

**THE REPUBLIC OF THE UNION OF MYANMAR**

**MINISTRY OF HEALTH AND SPORTS**



**National Strategic Plan for Preparedness and Response  
to Zika Virus Infection**

**Nay Pyi Taw**

**2-5-2016**

<b>No.</b>	<b>Content</b>	<b>Page No.</b>
1.	Background	1
2.	Geographical spread of Zika virus	1
3.	Objectives	3
4.	Strategies	3
5.	Formation of committees and subcommittees on prevention and control of Zika virus infection	4
6.	Incident Management System for ZIKV	6
7.	Strategic Actions:	6
8.	Protocol for Notification and Intervention of a Suspected Case	8
9.	Contact tracing and active community surveillance	10
10.	Surveillance and Control of Aedes Mosquitoes	11
11.	Strengthening of laboratory facilities and capacities for Zika virus diagnosis	13
12.	To establish surveillance system for neurologic syndromes and congenital malformations	15
13.	Proper care and clinical management of Zika virus affected patients	15
14.	Risk communication	16
15.	Development of vaccine deployment plan if approved Zika virus vaccine available	16
	Annex.1. Framework for Epidemiological Surveillance of Zika	
	Annex.2. Case Investigation Form for Zika virus disease	
	Annex.3. Health Alert Card	
	Annex.4. Country ZIKA Preparedness (as of: 13-2-2016)	
	Annex.5. Ovitrap Survey	
	Annex.6. Methods of Vector Control	
	Annex.7. Fogging with swing fog at airport and seaport	
	Annex.8. Standard Operation Procedure for clinical management of Suspected Zika Virus infection Case	

## **National Strategic Plan for Preparedness and Response to Zika Virus Infection**

### **1. Background**

Zika virus is an emerging mosquito-borne virus that was first identified in Uganda in 1947 in rhesus monkeys through a monitoring network of sylvatic yellow fever. It was subsequently identified in humans in 1952 in Uganda and the United Republic of Tanzania. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific. Zika virus is transmitted to people through the bite of an infected mosquito from the *Aedes* genus, mainly *Aedes aegypti* in tropical regions. This is the same mosquito that transmits dengue, chikungunya and yellow fever.

Zika virus disease outbreaks were reported for the first time from the Pacific in 2007 and 2013 (Yap and French Polynesia, respectively), and in 2015 from the Americas (Brazil and Colombia) and Africa (Cape Verde). In addition, more than 13 countries in the Americas have reported sporadic Zika virus infections indicating rapid geographic expansion of Zika virus.

No vaccine exists to prevent Zika virus disease (Zika). The best way to prevent Zika is by avoiding mosquito bites. Mosquitoes that spread Zika virus bite mostly during the daytime. Mosquitoes that spread Zika virus also spread dengue and chikungunya viruses.

WHO- An Emergency Committee was convened by the Director-General under the International Health Regulations (2005) on 1 February 2016. Following the advice of the Committee, the Director-General announced the recent cluster of microcephaly and other neurologic disorders reported in Brazil to be a Public Health Emergency of International Concern (PHEIC).

### **2. Geographical spread of Zika virus**

From 1 January 2007 to 17 February 2016, Zika virus transmission was documented in a total of 48 countries and territories. This includes 36 countries which reported local transmission between 2015 and 2016, six countries with indirect evidence of viral circulation, five countries with reported terminated outbreaks and one country with a locally acquired case but without vector-borne transmission.

### Countries/territories with local (autochthonous) Zika virus circulation, 2007-2016

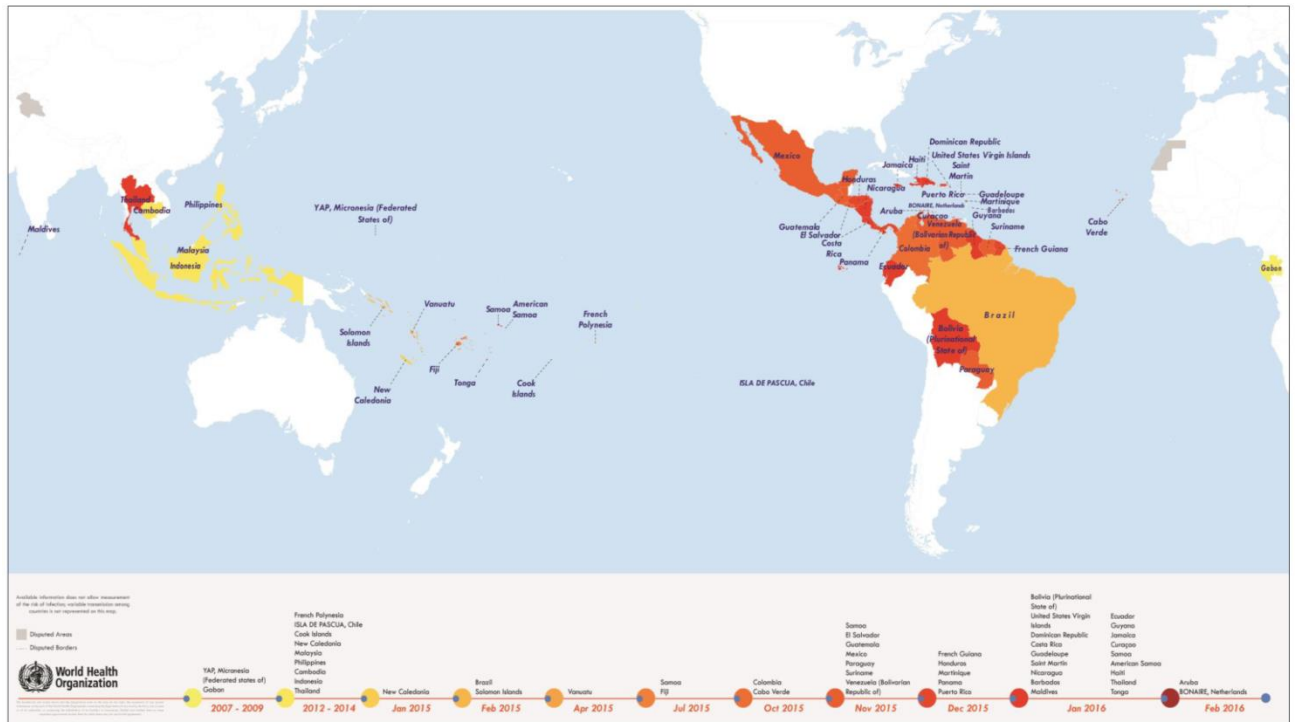


Figure 1 Countries/territories with local (autochthonous) Zika virus circulation, 2007-2016

**Cumulative number of countries/territories reporting Zika transmission, 2007-2014, and monthly from 1 January 2015 to 18 February 2016**

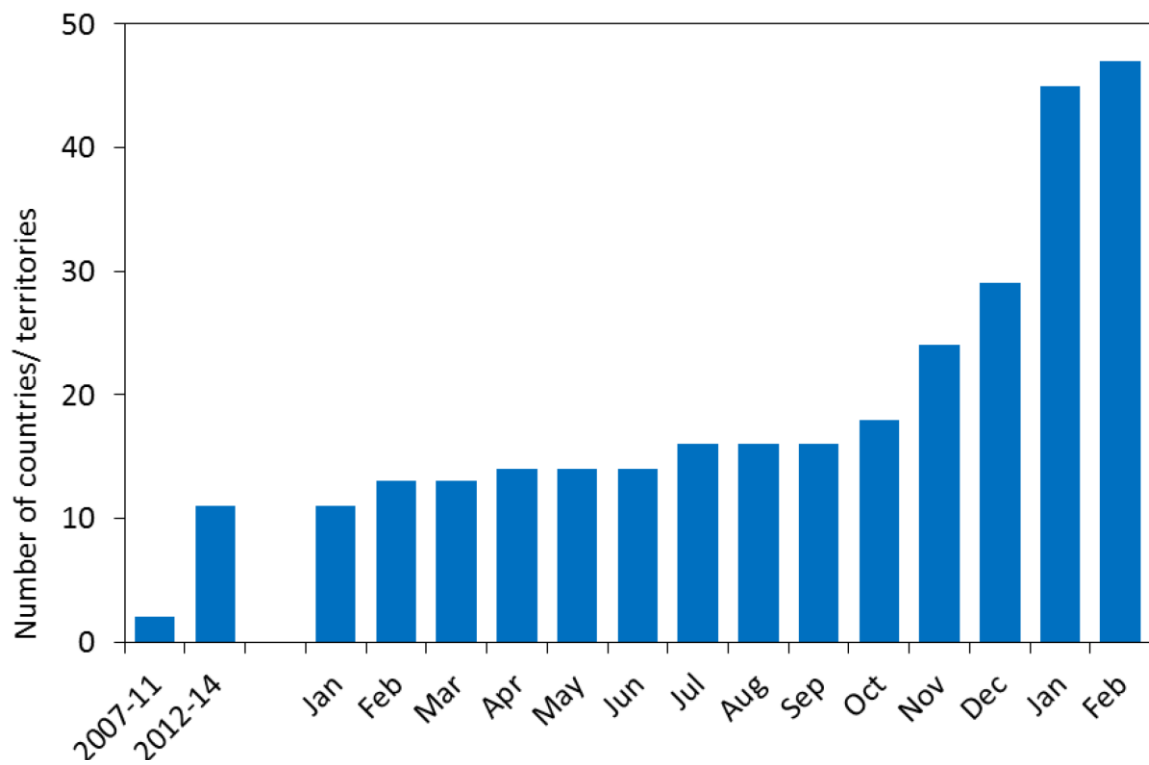


Figure 2 2007-2014 and months from January 2015 to 18 February 2016

### 3.Objectives

- 3.1.To prevent the importation of Zika virus infection
- 3.2. Early detection and containing response for Zika virus infection to prevent local and international spread
- 3.3.To reduce the negative health consequences of Zika virus infection

### 4.Strategies

- 4.1 Epidemiological Surveillance and Response
  - 4.1.1. To establish surveillance for Zika virus disease in human
  - 4.1.2. To strengthen surveillance and monitoring of Aedes vector, including at points of entry
  - 4.1.3. To establish surveillance for neurologic syndromes and congenital malformations
  - 4.1.4.To conduct prompt and effective response
- 4.2.Risk communication and community engagement
  - 4.2.1. To increase awareness among health professionals
  - 4.2.2. To increase public awareness
- 4.3.To strengthen laboratory facility and capacity to confirm Zika virus infections
- 4.4.To intensify integrated vector control measures
- 4.5.To prepare for provision of proper care and clinical management of Zika virus affected patients especially for pregnant women
- 4.6.To enhance the coordination and information sharing with international organizations and all stakeholders in line with International Health Regulations (2005)
- 4.7.To provide guidance for Zika virus prevention and control
- 4.8.Capacity building on surveillance ,clinical, laboratory, vector control and risk communication
- 4.9.To establish research on Zika virus infection

Containment strategy will be applied to all imported cases and initial indigenous cases to prevent spread and limit further transmission. **This Strategic Response Framework will be updated or modify as the need arises based on a change in circumstances or the discovery of new evidence .**

## 5. Formation of committees and subcommittees on prevention and control of Zika virus infection

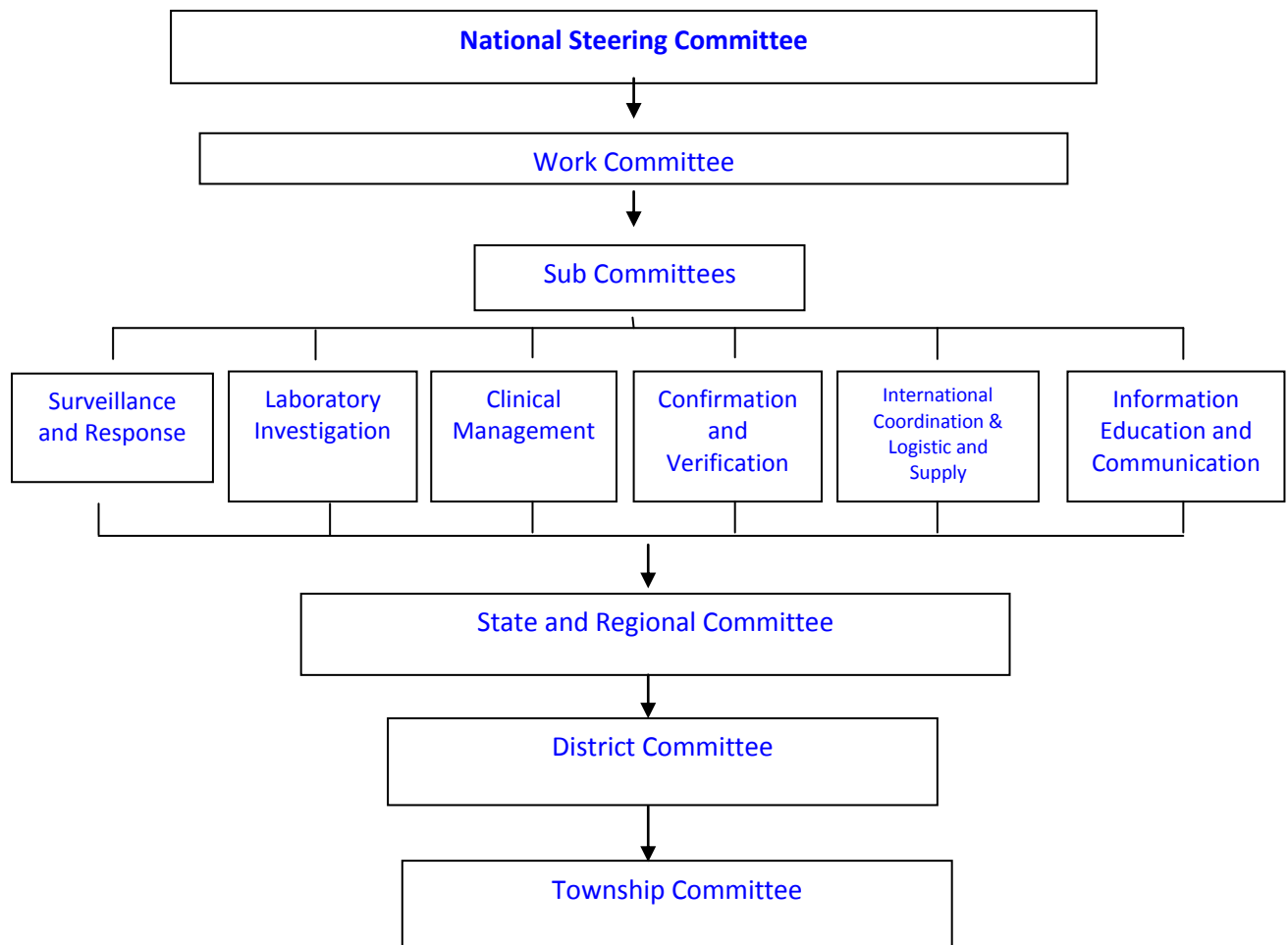


Figure 2 Committees and subcommittees

### 5.1. National Steering Committee on prevention and control of Zika Virus Infection Preparedness & Response

This committee, chaired by the Union Minister for Health and sports provides policy guidelines on prevention, management and control of Zika Virus Infection and mechanism for intersectoral collaboration and coordination.

### 5.2. Work Committee on Prevention, Management and Control of Zika Virus Infection Preparedness and Response

This is the main oversight working committee on Zika Virus Infection, chaired by the Permanent Secretary for Ministry Health and Sports. According to the policy laid down by the National Steering Committee, it oversees national preparedness and provides necessary guidance on all activities to prevent the occurrence of Zika Virus Infection or contain or mitigate it if it does occur. The working committee is responsible for developing and updating the national guidelines related to surveillance and management .

### **5.3. Subcommittee on confirmation and verification of Zika Virus Infection**

This subcommittee provides technical expertise on case definition of suspected case, probable case and confirmed diagnosis of Zika Virus Infection and reviews all cases reported. After evaluation of the clinical and laboratory data, a final diagnosis will be given by this subcommittee. If necessary, appropriate samples will be sent to the WHO Collaborating Centre on Reference and Research on Zika Virus Infection for confirmation.

### **5.4. Subcommittee on Surveillance and Response**

This subcommittee supervises both the health facilities based surveillance and event based surveillance activities including the cross border points and monitors case reports from all hospitals including private hospitals and clinics. It also oversees the surveillance of contacts and high risk groups, surveillance, investigation and management on Zika like illness, and, severe pneumonia and unknown causes of death.

### **5.5. Subcommittee on Clinical Management**

This subcommittee supervises the preparation and running of facilities for keeping and care of Zika Virus affected patients in a mosquitoes proof room. It is also responsible for developing and distribution of clinical care and case management guidelines, providing training on case management for hospital staff and all health care workers, and monitoring and reporting of Zika-like illness. This committee should establish the surge capacity for managing increased patients and potential complication

### **5.6. Subcommittee on Information, Education and Communication**

This subcommittee will provide updated information on Zika virus infection to key stakeholders, government, health professional bodies and organizations, NGOs and community media and travellers through various media and issued reports on Zika Virus Infection and its complications. It is also responsible for monitoring and analysing the news and social media to identify the public concerns, knowledge gaps, rumours and misinformation; . This committee would provide real time information on evolving risk and engage with community targeting health workers, teachers, leaders and general public.

### **5.7. Subcommittee on Laboratory Investigation**

This subcommittee has developed laboratory guidelines. It also supervises hospitals and laboratories to follow WHO guidelines. This subcommittee also participates in field investigations and has the responsibility for management and control of outbreaks by providing prompt diagnosis.

### **5.8. Subcommittee on International Coordination & Logistic and Supply**

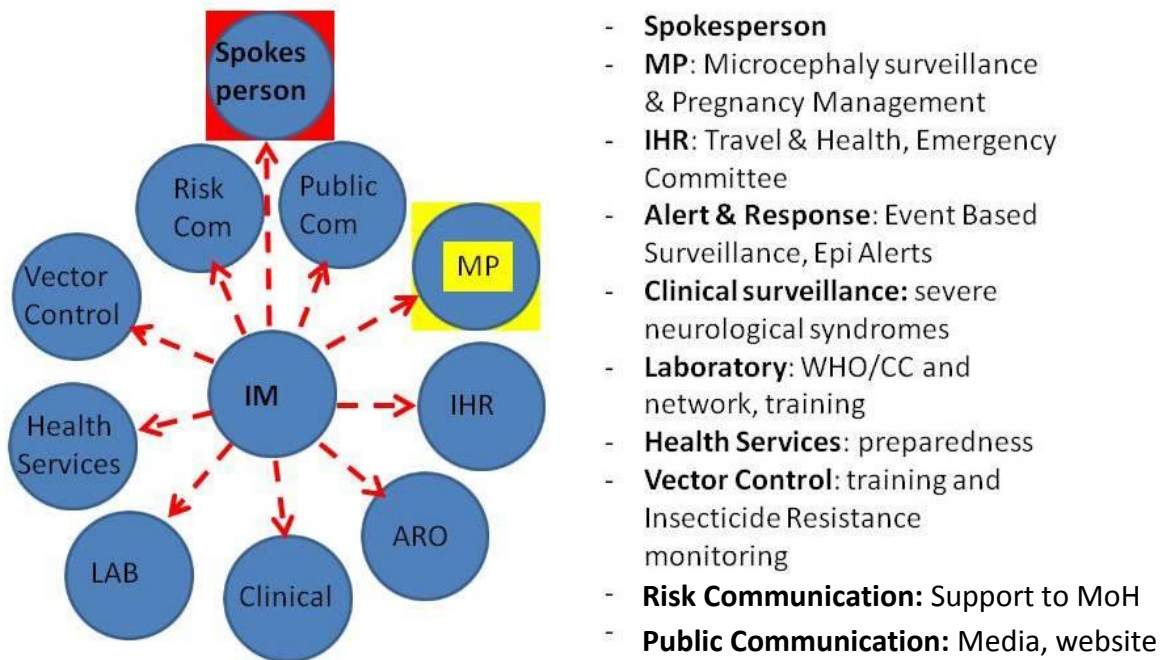
This subcommittee ensures procurement, storage and distribution of supplies and equipment necessary for responding to Zika Virus Infection.. It has also collaborated with WHO, UN agencies, other international and local organizations in a concerted effort to prevent and contain Zika Virus Infection.

## 5.9. State and Region, District and Township Zika Virus Infection Prevention and Control Committees

States and divisions subcommittees on Zika Virus Infection prevention management and control have been established. Under the state and division subcommittees, 325 township subcommittees were also taking the responsibility for Zika Virus Infection prevention and control activities.. Public and private sectors and NGOs are represented on these subcommittees.

## 6. Incident Management System for ZIKV

Incident management team would be established to coordinate and collaborate with national and international response activities against Zika virus infection. Coordination meeting will be organized every two weeks during first 3 months after declaration of PHEIC by WHO.



**Designated Spokeperson** for Incident management of Zika virus infection is Director General , Department of Public Health.

## 7. Strategic Actions:

### 7.1. Surveillance and Response for Zika virus disease

Health facility based surveillance and community based surveillance would be established for early detection and rapid response through the following activities-

- 7.1.1. Developing and utilization of standardized case definition
- 7.1.2. Determine the suspected case of Zika virus infection as a notifiable disease

- 7.1.3. Strengthening existing event based surveillance for fever with rash (measles, rubella and dengue )
- 7.1.4. Developing and distribution of standard case investigation form and reporting format
- 7.1.5. Training public health staff and medical services staff on Zika virus disease surveillance
- 7.1.6. To ensure readiness of Rapid Response Teams (RRTs) for prevention and control of Zika virus disease in all States and Regions

Epidemiological Surveillance Response Plan would be modified and implemented according to the following epidemic phase.

- Phase 1 : Preparedness
- Phase 2 : Established outbreak
- Phase 3 : End of the outbreak
- Phase 4 : Endemic transmissions

The following standardized case definition would be applied for both health facility based surveillance and community based surveillance activities.

### **Case definition for Zika virus disease surveillance**

(WHO Interim case definition, 12 February 2016)

#### **Suspected case**

A person presenting with rash and/or fever and at least one of the following signs or symptoms:

- arthralgia; or
- arthritis; or
- conjunctivitis (non-purulent/hyperaemic).

#### **Probable case**

A suspected case with presence of IgM antibody against Zika virus<sup>1</sup> and an epidemiological link<sup>2</sup>

#### **Notes**

<sup>1</sup> With no evidence of infection with other flaviviruses

<sup>2</sup> Contact with a confirmed case, or a history of residing in or travelling to an area with local transmission of Zika virus within two weeks prior to onset of symptoms.

#### **Confirmed case**

A person with laboratory confirmation of recent Zika virus infection:

- presence of Zika virus RNA or antigen in serum or other samples (e.g. saliva, tissues, urine, whole blood); or
- IgM antibody against Zika virus positive and PRNT90 for Zika virus with titre  $\geq 20$  and Zika virus PRNT90 titre ratio  $\geq 4$  compared to other flaviviruses; and exclusion of other flaviviruses

## **8. Protocol for Notification and Intervention of a Suspected Case**

Community should be informed and alerted that any patient presenting with rash and/or fever and at least one of the following signs or symptoms:

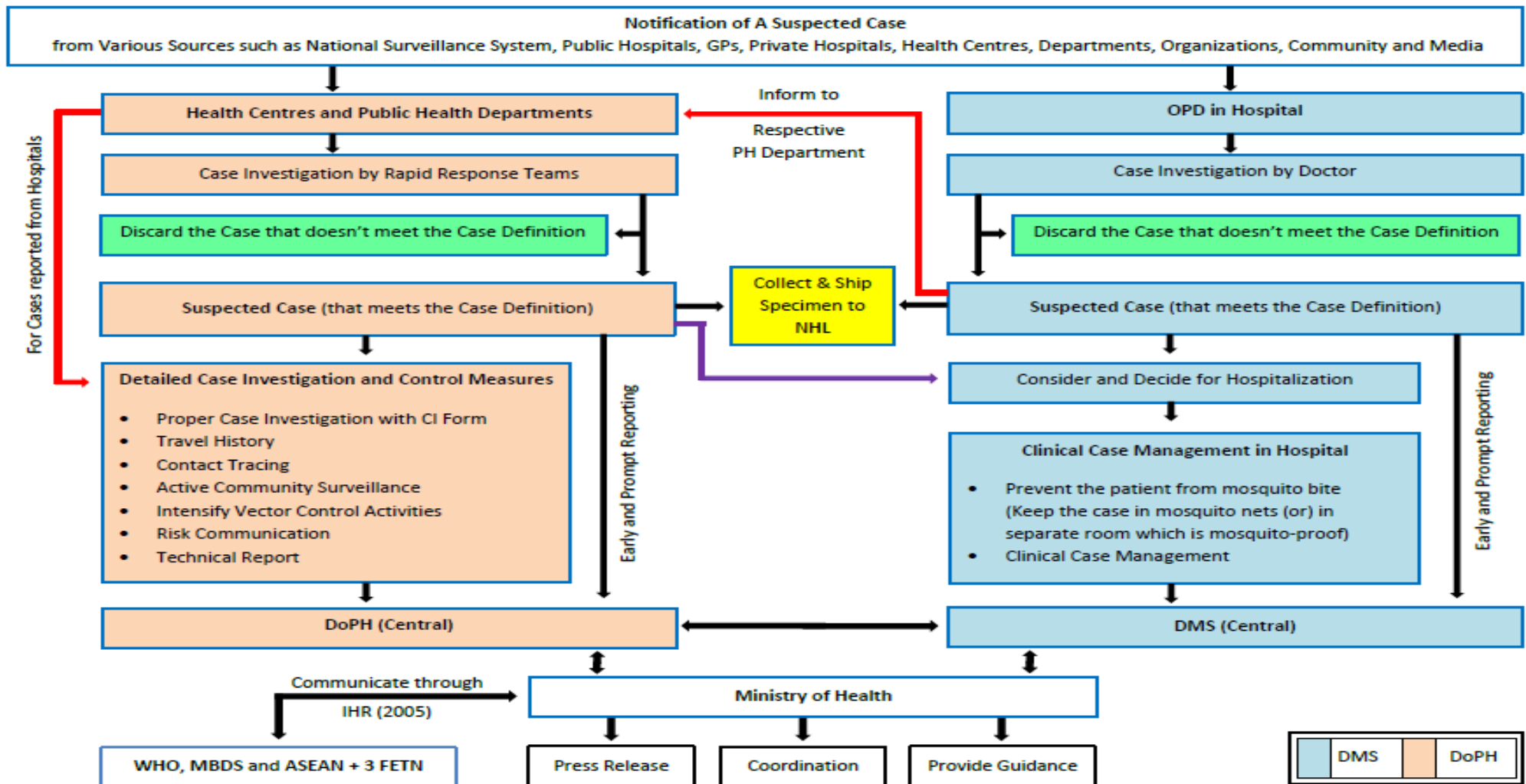
- arthralgia; or
- arthritis; or
- non-purulent conjunctivitis

should be immediately notified to nearest health facilities.

Rapid Response Team from respective township or State/ Region should investigate the reported case as soon as information was received from community or health facility and decide whether the case meet the Zika virus infection case definition or not. If the case meet the case definition, team leader of RRT need to inform immediately to the respective head of Department of Public Health and Department of Medical Service, and then refer the suspected case to nearest public hospital.

## 8. Protocol for Notification and Intervention of a Suspected Case

### Management Algorithm for Zika Virus Infection



## 9. CONTACT TRACING AND ACTIVE COMMUNITY SURVEILLANCE

The methodology for community surveillance and response activities is different based on the epidemiological situation, evolving circumstances and local context. The following scenarios need to be considered:

- Imported Zika Case
- One Indigenous Case
- Cluster of Suspected Zika fever

Imported Zika case (suspected or confirmed) or one Indigenous Case should be investigated by Rapid Response Team and complete the Case Investigation Form and notify immediately. The investigation is to be reviewed by the Central Epidemiology Unit (CEU), Department of Public Health. Containment strategy would be applied for these incidents; and National EOC would be activated. The following response measures need to be undertaken immediately.

### 9.1. Travel companions

Identify travel companions and follow up for at least 12 days

### 9.2. Household Contacts:

All household contacts are followed for at least 22 days after the onset of symptoms or after the person returned from affected countries

### 9.3. School and Work Contacts:

Observe the reports of school and work contacts for any new case of suspected Zika virus infection for at least 12 days

### 9.4. Community:

Households/Premises within a **200m** radius from the case should be visited at least 8 days after the onset of symptoms. Persons fitting the case definition should be investigated and complete the case investigation at first contact. Blood should be taken from 1 in 10 persons that fit the case definition.

Intensify the Aedes mosquitoes vector surveillance and control activities in areas where imported case or indigenous case was detected. Make advocacy meeting, social mobilization, collaboration activities between health, education, local authorities and other sectors for integrated vector management. If imported case is detected, integrated vector management and control measures

would be enhanced in all international airports ,seaports and ground crossing points to limit the spread of disease while pay attention to minimize the unnecessary interference with travel and trade.

The following information should be obtained for each community surveyed:

- Total number of households in the **200m** radius
- Number of households visited.
- Number of households interviewed
- Number of persons presenting with rash and/or fever and at least one of the following signs or symptoms: arthralgia; or arthritis; or conjunctivitis (non-purulent/hyperaemic).
- Number of community health alert cards distributed

### **9.5. Cluster of Suspected Zika Fever**

In a cluster of cases (2 or more cases) with symptoms suggestive of Zika fever the rapid response team should investigate as an outbreak.

An outbreak report should be written include

- A line listing,
- An epidemiological curve for the cases,
- Hypothesis as to the cause and spread and
- Interventions/ actions taken or to be taken.

Community surveillance should be defined based on the report received. A map of the area and the defined boundaries would be useful for the investigating team and for the reviewing tem. A house-to-house (premises-to-permises) fever surveillance should be conducted in the defined area. Persons fitting the case definition should have a case investigation form completed at first contact. Blood should be taken from 1 in 10 persons that fit the case definition. Case investigation form is to be completed for all suspected cases and blood taken from 1 in 10 of the suspected cases.

## **10. Surveillance and Control of Aedes Mosquitoes**

### **10.1. Objectives**

To provide guidance for Aedes aegypti surveillance and control in response to the risk of introduction of ZIKA

### **10.2. Vector Surveillance in Entry points**

- A combined team of CEU and VBDC will do surveillance at International air port, sea port and cross border entry points.
- Entomologists will do adult mosquitoes surveillance

- Ovitrapswill be used, 20-30 ovitraps will need within 200meters radius. It is useful for vector control and surveillance.
- Laboratory identification of ZIKA by using PCR (NHL or DMR )

### 10.3. Vector Control Management

#### 10.3.1. Methods of Vector Control

- Environmental Management (Environmental modification, Environmental manipulation, Changes of human habitats and behaviour)
- Biological control
- Chemical control: larvicides, adulticides
- Multisectoral coordinated approach for Integrated Vector Management
- Partnering and engaging relevant stakeholders and the community

#### 10.3.2. Mosquito control week, 2016

- Organize the **committee** at township level and develop the **plan** for mosquito control week (multi-sectoral, community involvement - crucial)
- Inform the community using the **mass media** – TV/ Radio or SMS through mobile phones
- **Health education, mosquito education sessions** focusing on reducing or eliminating larval habitats
- Activities **for elimination of larva habitats** by communities conduct **for one week** (in households in Wards/ Villages, schools, markets, offices, bus terminals, railway stations, parks, factories, workshops, construction sites etc.)

{ during mosquito season (Rainy season) once a month and after rainy season – once in 2 months }

**To begin public mosquito containment education sessions** aimed

- to prevent or minimize contact between vectors and cases, esp. during the first week of illness when infected person is viraemic period.
- To eliminate larva habitats (environmental management & sanitation)

To treat with larvicide (Abate) to any water holding containers and to use adult mosquito control (Fogging), within 200 meters around a case's home.

## 11. Strengthening of laboratory facilities and capacities for Zika virus diagnosis

Strengthen laboratory capacity of National Health Laboratory for Zika virus infections, and work with WHO Collaborating Centers in Thailand (AFRIMS, Chulalongkorn University-Bangkok) and India (NIV-Pune) for technical and logistic support.

### 11.1. Laboratory Testing for Zika

Samples for serology should be sent to the National Health Laboratory along with the completed Laboratory form. NHL can perform real time RT-PCR method and serological testing for confirmation of Zika virus infection and results would be available within 48 hours after receiving the appropriate samples. The following are the requirements for the sampling and for the conservation of the sample:

**Type of sample:** Serum: 4-5 mls. of blood in a plain red top tube

**Acute phase:** Until 8 days after symptom onset

**Convalescent phase:** 10–15 days after symptom onset

**Conservation of the sample:**

- Keep refrigerated (2–8°C) if sample will be processed within 48 hours at the NPHL.
- Keep frozen (-10 to -20°C) if sample will be processed after the first 48 hours.
- Maintain frozen (-70°C) if sample will be processed after one week.

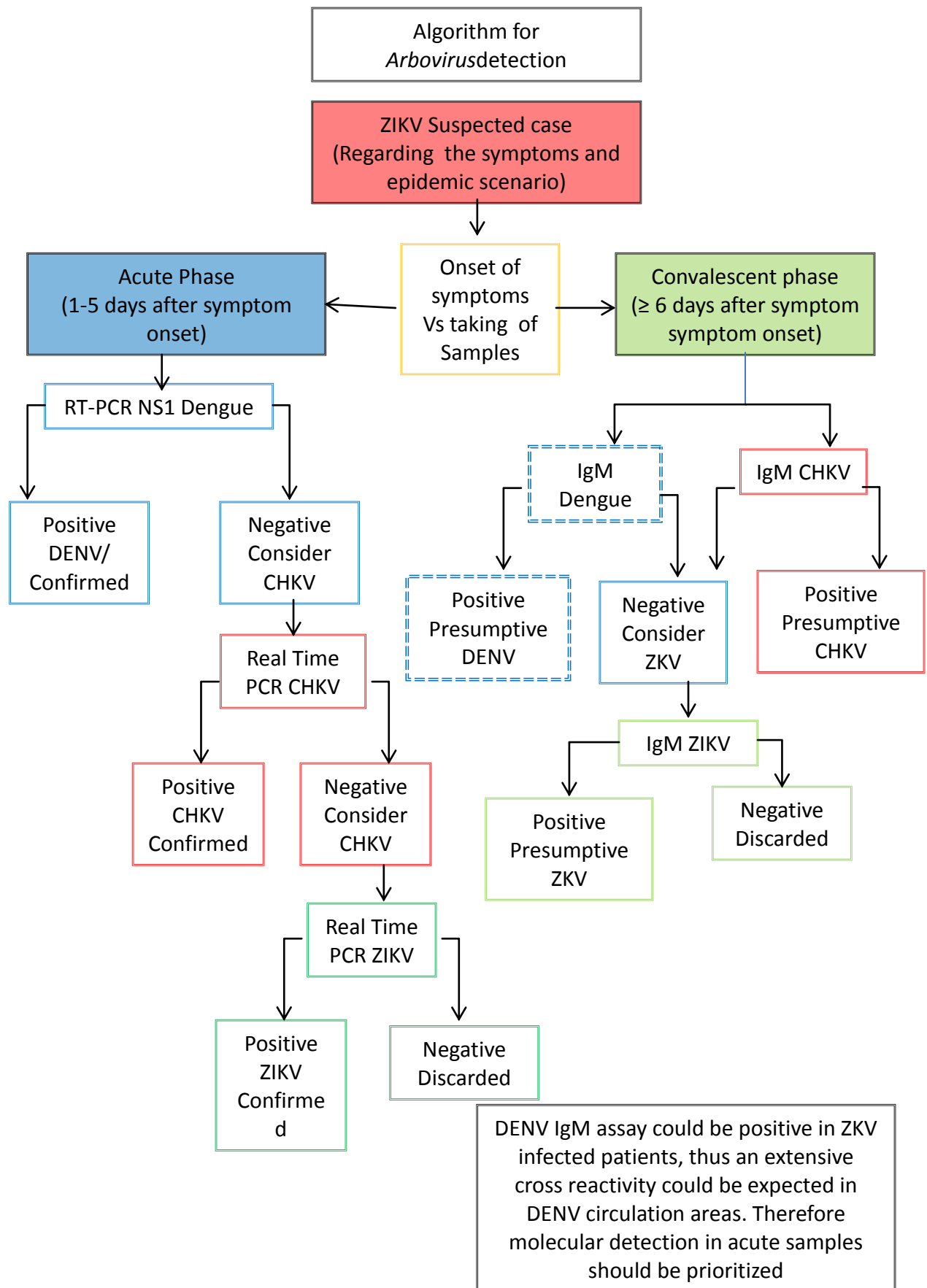
### 11.2. Method for Confirmation of the Start of a Zika Outbreak

Laboratory surveillance will be used as the methodology for the confirmation of autochthonous transmission.

#### Inclusion Criteria

The following are inclusion criteria for the laboratory surveillance to confirm autochthonous transmission:

- Samples that are negative for Dengue and Chikungunya testing AND consistent with ZIKA.
- Cases consistent with clinical features of Zika:
- The samples should be processed according to the day of sampling with respect to the onset of symptom.



## **12. To establish surveillance system for neurologic syndromes and congenital malformations**

In order to get base line information and distribution of congenital malformation including Microcephaly and neurological complications, retrospective surveillance for last one year period and prospective surveillance would be conducted in sentinel hospitals. Guillain Barre Syndrome (GBS) surveillance would be enhanced through existing AFP surveillance system.

Standard case definition for GBS, microcephaly and congenital malformation, selection of sentinel hospitals, reporting channels will be co-developed and decided by Department of Public Health and Department of Medical Service.

## **13. Proper care and clinical management of Zika virus affected patients**

To provide proper care and clinical management of Zika virus affected patients, the following preparedness activities will be undertaken;

- Preparing the hospital and wards for keeping the suspected / confirmed patients in mosquitoes proof room
- Developing and distribution of Standard operating procedure and guidelines for clinical management
- Health services preparedness and training for the management of potential complications including neurological syndromes and birth defects
- Reporting and information sharing with Department of Public Health, Medical Research and other stakeholders
- Establishing mechanism to cope with surge in patients, supply chain management and staffing issues.
- Enhance active surveillance and effective vector control around and vicinity of all health care facilities to limit transmission from positive patients to non-infected patients, health staff and general public.
- Providing guidance on blood safety and blood transfusion to prevent transmission from infectious patient.
- Developing standardized protocol for screening, diagnosis and management of microcephaly in newborns.
- With regard to suspected or confirmed case of Zika virus infection in pregnant women, guidelines for clinical follow up including ultrasonography for prenatal diagnosis of potential microcephaly, assessment of birth outcomes, psychosocial support and counselling.

## **14. Risk communication**

### **14.1. To increase awareness among health professionals**

Health workers will be trained, empowered and enabled to communicate risk, provide advice and specialized counselling to those affected by Zika virus disease. Family planning and antenatal care units, as well as social services for families will be strengthened and expanded to respond to increased demand for information, counselling and sexual and reproductive health issue. To hold clinical meeting for management of suspected ZIKA case at public hospital for increasing awareness among health professionals, esp. those who provide prenatal and newborn care

### **14.2. Community engagement and risk communication**

- Engage communities to communicate the risks associated with Zika virus disease and promote healthy behaviours, reduce anxiety, address stigma, dispel rumours and cultural misperceptions to make informed decisions to protect their health. Risk communication and community engagement activities support to governments
- An effective, coordinated and integrated risk communication strategy amongst all response partners ensures that affected and at-risk populations can take protective actions based on trusted and credible advice, and that their concerns are addressed proactively. Develop appropriate educational materials and media messages. Communities will be engaged for vector control and to promote personal protection measures building on existing community mobilization programmes
- Risk communication and information for travelers at international seaport and airports is enhanced. Advise residents and travelers visiting outbreak affected areas, particularly pregnant women, to take individual protective measures to prevent mosquito bites all day round.
- To conduct advocacy meeting on ZIKA and EIDs in all State and Regions
- Risk communication and updated information for ZIKA virus to public by mean of MoH website, Myanmar CDC face book, Media interview etc.

## **15. Development of vaccine deployment plan if WHO approved Zika virus vaccine available**

### **Priority groups**

Pregnant woman (estimated target – 1 million per year)

Woman planned for pregnancy (estimated target – 2 millions per year)

Other high risk groups

( health care personnels , young age (under 5) , older age groups (above 65) , persons with chronic diseases , ??? )

## Annex.1.

### Framework for Epidemiological Surveillance of Zika

Expected Result	Indicator
<b>Zika Epidemiological Surveillance System for timely alert and rapid response implemented.</b>	<ul style="list-style-type: none"><li>• Zika surveillance systems in place</li><li>• Number of sites (Hospitals, Health Centres, &amp; Private Doctors)</li><li>• Zika fever outbreaks reported according to IHR (2005) guidelines.</li></ul>

#### Phase 1 : Preparedness

Strategic Activities	Tasks	Responsibility
<b>1. Strengthen the epidemiological and laboratory surveillance systems for Zika in Myanmar</b>	<ol style="list-style-type: none"><li>1. Development of the proposed Preparedness plan</li><li>2. Include Zika as part of Disease Surveillance System as an immediate reporting (reported immediately on suspicion, within 24hrs).</li><li>3. Standardize a Zika Case Definition (clinical and epidemiological) based on SEARO/WHO guidelines.</li><li>4. Set up clinical, laboratory and epidemiological surveillance.</li><li>5. Standardize the methods used to determine the criteria (clinical, epidemiological and laboratory) to confirm the Zika outbreak.</li><li>6. Train the epidemiological, laboratory and clinical staff on Zika fever case management.</li></ol>	DPH DMS NHL

Strategic Activities	Tasks	Responsibility
<b>2. Strengthen Vector Control Activities</b>	<ol style="list-style-type: none"><li>1. Strengthening mosquito surveillance to ensure focused interventions.</li><li>2. Reducing mosquito source populations.</li></ol>	<b>VBDC, DPH , Local authority Local community</b>
<b>3. Risk Communication</b>	<ol style="list-style-type: none"><li>1. Development of educational materials and media messages</li><li>2. Conducting the awareness raising activities among health professionals</li><li>3. Mass communication &amp; community awareness</li></ol>	<b>HEB, DPH , DMS</b>

Strategic Activities	Tasks	Responsibility
	activities	
<b>4. PoE Surveillance</b>	<ol style="list-style-type: none"> <li>1. All the International Airports / Ports will display billboards/ signage providing information to travelers on Zika virus disease and to report to health authorities if they are returning from affected countries and suffering from febrile illness.</li> <li>2. The Airport / Port Health Authority would have quarantine / isolation facility</li> </ol>	<b>Port Health, MOH &amp; Ministry of Transport</b>

#### Phase 2: Established outbreaks

Strategic Activities	Tasks	Responsibility
<b>1. Confirmation/ Declaration of the beginning of an outbreak</b>	<ol style="list-style-type: none"> <li>1. Declare the start of the outbreak</li> <li>2. Classify cases (locally-acquired or imported)</li> <li>3. Notify the Focal Points according to IHR (2005).</li> <li>4. Enhance clinical, epidemiological and laboratory surveillance systems.</li> <li>5. Intensify the vector surveillance and control</li> <li>6. Review and revise epidemiological surveillance plan</li> </ol>	<p>Zika virus infection Confirmation &amp; Verification Committee ,</p> <p>IHR National Focal Point,</p> <p>CEU ,DPH, DMS , NHL</p> <p>VBDC</p>

Strategic Activities	Tasks	Responsibility
<b>2. Monitor and assess the epidemic situation</b>	<ol style="list-style-type: none"> <li>1. Activate and maintain the National, Regional and State Emergency</li> <li>2. Operations Centres / Coordination mechanisms.</li> <li>3. Establish routine communication mechanisms with State and regional health authorities and international organizations</li> <li>4. Analyze and interpret weekly data and develop a daily and weekly outbreak report.</li> <li>5. Provide support and technical assistance to the Field</li> </ol>	MOH National EOC, Emergency Management Committee

### Phase 3: End of the outbreak

Strategic Activities	Tasks	Responsibility
<b>1. Analyze the actions taken during the outbreak</b>	<ol style="list-style-type: none"> <li>1. Maintain the monitoring and evaluation activities.</li> <li>2. Review and revise Epidemiological Surveillance Plan</li> </ol>	DPH, DMS Ministry of Health Emergency Management Committee, Director, NHL

### Phase 4: Endemic transmission

Epi Activities	Tasks	Responsibility
<b>1. Maintain the surveillance activities</b>	<ol style="list-style-type: none"> <li>1. Establish a regular Zika virus disease surveillance system and merge with integrated surveillance program.</li> <li>2. Review evaluation of the plan and revise the preparedness plan to ensure preparedness is maintained.</li> </ol>	DPH, DMS Ministry of Health
<b>2. Research</b>	1. Epidemiology & Complication	Department of Medical Research DMS

**Annex.2.****Case Investigation Form for Zika virus disease****Zika Virus Infection Case investigation Form**

Case Identification Number : MMR ; --/--/--/---					
<b>1. Investigation Information</b>					
Date of Report :        /        /        (dd/mm/yy)			Reporting Centre:		
Date of Investigation :        /        /        (dd/mm/yy)			Name of Investigator (MO):		
Place of Investigation:			Title & Office of Investigator		
<b>2. Patient information</b>					
Name :			Sex: M / F	Age (yrs) :	
Address :		Phone ;	D.O.B:        /        /        (dd/mm/yy)		
State/ Region :			Occupation		
<b>3. Clinical Data</b>					
Date of onset of illness        /        /        (dd/mm/yy)			(dd/mm/yy)		
Clinical features	Y / N	Date of Onset	Clinical features	Y / N	Date of Onset
Fever	Y / N	___/___/___	Non-purulent Conjunctivitis	Y / N	___/___/___
Arthralgia (joint pain) , Circle joints involved	Y / N	___/___/___	Maculopapular Rash	Y / N	___/___/___
			Lower Limb Oedema	Y / N	___/___/___
			Periarticular oedema	Y / N	___/___/___
			Myalgia	Y / N	___/___/___
Hand: R   L   Foot: R   L					
Wrist R   L   Ankle: R   L					
Arthritis	Y / N	___/___/___	Back pain	Y / N	___/___/___
Abdominal Pain	Y / N	___/___/___	Headache	Y / N	___/___/___
Vomiting	Y / N	___/___/___	Retro-orbital Pain	Y / N	___/___/___
Diarrhoea	Y / N	___/___/___	Asthenia (generalized weakness)		
Additional Clinical Features:					
<b>Risk Factors:</b>					
Pregnancy	Y / N	If yes ,LMP-	Other:	Y / N	<input type="checkbox"/>
Diabetes	Y / N			Y / N	<input type="checkbox"/>
Cardiovascular diseases	Y / N			Y / N	<input type="checkbox"/>
<b>Clinical diagnosis:</b>					
Is/was this patient hospitalised?	Y	N	Date (s)	Outcome of illness	
	<input type="checkbox"/>	<input type="checkbox"/>	___/___/___		
Resolution of symptoms	<input type="checkbox"/>	<input type="checkbox"/>	___/___/___		

<b>4. Exposure and Travel History</b>							
	Y	N	Date	Details			
Has the patient travelled to a Zika fever endemic/epidemic area within the past 2 weeks	<input type="checkbox"/>	<input type="checkbox"/>					
Has the patient been in contact with a Zika fever case within the past 2 weeks	<input type="checkbox"/>	<input type="checkbox"/>					
Country, Endemic/Epidemic Area	Arrival-		Departure-Date & Time		Accommodations		
Visitors from abroad – Country	Date of Arrival		Date of Departure		Remarks		
Places visited in the past 2 weeks – emphasis on places visited in the daylight hours							
<b>5. LABORATORY DATA</b>							
Specimen	Date collected	Date Received	Condition	Test	Result	Date sent	Comment
First blood specimen				Virus Isolation			
				IgM ELISA			
Second blood specimen				IgG			
				RT-PCR			
<b>6. ENVIRONMENTAL SURVEY</b>							
<b>Community type</b>		<input type="checkbox"/> Planned			<input type="checkbox"/> Unplanned		
<b>Aedes population :</b>		<input type="checkbox"/> Aegypti			<input type="checkbox"/> Albopictus		
<b>Water supply:</b>		<input type="checkbox"/> Piped			<input type="checkbox"/> Stored		
AEDES INDICES SURROUNDING COMMUNITY:							
	Home			Workplace/School			
<b>Household index:</b>							
<b>Container index:</b>							
<b>Breteaues index:</b>							
<b>7. Final Case Classification:</b>	<input type="checkbox"/> <b>Suspected Case</b> <input type="checkbox"/> Imported <input type="checkbox"/> Autochthonous			<input type="checkbox"/> <b>Confirmed Case</b> <input type="checkbox"/> Imported <input type="checkbox"/> Autochthonous <input type="checkbox"/> <b>Discarded</b>			

-----  
Signature of Investigator

### Annex.3.

#### Health Alert Card



#### Health Alert Card Ministry of Health, Myanmar

Date: -----Day/-----Month/-----Year

Name				
Family	First	Middle		
-----	-----	-----		

☐ Male ☐ Female

Date of Birth	Nationality	Occupation
-----	-----	-----

Pass Port No.	Country of Residence	Port of Embarkment
-----	-----	-----

Purpose of Visit	Length of Stay in Myanmar
-----	-----

Address in Myanmar

-----

Do you have traveling history of other countries (eg- Zika affected countries (Brazil, America), Ebola affected countries (West Africa), MERS CoV affected countries (Middle east countries) within 1 month? Yes ☐ No ☐

If Yes , Express -----

Do you have any signs and symptoms of

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> High Body Temperature  | <input type="checkbox"/> Muscle Ache              | <input type="checkbox"/> Muscle Weakness         |
| <input type="checkbox"/> Headache               | <input type="checkbox"/> Sore Throat              | <input type="checkbox"/> Vomiting                |
| <input type="checkbox"/> Abdominal Discomfort   | <input type="checkbox"/> Abdominal Pain           | <input type="checkbox"/> Hiccups                 |
| <input type="checkbox"/> Loose Motion           | <input type="checkbox"/> Difficulty in Swallowing | <input type="checkbox"/> Difficulty in Breathing |
| <input type="checkbox"/> Unexplained Hemorrhage | <input type="checkbox"/> Bloody Diarrhoea         | <input type="checkbox"/> Rash and Bruises        |
| <input type="checkbox"/> Lethargy               | <input type="checkbox"/> Red Eye (Conjunctivitis) |  |
| <input type="checkbox"/> Others-----            |   |  |

Signature of Passenger -----

-----  
Medical Officer  
Port Health Department

Contact:  
Yangon Port Health Department: 95-1-377650, 95-1-533364  
Central Epidemiology Unit: 95-67-431432, 95-67-431434

#### Annex.4.

#### Country ZIKA Preparedness (as of: 13-2-2016)

Country	Activities Conducted	Activities Planned	Resource and Support Required
Myanmar	<ul style="list-style-type: none"><li>-Multi-sectoral Meeting on Preparedness and Response to ZIKA chaired by Union Health Minister is carried out on 4<sup>th</sup> February 2016</li><li>-Symposium on ZIKA Virus Infection is carried out on 13<sup>th</sup> February 2016</li><li>-Preparedness and response plan to ZIKA is developed and submit to MoH for endorsement of the plan</li><li>-Risk communication and updated information for ZIKA virus to public by mean of MoH website, Myanmar CDC face book, Media interview etc.</li><li>-Risk communication and information for travelers at international seaport and airports is enhanced</li><li>-Enhance community based and health facility based surveillance as well as event based surveillance for fever with rash through existing surveillance for measles, dengue etc.</li><li>-Enhance GBS surveillance through existing AFP surveillance system</li><li>-Request of primers for ZIKV processed through WCO and SEARO</li><li>-Primers soon be dispatched</li><li>-Information channel for regular update on the epidemic established</li></ul>	<ul style="list-style-type: none"><li>-Intensive health education and risk communication of EIDs including ZIKA to public</li><li>-Public campaign for Mosquito control week will be carried out in all states and regions</li><li>-Advocacy meeting on ZIKA and EIDs will be carried out at State and Regional level</li><li>-Clinical meeting for management of suspected ZIKA case at public hospital</li><li>-Setting up birth defect surveillance including microcephaly for detecting of complication due to ZIKA infection during pregnancy</li><li>-Ovitrap for Aedes mosquito will be placed at international airports and seaports for assessment of mosquitos control at PoEs</li></ul>	<ul style="list-style-type: none"><li>-technical and financial support will be needed for public campaign for mosquito control week, advocacy meeting, health education and risk communication to public, clinical meeting and training, setting up birth defect surveillance and vector surveillance at PoEs</li></ul>

## **Annex.5.**

### **Ovitrap Survey**

1. It is a 300 ml plastic containers with straight, slightly tapered sides. The opening measures 7.8 cm in diameter , the base diameter is 6.5 cm and the container is 9.0cm in height. The outer wall of the container is coated with a layer of black oil paint.
2. An ovipositor paddle made of hard wooden stripe (10cmx2.5cmx0.3cm) is placed into each ovitrap.
3. Each ovitrap is filled with tap water to a level of 5.5cm .
4. Ovitrap is marked with serial number, indoor and outdoor. These ovitraps are placed both indoor and outdoor.
5. Each and every ovitrap with stripe is collected together after 5 days.
6. 30 ovitraps are placed in an area around the 200m of the places such as restaurant, toilet and baggage claim areas both indoor and outdoor collection. It can be done twice a month.
7. Ovitrap with positive Aedes eggs are counted and number of eggs are also counted and recorded. After counting eggs, let them dried and keep it.

## **Annex.6.**

### **Methods of Vector Control**

#### **Environmental Modification**

- Improved water supply
- Mosquito-proofing of overhead tanks, underground reservoirs
- filling, land leveling and transformation of impoundment margin

#### **Environmental manipulation-**

- Draining water supply installation
- Covering domestic water – storage containers
- Cleaning flowerpots/vases and ant trap
- Cleaning incidental water collection
- Managing construction sites and building exteriors
- Managing mandatory water storage for fire –fighting
- Managing discarded receptacles
- Managing glass bottle cans
- Tyre management
- Filling up of cavities of fences
- Managing public places

**Changes to human habitation or behaviour**– actions to reduce human–vector contact, such as installing mosquito screening on windows, doors and other entry points, and using mosquito nets while sleeping during daytime.

#### Biological control

Putting the larvivorous fish or *Bacillus thuringiensis* serotype H14 & *Bacillus sphaericus* into water storage container.

#### Chemical control

- Putting the temiphos 1% sand granules(Abate)into water storage container
- Space sprays - Space spray of insecticides (fogging) should not be used except in epidemic situation

## **Annex.7.**

### **Fogging with swing fog at airport and seaport**

1. 200cc of 95% malathion (technical grade) is mixed with 3800cc of diesel in a bucket. (ratio is 1:19)
2. It is poured into swing fog machine for fogging.
3. Foods, kitchen utensil, television, computer are covered by cloth. Residence and domestic animal are stayed outside the house .
4. All doors and windows are closed.
5. Effective duration is only one day with knocked down action of Aedes mosquitoes.
6. Fogging time should be an early morning and evening .

### **FontanSpray**

1. 152 ml of lambda-cyhalothrin (ICON) is mixed with 2US gallon of water in bucket.  
Dosage is  $0.2\text{g/m}^2$ .
2. It is poured into fontan machine for indoor spray.
3. Foods, kitchen utensil, television are covered by cloth.
4. Residence and domestic animal are stayed outside the house.
5. All doors, windows are closed.

Effective duration of spray is 3-6 months.

## **Annex.8.**

### **Standard Operation Procedure for clinical management of Suspected Zika Virus infection Case**

- Mosquito proof isolation rooms must be prepared in every hospital (negative pressure rooms like SARS, MERS-CoV are not necessary.)
- All suspected cases which meet case definition of Zika virus, must be reported immediately to respective State and Regional Public Health Department and Department of Medical Services. Ask the suspected cases about the history of travelling to countries where Zika virus transmission take place
- Suspected cases must be placed in Mosquito proof isolation room for 12 Days.
- Blood sample must be taken from suspected cases and serum samples are sent to National Health Laboratory to detect Zika virus and to exclude Dengue, Chickungunya, Rubella and Measles infection.
- Blood sample must be sent to NHL with reverse cold chain system (2-8 °C). If the sample cannot be sent within 2 days, they should be kept frozen (-10 to -20 °C).
- All suspected case should be provided supportive treatment with antipyretics (acetaminophen in pregnancy), hydration and rest. Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage. Urgent medical care is recommended for any symptoms associated with GBS.
- Ask and screen all female suspected cases in child bearing age for pregnancy. In a pregnant woman with laboratory evidence of Zika virus in serum or amniotic fluid, serial ultrasounds should be considered to monitor fetal anatomy and growth every 3–4 weeks. Referral to a maternal-fetal medicine or infectious disease specialist with expertise in pregnancy management is recommended.
- Health personnel who are treating suspected patients must need to protect from mosquito bite (not necessarily to wear personal protective equipment –PPE)
- Since there might be possible association between Zika virus and microcephaly, health personals who are at pregnancy state must be excluded form treating suspected patients.