ZIKA
STRATEGIC RESPONSE PLAN QUARTERLY UPDATE

JULY - SEPTEMBER 2016

World Health Organization

October 2016

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ABOUT THIS QUARTERLY UPDATE

The *Zika Strategic Response Plan, Revised for July 2016 – December 2017*, updated the previous *Strategic Response Framework and Joint Operations Plan, January – June 2016*, to guide the continuing international response to Zika virus infection, its complications and consequences. The plan continues to provide the basis for coordination and collaboration among WHO and its partners so that countries' preparedness and response capacities are supported to the fullest extent possible.

This *Quarterly Update* gives key information on the situation, the response and updated funding information for organizations working as part of the response. In accordance with standardized planning best practice it provides an update of progress against the *Zika Strategic Response Plan, Revised for July 2016 – December 2017*, which remains the main strategy document.

Zika Strategic Response Plan Quarterly Update
25 October 2016
WHO/ZIKV/SRF/16.4

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FOREWORD

WHO EXECUTIVE DIRECTOR OF HEALTH EMERGENCIES PROGRAMME

On 1 September 2016, the Fourth IHR Emergency Committee on Zika virus and associated complications was convened. Having considered the evidence presented, the Committee agreed that Zika virus infection and its associated congenital and other neurological disorders continue to be a Public Health Emergency of International Concern. This is because Zika virus continues to expand to new geographic areas and because we face persisting and new gaps in understanding Zika and its consequences. The Committee applauded the considerable efforts that have been taken to date by Member States, WHO and partners in response to this emergency and emphasized the need for a better scientific understanding of Zika virus epidemiology.

Zika virus continues to spread geographically to areas where competent mosquitoes are present. From 2015 onwards, mosquito-borne transmission has been reported in four out of six WHO regions: Africa, the Americas, South-East Asia and the Western Pacific. Countries in the Western Pacific Region continue to report new Zika virus cases as seen in Malaysia, Philippines, Singapore and Viet Nam.

Prior to this update, only the Western Pacific Region and the Region of the Americas had documented Zika-associated microcephaly. On 1 October, Thailand notified WHO of two babies born with microcephaly associated with Zika virus, the first such cases in the WHO South-East Asia Region. In Africa, Guinea-Bissau is currently investigating 5 cases of microcephaly to determine if these are associated with Zika virus.

The geographic spread of Zika, although anticipated by WHO, raises pressing questions, especially for women and couples planning or expecting a child. Critical questions for scientists and policy-makers include the public health implications of Zika endemicity and population immunity, the potential of different Zika virus strains to cause complications, and a better understanding of the full spectrum of congenital Zika virus syndrome.

These issues are part of the WHO-coordinated Zika virus research agenda, which aims to generate the scientific evidence needed to strengthen essential public health guidance and the associated actions of WHO, partners and Member States. Researchers need to work with responders to identify critical research needs and translate the findings into improved public health actions.

As part of this far-reaching collaborative effort, many partners have played an active role in contributing to the global Strategic Response Plan for Zika, through the implementation of a range of activities in the areas of detection, prevention, care and support and research across the globe. This quarterly report update compiles examples from the past few months from partners across the globe.

While the overarching strategy developed and agreed with partners in June holds strong, it is critical that we continue to sustain these efforts as part of a longer term strategy focused on strengthening preparedness in the most vulnerable countries to manage Zika and associated consequences. WHO and partners will continue to work with Member States to ensure care and support to families affected by Zika virus, to drive forward all aspects of the research agenda and to strengthen health systems to deal with this and future outbreaks.

I would like to take this opportunity to recognize and thank all the partners involved for their collaboration and considerable efforts in response to this global challenge to public health.

Dr Peter J. Salama

Executive Director

WHO Health Emergencies Programme

THE STRATEGIC RESPONSE PLAN

QUARTERLY UPDATE

ZIKA VIRUS

Fig. 1. Countries, territories and areas showing the distribution of Zika virus, 2013-2016

PART I: SITUATION UPDATE

The *Zika Strategic Response Plan - Revised for July 2016 to December 2017*, comprised of the *Strategic Response Framework* and *Joint Operations Plan*, has been developed to guide the international response and joint actions against Zika virus infection, its complications and consequences. It provides the basis for coordination and collaboration with partners so that countries' preparedness and response capacities are supported to the fullest extent possible. The document will be updated regularly.

WHAT IS ZIKA VIRUS?

Introduction

Zika virus is a mosquito-borne flavivirus[1] that was first identified in Uganda in 1947 in monkeys through a network that monitored yellow fever. It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania. From the 1960s to 1980s, human infections were found across Africa and Asia, typically accompanied by mild illness. The first large outbreak of disease caused by Zika virus infection was reported from the Island of Yap (Federated States of Micronesia) in 2007. In July 2015, Brazil reported an association between Zika virus infection and Guillain-Barré syndrome (GBS). In October 2015, Brazil reported an association between Zika virus infection and microcephaly. Outbreaks of Zika virus disease (ZVD) have now been recorded in Africa, the Americas, Asia and the Pacific.

Key facts

- ZVD is caused by a virus transmitted primarily by *Aedes* mosquitoes.
- People with ZVD can have symptoms including mild fever, skin rash, conjunctivitis, muscle and joint pain, malaise or headache. These symptoms normally last for 2-7 days.
- There is scientific consensus that Zika virus is a cause of microcephaly and a trigger of Guillain-Barré syndrome. Links to other neurological complications are also being investigated.

Signs and symptoms

The incubation period (the time from exposure to symptoms) of ZVD is not clear, but is likely to be a few days. The symptoms are similar to other arbovirus[2] infections such as dengue, and include fever, skin rashes, conjunctivitis, muscle and joint pain, malaise and headache. These symptoms are usually mild and last for 2-7 days.

Complications of Zika virus infection

Zika virus infection during pregnancy is a cause of congenital brain abnormalities, including microcephaly (a condition where a baby is born with a small head or the head stops growing after birth, often associated with neurological defects); and that Zika virus is a trigger of Guillain-Barré syndrome (a rare condition in which a person's immune system attacks the peripheral nerves which can result in temporary muscle weakness and loss of sensation in the legs and/or arms, occasionally causing life-threatening paralysis).

Transmission

Zika virus is primarily transmitted to people through the bite of an infected mosquito from the *Aedes* genus, mainly *Aedes aegypti*. *Aedes* mosquitoes usually bite during the day, peaking during early morning and late afternoon/evening. This is the same mosquito that transmits dengue, chikungunya and yellow fever. Sexual transmission of Zika virus can also occur. Other modes of transmission such as blood transfusion have been observed.

[1] Flaviviruses are a family of viruses including dengue virus, West Nile virus, yellow fever virus and Zika virus.

[2] Arboviruses are a group of viruses that are transmitted by mosquitoes, ticks, or other arthropods. They include the viruses that cause yellow fever and Zika.

Diagnosis

Infection with Zika virus may be suspected based on symptoms and relevant epidemiological links including recent history of travel (for example, residence in or travel to an area with active Zika virus transmission, sexual history with someone with Zika or returned from a Zika-affected area or recipient of a blood transfusion). A diagnosis of Zika virus infection can only be confirmed through laboratory tests on blood or other body fluids, such as urine, saliva or semen.

Treatment

ZVD is usually mild and requires no specific treatment. People sick with ZVD should get plenty of rest, drink enough fluids and treat pain and fever with common medicines. If symptoms worsen, they should seek medical care and advice. There is currently no vaccine available.

EPIDEMIOLOGICAL UPDATE

From 2015 onwards, the geographical range of Zika virus has expanded rapidly, with mosquito-borne transmission of the virus reported in 67 countries predominantly in the Americas Region but more recently spreading to countries in Africa and Asia.

Countries in the South-East Asia and the Western Pacific Regions continue to report new cases of Zika as seen in Malaysia, the Philippines, Singapore, Thailand and Viet Nam. It is not clear whether the apparent recent increase in the number of reported Zika cases is due to an actual increase in numbers or whether this is the result of enhanced surveillance, testing or awareness.

Since 2015, a total of 23 countries and territories in Africa, the Americas, South-East Asia and the Western Pacific Regions have reported microcephaly and other central nervous system (CNS) malformations potentially associated with Zika virus infection or suggestive of congenital infection. As of 6 October 2016, twenty countries in the Region of the Americas have reported an increased incidence of GBS and/or laboratory confirmation of a Zika virus infection among GBS cases.

Causality

Based on a systematic review of the literature up to 30 May 2016, WHO has concluded that Zika virus infection during pregnancy is a cause of congenital brain abnormalities, including microcephaly and that Zika virus is a trigger of Guillain-Barré syndrome.

Congenital Zika virus syndrome (CZVS)

The spectrum of abnormalities associated with Zika virus exposure in utero is known as congenital Zika virus syndrome (CZVS). In addition to microcephaly, a range of manifestations of varying severity has been reported among newborns and infants where there has been exposure to Zika virus in utero. These include malformations of the head, seizures, irritability, swallowing problems, limb contractions, hearing and sight abnormalities and brain anomalies detected on neuroimaging. Other outcomes associated with Zika virus infection in utero may involve miscarriages and stillbirths.

Failure to observe signs of CZVS, particularly when assessed in utero, does not necessarily mean that the fetus or newborn does not have abnormalities. For example, some abnormalities such as hearing and sight problems may not be detected in utero but only after birth. Some signs such as seizures may develop only after birth.

The full extent of CZVS is yet to be described but the presentation is expected to be moderate to severe in infants with severe microcephaly. Defining the full spectrum of CZVS, including the long-term effects of asymptomatic congenital Zika virus infection, is part of the WHO-coordinated Zika virus research agenda which includes preparing technical documents to describe the syndrome as new evidence becomes available.

Sexual transmission

Zika virus can be transmitted through sexual intercourse. This is of concern due to an association between Zika virus infection and adverse pregnancy and fetal outcomes.

For regions with active transmission of Zika virus, all people with Zika virus infection and their sexual partners (particularly pregnant women) should receive information about the risks of sexual transmission of Zika virus. WHO recommends that sexually active men and women be correctly counselled and offered a full range of contraceptive methods to be able to make an informed choice about whether and when to become pregnant to prevent possible adverse pregnancy and fetal outcomes. Women who have had unprotected sex and do not wish to become pregnant due to concerns about Zika virus infection should have ready access to emergency contraceptive services and counselling.

For men and women returning from areas of active transmission to areas with no active transmission, WHO recommends practising safer sex or abstinence for a period of six months to prevent Zika virus infection through sexual intercourse.

Sexual partners of pregnant women, living in or returning from areas where local transmission of Zika virus occurs, should practise safer sex or abstain from sexual activity throughout the pregnancy.

Zika virus lineages[3]

Phylogenetic analysis[4] of Zika virus sequences to date has identified two major lineages: the "African" and the "Asian" lineage.

As of 21 October 2016, the neurological complications Guillain-Barré syndrome and/or microcephaly have only been linked to post-2007 strains of the "Asian" lineage. These post-2007 strains have been isolated from French Polynesia since 2013, the Region of the Americas from 2015 onwards and from Cabo Verde in 2016. To date, Zika strains that belong to the "African" or "Asian" lineage prior to 2013, have not been linked to severe neurological complications. These complications may just not have been observed at the time, and we may not be able to conduct retrospective studies for historic cases.

In August 2016, genetic sequencing of Zika virus isolated from four samples collected in Guinea-Bissau has identified that these are related to the "African" lineage. Although the "African" lineage has not previously been associated with microcephaly and other neurological complications, further surveillance is needed as there have been very few confirmed cases of the "African" lineage. At this point it is still too early to dismiss this possibility.

In September 2016, phylogenetic analysis of Zika virus sequences from the outbreak in Singapore were classified as "Asian" lineage which was circulating in South-East Asia prior to the Zika outbreak in French Polynesia. The Singapore outbreak was the first recognized to be linked to a strain previously circulating in South-East Asia.

Thailand recently reported two locally acquired cases of Zika-related microcephaly. Since it was not possible to conduct genetic sequencing of this virus, it is not known whether the mothers were infected with a strain of virus related to those previously isolated in South-East Asia, or if there has instead been local transmission of a virus strain imported from the Americas. Thailand established a programme for active surveillance of microcephaly in February 2016 which is in the process of being integrated into routine arrangements for surveillance of birth defects.

If a Zika virus strain circulating in South-East Asia prior to 2013, or in Africa, were found to be linked to microcephaly or other complications, it would have significant impact on the global risk assessment. It would demonstrate that Zika-associated complications are not limited to the "Asian" strain circulating since 2007 in the Western Pacific Region, the Region of the Americas and Cabo Verde.

Further research is needed to better understand the relationship between Zika virus lineages and strains and their effect on neurological complications, as well as immunity to infection conferred by previous exposure to the virus or co-factors involved in causing microcephaly or triggering GBS.

WHO encourages Member States to continue to report cases of Zika virus infection, congenital Zika virus syndrome and Guillain-Barré syndrome to help support the global understanding of Zika virus circulation, including lineages and strains, and causality.

RISK ASSESSMENT

The global risk assessment has not changed. Zika virus continues to spread geographically to areas where competent mosquitoes are present, including to countries in the South-East Asia and the Western Pacific Regions.

The global risk assessment is based on daily monitoring across different countries and epidemiologic analysis, including the occurrence of complications, how changes (for example, new cases) affect public health and international disease spread and finally interference to travel and trade.

We still face major unknowns which prevent a full characterization of the risks in various settings. These include: lack of understanding regarding the relative risk of Zika-related complications according to different strains of Zika virus; incomplete knowledge regarding

[3] Lineages are major branches in a virus' family tree. A virus lineage can consist of different virus strains.
Strains are different genetic types (genetic material/ribonucleic acid sequences) of a virus.

[4] Phylogenetic analysis is the analysis of the similarities and differences between different organisms/entities to understand their evolutionary relationship to one another. In the context of viruses, this is done by comparing their genetic sequences.

population immunity in 'endemic'[5] countries; possible environmental, genetic or other co-factors that may increase risk of complications; and a lack of knowledge of the role asymptomatic infections and other modes of transmission play in the overall dynamic of Zika virus circulation.

All countries with *Aedes* mosquitoes are potentially at risk for local mosquito-borne Zika virus transmission, considering the wide distribution of *Aedes* mosquitoes and their efficiency in transmitting several arboviruses throughout their global range and the interconnectedness of all countries on the globe. It is, therefore, expected that all such remaining unaffected countries will eventually experience Zika virus transmission to varying degrees.

The risk of Zika-associated complications in countries thought to be endemic for Zika virus remains largely unknown, due both to uncertainty about the risk associated with different Zika strains and due to uncertainty about population immunity in these endemic settings. To address the latter question, seroprevalence[6] studies are urgently needed. The risk assessment would change in endemic countries if it were to be established that any pre-2013 virus strains are also capable of causing neurological complications.

The impact of Zika transmission in countries in which Zika has not yet been detected will vary depending on the existence of competent mosquitoes, rate of Zika virus transmission, potential population immunity (expected to be low to absent in previously unaffected areas), and country health system capacity. Risk assessments must be undertaken at the national (and potentially sub-national) level to go beyond simple epidemiological classification and to provide insight into the potential magnitude of an outbreak in an individual country. For affected and some as-yet unaffected countries, this has already been done.

Taking all of this into account, WHO`s global risk assessment remains valid and supports the current strategy. However, as new evidence becomes available the assessment may need to be revisited.

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[5] Endemic means that a disease is usually occurring in a population or geographical area at a specified point in time.

[6] Seroprevalence is the number of persons in a population who show prior exposure to a specific disease based on serology (serum antibody testing); often presented as a percent of the total specimens tested or as a proportion per 100 000 persons tested.

Table 1. Countries and territories reporting mosquito-borne Zika virus transmission

Classification	WHO Regional Office	Country / territory	Total
Category 1: Countries with a reported outbreak from 2015 onwards#	AFRO	Cabo Verde; Guinea-Bissau	2
	AMRO/PAHO	Anguilla; Antigua and Barbuda; Argentina; Aruba; Bahamas; Barbados; Belize; Bolivia (Plurinational State of); Bonaire, Sint Eustatius and Saba – Netherlands; Brazil; British Virgin Islands; Cayman Islands; Colombia; Costa Rica; Cuba; Curaçao; Dominica; Dominican Republic; Ecuador; El Salvador; French Guiana; Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Nicaragua; Panama; Paraguay; Peru; Puerto Rico; Saint Barthélemy; Saint Kitts and Nevis; Saint Lucia; Saint Martin; Saint Vincent and the Grenadines; Sint Maarten; Suriname; Trinidad and Tobago; Turks and Caicos; United States of America; United States Virgin Islands; Venezuela (Bolivarian Republic of)	47
	WPRO	American Samoa; Fiji; Marshall Islands; Micronesia (Federated States of); Samoa; Singapore; Tonga	7
Subtotal			56
Category 2: Countries with possible endemic transmission or evidence of local mosquito-borne Zika infections in 2016	SEARO	Indonesia; Maldives; Thailand	3
	WPRO	Malaysia; New Caledonia; Philippines; Solomon Islands; Viet Nam	5
Subtotal			8
Category 3: Countries with evidence of local mosquito-borne Zika infections in or before 2015, but without documentation of cases in 2016, or outbreak terminated	AFRO	Gabon**	1
	PAHO/AMRO	ISLA DE PASCUA – Chile**	1
	SEARO	Bangladesh**	1
	WPRO	Cambodia**; Cook Islands**; French Polynesia**; Lao People's Democratic Republic; Papua New Guinea; Vanuatu	6
Subtotal			9
Total			73

The wording has been revised in recognition of the fact that a country that has had a first outbreak since 2015 and in which that outbreak has since terminated, may again report a new outbreak or cases which would qualify the country to be re-included in category 1.

**These countries and territories have not reported Zika virus cases in 2015 or 2016.

Category 1: Countries with a reported outbreak from 2015 onwards#

A laboratory confirmed, autochthonous, mosquito-borne case of Zika virus infection in an area where there is no evidence of circulation of the virus in the past (prior 2015), whether it is detected and reported by the country itself or by another state party diagnosing returning travellers OR

A laboratory confirmed, autochthonous, mosquito-borne case of Zika virus infection in an area where transmission has been previously interrupted. The assumption is that the size of the susceptible population has built up to a sufficient level to allow transmission again; the size of the outbreak will be a function of the size of the susceptible population OR

An increase of the incidence of laboratory confirmed, autochthonous, mosquito-borne Zika virus infection in areas where there is on-going transmission, above two standard deviations of the baseline rate, or doubling the number of cases over a 4-week period. Clusters of febrile illnesses, in particular when epidemiologically-linked to a confirmed case, should be microbiologically investigated.

Category 2: Countries with possible endemic transmission or evidence of local mosquito-borne Zika infections in 2016 with the reporting period beginning in 2007

Countries or territories that have reported an outbreak with consistent presence of laboratory confirmed, autochthonous, mosquito-borne cases of Zika virus infection 12 months after the outbreak OR

Countries or territories where Zika virus has been circulating for several years with consistent presence of laboratory confirmed, autochthonous, mosquito-borne cases of Zika virus infection or evidence of local mosquito-borne Zika infections in 2016. Reports can be from the country or territory where infection occurred, or from a third party where the case is first recorded according to the International Health Regulations (IHR 2005). Countries with evidence of infection prior to 2007 are listed in http://www.who.int/bulletin/volumes/94/9/16-171082.pdf

Category 3: Countries with evidence of local mosquito-borne Zika infections in or before 2015, but without documentation of cases in 2016, or outbreak terminated with the reporting period beginning in 2007

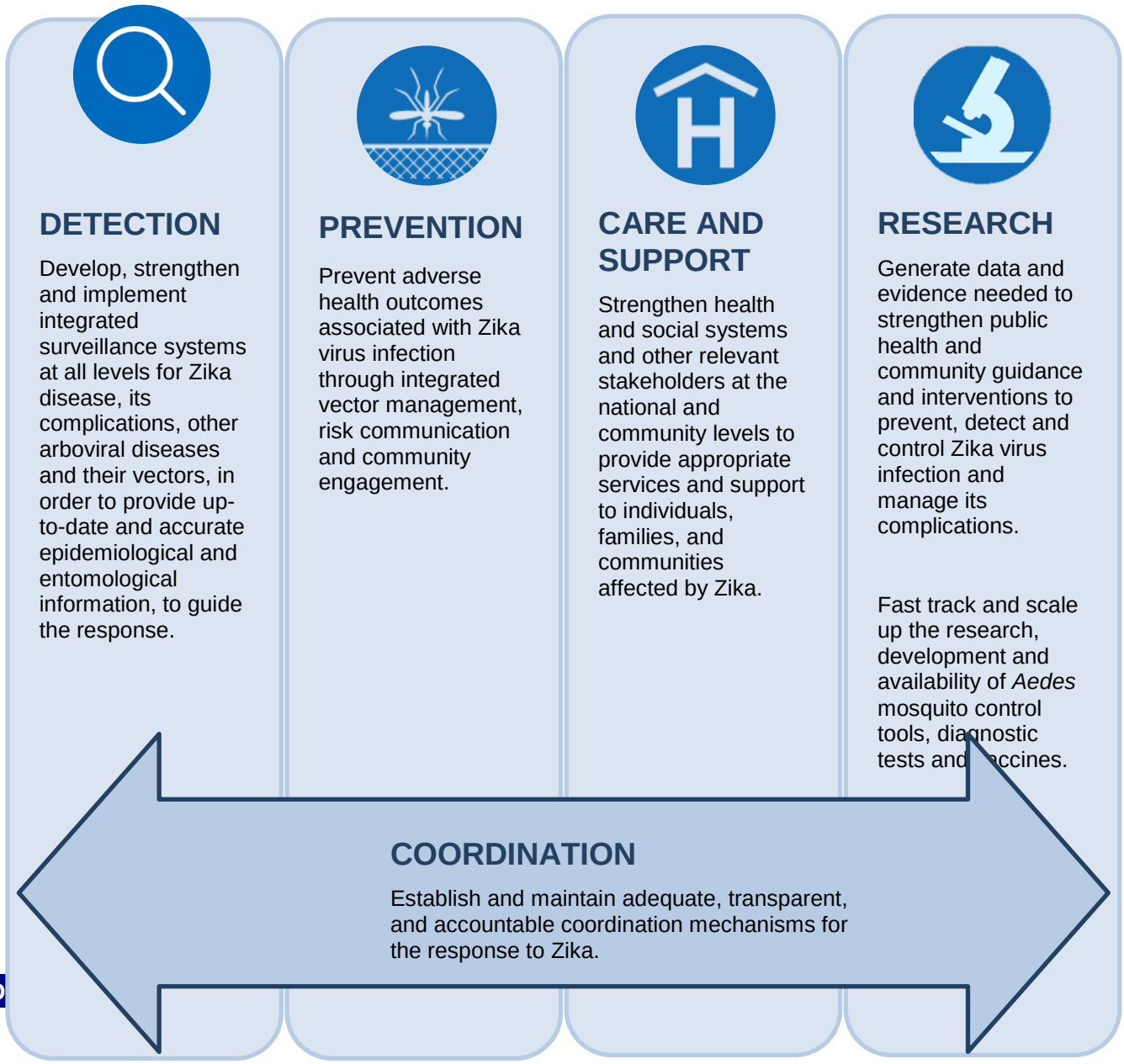
Absence of confirmed cases over a 3-month period in a specific geographical area with climatic conditions suitable for year-round arbovirus transmission, or over a 12-month period in an area with seasonal vector activity.

PART II : RESPONSE UPDATE

The Pan American Health Organization (PAHO) and WHO's operational response began long before the declaration of the Zika outbreak as a Public Health Emergency of International Concern and has accelerated since. On 14 February 2016, WHO launched a global Strategic Response Framework and Joint Operations Plan to guide international coordination.

STRATEGIC OBJECTIVES

The overarching goal of the Zika Strategic Response Plan is to support national governments and communities to prevent and manage complications and mitigate the socioeconomic consequences of Zika virus infection. The plan consists of four pillars: detection; prevention; care and support; and research.



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Develop, strengthen and implement integrated surveillance systems at all levels for Zika disease, its complications, other arboviral diseases and their vectors, in order to provide up-to-date and accurate epidemiological and entomological information, to guide the response.

Countries have invested heavily in surveillance and have been, therefore, able to better detect Zika cases and related complications. WHO and partners have continued to support countries in these efforts.

In Haiti, WHO and the Ministry of Public Health and Population, Division of Epidemiology, Laboratory and Research, held three train-the-trainer workshops on epidemiological surveillance of Zika and its complications in August.

In the Americas region, in an effort to support the implementation of the recently adopted arboviral disease prevention and control strategy, more than 30 countries and territories participated in a regional technical meeting held in Cuba on the current epidemiological situation on Zika and other arboviruses. The meeting aimed to develop a holistic approach for comprehensive surveillance of arboviral diseases, based on the coordination and strengthening of epidemiological surveillance, integrated vector control, laboratory diagnosis and active social participation.

In the Western Pacific Region, the WHO Regional Office conducted a survey on regional laboratory capacity and provided support to enhance regional laboratory capacity, including laboratory external quality assessment (EQA) testing. WHO Collaborating Centres in the Region have supported the establishment of molecular capacity in Fiji.

Globally, partners are also actively engaged in enhancing surveillance tools. For example, the Public Health Agency of Canada is completing work on improving diagnostic tools including serology testing. The results will be extremely important in supporting accurate diagnosis in other countries.

PREVENTION

Prevent adverse health outcomes associated with Zika virus infection through integrated vector management, risk communication and community engagement.

Preparedness

As part of the global response, WHO and partners have supported countries in implementing emergency preparedness activities so they are able to mount a rapid, coordinated and effective response to any health emergency. A multi-hazard approach aims to maximize the use of resources and capacities to ensure that a minimum level of preparedness is in place, and where necessary, an advanced state of preparedness can be drawn upon to respond.

The priority areas of work that WHO and partners have identified and strengthened have been organized along the emergency preparedness cycle, covering the following activities: health emergency planning; coordination before, during and after health emergencies; accelerated health system and capacity strengthening (e.g. surveillance, diagnostics testing and risk communication); improving emergency operations through health logistics; and system monitoring, evaluating and testing through exercises. A generic tool for monitoring minimum preparedness activities and risk-specific checklists (including for ZVD) have been developed and used to assess and systematize preparedness activities.

In Guinea-Bissau, following the confirmation of four ZVD cases in June 2016, WHO deployed a multidisciplinary team to support the Ministry of Health. The mission aimed 1) to support the in-depth investigation of the outbreak in Guinea-Bissau and its impact; and 2) to assess and build capacity for preparedness, detection, future response and the control of Zika as well as other mosquito-borne diseases. WHO will provide further medium term support to the Ministry of Health in Guinea-Bissau in the areas of integrated vector control and epidemiological surveillance. Investigations into the outbreak, its origin and the possible connections, if any, to detected cases of microcephaly since April 2016 are on-going.

In the Western Pacific Region, the WHO Regional Office provided scenario-based risk communication packages to its Member States and helped develop country-specific messages managing uncertainty. Furthermore, the Office has provided technical support to Member States, particularly in the Pacific Islands, for vector management including equipment and insecticides.

In the Eastern Mediterranean Region, the Regional Office conducted three training workshops on the prevention and control of *Aedes* mosquitoes for national entomologists[7] in August, September and October.

In Cabo Verde, where Zika virus cases were confirmed in December 2015, WHO continues to provide support together with the Brazilian Ministry of Health and through the Global Outbreak Alert and Response Network

[7] Entomology is the study of insects.

(GOARN). With support from Institut Pasteur Dakar, preparedness activities in Cabo Verde focused on the analysis of risks to public health, emergency response and recovery planning, multisectoral planning and laboratory capacities. Additionally, upon a request by national authorities, the Food and Agricultural Organization (FAO) and partners are supporting studies that test the feasibility of the Sterile Insect Technique in a pilot area. The technique consists of the controlled mass release of male mosquitoes that have been sterilized by low doses of radiation. When a sterile male mates, the female's eggs are not fertilized.

Both the UNICEF Regional Offices for West and Central Africa and for Eastern and Southern Africa have developed regional preparedness strategies. Country offices have been briefed and are involved with partners in surveillance, risk communication and preparedness. Preparedness plans have specifically been developed in the countries around the Gulf of Guinea. In Eastern and Southern Africa, all UNICEF country offices have a contingency plan in place. In close collaboration with WHO, a focus is also placed on encouraging country offices in Eastern and Southern Africa to strengthen coordination mechanism at national level through support to national bodies. This also includes support in capacity building of national governments and partners to effectively communicate key messages and behaviors to individuals, families and communities.

The UNICEF Regional Office for East Asia and the Pacific developed a regional preparedness and response plan with particular focus on improving risk communication including relevant 'Communication for Development' (C4D) strategies to engage communities.

Vector control

Vector-borne diseases impose a heavy burden on human populations, particularly in developing countries in tropical and subtropical zones. Besides the direct human suffering they cause, vector-borne diseases are also a significant obstacle to socioeconomic development. Vector control is an important component of the prevention and management of these diseases, as, for some diseases, the vector is the only feasible target for control. When well-planned and well targeted, vector control can reduce or interrupt transmission. Vector control reduces illness and saves lives: this has been shown repeatedly and convincingly in areas where malaria has been eliminated.

Mosquito control is one of the most effective ways to stop the transmission of Zika virus, chikungunya, dengue and yellow fever which are transmitted by *Aedes* mosquitoes. If control methods are implemented well—i.e. in an expedient, comprehensive and sustained way—they are effective.

In Latin America and the Caribbean, partners have supported districts in implementing active vector control and environmental management interventions, benefitting some 175 000 people. Additionally, schools implement vector control activities in the region.

In Cabo Verde, UNICEF and WHO supported the Government on a national sanitation campaign.

In Eastern and Southern Africa, partners have helped promote activities already in place for the control of dengue, yellow fever and chikungunya. Country offices continue to support governments in reducing breeding sites, providing access to safe water sources and appropriate waste management. Orientation on vector control measures and personal protection for teachers, students and communities is in place and will be further supported.

Since Zika virus continues to spread, and *Aedes* mosquitoes are increasingly resistant to insecticides, there is a need to generate robust evidence on the effectiveness of mosquito control strategies as they are rolled out. In Florida, recent vector control studies have highlighted that aerial application of insecticides that kill adult mosquitoes and larvae, along with removing standing water and applying insecticides on the ground, contribute to significantly lowering the density of *Aedes* mosquitoes and interrupting local Zika virus transmission.[8] However, it is still uncertain if the success can be attributed to the control measures listed above alone.

Risk communication and community engagement

Controlling the spread of Zika virus requires a multi-faceted approach, which should not only be concerned with vector control, but also with protecting individuals, especially pregnant women and women and girls of reproductive age. This includes prevention from infection and unwanted pregnancies through supporting equitable access to sexual and reproductive health commodities and services. It also includes risk communication, providing useable and contextualized knowledge on Zika, and engaging communities to enable people and

[8] Morbidity and Mortality Weekly Report (MMWR) / September 23, 2015 / Vol. 65

communities make informed decisions about their safety and health.

Risk Communication and Community Engagement (RCCE) work is ongoing across the globe and being implemented by a number of partners.

RCCE coordination calls with partners are ongoing and provide a forum to identify and address challenges, misinformation, planning and progress. This mechanism helps align partners in the Zika RCCE response. Additionally, these coordination calls ask technical experts to provide briefs on evolving issues and new science and planning.

Social science networks have been engaged through the partner Anthrologica, to develop a resource pack to run Knowledge, Attitude and Practices (KAP) surveys. The pack, which was initially developed based on a request by governments in the Americas, is now being used by national authorities, public health and academic institutions as well as operational partners. RCCE materials have been developed including guidance and tools, as well as a Zika app for Android and iOS devices. This application is regularly updated to include the most recent information and evidence on Zika virus and the ongoing epidemic.

Social science research is an essential part of effective risk communication and community engagement for responding effectively to the ongoing Zika outbreak, as it is the case for any epidemic or pandemic. An interactive map was developed that provides an overview of such research.[9]

Prevention activities are ongoing for the most at-risk groups, namely pregnant women, women of child-bearing age and their partners. Prevention strategies, including those for mass communication and community engagement, focus on the elimination of mosquito breeding sites, personal protection, prevention of sexual transmission of the virus and adequate information about Zika-related risks during pregnancy.

CARE AND SUPPORT

Strengthen health and social systems and other relevant stakeholders at the national and community levels to provide appropriate services and support to individuals, families and communities affected by Zika.

Recent emergencies (Ebola, yellow fever, MERS-COV) have highlighted that when health systems are vulnerable, an acute outbreak can have devastating effects at both the local and global levels. As the world battles another Public Health Emergency of International Concern, the importance of preparedness and strengthening health systems' response to Zika and future outbreaks becomes even more critical.

Many regions and disciplines need to plan for and respond to a potential surge in complications arising from Zika even though the impact from Zika virus on health systems in Zika-affected countries has been less acute than Ebola.

To this end, the Guidelines Development Committee recommended examining the implications of guidelines and other recommendations on health systems in depth. The Committee further endorsed the development of a global operational approach to assess health systems readiness, capacity and response, including a resource package to support effective implementation of guidelines during an outbreak. To drive this work, WHO is establishing a global technical working group.

Additional work has been done in countries, with a small sampling of activities outlined in this section.

The International Federation of Red Cross and Crescent Societies (IFRC) have assessed psychosocial support needs and trained staff and volunteers in providing psychosocial support.

WHO/PAHO supported Member States in strengthening surveillance of birth defects focusing on microcephaly and in the design and implementation of comprehensive health services for affected infants.

Latin American Countries (LAC) countries are giving increased priority to governmental and nongovernmental (NGO) counterparts to develop and implement care and support strategies aimed at mitigating the impact of congenital Zika virus syndrome on young children and families.

More and more LAC countries are facing an increasing number of babies affected by congenital Zika virus syndrome. Partners, governments and NGOs are, therefore, focusing on developing immediate actions and long-term capacity-building initiatives to guarantee early interventions and psychosocial support for families. This includes actions to combat discrimination and stigma of people and families affected.

Ongoing international research and lessons learned from Brazil´s response to Zika continue to significantly inform a

[9] http://www.who.int/risk-communication/zika-virus/rcce-activities/en/

better understanding of the complexity of congenital Zika virus syndrome, the impact on children and families and required intervention strategies. A better understanding is critical to better integrate actions within Brazil and prepare other LAC countries' Zika strategies.

In the north-eastern region of Brazil, initial centre–based child care and family support actions are now linking centre-based rehabilitation and early intervention with community-level and family-based support. Model design targets defining and creating municipal leadership, responsibilities and capacities for intra- and inter-sectoral coordination actions, which include health sector policy, education and social assistance. Building a system will help sustain the Zika response to children affected by congenital Zika virus syndrome and people with Guillain-Barré syndrome.

The United States Agency for International Development (USAID) is supporting the Dominican Republic, Guatemala, Honduras and El Salvador in advancing plans to implement multiple care and support strategies. These strategies target protocol design or modifications for early detection, early intervention, family guidance and psychosocial support. This combines efforts to strengthen health sector capacity for care and support at country level while exploring joint multi-sector and civil society actions that include community-based rehabilitation for infants affected by congenital Zika virus syndrome. Initial country actions include: establishing clear coordination strategies with USAID partner agencies and counterparts, mapping existing policies, services, instruments and capacities and strengthening communication for development (C4D) initiatives.

In certain LAC countries (e.g. Belize, the Dominican Republic and El Salvador), steps are now being made to explore more specific early detection, intervention and family support actions at the neonatal stage. This is to improve "first contact" information and orientation at the critical time when mothers and fathers receive the initial diagnosis of their child´s complex condition. This strategy aims to address the often negative start and orientation faced by most families, while constructing a life-cycle approach which starts with care and support components at the initial identification moment, to be followed by community and home-based early interventions and family orientation.

Most country offices are identifying care and support activities via participative approaches that contribute to the government response, including the mainstreaming of actions within existing priorities and services. Many country offices such as Belize, the Dominican Republic and Peru are working within systems of early childhood development and/or disabilities to strengthen their capacity to prepare families to provide early intervention and care for children affected by conditions included within congenital Zika virus syndrome. Another example is found in Jamaica, where the Ministry of Health has identified a group of experts to prepare a comprehensive package of services for children born with Zika-related neurological complications. As a cross-cutting element, C4D is seen as a key component for care & support, particularly with regards to ensuring the rights of all children are protected, no matter what disability they may have.

In Cabo Verde, UNICEF supported the development of a model for care and support and is leveraging existing capacities in Southern and Eastern Africa to link with networks of people with disabilities to mainstream an integrated care and support model into existing programmes across sectors where appropriate. Timely and continuous multi-sectoral care and support for young children and families affected by Zika includes early stimulation, counselling and social protection services such as cash transfers.

RESEARCH

Generate data and evidence needed to strengthen public health and community guidance and interventions to prevent, detect and control Zika virus infection and manage its complications.

Fast track and scale up the research, development and availability of *Aedes* mosquito control tools, diagnostic tests and vaccines.

These activities are coordinated under the WHO's *R&D Blueprint for Action to Prevent Epidemics*[10]

The goal of the WHO-coordinated Zika virus research agenda is to support the generation of evidence needed to strengthen essential public health guidance and actions to prevent and limit the impact of Zika virus and its complications.

The Zika virus research agenda categorizes areas of research into the following five areas: characterization; prevention and control; women, communities and health systems; coordination and management; and research support activities.

[10] About R&D Blueprint (webpage). Geneva: World Health Organization. Available at http://www.who.int/csr/research-and-development/blueprint/en/

Detailed examples of active areas of work under the WHO's *R&D Blueprint* are outlined below.

Emergency Use Assessment and Listing (EUAL) update

The Emergency Use Assessment and Listing (EUAL) procedure was created initially for Ebola vaccines and diagnostics, to provide guidance to purchasers on which new products have suitable characteristics to be used during an emergency.

Diagnostics

Thirty-two in-vitro diagnostics (IVDs) comprised of a range of nucleic acid test (NAT) and serological tests have been submitted to the EUAL procedure. Of these, one, a NAT, has been listed so far, due to the paucity of laboratories which have the capacity and reagents to evaluate the IVDs. Fourteen are currently being assessed while the remaining tests have either been voluntarily withdrawn or terminated because they did not meet minimal requirements.

WHO biological reference material

For Zika RNA, the biological standard for molecular tests has already been characterized in an international study involving the majority of nucleic acid amplification technology (NAT)-based assays available. The complete sequence of the Zika virus of this reference preparation has been published (Trösemeier et al, 2016). Currently this material still has to be officially established as a WHO International Standard by the respective WHO expert committee. However, because of the urgent need, the candidate material has already been made available for test kit manufacturers, regulatory authorities and users.

The related work on WHO International Standards for serological assays detecting Zika antigen or anti-Zika antibodies is ongoing; unfortunately the sourcing of suitable materials of human origin from Zika virus affected regions is still an issue.

Vaccine development

WHO in collaboration with UNICEF and a working group of independent subject matter experts have developed a Zika virus vaccine target product profile (TPP) for use in an emergency, or in a future outbreak scenario.

The drafting process of the Zika virus vaccine TPP included a public consultation through online posting. Prior to finalising the TPP, convened epidemiologists, flavivirus vaccine subject matter experts, vaccine developers and global regulators to consider the regulatory expectations and potential emergency use pathways for a vaccine with the characteristics described in the TPP.

At least 30 entities, out of which eight are public sector institutions, are involved in the development of a vaccine. There are two DNA vaccines (GeneOne Life Science Inc. and the National Institute of Allergy and Infectious Diseases (NIAID) in the United States) already in Phase 1 trials, and several additional candidates are expected to move to Phase 1 within the next six months. Additionally, promising results in animal models have been published.

WHO is planning a consultation with the National Institute of Allergy and Infectious Diseases (NIAID), United States, in early 2017 to discuss animal models and immunological analyses to assess which are the most promising candidates.

COORDINATION

Establish and maintain adequate, transparent and accountable coordination mechanisms for the response to Zika.

WHO coordinates the Zika response through close collaboration with partners and facilitates information sharing by hosting partner meetings and through several other information sharing mechanisms.

In addition to quarterly updates of the Zika Strategic Response Plan as the present one, weekly situation reports are compiled from information from WHO Regional Offices and technical experts at headquarters so the latest information is shared regularly.

The WHO Office for the European Region is organizing a consultation in November between WHO, the United States Centers for Disease Control and Prevention (CDC) and the European Centre for Disease Prevention and Control (ECDC) to discuss harmonization of travel recommendations and review country classification schemes for Zika risk.

The United Nations Secretary-General established the UN Zika Response Multi-Partner Trust Fund (MPTF) in May 2016. The aim of the Zika MPTF is to generate, manage and ensure the effective use of resources necessary to achieve the goal and strategic objectives of the Zika Strategic Response Plan. The Fund is an instrument to bring the financial contributions of a wide range of stakeholders together to best effect: Member States, regional organizations, inter-governmental organizations, businesses and individuals.

Within the framework of interagency coordination, the Inter-Agency Standing Committee, important actions are underway to prepare more integrated guidelines and instruments that combine clinical and non-clinical actions.

For example, efforts are being taken to prepare regional Care for Child Development (CCD) rollout capacity, along with initiating a process of operational tools for country use like an expanded Latin American Countries (LAC) CCD package that includes elements related to child care and family support for the Zika response.

Another example of interagency efforts are those promoting the Neonatal Alliance; they offer a timely and important opportunity for mainstreaming family orientation and support actions as part of a country-level response to Zika.

In addition, as part of the WHO's *R&D Blueprint* process, Chatham House is working with WHO and the Wellcome Trust to develop a global coordination mechanism to improve the capacity for research and development among stakeholders. A first step will be an international multi-disciplinary roundtable to be held in November in London.

SUMMARY

Zika virus is a mosquito-borne virus that is a cause of congenital abnormalities, which are collectively known as congenital Zika virus syndrome (CZVS). From 2015 onwards, the geographical range of Zika virus has expanded rapidly, with mosquito-borne transmission of the virus reported in 67 countries. Additional, sexual transmission has been recognized as a significant concern, particularly due to the association between Zika virus infection and adverse pregnancy and foetal outcomes.

Analysis of Zika virus sequences to date has identified two major lineages: the "African" and the "Asian" lineage. Neurological complications have thus far only been conclusively linked to post-2007 strains of the "Asian" lineage, but it is possible that other strains may also cause complications.

The global risk assessment has not changed, but we still face major unknowns which prevent a full characterization of the risks in various settings. All countries with Aedes mosquitoes are potentially at risk for local mosquito-borne Zika virus transmission. The risk of Zika-associated complications in countries thought to be endemic for Zika virus remains largely unknown. Additionally, the impact of Zika transmission in countries in which Zika has not yet been detected will vary depending on the existence of competent mosquitoes, rate of Zika virus transmission, potential population immunity, and country health system capacity.

In September 2016, the fourth meeting of the Emergency Committee (EC) was convened by the WHO Director-General. Having considered the evidence presented, the Committee agreed that due to continuing geographic expansion and considerable gaps in understanding of the virus and its consequences, Zika virus infection and its associated congenital and other neurological disorders continues to be a Public Health Emergency of International Concern (PHEIC).

WHO coordinates the global Zika response through close collaboration with partners, as outlined in the Zika Strategic Response Plan (SRP). The overarching goal of the SRP is to support national governments and communities to prevent and manage complications and mitigate the socioeconomic consequences of Zika virus infection. The plan consists of four pillars: detection; prevention; care and support; and research.

Countries have invested heavily in surveillance and have been, therefore, able to better detect Zika cases and related complications. WHO and partners have continued to support countries in these efforts. As part of the global response, WHO and partners have supported countries in implementing activities along the emergency preparedness cycle, covering the following areas: health emergency planning; coordination before, during and after health emergencies; accelerated health system and capacity strengthening; improving emergency operations through health logistics; and system monitoring, evaluating and testing through exercises.

To combat the vectors that spread Zika virus, response partners have undertaken a variety vector control and environmental management interventions. Because controlling the spread of Zika virus requires a multi-faceted approach, partners have also engaged in risk communication, providing useable and contextualized knowledge on Zika, and involving communities to enable people and communities make informed decisions about their safety and health. Care and support of Zika-affected individuals continues to be strengthened through medical and social interventions, such as those aimed at mitigating the impact of congenital Zika virus syndrome on young children and families. Research partners continue to support the generation of evidence needed to strengthen essential public health guidance and actions to prevent and limit the impact of Zika virus and its complications.

Going forward, WHO and partners are planning for a longer term response to Zika, as the spread will continue for the foreseeable future and the global community will need to adjust its response from an emergency response to long term management. WHO and partners must: provide support to countries most vulnerable to Zika cases and with the lowest resources to address it, so the most vulnerable areas have the capacity to manage long term complications; undertake and support additional research to better understand Zika; and, reorient themselves to respond to Zika virus

infection and its complications as a long-term programmatic issue.

FUNDING REQUIREMENTS

With this quarterly update, WHO and partners have revised the overall funding requirement for October 2016 through December 2017 to US$ 112.5 million – mobilizing resources against this budget is necessary to effectively implement ongoing and planned activities, in accordance with the evolving Zika response. WHO and its partners have immediate priority areas for funding, which include:

- Investment in research and development for better scientific understanding of Zika virus epidemiology, including enhanced understanding of the different viral lineages;
- Prevention of adverse health outcomes associated with Zika virus infection through integrated vector management, risk communication and community engagement;
- Care and Support of de-stabilized health systems in order to provide appropriate guidance on effective surveillance and management of ZVD in countries with high vulnerability and low capacity.

FUNDING RECEIVED BY WHO AND A SELECTED GROUP OF PARTNERS: FEBRUARY TO OCTOBER 2016

Table 2. Funding update as of 25 October 2016 (source: email)

Organization	July Funding Requirement	Funds Received	October 2016-December 2017 Funding Requirement
UNICEF	US$ 48 Million	US$ 17 Million	US$ 31 Million
WHO / PAHO	US$ 15 Million	US$ 13.6 Million	US$ 3.7 Million
WHO / HQ	US$ 16 Million	US$ 6.9 Million	US$ 8.7 Million
UN Women	US$ 5.9 Million	US$ 411 000	US$ 5.8 Million
FAO	US$ 4.1 Million	US$ 0	US$ 4.1 Million
WHO / WPRO	US$ 4.2 Million	US$ 1.1 Million	US$ 3.7 Million
IOM	US$ 3 Million	US$ 15 000	US$ 3 Million
Save the Children	US$ 7.4 Million	US$ 8.7 Million	US$ 2 Million
WHO / SEARO	US$ 2.4 Million	US$ 550 000	US$ 1.8 Million
Americares	US$ 1 Million	US$ 200 000	US$ 800 000
WHO / EMRO	US$ 1.1 Million	US$ 1.2 Million	US$ 500 000
WHO / EURO	US$ 690 000	US$ 600 000	US$ 690 000

Support from donors has been crucial for the rapid scale-up and evolution of the Zika response.

Effective and efficient response requires concerted efforts to harness additional capacities of partner organizations to complement WHO's response. Continuous and adequate financial support for partner organizations is therefore crucial to maintain comprehensive and efficient response to Zika virus.

The generous support received thus far has enabled WHO and international partners to implement a wide-ranging package of activities and interventions to support countries to prevent and manage Zika complications, as well as mitigate socio-economic consequences. Additional support is needed to scale up activities and continue to address Zika virus disease.

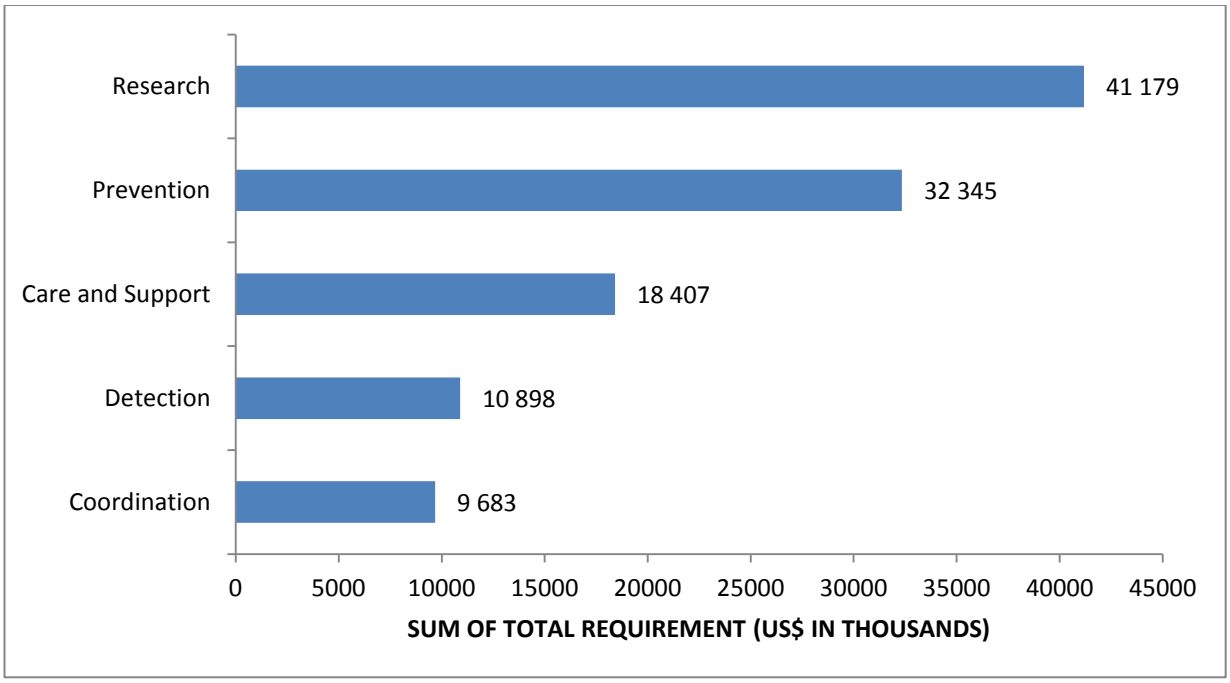
SUMMARY OF

REQUIREMENTS

FUNDING NEED[11] (US$)[12]	NUMBER OF PARTNERS	GEOGRAPHIC SCOPE
112.5M	>60	Global

WHO continues to work with all partners to update and consolidate the needs and requirements across the response based on this Strategic Response Plan.

Fig 2. Resource requirements by strategic objective



[11] The funding figures above represent requirements for WHO and its partners between July 2016 to December 2017, but are not exhaustive for this time period. It is expected that these figures will be revised on a regular basis as each organization develops their plans.
[12] US$ = United States Dollar.

PART III:
JOINT OPERATIONS PLAN

REQUIREMENTS (US$)

10.9M

STRATEGIES

1 Assessment and implementation of preparedness measures

2 Laboratory and diagnostics

3 Surveillance and monitoring

DETECTION

Develop, strengthen and implement integrated surveillance systems at all levels for Zika virus disease, its complications, other arboviral diseases and their vectors, in order to provide up-to-date and accurate epidemiological and entomological information, to guide the response.

Table 2. Strategies and indication of organizations involved in detection

Strategy	Organizations
Assessment and implementation of preparedness measures	PAHO, UNICEF, UNFPA, WHO, WFP
Laboratory and diagnostics	ESR New Zealand, EVAg, Institut Pasteur, NICD, PAHO, HHS/CDC, TEPHINET, WHO
Surveillance and monitoring	FAO, IOM, UNICEF, UTMB, WHO

REQUIREMENTS (US$)

32.3M

STRATEGIES

1 Community engagement

2 Integrated vector management

3 Public health risk communication

PREVENTION

Prevent adverse health outcomes associated with Zika virus infection through integrated vector management, risk communication and community engagement.

Table 3. Strategies and indication of organizations involved in prevention

Strategy	Organizations
Community engagement	AmeriCares, Jhpiego, Save the Children, PAHO, TEPHINET, UNDP, UNFPA, UNICEF, UN Women, WHO
Integrated vector management	AmeriCares, FAO, IAEA, International Medical Corps, Institut Pasteur, Malteaser International, PAHO, TEPHINET, UNDP, UN Women, WHO
Public health risk communications	FAO, IOM, NICD, PAHO, Save the Children, TEPHINET, UNFPA, UNHCR, UNICEF, UN Women, WHO

REQUIREMENTS (US$)

18.4M

STRATEGIES

1 Access to health and social care

2 Delivery of health and social care

3 Health and social systems strengthening

CARE AND SUPPORT

Strengthen health and social systems and other relevant stakeholders at the national and community levels to provide appropriate services and support to individuals, families, and communities affected by Zika.

Table 4. Strategies and indication of organizations involved in care and support

Area of intervention	Organizations
Access to health and social care	UNICEF, UN Women, WHO
Delivery of health and social care	AmeriCares, Save the Children, PAHO, UNFPA, UNICEF, UN Women, WHO
Health and social systems strengthening	AmeriCares, NICD, PAHO, PHAC, Save the Children, TEPHINET, UNFPA, UNICEF, UN Women, WHO

REQUIREMENTS (US$)

41.2M

STRATEGIES

Development and dissemination of vaccines and point-of-care diagnostics

1 Development and dissemination of vector control tools

2

3 Guidance and protocols

4 Public health research

RESEARCH

Generate data and evidence needed to strengthen public health and community guidance and interventions to prevent, detect and control Zika virus infection and manage its complications.

Fast track and scale up the research, development and availability of Aedes mosquito control tools, diagnostic tests and vaccines.

Fig 3. WHO Zika Virus Research Agenda Implementation Framework

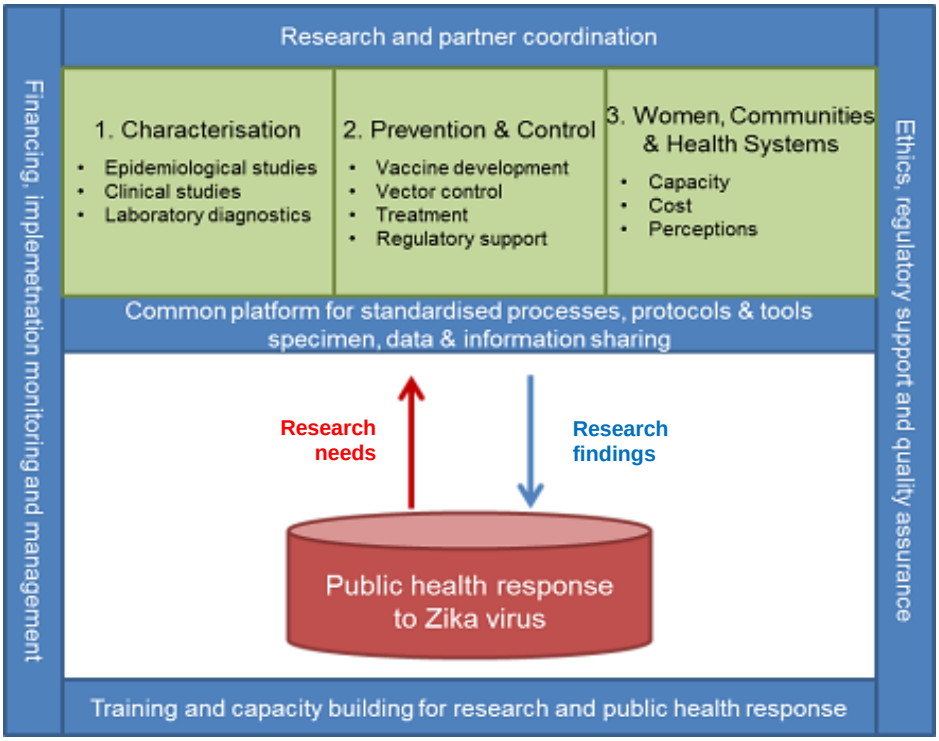


Table 5. Strategies and indication of organizations involved in research

Area of intervention	Organizations
Development and dissemination of vaccines and point-of-care diagnostics	UNICEF, UTMB, WHO
Development and dissemination of vector control tools	Institut Pasteur, NICD, PAHO, UNICEF, WHO
Guidance and protocols	ECDC, Heart to Heart International, Institut Pasteur, ISARIC CC, UNICEF, WHO
Public health research	ESR New Zealand, Institute Louis Malarde, Institut Pasteur, ISARIC CC, PAHO, TEPHINET, Time Z Consortium, UNDP, UNFPA, UNICEF, UN Women, UTMB, WHO

REQUIREMENTS (US$)

9.7M

COORDINATION

STRATEGIES

1 Inclusion of vulnerable communities

2 International coordination

3 International Health Regulations

4 Support to national coordination

Establish and maintain adequate, transparent, and accountable coordination mechanisms for the response to Zika.

Table 6. Strategies and indication of organizations involved in coordination

Area of intervention	Organizations
Inclusion of vulnerable communities	Save the Children, UNFPA, UNICEF, UN Women, WHO
International coordination	PAHO, UNFPA, UNICEF, UN Women, WHO
International Health Regulations	WHO
Support to national coordination	Save the Children, UNDP, UNFPA, UNHCR, UNICEF UN Women, WHO

PART IV: ANNEXES

ANNEX A: PARTNER ORGANIZATIONS

Table 7. Partners contributing to Zika activities

Organization
AmeriCares
Australasian Society for Infectious Diseases
Australian Cerebral Palsy Alliance
Child Fund International
Cruz Roja Boliviana
Curtin and PathWest
European Centre for Disease Prevention and Control (ECDC)
European Virus Archive goes Global (EVAg)
Food and Agriculture Organization of the United Nations (FAO)
Heart to Heart
Institut Pasteur
Institute of Environmental Science and Research, New Zealand (ESR)
International Atomic Energy Agency (IAEA)
International Federation of Red Cross and Red Crescent Societies
International GBS Outcome Study
International Medical Clinic
International Organization for Migration (IOM)
International Severe Acute Respiratory and Emerging Infection Consortium Coordinating Centre (ISARIC)
Jhpeigo
Malteser International
Marie Bashir Institute for Infectious Disease and Biosecurity
National Institute for Communicable Diseases, South Africa (NICD)
National Institute of Infectious Diseases, Japan
New South Wales Public Health Library
Pan American Health Organization (PAHO)
Peruvian Red Cross
Public Health Agency of Canada
Save the Children
Tephinet
UN Development Programme (UNDP)
UN High Commissioner for Refugees (UNHCR)
UN International Children's Emergency Fund (UNICEF)
UN International Strategy for Disaster Reduction (UNISDR)
UN Population Fund (UNFPA)
UN Women
Universal Postal Union
University of Sydney
University of Texas Medical Branch – Research (UTMB)
University of the West Indies
US Centers for Disease Control and Prevention (CDC)
US Department of Health and Human Services (US HHS)
World Food Programme (WFP)
WHO, including regional offices
World Vision

ANNEX B

PARTICIPATING ORGANIZATIONS' FUNDING REQUIREMENTS

Table 8. Total requirements by organization

Organization	Sum of Total Requirement (US$)
Americares	800 000
Colombia, research institute IPK Cuba	250 000
Competence testing facilities (P3 lab)	200 000
EVAg	180 000
FAO	4 100 000
International Organization for Migration	3 000 000
IP Kouri	500 000
ISARIC	430 000
NICD South Africa	500 000
PAHO	150 000
Save the Children	2 000 000
UN Women	5 800 000
UNDP	5 204 000
UNFPA	10 000 000
UNICEF	31 000 000
WHO / EMRO	500 000
WHO / EURO	690 000
WHO / HQ	8 700 000
WHO / PAHO	3 700 000
WHO / SEARO	1 800 000
WHO / WPRO	3 700 000
World Vision	40 000
Other*	29 256 000
Total	112 500 000
*** includes multiple consortia composed of the above agencies as well as Jhpiego, MUDE, Universidad del Norte de Colombia, United States Agency for International Development, UN Population Fund, Caribbean Public Health Agency, Pasteur Institute Network, Fiocruz, FIND, London School of Hygiene and Tropical Medicine, and the International Atomic Energy Agency**	

This summary is based on the most recent updates available.

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

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


www.who.int


http://www.who.int/emergencies/zika-virus/en/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