also been reported. Severe illness can cause respiratory failure that requires mechanical ventilation and support in an intensive care unit. The virus appears to cause more severe disease in older people, people with weakened immune systems, and those with chronic diseases such as renal disease, cancer, chronic lung disease, and diabetes.

Approximately 35% of patients with MERS have died, but this may be an overestimate of the true mortality rate, as mild cases of MERS may be missed by existing surveillance systems and until more is known about the disease, the case fatality rates are counted only amongst the laboratory-confirmed cases.

The origins of the virus are not fully understood but, according to the analysis of different virus genomes, it is believed that it may have originated in bats and was transmitted to camels sometime in the distant past.

The virus does not pass easily from person to person unless there is close contact, such as providing unprotected care to an infected patient. There have been clusters of cases in healthcare facilities, where human-to-human transmission appears to have occurred, especially when infection prevention and control practices are inadequate or inappropriate.

Approximately 80% of human cases have been reported by Saudi Arabia. Cases identified outside the Middle East are usually traveling people who were infected in the Middle East and then travelled to areas outside the Middle East. On rare occasions, outbreaks

have occurred in areas outside the Middle East. No vaccine or specific treatment is currently available. Treatment is supportive and based on the patient's clinical condition.

As a general precaution, anyone visiting farms, markets, barns, or other places where dromedary camels and other animals are present should practice general hygiene measures, including regular hand washing before and after touching animals, and should avoid contact with sick animals. Until more is understood about MERS-CoV, people with diabetes, renal failure, chronic lung disease, and immunocompromised persons are considered to be at high risk of severe disease from MERS-CoV infection. These people should avoid contact with camels, drinking raw camel milk or camel urine, or eating meat that has not been properly cooked.

4.2 Surveillance of Incoming Passengers from Saudi Arabia for MERS-CoV

RPHS (South) to liaise with RHD to delegate Medical Health Officers/ Nursing Officers to screen passengers at the airport (timetable of incoming passengers as below) following verification of Health Declaration Cards and enquiry on the Health Status of the passenger by the Public Health and Food Safety Inspectors at the Health Desk.

Symptomatic passengers will be channeled to the screening site for examination by Medical and nursing staff and if required samples of sputum collected and sent for investigations.

Surveillance will be carried out by the Principal Public Health and Food and Safety Inspector of regional health offices according to an established protocol.

On completion of surveillance, a return of same should be forwarded to Communicable Diseases Control Unit.

4.3 Protocol for Investigations

Eligibility for testing

Specimens should only be collected from patients who meet the case definition for Middle East Respiratory Syndrome Coronavirus (MERS-CoV), who have either travelled or been exposed to a clinically suspected case

Sample types

Recent studies have shown that lower respiratory specimens such as sputum, endotracheal aspirates, or bronchoalveolar lavage, have a higher yield for testing than upper respiratory specimens such as nasopharyngeal swabs.

Specimen type	Container	Transport to laboratory	Comment
Naturally produced sputum	Sterile plain container with no leakage	On ice where possible to reach the laboratory within 24h. If delays likely please inform laboratory.	Need to ensure the material is from the lower respiratory tract.
Bronchoalveolar lavage	Sterile plain container with no leakage	On ice where possible to reach the laboratory within 24h. If delays likely please inform laboratory.	There may be some dilution of virus
Tracheal aspirate	Sterile plain container with no leakage	On ice where possible to reach the laboratory within 24h. If delays likely please inform laboratory.	There may be some dilution of virus
Nasopharyngeal aspirate	Sterile plain container with no leakage	On ice where possible to reach the laboratory within 24h. If delays likely please inform laboratory.	There may be some dilution of virus

Safety during collection

Appropriate Personal Protective Equipment is worn when collecting samples from suspected cases, ensuring standard contact, droplet or airborne precautions including proper hand hygiene. Make correct use of surgical or respiratory face masks, if necessary.

A proper screw cap sterile sample container is used for sample collection, ensuring that the container is closed properly with no spillage during sample collection and transportation to the laboratory.

Transport to laboratory

Clinical specimens should be transported on wet ice or cold packs in appropriate packaging. All specimens should be labelled clearly and include information on the request forms accompanying the samples.

Samples should be sent to:

National Influenza Centre
Department of Molecular Biology and Virology
Central Health Laboratory
Candos

5.0 Ebola Virus Disease

5.1 Introduction and background information

The disease Ebola takes its name from the Ebola River situated near a village in the Democratic Republic of Congo, where the disease first appeared in 1976. Ebola Virus Disease is caused by a virus from the Filoviridae family (filovirus).

The present outbreak of Ebola Virus Disease (EVD) concerns four countries in West Africa, namely Guinea, Liberia, Sierra Leone and Nigeria. Further to widespread transmission of the disease, it has been declared as a Public Health Emergency of International Concern by the World Health Organisation on 8 August 2014.

In response to this event in West Africa and in anticipation of the probability of the spread of this disease to the Republic of Mauritius, a National Preparedness Plan is being prepared. The aim of this plan is to prevent and control Ebola Virus Disease in the public of Mauritius, including Rodrigues and the Outer Islands. It provides strategic orientations for actions to be taken for the prevention and containment of EVD.

The preparedness plan consists of three main parts; the preparedness phase, the mitigation phase and the recovery phase. The overall strategies include:

- A. Response planning and coordination
- B. Control at ports of entry
- C. Surveillance of incoming passengers from affected countries
- D. Hospital preparedness
- E. Laboratory preparedness
- F. Passenger Monitoring/Contact Tracing
- G. Communication and sensitization
- H. Recovery activities

There are three possible scenarios following introduction of the disease in the Republic of Mauritius, and the actions to be taken during each scenario.

The three possible scenarios are:

- Introduction of the disease by incoming passenger/s from affected countries;
- Localized spread of the disease to close contacts; and

- Widespread transmission of the disease at community level

EVD (formerly known as Ebola haemorrhagic fever) is a severe illness which affects humans and nonhuman primates (monkeys, gorillas, and chimpanzees). EVD outbreaks can have a case fatality rate of up to 90%. The disease is caused by a virus of the filoviridae genus.

Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. Such infections have primarily occurred through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead specially in the rainforests.

Human-to-human transmission occurs as a result of direct contact with the blood, secretions, organs or other bodily fluids of infected people, or through indirect contact with environments contaminated with such fluids. Burial ceremonies have also contributed to the transmission process whenever mourners have had direct contact with the body of the deceased person.

As a matter of fact, once a person comes into contact with an animal that has Ebola, it can spread within the community from human to human. Infection occurs from direct contact (through broken skin or mucous membranes) with the blood, or other body fluids or secretions (stool, urine, saliva, semen) of infected people. Infection can also occur if broken skin or mucous membranes of a healthy person come into contact with environments that have become contaminated with an Ebola patient's infectious fluids such as soiled clothing, bed linen, or used needles.

The incubation period, that is, the time interval from infection with the virus to onset of symptoms is 2 to 21 days. It has been shown that there is no risk of transmission of the disease during the incubation period. The patients become contagious once they begin to show symptoms.

Sudden onset of fever, intense weakness, muscle pain, headache and sore throat are typical signs and symptoms. This is followed by vomiting, diarrhoea, rash, impaired kidney and liver function, followed by both internal and external bleeding.

Laboratory findings include low white blood cells and platelet counts, and elevated liver enzymes. EVD infections can only be confirmed through laboratory testing.

There is currently no specific treatment for the disease. Severely ill patients require intensive supportive care. They are frequently dehydrated and need intravenous fluids or oral rehydration with solutions that contain electrolytes.

The main objectives are planning and coordination, assessing the hospital capacity, procuring the necessary drugs, supplies and reagents, capacity building for active sentinel surveillance and sensitizing the relevant stake holders. These objectives are covered based on the following strategies:

- Response planning and coordination
- Control at ports of entry
- Surveillance of incoming passengers from affected countries
- Hospital preparedness
- Laboratory preparedness
- Contact tracing
- Communication and sensitization

6.0 Plague

6.1 Introduction and background information

Plague is an acute, infectious, and potentially epidemic disease caused by the plague bacillus, *Yersinia pestis*. It spreads from one rodent to another by flea parasites and it is introduced in the human body through the bite of an infected flea.

The outbreak of plague in Madagascar was notified to WHO on 4 November 2014 by the Ministry of Health of Madagascar. The first case was identified on 31 August 2014 and the patient died on 3 September 2014.

In response to this event in Madagascar and in anticipation of the probability of the spread of this disease to the Republic of Mauritius, a National Action Plan has been prepared. The aim of this plan is to prevent and control Plague in the Republic of Mauritius, including Rodrigues and the Outer Islands. It provides strategic orientations for actions to be taken for the prevention and containment of Plague.

The preparedness plan consists of three main parts; the preparedness phase, the mitigation phase and the recovery phase. The overall strategies include:

- A. Response planning and coordination
- B. Control at ports of entry
- C. Surveillance of incoming passengers from affected countries
- D. Rodent Control
- E. Monitoring of pets
- F. Flea surveillance and control
- G. Hospital preparedness
- H. Laboratory preparedness
- I. Contact tracing
- J. Communication and sensitization

The three possible scenarios following introduction of the disease in the Republic of Mauritius, and the actions to be taken during each scenario are as follows:

- Introduction of the disease by incoming passenger/s from Madagascar;
- Localized spread of the disease to close contacts; and
- Widespread transmission of the disease at community level.

Plague is one of the oldest diseases known to man, and still remains a threat to human health. Since 1990 the disease has occurred in several African countries, including Botswana, the Democratic Republic of Congo, Madagascar, Mozambique and countries in East Africa. There has been an increase in the annual incidence of human cases of plague since the beginning of the 90's and the disease has reappeared in countries where it had not been reported for decades. In 2007, seven countries reported 2021 cases with 156 deaths. Among these, 99.6% of cases were reported from Africa.

Because of its high case-fatality rate and the epidemic potential of this disease, plague is designated as a Class I notifiable disease and thus is subject to International Health Regulations. These regulations require that all suspected cases be reported to, and investigated by public health authorities, and that confirmed cases be reported to the World Health Organization (WHO).

6.2 Transmission of Plague

Plague is an acute bacterial zoonosis, caused by *Yersinia pestis*, a gram-negative coccobacillus belonging to the Enterobacteriaceae family. It primarily affects wild rodents.

It manifests in one or more of the three following clinical forms:

- Bubonic plague
- Septicemic plague
- Secondary pneumonic plague

The most common mode of transmission of *Y. pestis* to humans is by the bite of infectious fleas. Less frequently, infection can be spread by direct contact with infectious body fluids or tissues while handling an infected animal. Humans bitten by an infected flea usually develop a bubonic form of plague, which is characterized by a bubo, i.e. a swelling of the lymph node draining the site of the flea bite.

If the bacteria reach the lungs, pneumonia may develop (pneumonic plague), which is then transmissible from person to person through infected droplets spread by coughing and sneezing.

Initial symptoms of bubonic plague appear 7–10 days after infection. The typical incubation time following exposure through direct contact or the bite of an infected flea is two to six days. For primary plague pneumonia, the incubation period is usually shorter (two to four days).

In humans, the initial symptoms of plague include fever, chills, muscle aches, a feeling of weakness and, commonly, swollen and tender lymph nodes (called “buboes”).

Thereafter, depending on the form the disease takes, as described below, additional symptoms and signs appear.

6.3 Clinical Forms of Plague

Plague occurs in three main clinical forms:

- (a) **Bubonic plague** is the form that usually results from the bite of infected fleas. Lymphadenitis typically develops in the lymph nodes that drain the site of the initial infection, which are most often located in the inguinal, axillary, or cervical region. Swelling, pain and suppuration of the lymph nodes produce the characteristic plague buboes. This is the most common clinical form of the disease.
- (b) **Septicaemic plague** may develop subsequently to bubonic plague or occur in the absence of lymphadenitis as primary systemic plague. The bacteria invades and continues to multiply in the bloodstream, and dissemination of the infection to different parts of the body results in meningitis, endotoxic shock and disseminated intravascular coagulation.
- (c) **Pneumonic plague** may result from secondary infection of the lungs by the plague bacilli, causing severe pneumonia. In cases of pneumonic plague, direct spread of infection to others occurs by respiratory droplets, causing primary pulmonary plague in the recipients, and can lead to outbreaks or epidemics.

Without prompt and effective treatment, 50–60% of cases of bubonic plague are fatal, but if diagnosed early, bubonic plague can be successfully treated with antibiotics. Untreated

septicaemic and pneumonic plagues are invariably fatal; patients can die within 24 hours after infection. The mortality rate depends on how soon treatment is started, but is always very high.

6.4 Plan against Plague

The preparedness plan consists of three main parts; the preparedness phase, the mitigation phase and the recovery phase.

The preparedness phase is covered in part one which details all the preparedness steps to be taken to prevent the introduction of the disease in Mauritius. The main objectives are planning and coordination, assessing the hospital capacity, procuring the necessary drugs, supplies and reagents, capacity building for active sentinel surveillance and sensitizing the relevant stakeholders.

The mitigation phase is covered in part two which deals with actions to be undertaken during an eventual epidemic in order to mitigate disease burden and deaths due to the disease. The main objectives are enhanced surveillance for active case detection, contact tracing and isolation to break the chain of transmission and clinical management of cases to reduce morbidity and mortality.

The recovery phase is covered in part three which deals with post-epidemic phase that is aimed at averting future epidemics. This will consist of brainstorming on lessons learnt with all stakeholders and psychological support for the public to use the health services by dispelling fear and myths.

The main objectives are planning and coordination, assessing the hospital capacity, procuring the necessary drugs, supplies and reagents, capacity building for active sentinel surveillance and sensitizing the relevant stakeholders. These objectives are covered based on the following strategies:

- Response planning and coordination
- Control at ports of entry
- Surveillance of incoming passengers from affected countries
- Outbreak Investigation & Response

- Hospital preparedness
- Laboratory preparedness
- Rodent Control
- Flea surveillance and control
- Monitoring of pets
- Communication and sensitization

The Ministry of Health & Wellness with the participation of the various stakeholders namely the Municipalities, District Councils, the Ministry of Environment & Sustainable Development, the Private Sector, the Mauritius Ports Authority, the Airports of Mauritius Ltd, the Civil Aviation Department and the Air Mauritius will be embarking on an aggressive deratting exercise throughout the whole island starting with the Port and Airport Area.

A special Task Force chaired by the Director Health Services has been set up for the National Deratting Program.

An outbreak will be declared over only after a period of 12 days after the detection of the last case.

An assessment of the whole event will be carried out, in terms of its impact on human health and the persistence of the bacteria in wild rodents, teaks and other animals in the country is ongoing.

Surveillance activities will be ongoing among human beings, teaks and animals.

Awareness campaigns will be maintained to ensure that the communities will be able to detect any early signal of resurgence.

Rodent and flea control programmes will be sustained, concurrently with ongoing cleaning campaigns.

7.0 Zika Virus Disease

7.1 Introduction and background information

Zika virus (ZIKV) is a flavivirus belonging to the same family as Dengue virus. It is transmitted by the bite of the tiger mosquito (*Aedes albopictus*), the same mosquito that transmits Dengue and Chikungunya. The Zika virus caused major outbreaks in French Polynesia in 2013 and has spread around the world to Latin America and the Caribbean islands, prompting WHO to summon an advisory committee on IHR and declaring Zika pandemic as a Public Health Emergency of International Concern (PHEIC). The World Health Organization has recommended the implementation of enhanced surveillance for Zika virus disease in all countries that are at risk for Zika virus disease. Since Mauritius is potentially at risk for the introduction and spread of the virus, it is critical to formulate a preparedness plan for the surveillance and containment of Zika virus in the event that the virus is introduced in Mauritius.

Since Zika virus is primarily a mosquito-borne disease similar to Dengue and Chikungunya, the blue-print for the Zika virus plan is the Ministry of Health and Wellness multi-sectoral National plan for the control and prevention of Chikungunya and Dengue. Further details on all operational aspects are to be found in the National Chikungunya and Dengue plan.

7.2 Common signs and symptoms of Zika

Zika virus infection is commonly not symptomatic. It has been estimated that about one out of four people infected with Zika virus may develop symptoms. But when symptomatic, the typical symptoms are shown in the box below.

Common signs and symptoms of Zika

Rash (mostly maculo-papular)
Mild fever
- non-purulent conjunctivitis (red eyes)
- Arthralgia
- Myalgia
- Asthenia
- Headache

The illness is rarely fatal and severe disease requiring hospitalization is uncommon. The two possible complications due to Zika virus are:

- Guillain Barre Syndrome, and
- Neonatal Microcephaly

7.3 Guillain Barre Syndrome

Guillain Barre Syndrome is a serious immune mediated illness manifested as progressive paralysis over 1-3 weeks.

7.4 Microcephaly in newborns

Retrospective analysis of newborn babies in Brazil has epidemiologically linked Microcephaly to mothers who had been exposed to Zika during pregnancy in French Polynesia and Brazil. This evidence has been corroborated from recovery of the virus in placental and brain tissues of Microcephalic children born to Zika positive mothers. The advisory committee of WHO has concluded that there is a strong association between Zika and Microcephaly, but its association has not been proven yet.

Zika virus disease is transmitted to humans primarily through the bite of an infected female mosquito of the genus *Aedes aegypti* and *albopictus*. When an infected mosquito bites a susceptible host, it takes about 3-12 days for the symptoms to appear.

Perinatal transmission can occur most probably by trans-placental transmission or during delivery when the mother is infected.

There have been no reports till date of infants getting Zika virus through breastfeeding. Therefore mothers are encouraged to breastfeed their babies even in areas where Zika virus is found. It is also possible for the Zika virus to spread via sexual contact and via blood transfusion, as reported by a few cases.

The Zika virus was first isolated in a Rhesus monkey in 1947 in Uganda and in humans in 1952 (Uganda, Tanzania). Since then, Zika virus have been found to be circulating in Africa and South-East Asia in humans, animals and mosquitoes, but very few outbreaks have been documented.

The first major outbreak of Zika occurred on the island of Yap (Micronesia) in 2007. Subsequently other cases of Zika virus infection were found in French Polynesia, New Caledonia, Cook Islands, Cambodia, Indonesia and Chile.

In May 2015, Brazil declared its first confirmed autochthonous transmission of Zika virus in the northeastern part of the country and Colombia reported the first locally-acquired case of Zika infection in October 2015. Since then Zika has spread to several Caribbean countries.

8.0 Antimicrobial Resistance (AMR)

8.1 Introduction and background information

Antimicrobial resistance has become a serious public health threat for effective treatment of an ever increasing range of infections caused by bacteria, parasites, viruses and fungi. When infections can no longer be treated by first-line antibiotics, other antibiotics must be used, which are both more expensive and more toxic. Treatment and hospitalization is prolonged, and patients undergoing operations and other medical procedures are more vulnerable to infections. All this imposes a huge burden on health care systems and on the economy of countries. This is a major challenge to the health system in Mauritius which provides health care free of user cost to the whole population.

Antimicrobial resistance has been driven by misuse of antimicrobials in people and in animals, which are often used without professional oversight. With fewer new antibiotics being developed to replace older and increasingly ineffective ones, the world is heading towards a scenario in which common infections will not be easily treatable and will once again kill.

With extensive travel and trade links throughout the world, no country is immune from drug resistant strains of microorganisms, which move freely in people, animals, plants and the environment, leading to their rapid spread worldwide. Resistance to common antibiotics is an issue that cuts across human and animal health, and food, environment and agriculture sectors. Single, isolated interventions have limited impact and therefore coordinated action is required to minimize the emergence and spread of antimicrobial resistance.

Mauritius is signatory to the United Nation (UN) Political Declaration on AMR and the World Health Assembly Resolution (WHA 68.7) that requires Member States to have in place national action plans (NAPs) on AMR by the 70th World Health Assembly (WHA) in May 2017. Mauritius is thus amongst the UN member states which have endorsed the Global Action Plan (GAP) that was developed by the tripartite collaboration of the World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and the World Organization for Animal Health (OIE).

The GAP emphasizes the One Health Approach, provides a “blueprint” for countries to develop and implement national action plans (NAPs) and sets out five strategic objectives:

- a. to improve awareness and understanding of AMR;
- b. to strengthen knowledge through surveillance and research;
- c. to reduce the incidence of infection through infection prevention and control;
- d. to optimize the use of antimicrobial agents;
- e. to ensure sustainable investment in countering AMR

6.2 National Action Plan on Antimicrobial Resistance

The overarching goal of this National Action Plan on Antimicrobial Resistance is to promote and ensure the prudent and judicious use of antimicrobials in the human and agricultural sectors with emphasis on the promotion of infection prevention and control, in an endeavour to slow down the rate of development and spread of antimicrobial resistant microorganisms, and to ensure that antimicrobials remain a viable option in the management of infectious diseases.

The strategic objectives or the 6 “Es” of the Mauritian NAP on AMR, aligned with the GAP on AMR are as follows:

1. Engagement and education on AMR amongst all stakeholders.
2. Electronic surveillance of antimicrobial use and resistance in human, animal and environmental health sectors.
3. Effective biosecurity and infection prevention and control measures.
4. Evidence-based antimicrobial use in humans and animals.
5. Enforceable regulations to advance AMR prevention and containment.
6. Equitable investment for National Action Plan Implementation.

9.0 Novel Coronavirus (COVID-19)

9.1 Introduction and background information

A novel coronavirus (COVID-19) was identified as a causative virus for cases of pneumonia in Wuhan City, Hubei Province of China on 31st of December 2019.

One week later, on 7 January, Chinese authorities confirmed that they had identified a new virus. The new virus is a coronavirus, which is a family of viruses that include the common cold, and viruses such as SARS and MERS. This new virus was temporarily termed as “2019-nCoV” then later was named COVID-19 by WHO.

The Government of Mauritius has formulated an Operational Plan, specifically tailored to the novel coronavirus (COVID-19) in order to maximize containment of the virus, minimize its impact and ensure continuity of health care and other essential services for the enhanced surveillance and control of the COVID-19 in the event that the virus is imported to Mauritius. The plan includes an intersectoral committee comprising the Ministry of Health and Wellness with other relevant ministries and stakeholders. It is chaired by the Honourable Minister of Health and Wellness to ensure smooth coordination and implementation of the plan.

The plan serves as a blueprint for actions and formulation of standard operating procedures (SOP) by all stakeholders. The plan consists of five strategic directions: (1) planning and coordination, (2) situation monitoring and assessment, (3) prevention and containment, (4) health service response, and (5) communications. It presents a collection of protocols to be used by all stakeholders involved in controlling the disease.

The intersectoral committee for the implementation of the Operational Plan will be headed by the Honorable Minister of Health and Wellness.

The SOP for communication shall be as follows:

- The minister shall be at the central command level and issue any directives
- Any other directive will be issued by management meeting, after consultation with the minister
- Communication with the media shall be channeled via press attaché

- Information pertaining to the importation of cases, outbreaks will be channeled from the site of occurrence to the Director Health Services of Public Health and RPHS of CDCU by phone and fax.
- The Director Health Services of Public Health will inform the minister right away and also the Director General Health Services and Senior Chief Executive.

A management committee at the Ministry of Health and Wellness will monitor the daily activities pertaining to the operational plan and effect coordination between the different stakeholders to review the situation and issue interim guidelines and SOPs.

The communicable disease control unit ,CDCU, will serve as the Incident Management Centre headed by the Director Health Services (Incident Manager).The unit will have the following functions:

1. To develop an operational plan for COVID-19
2. Collection and analysis of data on the epidemiology of the disease in the People's Republic of China and other countries.
3. Identification of high risk countries for specific public health measures
4. Monitoring of activity at a designated hospital and the Quarantine centres.
5. Monitoring of surveillance at the port,airport and in the community.
6. Strengthening laboratory activity in the detection of COVID-19.
7. Stockpiling of personal protective equipments.
8. Activate Rapid Response Team in the periphery through Regional Public Health Superintendents.
9. Respond to calls on hotline 8924.
10. Facilitate logistics in the transfer of passengers or suspected cases or contact to appropriate locations.
11. Coordinate all activities on field relating to confirmed cases and contact tracing.
12. Collection of all data pertaining to cases of COVID-19 and contacts.
13. Liaising with the private health sectors in sharing of informations, guidelines and appropriate actions.
14. Elaborate a communication strategy in COVID-19.
15. Ensure the IPC guidelines are being implemented.
16. Preparation and submission of reports for the Ministry.

The health sector must be in a state of readiness to cope with the eventual importation and public health consequences or a case of COVID-19. The main preparedness must be in terms of:

- Increasing surge capacity of health facilities
- Stockpiling of medicine and supply
- Capacity building of Health Manpower
- Develop epidemiological and laboratory surveillance tools

An assessment of the available stock of medicine, supplies, and equipment is being carried out as follows:

A team of doctors and health care personnel including nurses, health inspectors and technicians must be trained in the familiarity and competency in the use of all protocols.

In particular, training must include the following areas:

1. Implementation of enhanced surveillance,
2. Detection, investigation and management of suspected and confirmed cases of Coronavirus
3. Proper use of PPE
4. Bio-safety for patients handling,
5. Environmental hygiene practices- Waste management and disinfection

The main epidemiological tools should be:

- Standard case definition
- Standard data collection form for a patient under investigation
- Database for handling and analysis of patient data

9.2 Case definition of a suspected case of novel coronavirus 2019

1. Severe acute respiratory infection in a person, with history of fever and cough, with no other etiology that fully explains the clinical presentation (clinicians should also be alert to the possibility of atypical presentations in patients who are immunocompromised);

AND any of the following:

- a. a history of travel to or a person who lived in People’s Republic of China or other high-risk countries in the 14 days prior to symptom onset; or
 - b. the disease occurs in a health care worker who has been working in an environment where patients with severe acute respiratory infections are being cared for, without regard to the place of residence or history of travel.
2. The person develops an unusual or unexpected clinical course, especially sudden deterioration despite appropriate treatment, without regard to the place of residence or history of travel.
3. A person with acute respiratory illness of any degree of severity who, within 14 days before the onset of illness, had any of the following exposures:
- a. close physical contact with a confirmed case of COVID-19 infection; or
 - b. a healthcare facility in a country where hospital-associated COVID-19 infections have been reported; or
 - c. visiting or working in a live animal market in People’s Republic of China or any high-risk country, or
 - d. direct contact with animals (if the animal source is identified) in People’s Republic of China or any high-risk country where the COVID-19 is known to be circulating.
4. Confirmed case: a confirmed case is a person who tests positive to a specific COVID-19 by PCR laboratory test.

Sensitization campaigns on COVID-19 transmission mode and precautionary measures for prevention to be conducted for:

- (i) Health care professional, and
- (ii) Relevant airport personnel including immigration, police, customs, AML staff, baggage handlers, and other ancillary staff who are directly or indirectly involved in the handling of COVID-19 patients or patients potentially infected materials. In addition, medical staff to be sensitized through CME.

9.3 Actions to be taken at Port

Boarding of ships and cruises are checked by the Senior Public Health and Food Safety Inspector with verification of the Maritime Declaration Certificate and the last 10 ports visited.

Collection of the Health Declaration Form, and eliciting information about the health status of the travelers, as well as on the possible risk of exposure to the virus while in the high risk country, at the Health Counter before proceeding to the Immigration Counter of the Aurelie Perrine Passenger Terminal at the Port.

All passengers and crew members of the ships or cruise vessels would have their temperature recorded manually by the health staff before disembarkation. Passengers and crew members of the cruise vessels also undergo screening by a thermal scanner at the cruise terminal.

Members of the staff at the Port Health Offices verbally inform the respective Regional Health Offices and the respective Principal Public Health and Food Safety Inspector at the earliest, of incoming passengers from high-risk countries. In case any passenger is showing signs and symptoms of the disease, the RPHS of the region or on call is immediately notified. The rapid response team will be activated if there is a need to send the passenger to the designated hospital. The passenger is then admitted to the isolation ward of the designated hospital for further investigation and management as appropriate.

9.4 Regular meeting of the management committee

The management committee will meet daily to review the situation and actions taken and proposed for implementing any new measures for mitigation of the outbreak.

9.5 Passenger Information

1. TRAVEL TO MAURITIUS IF YOU ARE FULLY VACCINATED

At least 14 days before departure with a full course of anyone of the following vaccines: AstraZeneca (Vaxzevria or Covishield), Covaxin, Moderna, Pfizer BioNTech, Sinopharm, Sinovac, Sputnik V

OR

At least 28 days before departure with a Janssen vaccine

OR

Documentary evidence that you have recovered from COVID-19 and thereafter have been vaccinated with one dose of one of the above-mentioned vaccines at least 14 days before departure.

Before you travel to Mauritius you must:

- take a pre-departure PCR test within 72 hours before departure, the result of which should be negative
- take a health insurance covering COVID-19 (Mauritian nationals and Occupation/Residence Permit Holders exempted)
- complete your Passenger Locator Form

After you arrive in Mauritius you must:

- A. If you are booked at a registered hotel
 - take a COVID Test on arrival at the hotel
 - take a COVID Test on day 5 at the hotel
- B. If you are not booked at a registered hotel
 - take a COVID Test on arrival at the airport
 - take a self-administered test on day 5

N.B. You will be free to explore the island after a negative test taken on arrival - at the hotel or at the airport.

2. TRAVEL TO MAURITIUS IF YOU ARE NOT FULLY VACCINATED

Before you travel to Mauritius you must:

- take a pre-departure PCR Test within 72 hours before departure, the result of which should be negative
- take a health insurance covering COVID-19 (Mauritian nationals and Occupation/Residence Permit Holders exempted)
- book and pay for a 14 days in-room stay package at a designated hotel including airport-hotel transfers and PCR Tests on day 0, day 7 and day 14
- complete your Passenger Locator Form

3. PLEASE NOTE THAT A PASSENGER UNDER THE AGE OF 18

Accompanying a vaccinated or unvaccinated adult will be subject to the same conditions applicable to the adult travelling alone will be subject to the same conditions as a vaccinated adult.

9.6 COVID-19 care and treatment

All persons tested positive for COVID-19 either by a rapid antigen test or PCR are referred to the Public Health unit of each Regional Hospital.

Criteria for assessment of patients are clearly defined:

- If the person is asymptomatic he/ she will be requested to self isolate for a period of 10 days.
- A hotline is available in case he/she develops symptoms and a Domiciliary Monitoring Unit (DMU) will visit the person and initiate treatment or request for hospitalization in a covid treatment centre.
- A covid treatment ward is attached to each of the five (5) Regional Hospitals whereby covid positive patients are taken care of by specialists following guidelines set by National team.
- Severe cases requiring intensive care support are admitted to another covid treatment centre.
- One private hospital has been authorized to take care for covid positive patients who wish to proceed to a private clinic.

- Protocols for self isolation, discharge criteria , treatment , close contacts are clearly defined and the protocols are updated as and when required and disseminated to the stakeholders concerned.

10.0 Chikungunya, Dengue and Zika

10.1 Introduction and background information

Chikungunya, Dengue and Zika are important viral diseases that are transmitted by day-biting mosquitoes. The principal vectors during outbreaks are the mosquitoes of the genus *Aedes*. In Mauritius; it is *Aedes albopictus* which is the local vector.

Chikungunya was first described in Tanzania in 1952, whilst Dengue Fever and Dengue Haemorrhagic Fever (DF/DHF) were first recognized in the 1950s, during the dengue epidemics in Philippines and Thailand.

Chikungunya fever is caused by Chikungunya virus which is member of Alpha virus. There is one serotype of chikungunya so far. Immunity to infection is believed to be lifelong.

Chikungunya usually produces a transient illness often, clinically, confused with dengue. Symptoms include fever, headache, polyarthralgia, myalgia and rash. Although serious complications are uncommon, the arthralgia is incapacitating and may persist for months. It is a self-limiting disease found in tropical and sub-tropical regions around the world, predominantly in urban and semi-urban areas.

Dengue usually causes two main types of clinical disease, namely dengue fever and dengue haemorrhagic fever. Dengue fever is usually associated with symptoms such as sudden onset of fever, headache, retro orbital pain, severe myalgia, arthralgia and in many cases body rashes may also appear.

Dengue haemorrhagic fever is associated, in addition to above, with bleeding manifestations. This condition may, in some cases, progress to a dangerous condition known as dengue shock syndrome. The latter is associated with a high mortality rate.

10.2 Case Definition of Dengue Fever (DF)

An acute febrile illness (temperature 39-40 C) of 2 – 7 days duration with 2 or more of the following manifestations:

1. Headache

2. Retro-orbital pain
3. Myalgia
4. Arthralgia
5. Rash
6. Haemorrhagic manifestations
7. Leucopenia / thrombocytopenia (platelets less than 100,000).

Dengue Hemorrhagic Fever (DHF) or severe Dengue is caused by dengue virus which belongs to genus Flavivirus family, Flaviviridae and includes serotypes 1, 2, 3 and 4 (Den-1, Den-2, Den-3 and Den-4).

When a person has had classic dengue (i.e. infection by one serotype), a second infection later by another serotype increases the likelihood of suffering from DHF.

Zika Virus Disease is caused by a virus belonging to genus Flavivirus belonging to the same family as Dengue. Zika virus infection is commonly not symptomatic. However when symptomatic, typical symptoms occur which include rash, mild fever, non-purulent conjunctivitis, arthralgia and myalgia. Two possible complications of this disease include Guillain Barre Syndrome and Microcephaly.

10.3 Case definition of Zika virus infection

A suspected case is a patient presenting with rash and/ or elevated body temperature ($t > 37.2$ °C) with one or more of the following symptoms, not explained by other medical conditions:

- Non-purulent conjunctivitis or conjunctival hyperemia
- Arthralgia or Arthritis
- Myalgia

A preparedness plan for the prevention of control of chikungunya, dengue and zika is critical for Mauritius because the island is vulnerable to outbreaks of Chikungunya, Dengue fever and Zika for the following reasons:

- The mosquito vectors *Aedes albopictus* for transmission of the three viruses are present in Mauritius

- Mauritius has suffered from epidemics of Chikungunya in 2006 and Dengue fever in 2009
- Once introduced in a country dengue is very difficult to eradicate and tend to recur periodically
- Chikungunya epidemic tend to recur in a population, if the percentage of infected population is less than 70%
- Mauritius has extensive travel and trade links to Dengue and Chikungunya endemic zones
- Shipment of tyres containing infected larva has been established as a source in many countries

There are many high risk environmental pockets in the island favouring spread of imported viruses of the diseases in the local mosquito population

The main goals during an outbreak are to manage the patients to reduce morbidity and mortality by prompt and efficient management of the cases. In addition one must also promptly quell the outbreak and protect the community at large. A set of tasks outlined in the ensuing sections are aimed at achieving these goals.

The objectives during outbreaks are:

- Planning and coordination
- Outbreak investigation
- Management of cases
- Situation monitoring
- Mosquito control
- Social mobilization
- Communication

Since several stakeholders are involved in the outbreak phase, it is important to define the roles and functions of each stake holder, through planning and coordination, to ensure smooth supervision and minimize duplication, redundancy or contradictory activities. From the health sector the following main persons have clearly defined roles and responsibilities:

- (1) Regional Public Health Superintendent of Communicable Disease Control Unit,
- (2) Head of the rapid response team,

- (3) Head of the Vector Biology and Control Division, and
- (4) Director Public Health and Food Safety

From the non-health sector the following department and Ministries are involved:

- (1) Ministry of Environment, Solid Waste Management and Climate Change
- (2) Ministry of Local Government, Disaster and Risk Management
- (3) Ministry of Agro Industry & Food Security
- (4) Ministry of Education, Tertiary Education, Science and Technology,
- (5) Ministry of Tourism,
- (6) Ministry of Gender Equality, Child Development and Family Welfare
- (7) representative of Private Sector such as Mauritius Chamber of Commerce and Industry, The Chamber of Agriculture, Association of Hoteliers and Restaurants in Mauritius (L' AHRIM) and other stakeholders.

The participation of the non-health sectors will be ensured through the setting of a task force.