ZIKA

STRATEGIC RESPONSE FRAMEWORK & JOINT OPERATIONS PLAN

JANUARY-JUNE 2016

FEB 2016

World Health Organization

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FOREWORD BY

THE DIRECTOR-GENERAL

Since the Zika virus was first identified in a monkey in Uganda in 1947, it has rarely caused illness in humans. When people have become infected with the virus, the disease it causes has generally been mild, with small outbreaks occurring in a relatively narrow geographical band around the equator.

The situation today is dramatically different. Last year the virus was detected in the Americas, where it is now spreading explosively. Possible links with neurological complications and birth malformations have rapidly changed the risk profile of Zika from a mild threat to one of very serious proportions.

The Zika situation is particularly serious because of the potential for further international spread, given the wide geographical distribution of the mosquito vector, the lack of population immunity in newly affected areas, and the absence of vaccines, specific treatments and rapid diagnostic tests.

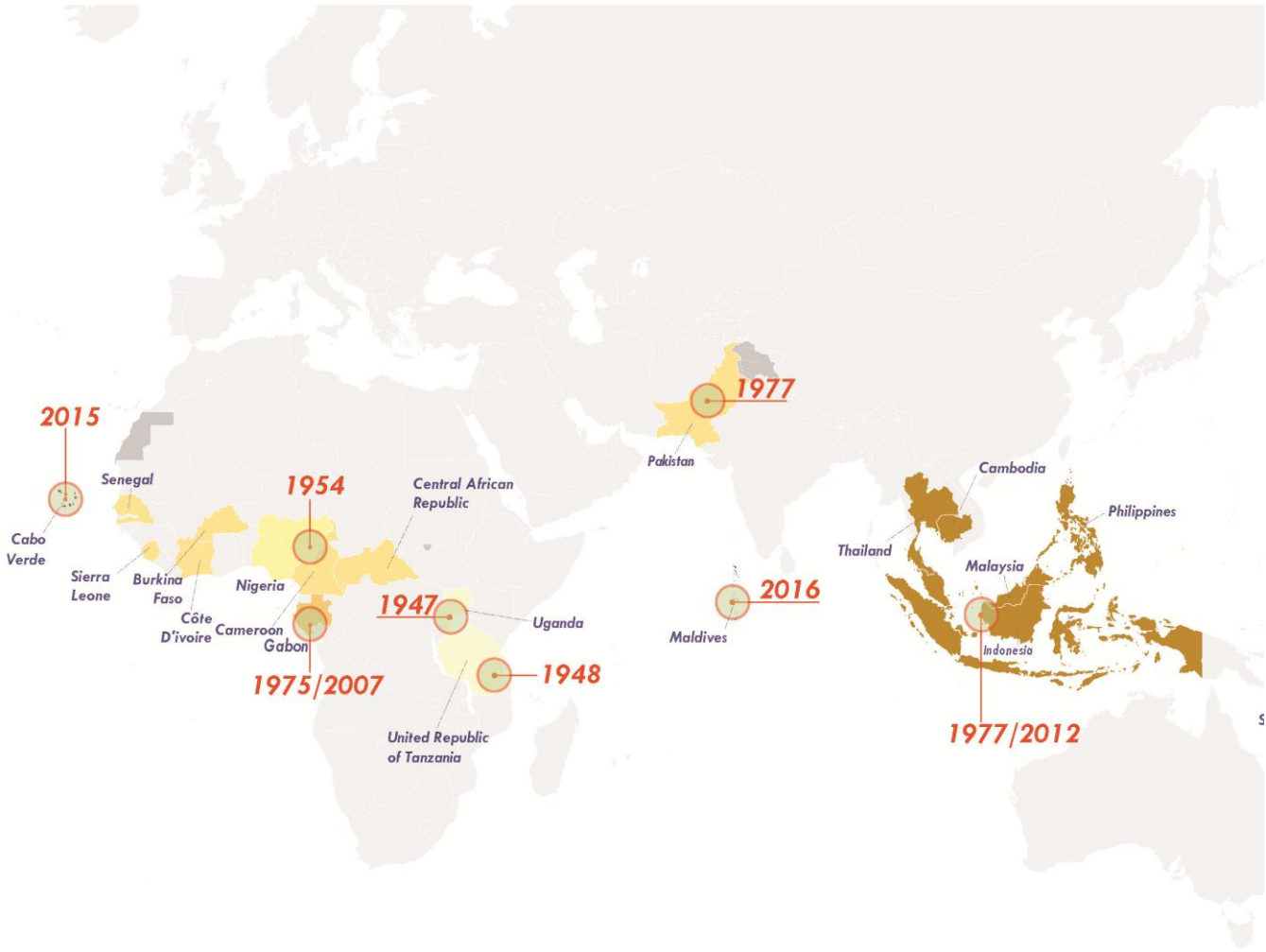
WHO has activated its Emergency Operations incident management system to coordinate the international response to this outbreak. This Strategic Response and Joint Operations Plan aims to provide support to affected countries, build capacity to prevent further outbreaks and control them when they do occur, and to facilitate research that will help us better understand this virus and its effects.

Margaret Chan
Director-General

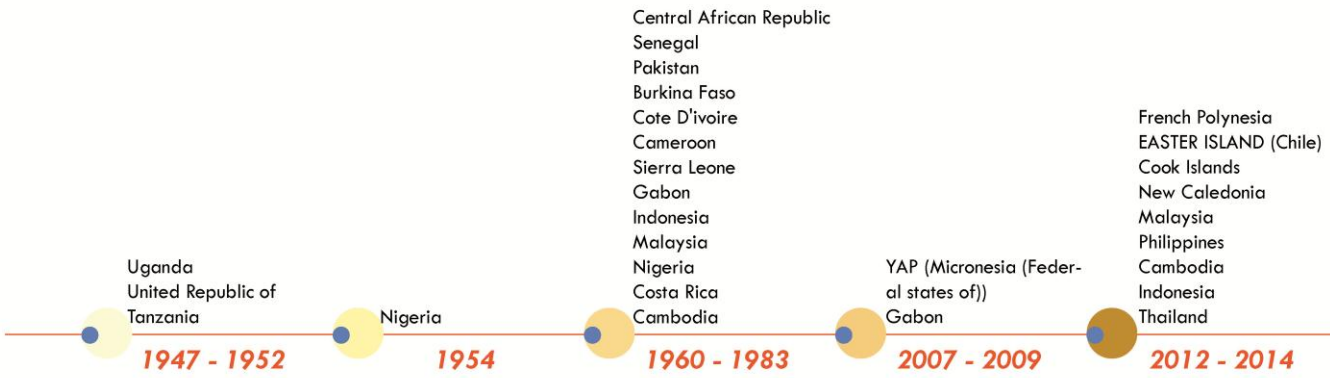
THE STRATEGIC RESPONSE FRAMEWORK

ZIKA VIRUS

FIG. 1: HISTORICAL TIMELINE MAP (1947 – 2016)



TIMELINE OF COUNTRIES



Brazil
Vanuatu
Fiji
Colombia
Cabo Verde
Samoa
Solomon islands

Jan - Oct 15

El Salvador
Guatemala
Mexico
Paraguay
Suriname
Venezuela (Bolivarian Republic of)

Nov - 2015

French Guiana
Honduras
Martinique
Panama
Puerto Rico

Dec - 2015

United States Virgin Islands
Dominican Republic
Costa Rica
Guadeloupe
Saint Martin
Nicaragua
Barbados
Maldives
Ecuador
Guyana
Jamaica
Curaçao
Samoa
Haiti

Jan - 2016

Tonga

Feb - 2016

OVERVIEW OF THE SITUATION

This strategy has been developed to guide the international response to the current cluster of congenital malformations (microcephaly) and other neurological complications (Guillain-Barré Syndrome) that could be linked to Zika virus infection.

Background

Zika virus is an emerging viral disease that is transmitted through the bite of an infected mosquito, primarily Aedes aegypti, the same vector that transmits chikungunya, dengue and yellow fever. Zika has a similar epidemiology, clinical presentation and transmission cycle in urban environments as chikungunya and dengue, although it generally causes milder illness.

Symptoms of Zika virus disease include fever, skin rash, conjunctivitis, muscle and joint pain, malaise and headache, which normally last for 2 to 7 days. There is no specific treatment but symptoms are normally mild and can be treated with common pain and fever medicines, rest and drinking plenty of fluids.

Zika virus was first identified in 1947 in a monkey in the Zika forest of Uganda, and was first isolated in humans in 1952 in Uganda and the United Republic of Tanzania. Zika virus has been causing sporadic disease in Africa and Asia. Outbreaks were reported for the first time from the Pacific in 2007 and 2013 in Yap Island (Federated States of Micronesia) and French Polynesia, respectively. There was subsequent spread of the virus to other Pacific islands, including New Caledonia, Cook Islands, Easter Island (Chile), Fiji, Samoa, Solomon Islands and Vanuatu. The geographical range of Zika virus has been steadily increasing ever since (Figure 1).

Current Situation

In February 2015, Brazil detected cases of fever and rash that were confirmed to be Zika virus in May 2015. The last official report received dated 1 December 2015, indicated 56,318 suspected cases of Zika virus disease in 29 States, with localized transmission occurring since April 2015. Due to the magnitude of the outbreak, Brazil has stopped counting cases of Zika virus. Today the Brazilian national authorities estimate 500,000 to 1,500,000 cases of Zika virus disease. In October 2015, both Colombia and Cape Verde, off the coast of Africa, reported their first outbreaks of the virus. As of 22 January 2016 Colombia had reported 16,419 cases, El Salvador 3,836 cases and Panama 99 cases of Zika virus disease.

As of 12 February, a total of 39 countries in multiple regions have reported autochthonous (local) circulation of Zika virus, and there is evidence of local transmission in six additional countries (Figure 1). Imported cases have been reported in the United States of America, Europe and non-endemic countries of Asia and the Pacific.

Increase in neurological syndromes

National health authorities have reported an observed increase of Guillain-Barré syndrome (GBS)[1] in Brazil and El Salvador which coincided with the Zika virus outbreaks.

During the French Polynesia outbreak in 2013/2014, national authorities also reported an observed increase in neurological syndromes in the context of co-circulating dengue virus and Zika virus. Seventy-four patients presented with neurological or auto-immune syndromes after the manifestation of symptoms consistent with Zika virus infection. Of these, 42 were classified as GBS.

On January 22 Brazil reported an increase of GBS at the national level. A total of 1708 GBS cases were registered between January and November 2015. Most of Brazil's states have Zika, chikungunya and dengue virus circulation.

Increase in congenital malformations

On 27 January 2016, Brazil reported that of 4180 suspected cases of microcephaly, 270 were confirmed, 462 were discarded and 3448 are still under investigation. This compares to an average of 163 microcephaly cases recorded nationwide per year. Only six of the 270 confirmed cases of microcephaly had evidence of Zika infection. According to the US Centers for Disease Control and Prevention (US CDC) and Ministry of Health Brazil, the results of two specimens taken during autopsy from the brain tissues of microcephalic patients, indicated

[1] Guillain-Barré syndrome is a rare condition in which a person's immune system attacks their peripheral nervous system. The syndrome can affect the nerves that control muscle movement as well as those that transmit feelings of pain, temperature and touch. This can result in muscle weakness and loss of sensation in the legs and/or arms. The cause of Guillain-Barré cannot always be determined, but it is often triggered by an infection (such as HIV, dengue, or influenza) and less commonly by immunization, surgery, or trauma.

infection with Zika virus. A placenta was also evaluated and found to be PCR positive for Zika.

Although the microcephaly cases in Brazil are spatio-temporally associated with the Zika virus outbreak, health authorities and agencies are investigating and conducting comprehensive research to confirm a causal link.

Following the Zika outbreak in French Polynesian, health authorities reported an unusual increase in the number of congenital malformations in babies born between March 2014 and May 2015. Eighteen cases were reported, nine of which were diagnosed as microcephaly.

Other countries with current outbreaks (Cape Verde, Colombia, El Salvador and Panama) have not reported an increase in microcephaly.

Status of Response

The current Zika virus outbreaks and their possible association with an increase in microcephaly, other congenital malformations, and GBS have caused increasing alarm in countries across the world, particularly in the Americas. Brazil announced a national public health emergency in November 2015.

An International Health Regulations (IHR 2005) Emergency Committee met on 01 February 2016, and WHO declared the recent clusters of microcephaly and other neurological disorders in Brazil a Public Health Emergency of International Concern (PHEIC). In the absence of another explanation for the clusters of microcephaly and other neurological disorders, the IHR Emergency Committee recommended enhanced surveillance and research, and aggressive measures to reduce infection with Zika virus, particularly amongst pregnant women and women of childbearing age.

Colombia, Dominican Republic, Ecuador, El Salvador and Jamaica have all advised women to postpone getting pregnant until more is known about the virus and its rare but potentially serious complications. The US CDC has also issued a level 2 travel warning, which includes recommendations that pregnant women consider postponing travel to any area with ongoing Zika virus transmission.

WHO's Regional Office for the Americas (AMRO/PAHO) has been working closely with affected countries in the Americas on the investigation of and response to the outbreak since mid-2015. AMRO/PAHO has mobilized staff and members of the Global Outbreak Alert and Response Network (GOARN) to assist Ministries of Health in strengthening detection of Zika virus through rapid reporting and laboratory testing. A GOARN international team visited health authorities in Brazil to help assess the unprecedented increase in microcephaly cases and their possible association with Zika virus infection, as well as to provide recommendations to the Ministry of Health for surveillance, disease control measures and epidemiological research.

Need for Response

Major, epidemics of Zika virus disease may occur globally since environments where mosquitoes can live and breed are increasing due to recent trends including climate change, rapid urbanization and globalization. For the Americas, it is anticipated that Zika virus will continue to spread and will likely reach all countries and territories where *Aedes aegypti m*osquitoes are found. Other *Aedes* species are believed to be competent vectors for Zika virus and have a much farther geographical reach. For example, *Aedes albopictus* is found in temperate climates.

This strategy provides the basis for close partner coordination and collaboration in addressing this crisis to ensure that national response activities are supported to the fullest extent possible.

STRATEGIC

OBJECTIVES

The over-arching goal of this strategy is to investigate and respond to the cluster of microcephaly and other neurological complications that could be linked to Zika virus infection, while increasing preventive measures, communicating risks and providing care to those affected.

1. SURVEILLANCE

- Provide up to date and accurate epidemiological information on Zika virus disease, neurological syndromes and congenital malformations.

2. RESPONSE

- Engage communities to communicate the risks associated with Zika virus disease and promote protective behaviors, reduce anxiety, address stigma, dispel rumors and cultural misperceptions.
- Increase efforts to Control the spread of the Aedes and potentially other mosquito species as well as provide access to personal protection measures equipment and supplies.
- Provide guidance and mitigate the potential impact on women of childbearing age and those who are pregnant, as well as families with children affected by Zika virus.

3. RESEARCH

- Investigate the reported increase in incidence of microcephaly and neurological syndromes including their possible association with Zika virus infection.
- Fast-track the research and development (R&D) of new products (e.g. diagnostics, vaccines, therapeutics).

RESPONSE STRATEGY

SURVEILLANCE

Provide up- to- date and accurate epidemiological information on Zika virus disease, neurological syndromes and congenital malformations

Surveillance: Primary focus will be on improved understanding of the distribution, spread and nature of Zika virus infection, and trends in microcephaly and GBS. Uniform case definitions, clinical and data collection protocols will be established to improve monitoring of Zika virus infections and its potential complications. Existing vector disease surveillance systems will be adapted and enhanced to track, detect and monitor the Zika virus. Existing facility-based surveillance for detecting suspected complications will be strengthened and expanded in areas of known Zika virus infection circulation and those at highest risk. An integrated global system approach will be established that utilizes and strengthens existing surveillance systems.

Laboratories and diagnostics: Laboratory capacity to test for Zika virus infection will be expanded and other diseases relevant to their national context will be ensured. This includes upgrading existing laboratory capacities, and enabling countries to access and use Real-Time Polymerase Chain Reaction (RT PCR) tests in particular, and other diagnostics tools. Virus sharing between countries will be encouraged. Serological diagnostics to detect evidence of past infection will be improved and/or expanded, developed, and distributed (see RESEARCH). A diagnostic algorithm will be developed for Zika virus to differentiate between other relevant diseases present in the context of the country (e.g. dengue, chikungunya, dengue, yellow fever). Timely sharing of data using existing networks (e.g. dengue) will also be ensured.

Rapid response: : International alert, risk assessment and laboratory capacities (e.g. GOARN, and the French National Research Agency) will be made available to support national efforts for readiness, rapid outbreak response and field investigations.

RESPONSE

Engage communities to communicate the risks associated with Zika virus disease and promote healthy behaviours, reduce anxiety, address stigma, dispel rumours and resolve cultural misperceptions and engage in response activities

Public health risk communication: Information will be provided to key stakeholders in affected and non-affected populations, government, media, travellers and partners through systematically updated information related to the Zika virus and its complications in a format they can use and trust. News and social media channels will be monitored and analysed to identify audience concerns, knowledge gaps, rumours and misinformation. Messages will be tailored to specific audiences to ensure comprehensive guidance with special efforts made to reach excluded and the most at risk populations. Rumours and misinformation will be proactively identified and addressed.

Community engagement: Communities will be engaged for vector control and to promote personal protection measures building on existing community mobilization programmes. Potentially high-risk populations (especially pregnant women and those considering pregnancy of childbearing age) will be empowered to access medical care and given real-time information on evolving risks Rapid community assessments on social and behavioural drivers that may increase risk or facilitate protective behaviours will be conducted as needed, especially in high risk and marginalized areas. Community engagement strategies will be developed and modified based on rapid assessments, news and social media monitoring, analysis of public concerns and knowledge gaps. Communication and community engagement activities targeting health workers, teachers and other education personnel, leaders and the general public should emphasize the difficult situation of children living disabilities and other outcomes such as GBS, to minimize the risk of stigma and discrimination faced by families and children with microcephaly.

Health care personnel: 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 commodities.

Increase efforts to Control the spread of the Aedes mosquito as well as provide access to personal protection measures

Vector control: Existing vector surveillance will be intensified in the context of Integrated Vector Management (IVM), including environmental control activities. Enhanced surveillance and control measures will be implemented in places where Aedes mosquitoes might expand, including intensification of existing control measures at breeding sites, source reduction and adult control measures. In countries where Zika virus was recently detected or has yet to be detected, vector surveillance and control will be strengthened in all border areas and at points of entry. Insecticide resistance will be assessed and advice will be provided on the use of insecticides.

Personal protection: In affected countries, there will be intensified measures to enhance personal protection measures including reducing exposed areas with long pants and shirts, use of insecticidal mosquito nets, and insect repellent. Risk communication will be targeted towards, pregnant women and those of childbearing age, taking into consideration their sexual and reproductive health and rights.

Provide guidance and mitigate the impact on pregnant women and girls and those considering pregnancy, as well as families with children affected by Zika virus

Clinical guidance and protocols: Standard guidelines, case definitions and clinical care and case management algorithms will be updated or developed as needed to help clinicians manage, monitor and understand the natural history of the disease (including the risk period for virus exposure) in pregnant women, patients with neurological syndromes, and congenital anomalies in neonates in Zika infected areas. A multi-country, multi-centre platform and centralized database for rapid knowledge synthesis will be set up where Zika virus is circulating.

Care for those affected: Health systems will be enabled to contribute to event-based and sentinel surveillance in selected priority areas. Health care professionals involved in pre- and neonatal care should be trained in case reporting, psychosocial support, and communication skills. Surge capacity will be established to manage an increasing number of patients and potential complications, and to increase access to health care in most vulnerable areas to traditionally excluded populations. There will be enhanced access to laboratory equipment, reagents, and intensive, appropriate care for some potential complications and establishment of referral systems for specialized care. Specific focus on health center waste water management will be targeted to ensure elimination of breeding sites.

Pre-pregnancy, maternal and post-natal care: Prenatal care for pregnant women and adolescent girls will be strengthened, including performing basic investigations based on established national protocols, support for pre-natal diagnosis, expanded access to ultrasounds, especially in the third trimester. The capacity to detect and monitor congenital anomalies will be enhanced, when possible, to determine any neurodevelopmental outcomes and to provide enhance care and follow up. Pregnant women who are affected by the Zika virus or those families with babies born with microcephaly, will require specialized counselling and communication skills by trained healthcare workers to disclose the diagnosis and provide psychological support needed to care for affected infants. Additionally, increased access to a range of appropriate social protection services will be provided to mitigate the potential socio-economic impact on those families affected.

RESEARCH

Investigate the reported increase in incidence of microcephaly and neurological syndromes, including their possible association with Zika virus infection

Public health research: Partner organizations and other relevant experts will be convened to further define and expand the global research agenda for Zika virus and its potential complications. Research will focus on enhancing current knowledge, pathogenesis and etiology of infection, as well as risk factors in the transmission of Zika virus. In particular, the possible link between Zika virus and potential complications, such as GBS and microcephaly will be examined. In addition, the dynamics of Zika virus transmission —co-circulation with other pathogens, potential modes of transmission immune response, and potential complications — will be further investigated.

Fast-track the research and development of new products (e.g. rapid diagnostics, vaccines, therapeutics)

Research and product development agenda: A prioritized Zika virus research agenda will be developed for potential new approaches, tools, and product development. A landscape analysis will be conducted rapidly and the process for moving candidate vaccines and diagnostics through the R&D pipeline will be accelerated, as well as a process for fast tracking candidate, diagnostic testing.

COUNTRY

CONTEXT

The current cluster of microcephaly and other neurological complications that could be linked to Zika virus infection affect countries differently – the response strategy will be tailored to meet specific needs.

The response strategies outlined above will be implemented through intervention packages tailored for each country context (Table 1).

In countries where there is spread of Zika virus and increased congenital malformations / neurological syndromes, a full range of response activities will be applied. These include enhanced surveillance and outbreak response, community engagement, vector control and personal protective measures, care for people and families with potential complications, field investigations and public health research towards better understanding risk and mitigation measures.

For countries that are already experiencing the spread of Zika virus or have a documented presence of the Aedes mosquito, the first priority will be to enhance surveillance (for both Zika virus infection and potential complications to establish a baseline) as well as increasing community awareness and engagement in vector control and personal protective measures and understanding the risks associated with the Zika virus. Risk assessment will be conducted to identify areas and populations at high risk of infection and assess the systems and service capacity to respond.

For all other countries, risk communications for the public regarding trade and travel will be the main line of engagement, as well as reducing fear and misconceptions of the virus for those that are imported.

Table 1. Response activities according to country context

RESPONSE STRATEGY	Aedes + Zika + congenital malformations / increased neurological syndromes	Aedes + Zika	Aedes	Other countries
Surveillance, laboratory testing, risk communications and community engagement	✓	✓	✓	✓
Vector control and personal protection	✓	✓	✓	
Management of microcephaly congenital malformations & neurologic syndromes	✓	✓[2]		
Public health research to investigate associated risks	✓			

[2] Preparation for management of microcephaly & Guillain-Barré syndrome

RESPONSE

COORDINATION

A coordinated response of partners across sectors and services at the global, regional and national levels is required

As the scale of the epidemic grows to include new countries and regions and the range of response activities increases - additional coordination mechanisms will be required. These mechanisms will need to cover a range of international and national response activities, including partners and stakeholders such as the GOARN network, UN agencies, public health research partners, national and international NGOs, regional networks and R&D partners. WHO will work closely with the Inter-Agency Standing Committee (IASC) and the UN Office for the Coordination of Humanitarian Affairs (OCHA) to ensure coordination mechanisms are interoperable with existing humanitarian response systems.

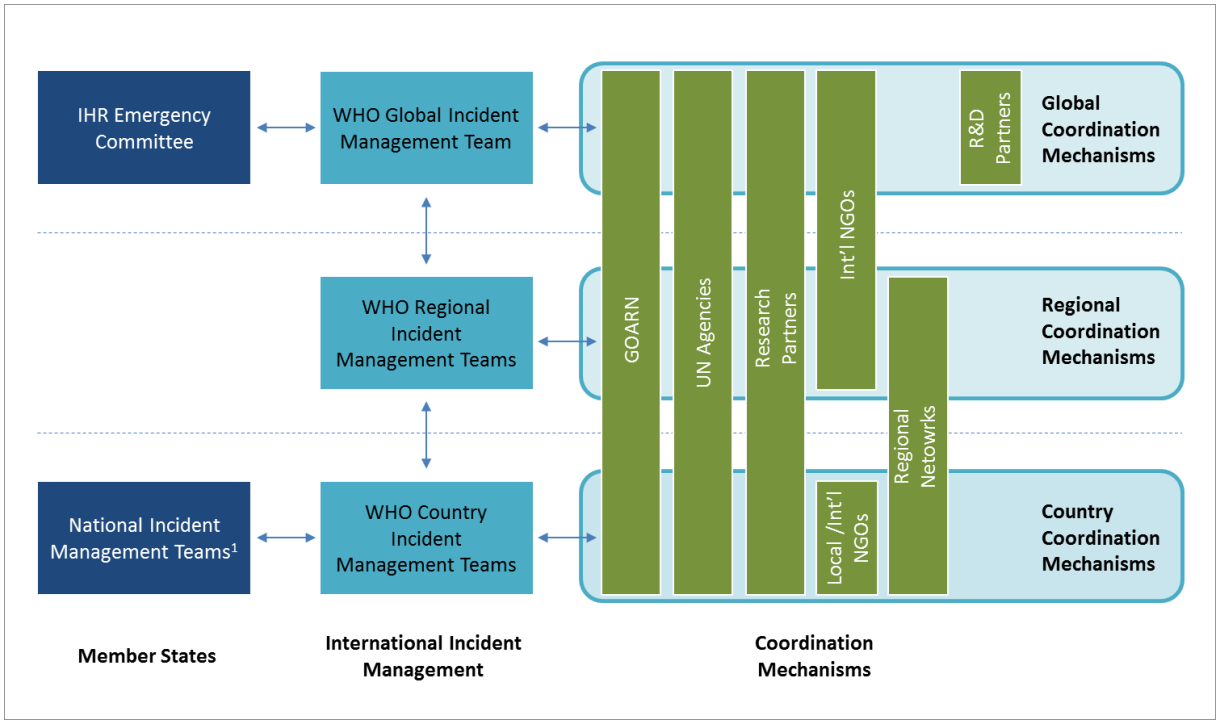
To ensure effective coordination of international partners and stakeholders at global level WHO will establish incident management teams at the global, regional and country level, as required. These teams will ensure regular communication between incident managers at different levels and close operational coordination with partners across all sectors and services at all levels.

In countries where there is spread of Zika virus and increased congenital malformations / neurological syndromes, or have a documented presence of the Aedes mosquito, WHO will support the national response efforts to increase surveillance and public health research through the GOARN partner networks and implement community engagement/risk communications, vector control/personal protective measures and health and social protections systems strengthening activities in coordination with the UN country teams as required.

For all other countries, WHO will work through the regional incident management teams to provide guidance and assist with the implementation of enhanced surveillance recommendations and risk communications for the public regarding trade and travel and management of imported cases.

In addition to these coordination mechanisms, the knowledge and lessons learned from the response in countries affected by the Zika virus and the possible links to cases of neurological syndromes and congenital malformations will need to be leveraged. The response will also need to learn from, and integrate with, existing prevention and control programmes for similar vector borne viruses such dengue and chikungunya and dengue..

Figure 2. Zika Response Coordination



RESPONSE

MONITORING

Effective response operations depend on continuous, regular and detailed surveillance and response monitoring, analysis and reporting.

Response monitoring will enable all partners across the response to have a common understanding of the situation, examine whether sufficient progress has been made against plan to reach the strategic objectives, and make evidence-based decisions for the direction of the response. The proposed response monitoring indicators for the three strategic objectives (Surveillance, Response, Research) are outlined on the following page.

Surveillance and response monitoring data and analysis will provide an overview of trends and will be used to adjust needs, targets and funding required. Response monitoring data and analysis will also allow leadership to review the general direction of the overall response and make adjustments, as necessary.

WHO is working to provide Member States with recommendations on strengthening surveillance and reporting systems in the context of the Zika virus outbreak. As part of comprehensive response monitoring, WHO also encourages and requests partners to regularly report on their response activities taking place at the global, regional and country levels.

As part of the regular strategic response plan and monitoring cycle, this Strategic Response Framework will initially be updated every six weeks, or as the need arises based on a change in circumstances or the discovery of new evidence. An overview of needs and requirements will follow the publication of this Strategic Response Framework. WHO will also publish and distribute a global situation report on a weekly basis, both through the WHO website and through email to partners. To be added to the situation report distribution list or provide response monitoring information, please email: zikainfo@who.int

Surveillance Indicators[3]

- Number of Zika virus cases
- Number of Zika virus deaths
- Number of GBS cases
- Number of GBS deaths
- Number of microcephaly cases
- Number of other malformation cases
- Number of countries with autochthonous transmission
- Number of newly affected countries
- Number and % countries with lab capacity (RT-PCR/PRNT)
- Number and % of countries with surveillance system in place for neurological complications or birth defects

Response Indicators

- Number and % countries with guidelines on case management
- Number and % countries with guidelines on management of neurological complications
- Number and % countries with guidelines on management of congenital complications
- Number and % countries with recs to public especially pregnant women for risk reduction
- Number and % affected communities with outreach and surveillance activities communicating risks and prevention measures
- Number and % of healthcare facilities with Zika clinical guidelines counselling services
- Number or and % of health care facilities with Zika laboratory and surveillance services
- Number and % of districts with active vector control programmes
- Number of call in centers with guidance on the Zika virus
- Number of countries or regions with vector surveillance
- House index (% of houses positive for mosquito breeding)
- Container index (% of containers positive for mosquito breeding)
- Pupal indice

Research Indicators

- Number of large, prospective clinical trials (>300 participants)
- Research network set up
- Research agenda defined

[3] Indicators to be disaggregated by age and sex where appropriate/available

SUMMARY OF REQUIREMENTS

FUNDING NEEDED

56M

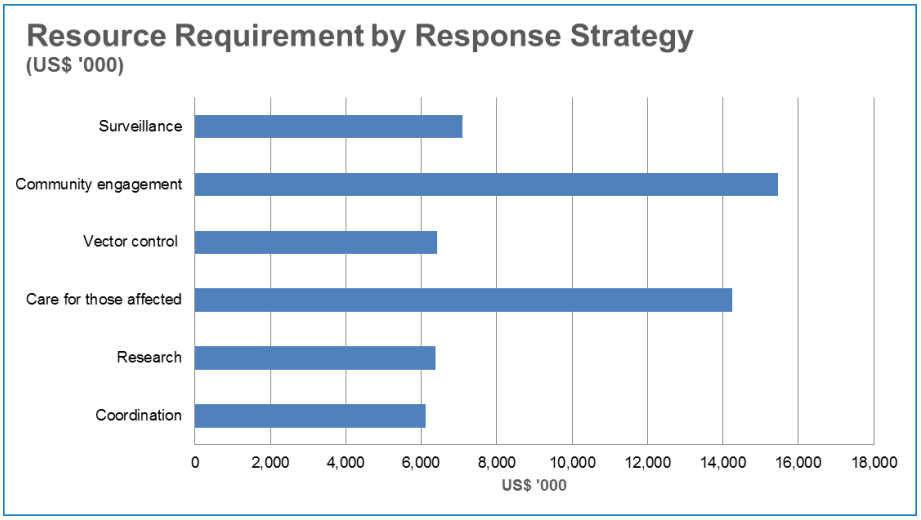
NUMBER OF PARTNERS

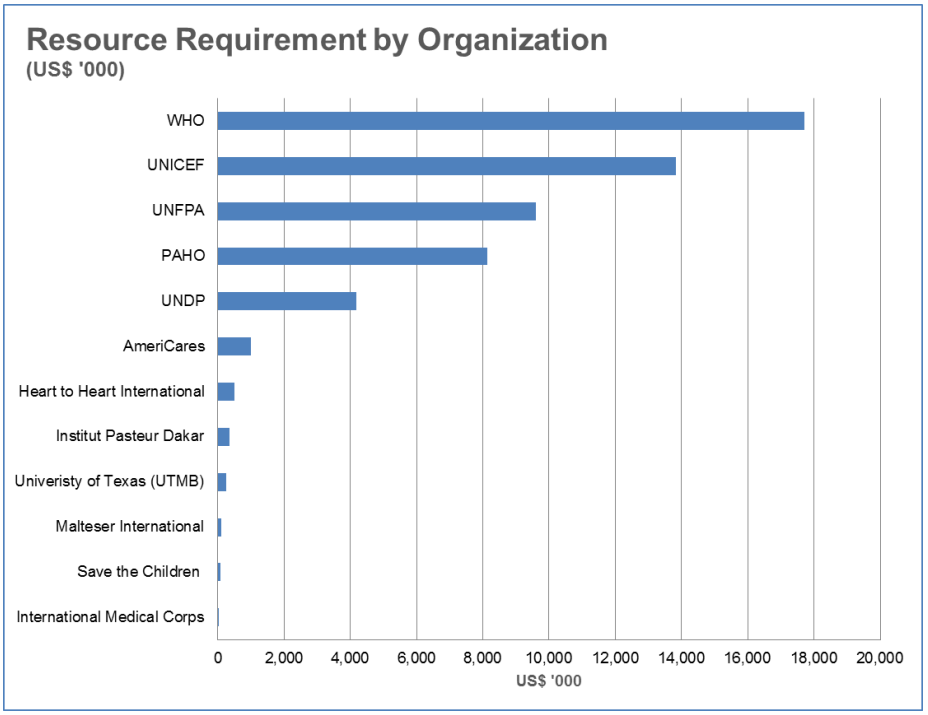
23

GEOGRAPHIC SCOPE

GLOBAL

WHO is currenty working with all partners to consolidate the needs and requirements across the response based on the strategic response framework. The tables below summarize the needs and requirements identified to date by response strategy and organazation. Part III of this document provides further details. The strategic response framework and needs and requirements will be reveiwed and updated as the response evolves .





PART II: OPERATIONAL RESPONSE PLANS


Surveillance


Community engagement & risk communication


Vector control & personal protection


Care for those affected


Research


Coordination

REQUIREMENT (US$)

7.1M

NUMBER OF PARTNERS

14

STRATEGY

1. Enhanced surveillance and monitoring
2. Laboratories and diagnostics
3. Rapid response

CONTACT

Stéphane Hugonnet
hugonnets@who.int

SURVEILLANCE

Enhance surveillance for Aedes mosquitoes, Zika virus disease, neurologic syndromes and congenital malformations

Enhanced surveillance and monitoring

Enhanced surveillance, improved diagnosis and rapid response will be essential in detecting and understanding the distribution, spread and nature of the Zika virus infection as well as monitoring trends in microcephaly, GBS and other neurologic syndromes. In addition, clear and standardized case definitions for surveillance, public health, laboratory and individual diagnosis will be developed to empower health systems to effectively detect, track and monitor Zika virus and the possible complications associated with the disease. PAHO in consultation with partners has proposed a standardized case definition for Zika virus. WHO in consultation with partners will review, modify and standardize other case definitions, as necessary, in light of the recent outbreaks.

WHO will also work with member states and partners to establish or strengthen mechanisms for surveillance and data reporting. This includes identifying metrics to be collected, mapping existing data sources, strengthening existing data collection and collation mechanisms and supporting the establishment of new ones, where needed. Information products, such as risk assessments and situation reports, will be produced and disseminated regularly. WHO has also proposed recommendations to countries on their surveillance strategy, including strengthening existing facility-based surveillance for detecting suspected complications in areas affected by, or at high risk of the Zika virus. WHO has also suggested the development of community, event-based surveillance for real-time data collection platforms to support monitoring and case reporting.

WHO will convene a joint committee of experts in the areas of paediatric and adult neurology and infectious diseases to establish case definitions of microcephaly, GBS and associated neurological complications. Taking stock of historical rates of microcephaly and GBS in both Zika virus-affected, and non/affected regions, will serve to gauge the significance of reported increased rates. WHO will review existing literature and data sets using research and surveillance networks.

WHO will also work with member states to collect and detect, as part of routine surveillance any other possible clinical outcomes related to Zika exposure in addition to microcephaly and GBS. Examples include rates of spontaneous abortion, still births, preterm delivery, low birth weight, other neurological disorders or complications. WHO and partners will provide support to member states to establish sentinel sites to detect changes in pregnancy outcomes that may follow spread of the virus.

Laboratories and diagnostics

WHO with partners will update the current guidance on diagnostics for Zika virus. Using the appropriate diagnostics for Zika virus is important since there are several diseases with similar clinical presentations to Zika (e.g. dengue, chikungunya and yellow fever) in countries with autochthonous Zika virus circulation. In addition, these viruses all belong to the same flavivirus family and are difficult to distinguish in traditional laboratory tests because of their relatedness. Traditional PCR tests are only able to determine Zika virus in the early stages of infection, meaning that by the time patients present symptoms and seek health care, the virus is almost undetectable. Accurately differentiating between these viruses is also important

for health care professionals to better identify the potential risks associated with these pathogens

To ensure that countries have access to laboratory testing for Zika virus infection, either in-country or externally, WHO will work with partners to map existing testing capacity, identify gaps, and develop plans to ensure access to appropriate laboratory testing. WHO and partners will convene in Puerto Rico, on 15 February 2016, to develop algorithms for clinical diagnosis and laboratory confirmation of Zika virus infection. WHO and partners will also explore the possibility of conducting global rounds of proficiency testing to confirm the ability of laboratories to perform testing for Zika virus infection.

WHO and GOARN partners, such as the US CDC, Institut Pasteur, and University of Texas Medical Branch (UTMB) and others, are already actively addressing gaps in country laboratory capacity in the Americas. To ensure global support to countries in other regions, WHO will strengthen and expand these existing mechanisms and identify additional partners to supply specimens to identified laboratories within country or to other countries, as well as expand training of laboratory staff and distribution of reagents, as needed.

WHO will also work with partners to monitor and track the development and availability of commercial diagnostic tests, and update and align diagnostic guidelines with new information.

Rapid response

WHO will work closely with countries to monitor the global situation, and coordinate international alert, risk assessment and rapid outbreak response with GOARN partners and technical networks. WHO and partners will develop an inventory of international response capacities as well as strengthen information sharing, operating procedures, and training to deploy international support to countries for readiness, rapid outbreak response, field investigations and public health research.

Key Activities

Activities	Organization
Address gaps in country laboratory capacity for Zika virus testing, including providing laboratory support, materials, reagents and training	WHO, PAHO, Curtin University and PathWest, European Virus Archive (EVA), nstitut Pasteur Dakar, Institut Pasteur International, National Institute for Communicable Diseases (NICD), South Africa, National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa
Coordinate and support country/sub-regional preparedness activities, including simulation exercises	WHO
Coordinate international alert, risk assessment and rapid outbreak response with partners and technical networks, including developing an inventory of international response capacities and deploying partners where required	WHO, UNICEF, National Institute of Infectious Diseases (NIID) Japan
Develop and disseminate guidelines on risk assessment for Zika virus, case definitions for Zika virus, microcephaly, GBS and other neurologic syndromes and map existing testing capacity, identify gaps, and develop plans to ensure access to appropriate laboratory testing	WHO
Regularly produce and disseminate updated information products, including situation reports and risk assessments	WHO, PAHO, European Center for Disease Prevention and Control (ECDC)
Support countries to strengthen surveillance and monitoring of Aedes vector, including at points of entry	WHO, PAHO, UNICEF, Univeristy of Texas Medical Branch (UTMB)
Update and disseminate guidance on Zika virus diagnostics and diagnostic algorithm, particularly as new information arises	WHO
Develop and provide guidance, tools and recommendations on surveillance strategies for Zika virus, microcephaly, GBS and other neurologic syndromes	WHO, PAHO, Heart to Heart International
Establish/strengthen mechanisms for surveillance and timely data reporting, including facility-based and community event-based surveillance, on Zika, microcephaly, GBS and other possible clinical outcomes,	WHO, PAHO, UNICEF, National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa, National Microbiology Lab (NML), Public Health Agency of Canada, Public Health Agency of Canada (PHAC)
Support countries to conduct risk assessment and epidemiological investigations in context of Zika virus circulation	WHO

REQUIREMENT (US$)

15.4M

NUMBER OF PARTNERS

10

STRATEGY

1. Public health risk communication
2. Community engagement
3. Health care personnel

CONTACT

Gaya Gamhewage
gamhewageg@who.int

COMMUNITY ENGAGEMENT & 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

Public health risk communication and community engagement activities aim to engage and empower key populations in affected and at-risk countries to make informed decisions to protect their health. Risk communication and community engagement activities support to governments, partners and response teams to implement priority actions that are needed for effective prevention, detection and response to the Zika virus outbreak and its possible associations with microcephaly and GBS.

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. As many unanswered questions remain about the Zika virus and its possible association with microcephaly in pregnancy and GBS, a systematic and sustained risk communication effort across WHO and in close collaboration with a large range of formal and informal partners is needed.

Public health risk communication and community engagement are closely linked and work in support of surveillance, response and research interventions. The activities include global and regional components that are also closely inter-linked, with an intense focus on the PAHO/AMRO region and with support to other WHO regions.

Robust coordination mechanisms must be established and managed within WHO and with external partners and stakeholders to ensure that all aspects of risk communication and community engagement are integrated in the response; that key stakeholders are supported to use risk communication messages and products in a consistent way that build and maintain understanding and trust; and that there is sharing of knowledge, interventions, gaps, evolving priorities, and shared problem-solving. WHO will ensure that advice is based on the best science available, is transformed to products that are contextualized, in the local language, and socially and culturally acceptable by stakeholders.

Public health risk communication

WHO commits to providing reliable, suitably contextualized information, advice and clear, evidence-based messages for key stakeholders in affected and non-affected populations in a format they can use and trust. Product design and delivery will focus on and engage with women and adolescent girls of reproductive age, families affected by microcephaly, GBS, and other neurological complications, governments, clinical and community health personnel and volunteers, media, travellers, and partners.

On-going collaboration on risk communications with key UN and humanitarian partners, professional networks of medical and public health workers, journalists, community radio, and others will be strengthened. Products will address public concerns, protective and preventive measures related to the Zika virus and its possible associations with microcephaly during pregnancy, GBS and other neurological syndromes.

WHO will also proactively brief and educate local journalists through the World Federation of Science Journalists and other networks to report accurately on Zika and related issues, as well as deploy experts from the WHO Emergency Communications Network to regions and countries, as needed. WHO encourages inter-agency and country cooperation to develop best practices, such as convening a one-

day hemispheric conference of communicators to identify common agendas and messages. This could also include a sub-regional Train the Trainers workshops on risk and crisis communications, with a special focus on learning methodologies such as knowledge, attitude and practices (KAP), risk perception studies and focus groups.

All WHO regional and country offices and partners will be provided with knowledge packs for use and adaptation. Through its networks of anthropologists and other sociologists, WHO will crowd source at the community level to keep risk communications ahead of the curve and credible by proactively anticipating and addressing concerns, and knowledge gaps.

It will also be important to undertake rapid social science research studies using nationally and regionally representative sampling, to understand individual, family and community perceptions, attitudes, expectations, and behavioural responses concerning fertility decisions, contraception, abortion, pregnancy care, and care of infants with microcephaly and persons with GBS.

Community engagement

Networks of social science experts will be activated to advise on community engagement, and build global and local resources to support community engagement activities. For effective community engagement, WHO will work through partners to conduct research studies that can be used to develop messages best suited to the context, and to further scale up interventions by identifying barriers and how to overcome them.

Community engagement partners should make use of existing antenatal and community women's groups to share information and self-organize for personal protection behaviours, and to gain access to better diagnostics and services. As Aedes mosquitoes feed almost entirely on humans, and mainly during daylight hours, community mobilization and participation will be essential in ensuring the success of vector control activities.

Health care personnel

Building on lessons learned in previous outbreaks, WHO will focus on supporting trust building and ensuring strong linkages between health care service providers and communities. This will include supporting active engagement with communities and frontline health workers to collaborate and co-develop tailored tools for health services that respond to the individual needs of the patient/client. Should the number of birth abnormalities increase, specific counselling services will need to be integrated into the basic package of essential services identified by each country. For queries from the general public on information, prevention and care seeking advice, WHO will provide support to information/call-in centres with the appropriate guidance and algorithms.

Key Activities

Activity	Organization
Activate networks of social science experts to advise on community engagement	WHO
Coordinate and collaborate between partners on risk communication messaging and community engagement for Zika	WHO, PAHO, Save the Children
Develop communication and knowledge packs and associated training on Zika and all related and evolving issues for communication experts	WHO, Save the Children
Engage communities to communicate the risks associated with Zika virus disease and promote vector control, personal protection measures, reduce anxiety, address stigma, dispel rumours, and cultural misperceptions,	WHO, PAHO, UNDP, UNICEF, AmeriCares, International Medical Corps
Proactively brief and educate global network of local journalists to report accurately and effectively on Zika and related issues and support active engagement with communities and frontline health workers to collaborate and co-develop tailored tools for health services	WHO, Malteser International
Support countries in risk and crisis communications through training experts and deploy communications expert and ensure the integration of risk communication considerations into technical guidance, as needed	WHO, PAHO, UNICEF
Develop and disseminate targeted risk communication messages and material on Zika and associated complications for key audience such as women of reproductive age, pregnant women, healthcare workers, clinicians, travel and transport sector stakeholders, and others	WHO, PAHO, UNFPA, UNHCR, UNICEF, Save the Children,National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa
Conduct social science research to understand individual, family and community perceptions, attitudes, expectations, and behavioural responses concerning fertility decisions, contraception, abortion, pregnancy care, and care of infants with microcephaly and persons with GBS, and to inform the development of messages suited to context, and to further scale interventions	WHO, UNICEF
Support countries to monitor the impact of risk communications through surveying knowledge and behaviour with regard to Zika and its potential complications	PAHO

REQUIREMENT (US$)

6.4M

NUMBER OF PARTNERS

7

STRATEGY

1 Vector control

2 Personal protection

CONTACT

Raman Velayudhan
velayudhanr@who.int

VECTOR CONTROL & PERSONAL PROTECTION

Increase efforts to control the spread of the *Aedes* mosquito as well as access to personal protection measures

Vector control

Vector control activities aim to reduce densities of Aedes mosquitoes to a level in which virus transmission is interrupted. Effective vector control requires strong entomological surveillance to determine changes in geographical distribution of vectors, for monitoring and evaluating control programmes, for obtaining relative measurements of the vector population over time, and for facilitating appropriate and timely decisions regarding control interventions.

WHO in conjunction with partners, will conduct situation analyses of the human resources and delivery of vector control services; , conduct analyses of the vector control strategies currently being used for chikungunya/dengue/yellow fever and identify the main constraints, and conduct needs analyses, including costs, to allow countries to prioritize and mobilize resources needed to face Zika.

WHO also encourages member states and partners to carry out activities to interrupt transmission that target Aedes mosquitos in the habitats of its immature and adult stages in the household and immediate vicinities, as well as other settings where human-vector contact occurs. WHO promotes IVM as a strategic approach to vector control, and includes advocacy, social mobilization, collaboration between health, education, and other sectors, integrated approach to disease control, evidence-based decision-making, and capacity-building as key elements to this strategy.

In selecting the most appropriate vector control method, or combination of methods, consideration should be given to the local ecology and behaviour of the target species, the resources available for implementation, the cultural context in which control interventions are carried out, the feasibility of applying them in a timely manner, and the adequacy of coverage.

The initial and continued susceptibility of the vector to specific insecticides is of fundamental importance for the success of larval and adult control opera¬tions. Insecticide resistance within vectors should be carefully monitored so that timely decisions can be made to use alternative insecticides or control strategies. Standard WHO bioassay procedures and kits are available for determining the susceptibility or resistance of mosquito larvae and adults to insec¬ticides. Biochemical and immunological techniques are also available for testing individual mosquitoes. If requested, WHO and partners will provide support to programmes to conduct these assessments.

WHO and partners will provide support to countries to develop the necessary vector surveillance and control capacities at ports, airports and ground crossings to limit the spread of public health risks, while simultaneously minimizing unnecessary interference with travel and trade. Activities will include monitoring and surveillance of vectors at points of entry and capacity-building for countries so that they are able to carry out these necessary activities.

Personal protection

Countries affected by Zika (and if microcephaly is confirmed to be associated with this virus) should explore proactive special care for pregnant women, such as giving adequate repellent lotion and treated mosquito nets to pregnant women. Interventions targeting pregnant women should also be evaluated for efficacy during implementation. Personal protection measures should also be targeted to women of child bearing age,

in general, and in general at household level.in general, and in general at household level.As it is the combined risk of Zika infection with pregnancy that has the potential to lead to complications, personal protection strategies must include advice for unintended pregnancy as well as Zika infection. WHO will conduct a rapid mapping exercise to document the key access barriers that limit women's capacity to protect themselves against unintended pregnancy and identify opportunities for strategic investments that could quickly and efficiently reduce these barriers. Also, regional meetings will be convened together with key public, NGO and private sector partners implementing and financing contraception services in affected countries to establish a coordinating mechanism (with WHO as the proposed lead) to ensure that initiatives and investments for strengthening contraceptive services are implemented in a harmonized fashion.

Key Activities

Activity	Organization
Update guidelines/recommendations on emergency Aedes mosquito control and surveillance	WHO
Disseminate guidelines/recommendations on emergency Aedes mosquito control and surveillance	WHO, PAHO
Support insectide resistance monitoring activities, including assessing the environmental consequences of using insecticides	WHO, UNDP
Support countries in vector surveillance and control, particularly Integrated Vector Management (IVM), including the provision of equipment, insecticides, PPEs, training of personnel, etc.	WHO, PAHO, UNDP, AmeriCares, Malteser International, Save the Children, National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa
Provide proactive special care for pregnant women, such as Zika Pregnant Mother Kits (ZPMKs), adequate repellent lotion, treated mosquito nets, etc.	AmeriCares, Save the Children

REQUIREMENT (US$)

14.2M

NUMBER OF PARTNERS

8

STRATEGY

1. Clinical guidance and protocols
2. Preparation of healthcare facilities
3. Pre-pregnancy, maternal and neo-natal care

CONTACT

Anthony Costello
costelloa@who.int

CARE FOR THOSE AFFECTED

Provide guidance and mitigate the impact on women of childbearing age and those who are pregnant, as well as families with children affected by Zika virus

Clinical guidance and protocols

WHO is working with the Epidemic Diseases Clinical Assessment Response Network (EDCARN) and the International Severe Acute Respiratory and Epidemic Infection Consortium (ISARIC) to propose a standardized data collection and centralized database based on research studies on Zika virus and its potential associate links with microcephaly and other neurological conditions.

Research study protocols are being developed from the WHO template protocol for Emerging and Pandemic dangerous pathogens, which were approved by the WHO Ethics Review Committee. Clinical information, laboratory test results, and host genetic analysis, will be collected. Workshops for participating institutions will be conducted prior to the study period to discuss enrolment criteria, ethics considerations, biological sampling, sample storage, shipment and transport, record taking, data entry, and other relevant topics.

Preparation of healthcare facilities

Thus far, the Zika virus outbreak has had limited impact on health systems in the affected countries .WHO and partners will focus on two main areas of health systems strengthening 1) health services preparedness; and 2) active engagement with communities to co-develop guidance to strengthen health service. Monitoring these efforts will help to understand progress and document lessons learned for future outbreaks of the virus. Special emphasis will be made on areas with poor access to regular health services.

WHO with partners will support rapid assessments on the availability of case detection, management and reporting guidelines in health care facilities and related services. Mechanisms to cope with surges in patients, supply chain and staffing will also be assessed. These systems should enable ministries of health to: (i) determine populations at risk of complications; (ii) monitor management of pregnancy; and (iii) monitor management of complications during pregnancy (including termination options).

In areas with positive Zika virus cases, active surveillance and effective vector control around all health care facilities will limit transmission from positive cases to non-infected patients, staff and the wider public. As pregnant women and adolescent girls are the most vulnerable population in this outbreak, accessible prenatal counselling and contraception services are critical.

Guidance on blood transfusion services will be developed to prevent transmission from infectious patients, especially when complications arise. Concerted efforts will be made to strengthen health care facility surveillance and enhance laboratory compliance and safe practices.

WHO will provide technical support to national authorities on health service delivery refinements required, with special attention to guidance on information and call-in centers.

Using an adapted Health Facility Assessment methodology in nationally representative samples of facilities will help assess existing capacity and needs for health system strengthening.

Pre-pregnancy, maternal and post-natal care

Management of pregnancy, childbirth and the postnatal period in the context of Zika virus infection remains unclear. WHO, in consultation with partners, will develop guidance for

programme managers and health care workers to counsel pregnant women in Zika virus affected areas on risks, routes of transmission, personal protection measures and potential consequences of the infection to the fetus. Guidelines on screening pregnant women for Zika virus will also be developed.

For women who are suspected, or confirmed to have Zika virus infection, guidelines will be developed for clinical follow up, including ultrasonography for pre-natal diagnosis of potential microcephaly, assessment of birth outcomes, and psychosocial support and counselling. Standardized protocols for screening and diagnosing microcephaly in newborns will be developed. This will include guidance on screening and management of associated conditions, such as hearing and vision problems, intellectual and physical disabilities and epilepsy for infants with microcephaly. Further, guidance on treatment, follow up of infants, provision of psychosocial support, counselling of families and parents skills training will be developed.

WHO and partners will provide support to ensure women and adolescent girls' rights to make their own decisions about pregnancy and childbirth are gender rights-based and within national law. WHO will convene a regional meeting that brings together individual, NGO and private sector partners that are implementing and financing contraception services in affected countries. The aim of this meeting will be to establish a coordinating mechanism (with WHO as the proposed lead) that provides investments and aligns initiatives for strengthened contraceptive services.

For cases of suspected GBS, guidance for health care providers is required on testing for Zika virus infection. Guidelines will be developed on the role of diagnostic tests, treatment, monitoring and follow up, and provision of psychosocial support and counselling.

The health and social services sectors, must work together to provide a package of support services (counselling, and social protection) for families to care for their children and address the impact of microcephaly , other congenital anomalies and neurological conditions

Key Activities

Activity	Organization
Assess and support existing capacity and needs for health system strengthening, particularly around antenatal, birth and postnatal care, and neurological and mental health services, and contraception and safe abortion	WHO
Conduct mapping to document key access barriers limiting women's capacity to protect themselves against unintended pregnancy	WHO
Develop guidance on mental health and psychosocial assistance to families affected by microcephaly, GBS or other neurological conditions	WHO, PAHO
Develop guidance on treatment, follow up of infants, provision of psychosocial support, counselling of families and parents skills training	WHO, PAHO
Develop guidelines on women who are suspected or confirmed to have Zika virus infection, including women wanting to get pregnant, pregnant women, and women who are breastfeeding	WHO, PAHO
Provide a package of support services (counselling, and social protection) for families to care for their children and address the impact of microcephaly, other congenital anomalies and neurological conditions	PAHO
Provide accessible prenatal counselling and contraception services, including for adolescent girls	UNFPA, Save the Children
Provide care and support to families affected by Zika virus, including management of microcephaly and other neurological syndromes	UNICEF, AmeriCares
Provide technical support to countries on health service delivery refinements and national level planning to support anticipated increases in services needs, as required	WHO
Support/conduct rapid assessments on the availability of case detection, management and reporting guidelines as well as mechanisms to cope with surges in patients, supply chain and staffing in health care facilities and related services	WHO, PAHO,AmeriCares, National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa
Develop and disseminate guidance on Zika virus for health care professionals regarding clinical manifestations, diagnosis, treatment and surveillance	Public Health Agency of Canada (PHAC)
Develop and disseminate guidance on blood transfusion services, tools for triage of suspected Zika, chikungunya and dengue cases, guidance on health services management following a Zika virus outbreak	WHO, PAHO
Procure and provide equipment and supplies for prioritized countries and territories to prepare their healthcare facilities in the provision of specialized care for complications of Zika virus	WHO, PAHO, AmeriCares

REQUIREMENT (US$)

6.4M

NUMBER OF PARTNERS

8

STRATEGY

1 Public health research

2 Research and product development

CONTACT

Public health research:

Asheena Khalakdina
khalakdinaa@who.int

R&D:

Bernadette Murgue
murgueb@who.int

RESEARCH

Investigate the etiology of microcephaly, neurological syndromes and establish the possible consequences of Zika virus infection and fast-track the research and development (R&D) of new products

Public health research

Specific operational case definitions of microcephaly, GBS and other neurological disorders will be developed for case-control and cohort studies required if Zika virus is the confirmed cause of these conditions. These studies will also examine the role of other factors that may be in the causal pathway between Zika virus infection and microcephaly and other neurological disorders, or may adversely modify the effect of Zika virus infection. Protocols for these cohort and case-control studies will be developed and sites identified to conduct the studies.

The existing, scarce evidence indicates that there may be a risk of sexual transmission of Zika virus as well as a risk of persistence in semen and urine. There is currently very little evidence of mother-to-child transmission,; however, intra-uterine infections seem to be associated with subsequent neurological conditions in the child.

Taking into account this very limited evidence, it is important to understand how long the virus stays active in body fluids other than blood and to better document the risk of sexual transmission. Research studies are needed in order to assess: 1) presence of the Zika virus in semen and other body fluids, including pregnancy-related fluids; and 2) potential sexual transmission, and mother-to-child transmission.

Specific operational case definitions of microcephaly, GBS and other neurological disorders will be developed for case-control and cohort studies required if Zika virus is the confirmed cause of these conditions. These studies will also examine the role of other factors that may be in the causal pathway between Zika virus infection and microcephaly and other neurological disorders, or may adversely modify the effect of Zika virus infection. Protocols for these cohort and case-control studies will be developed and sites identified to conduct the studies.

WHO and partners will also conduct an assessment of the impact of community engagement strategies through antenatal and community groups and mHealth methods in high risk populations on personal protection behaviours, neighbourhood vector control, and Zika virus seroconversion rates in pregnancy.

Research and product development

As part of the broader emergency response, WHO has initiated an emergency research and development response plan. This emergency research and development plan is the first attempt (post-Ebola virus disease) to implement the WHO's R&D Blueprint. Established in 2015 at the request of the WHO Executive Board, and subsequently welcomed by the World Health Assembly, the R&D Blueprint aims to implement a roadmap for R&D preparedness for known priority pathogens, and to enable roll-out of an emergency R&D response as early and as efficiently as possible for emerging pathogens for which there are no, or insufficient, preventive and curative solutions. In December 2015 WHO convened a workshop to identify a short-list of pathogens to be prioritized immediately. Zika was identified as serious risk, necessitating further action as soon as possible.

This emergency R&D response plan has been tailored to the current state of understanding of Zika virus and addresses research and development needs for novel means of vector control, diagnostics, vaccines, and coordination of supportive research activities, such as the establishment

and validation of appropriate animal models, and sharing of information. WHO remains committed to working with all those involved in relevant research and development efforts, and in bringing them together to contribute solutions to this international health concern.

Diagnosing cases of Zika fever, and being able to differentiate them from other diseases caused by flaviviruses, is difficult. There are currently very few commercially available tests (and none of them have been validated by a stringent regulatory agency) and limited numbers of facilities able to perform definitive diagnostic testing. WHO is undertaking a landscape analysis of diagnostics under development, developing target product profiles, facilitating the preparation and characterization of reference reagents, and setting up an Emergency Use Assessment and Listing mechanism for priority Zika in vitro diagnostics.

There is currently no vaccine available for Zika virus. Unlike recent Public Health Emergencies of International Concern, there are also no candidate vaccines ready for clinical trials. As a result, WHO efforts to accelerate research and development will begin more upstream in the product development pipeline, namely through a landscape analysis of vaccine candidates, the development of target product therapeutics. The plan further includes profiles, identifying and overcoming barriers to the development of priority vaccine candidates, facilitating the preparation and characterization of reference reagents, and supporting fast-tracking of clinical trials.

There is currently no specific antiviral prophylaxis or therapeutic for Zika virus. WHO has initiated a landscape analysis of potential prophylaxis and therapeutics and is establishing an expert working group for the prioritization of such candidates.

There are a range of vector control measures for the mosquitoes known to spread the Zika virus. Recent developments, such as progress in mosquitoes modified to carry Release of Insects with Dominant Lethality (RIDL) traits or the use of gene drives, offers opportunities for novel approaches. A landscape analysis of research work on vector control mechanisms has been undertaken and work will be initiated to advance new or improved control mechanisms. Tools or methods that require further study under strictly controlled conditions include the introduction of Wolbachia bacteria into Aedes aegypti mosquito populations, transgenic mosquitoes, Sterile Insect Technique (SIT), and slow release formulations of insecticides and insect growth regulators.

A regulatory support group will be convened by WHO to provide advice on each of the product development activities outlined above.

Key Activities

Activity	Organization
Conduct research studies to assess link between Zika and microcephaly	WHO, PAHO, Institut Pasteur International
Conduct research studies to assess potential sexual transmission and mother-to-child transmission	WHO, Univeristy of Texas Medical Branch (UTMB)
Conduct social science research on women's and health workers' perceptions of pregnancy risk and consequent decisions on contraceptive use, PAC and safe abortion in context of Zika	WHO
Coordinate supportive research activities, including establishment and validation of appropriate animal models, research protocols and sharing of information, and fast-tracking of clinical trials	WHO, UNICEF
Develop research protocols for Zika-related studies	WHO
Research on current or novel vector control approaches and insecticide resistance	WHO, PAHO, UNICEF, Institut Pasteur International, Univeristy of Texas Medical Branch (UTMB)
Support or conduct research related to Zika diagnostics	WHO, UNICEF, Institut Pasteur International National Institute for Communicable Diseases of the National Health Laboratory Service (NICD) South Africa, National Microbiology Lab (NML), Public Health Agency of Canada, Univeristy of Texas Medical Branch (UTMB)
Support or conduct research related to Zika therapeutics	WHO
Coordinate supportive public health research activities, including developing research protocol, promoting the sharing of information, initiating the emergency research and development response plan, including the development of a research agenda and establishing and convening an expert committee to regularly review knowledge being generated	WHO, PAHO, International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC)
Support or conduct research related to Zika vaccines	WHO, Institut Pasteur International, Univeristy of Texas Medical Branch (UTMB)

REQUIREMENT (US$)

6.1M

NUMBER OF PARTNERS

6

CONTACT

Ian Clarke
clarkei@who.int

COORDINATION

A coordinated response is conducted by partners across sectors and services at the global, regional and national levels

In a rapidly developing, emerging disease event, scientific knowledge, field experience and lessons learnt from the response are critical for global coordination and collaboration, to guide intervention strategies, technical advice, operational response, and ensure that the response builds on and integrates with existing prevention and control programmes for similar vector borne viruses, such dengue and chikungunya.

To date the outbreak and response has been primarily centred in the Americas and coordinated by the PAHO. PAHO will continue to work with support of GOARN partners to provide rapid response support in the Americas.

To support countries and affected populations effectively, WHO is working closely with national authorities and a broad range of partners on the development of the strategic response priorities, and mapping multisectoral and multidisciplinary capacities. WHO is coordinating with partners in conducting assessments, developing technical advice and guidance, and delivering critical interventions and support to countries.

In the countries where an incident management team is established it will work in close coordination with the national incident management systems. In countries where no WHO incident management team is established, the coordination with the national incident management system will be through the regional incident management team.

Coordination mechanisms will be strengthened to cover collaboration on comprehensive international and national response activities, and engage partners and stakeholders including UN Agencies, GOARN and technical networks, public health and research partners, national and international NGOs, and development partners, both regionally and globally. WHO will work closely with OCHA to ensure coordination mechanisms are interoperable with existing humanitarian response systems.

To ensure effective internal coordination, and support coordination and collaboration of partners and stakeholders, WHO will establish incident management teams at the global, regional and country level, as required. These teams will operate using an incident management structure, with regular communication between incident managers at different levels and close operational coordination with partners at all levels.

WHO will continue to coordinate closely with the Inter-Agency Standing Committee (IASC) and other partners through regular targeted outreach, periodic general information sessions to the entire IASC community. IASC partners coordination meetings will be organized every two weeks within the initial first three months in both Geneva and New York.

At the country level, WHO will work through the regular UN country team structures, according to the principles of partnership of humanitarian clusters, and as outlined in the concept of operations section.

WHO will also ensure that partners are kept aware of the latest situation through conducting regular briefings, holding partner coordination calls, sharing information, and providing regular situation updates. Partners are encouraged to send updates on their key Zika activities to the WHO incident management team for inclusion in the global weekly situation reports.

Following the advice of the first meeting of the IHR emergency committee on "Zika virus and observed increase in neurological disorders and neonatal malformations," held on 1 February 2016, with information on a potential association between microcephaly and other neurological disorders with Zika virus provided by Brazil, France, El Salvador, and the United States, the WHO Director General declared that the recent cluster of microcephaly cases and other neurological disorders reported in Brazil, following a similar cluster in French Polynesia in 2014, constitutes a Public Health Emergency of International Concern (PHEIC). The Director General issued the recommendations of the Committee as Temporary Recommendations under IHR (2005). These recommendations constitute the basis for the response by the international community and WHO operational plan.

As per IHR Article 15.3, these temporary recommendations will automatically expire after three months and may be modified or extended for additional periods of up to three months. The WHO IHR Secretariat will follow closely the IHR procedures, including the monitoring of public health measures implemented by the States Parties in accordance with the Regulations, the timely sharing of information between National IHR Focal Points and WHO IHR Contact Points in the Regions, the provision of advice for travel and transport sectors, and will reconvene the Emergency Committee for ahis second meeting after 3 three months.

The WHO secretariat will continue to strengthen countries' capacity for outbreaks and health emergencies through the Joint External Evaluation (JEE) missions and other approaches under the IHR Monitoring and Evaluation framework, starting with the most vulnerable countries. This will be done in close collaboration with key partners and initiatives such as the Global Health Security Agenda (GHSA), regional initiatives and the G7 commitments.

Key Activities

Activity	Organization
Strengthen coordination mechanisms required for comprehensive international and national response activities, including developing strategic response priorities, setting up incident management teams where necessary, and coordinating the UN system at the national level	WHO, PAHO, UNDP, UNICEF
Conduct WHO IHR Secretariat activities to follow IHR procedures, including monitoring of travel and trade measures, providing advice to countries on measures related to travellers, conveyances, points of entry, and trade, and supporting implementation of standard WHO recommendations on disinsection of aircrafts and airports	WHO, PAHO
Coordinate and support country/sub-regional preparedness activities, including simulation exercises	WHO, PAHO, UNICEF
Coordinate and provide logistics and procurement services, including engineering and telecommunications support to response partners	WFP

PART III: ANNEXES

Participating organization’s funding requirements

PARTICIPATING ORGANIZATION'S FUNDING REQUIREMENTS

Table 2. Resource requirements by Response Strategy/Organization

Response Strategy / Organization	Total requirement
Surveillance	**7,099,143**
WHO	4,760,976
PAHO	1,500,000
Heart to Heart International	488,167
Institut Pasteur Dakar	350,000
Risk communication and community engagement	**15,472,200**
WHO	2,782,200
PAHO	750,000
UNICEF	8,820,000
UNDP	1,500,000
UNFPA	1,300,000
AmeriCares	200,000
International Medical Corps	10,000
Malteser International	30,000
Save the Children	80,000
Vector control and personal protection	**6,429,000**
WHO	2,495,000
PAHO	2,250,000
UNDP	1,600,000
Malteser International	84,000
Care for those affected	**14,244,108**
WHO	2,994,108
PAHO	2,150,000
UNFPA	8,300,000
AmeriCares	800,000
Research	**6,383,000**
WHO	2,281,000
PAHO	850,000
UNICEF	3,000,000
Univeristy of Texas Medical Branch (UTMB)	252,000
Coordination	**6,115,200**
WHO	2,408,200
PAHO	632,000
UNICEF	2,000,000
UNDP	1,075,000
Grand Total	**55,743,651**

Table 3. Resource requirements by Organization/Response Strategy

Organization / Response Strategy	Total requirement
WHO	**17,721,484**
Surveillance	4,760,976
Risk communication and community engagement	2,782,200
Vector control and personal protection	2,495,000
Care for those affected	2,994,108
Research	2,281,000
Coordination	2,408,200
PAHO	**8,132,000**
Surveillance	1,500,000
Risk communication and community engagement	750,000
Vector control and personal protection	2,250,000
Care for those affected	2,150,000
Research	850,000
Coordination	632,000
UNICEF	**13,820,000**
Risk communication and community engagement	8,820,000
Research	3,000,000
Coordination	2,000,000
UNFPA	**9,600,000**
Risk communication and community engagement	1,300,000
Care for those affected	8,300,000
UNDP	**4,175,000**
Risk communication and community engagement	1,500,000
Vector control and personal protection	1,600,000
Coordination	1,075,000
AmeriCares	**1,000,000**
Risk communication and community engagement	200,000
Care for those affected	800,000
Malteser International	**114,000**
Risk communication and community engagement	30,000
Vector control and personal protection	84,000
Others	
Heart to Heart International (Surveillance)	488,167
International Medical Corps (Risk communication and community engagement)	10,000
Save the Children (Risk communication and community engagement)	80,000
Institute Pasteur Dakar (Surveillance)	350,000
University of Texas Medical Branch (UTMB) (Research)	252,000
Grand Total	**55,743,651**

This report is produced on behalf of the WHO Outbreaks and Health Emergencies Programme and partners.

This document provides the WHO Outbreaks and Health Emergencies's shared understanding of the crisis, including the most pressing health needs, and reflects its joint health response planning.

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