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Measures to prevent the spread of the Zika Virus

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Zika, a flavivirus transmitted mainly by mosquitoes, was discovered in 1947 in Uganda. Clinical manifestations of Zika virus infection occur in approximately 20 percent of patients and include low-grade fever with pruritic rash, arthralgia or conjunctivitis. The Zika virus is a mild disease and most people with the virus do not have symptoms. However, the recent rise in the spread of the Zika virus in Brazil has been accompanied by an unprecedented rise in the number of children being born with unusually small heads – identified as microcephaly. In addition, several countries, including Brazil, reported a steep increase in Guillain–Barré syndrome, a neurological disorder that could lead to paralysis and death. Based on research, there is scientific consensus that the Zika virus is a cause of microcephaly and Guillain–Barré syndrome. Currently, there is an ongoing Zika virus outbreak in the Americas, the Caribbean, and the Pacific; the World Health Organization (WHO) has stated that the virus is “spreading explosively” and has declared the Zika virus and its associated complications a Public Health Emergency of International Concern. The Zika Virus will very likely spread to other areas and local transmission has been reported a number of times, evident in the Timeline.
From the 1960s to the 1980s, human infections were found across Africa and Asia, typically accompanied by mild illness. The first large outbreak of disease caused by Zika infection was reported from the Island of Yap (Federated States of Micronesia) in 2007, as the virus moved from south-east Asia across the Pacific. During a 2013–14 outbreak in French Polynesia, the neurological disorder Guillain–Barré syndrome was linked to Zika infection. In South America, the first reports of locally transmitted infection came from Brazil in May 2015. In July 2015, Brazil reported an association between Zika virus infection and GBS. In October 2015, Brazil reported an association between Zika virus infection and microcephaly. For neither event was a causal link proven.

The Zika virus is transmitted to humans by Aedes mosquito bites and leads to an illness that lasts from a few days to a week. Typical signs and symptoms of Zika virus infection include: fever, rash, joint pain, and conjunctivitis (redness of the eyes). When pregnant women become infected, the viral infection has been linked to birth defects (microcephaly, or a small head and small brain) in newborns. There is no vaccine available against the Zika virus. The infection is transmitted to humans by Aedes mosquito bites and is not thought to be commonly passed from person to person. It leads to an illness that lasts from a few days to a week.
Definition of key terms

**Virus:** The causative agent of an infectious disease.

**Zika virus:** A Flavivirus related to dengue fever, West Nile, yellow fever, and Japanese encephalitis viruses.

**Microcephaly:** An abnormally small head due to failure of brain growth.

**Placenta:** A temporary organ that joins the mother and fetus, transferring oxygen and nutrients from the mother to the fetus.

**World Health Organization (WHO):** The sub-agency of the United Nations that is concerned with international health.

**Syndrome:** A combination of symptoms and signs that together represent a disease process.

**Social measure:** A plan or course of action taken to achieve a particular purpose, in this case relating to preventing the spread of a virus.
**Timeline**

**1947:** Scientists conducting routine surveillance for yellow fever in the Zika forest of Uganda isolate the Zika virus in samples taken from a captive rhesus monkey.

**1952:** The first human cases are detected in Uganda and the United Republic of Tanzania in a study demonstrating the presence of neutralizing antibodies to the virus.

**1964:** A researcher in Uganda who fell ill while working with Zika strains isolated from mosquitoes provides the first proof, by virus isolation and re-isolation, that the Zika virus causes human disease.

**1960s–1980s:** Zika is now being detected in mosquitoes and sentinel rhesus monkeys used for field research studies in a narrow band of countries that stretch across equatorial Africa. No deaths or hospitalizations are reported.

**1969–1983:** The known geographical distribution of Zika expands to equatorial Asia, including India, Indonesia, Malaysia and Pakistan, where the virus is detected in mosquitoes. In Africa, the disease in humans continues to be regarded as rare, with mild symptoms.
2007: Zika spreads from Africa and Asia to cause the first large outbreak in humans on the Pacific island of Yap, in the Federated States of Micronesia. Prior to this event, no outbreaks and only 14 cases of human Zika virus disease had been documented worldwide.

2008: A US scientist conducting fieldwork in Senegal falls ill with Zika infection upon his return home to Colorado and infects his wife in what is probably the first documented case of sexual transmission of an infection usually transmitted by insects.

2013–2014: The virus causes outbreaks in four other groups of Pacific islands: French Polynesia, Easter Island, the Cook Islands, and New Caledonia. The outbreak in French Polynesia, generating thousands of suspected infections, is intensively investigated. These investigations indicate a possible association between Zika virus infection and congenital malformations and severe neurological and autoimmune complications. The finding does challenge the notion that Zika infection causes only mild illness.

20 March 2014: During the 2013–14 outbreak of the Zika virus in French Polynesia, two mothers and their newborns are found to have Zika virus infection. The infants’ infections appear to have been acquired by transplacental transmission or during delivery.

29 March 2015: Brazil provides details on reports of an illness; in four northeastern states, characterized by skin rash, with and without fever.

7 May 2015: The first report of locally acquired Zika disease in the Americas.
**15 July 2015:** Brazil reports laboratory-confirmed Zika cases in twelve states.

**8 October 2015:** Colombia reports the results of clinical records which reveals the occurrence, since July, of cases with symptoms consistent with Zika infection.

**5 November 2015:** Colombia confirms, by PCR, 239 cases of locally acquired Zika infection.

**11 November 2015:** Brazil declares a national public health emergency as cases of suspected microcephaly continue to increase.

**12 November 2015:** Panama reports cases with symptoms compatible with Zika.

**24 November 2015:**
El Salvador reports its first 3 PCR confirmed cases of locally acquired Zika infection. French Polynesia reports the results of a retrospective investigation documenting an unusual increase in the number of central nervous system malformations in fetuses and infants from March 2014 to May 2015.

**25 November 2015:** Mexico reports three PCR confirmed cases of Zika infection, of which two were locally acquired.

**26 November 2015:** Guatemala reports its first PCR confirmed case of locally acquired Zika infection.

**27 November 2015:**
Paraguay reports six PCR confirmed cases of locally acquired Zika infection. The Bolivarian Republic of Venezuela reports
seven suspected cases of locally acquired Zika infection. Four samples test positive by PCR.

15 December 2015: Samples taken from patients in Cabo Verde test positive, by PCR, for Zika.

30 December 2015: Brazil reports 2975 suspected cases of microcephaly, with the highest number occurring in the north-east region.

31 December 2015: The United States reports the first PCR confirmed case of locally acquired Zika infection in the Commonwealth of Puerto Rico, an unincorporated territory of the United States.

5 January 2016: Researchers report the first diagnosis of intrauterine transmission of the Zika virus to two pregnant women in Brazil whose fetuses were diagnosed with microcephaly, including severe brain abnormalities, by ultrasound. Although tests of blood samples from both women are negative, the Zika virus is detected in amniotic fluid.

12 January 2016: In collaboration with health officials in Brazil, the United States Centers for Disease Control and Prevention release laboratory findings (notified to WHO under IHR protocol) of four microcephaly cases in Brazil (two newborns who died in the first 24 hours of life and two miscarriages) which indicate the presence of the Zika virus RNA by PCR and by immunohistochemistry of brain tissue samples of the two newborns.

15 January 2016: The Unites States issues interim travel guidance for pregnant women which, “out of an abundance of caution,” advises
pregnant women in any trimester to consider postponing travel to areas with ongoing local transmission of the virus, or to take precautions against mosquito bites if they must travel. Ecuador reports its first two PCR confirmed cases of locally acquired Zika infection.

**18 January 2016:** France reports the first PCR confirmed case of locally acquired Zika in Saint Martin.

**21 January 2016:** Brazil reports 3893 suspected cases of microcephaly, including 49 deaths. In six cases, the Zika virus was detected in samples from newborns or stillbirths.

**23 January 2016:** The Dominican Republic reports its first 10 PCR confirmed cases of Zika infection.

**25 January 2016:** The United States reports the first PCR confirmed case of locally acquired Zika infection in St Croix.

**29 January 2016:** Suriname reports 1,107 suspected cases of Zika, of which 308 are confirmed, by PCR, for the Zika virus.

**30 January 2016:** Jamaica reports its first PCR confirmed case of locally acquired Zika.

**1 February 2016:** WHO declares that the recent association of Zika infection with clusters of microcephaly and other neurological disorders constitutes a Public Health Emergency of International Concern.

**1 February 2016:** Cabo Verde reports 7081 suspected cases of Zika between end September 2015 and 17 January 2016.
2 February 2016: The United States reports a case of sexual transmission of Zika infection in Texas. This is the third indication that the virus can be sexually transmitted, which appears to be a rare event.

7 February 2016: Suriname reports an increase in Guillain–Barré syndrome, beginning in 2015, with 10 cases of Guillain–Barré syndrome positive for Zika (PCR test on urine sample). Four Zika–related deaths are reported over the preceding 2 weeks (including one Dutch visitor), with symptoms of diarrhea or vomiting, dehydration and joint pain, rapidly followed by death.
In this debate, you are called upon to come up with solutions in order to protect and inform populations about the Zika virus. This can be achieved with both long term and short term solutions.

You have to take into consideration the fact that Brazil hosts the 2016 Olympic Games, and so needs to act with sufficiency and within the time restrictions.

Moreover, you have to be specific on the security measures that must be taken as well as the search for a cure. It is also recommended to propose actions targeting less educated and underprivileged populations of the developing countries suffering by the Zika virus.
Transmission

The vertebrate hosts of the virus were primarily monkeys in a so-called enzootic mosquito-monkey-mosquito cycle, with only occasional transmission to humans. Before the current pandemic began in 2007, Zika "rarely caused recognized 'spillover' infections in humans, even in highly enzootic areas." Zika is primarily spread by the female Aedes aegypti mosquito, which is active mostly in the daytime. The mosquitoes must feed on blood in order to lay eggs.

The true extent of the vectors is still unknown. Zika has been detected in many more species of Aedes, although this alone does not incriminate them as a vector.

The potential societal risk of Zika can be delimited by the distribution of the mosquito species that transmit it. A study’s authors conclude that mosquitoes are adapting for persistence in a northern climate.

Since 2015, news reports have drawn attention to the spread of Zika in Latin America and the Caribbean. The countries and
territories that have been identified by the Pan American Health Organisation as having experienced "local Zika virus transmission" are Barbados, Bolivia, Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Puerto Rico, Saint Martin, Suriname, and Venezuela.

**Sexual**
Zika can be transmitted from a man to his sex partners. As of April 2016, sexual transmission of Zika has been documented in six countries – Argentina, Chile, France, Italy, New Zealand and the United States – during the 2015 outbreak.

As of February 2016, fourteen additional cases of possible sexual transmission have been under investigation. All cases involve transmitting the Zika from men to women and it is unknown whether women can transmit Zika to their sexual partners.

**Pregnancy**
The Zika virus can spread from an infected mother to her fetus during pregnancy or at delivery.

**Blood transfusion**
As of April 2016, two cases of Zika transmission through blood transfusions have been reported globally, both from Brazil, after which the US Food and Drug Administration recommended screening blood donors and deferring high-risk donors for 4 weeks.
Possible Solutions

1. **Accelerate vaccine research and diagnostic development**

2. **Education**
   Educating health providers, women and partners in areas where the Zika Virus is present about the effects and causes of the Zika Virus is mandatory when dealing with its prevention.

3. **Improve health services and support for low income pregnant women**
   This applies in particular to areas where the virus is present, which is majorly in African and Asian regions.

4. **Rapidly expand mosquito control programs**
   This can include educating people and tourists visiting countries where the Zika virus is present about how to prevent mosquito bites and thus Zika virus infection. Mosquitos are one of the main methods of transmission of the virus and so your resolutions should try to include at least one clause dealing with this.
Site which consists of information on how to prevent the virus: https://www.cdc.gov/zika/prevention/index.html

5. **Help Zika affected countries with better control transmission**

6. **CDC recommendations**
   As of March 2016, the CDC updated its recommendations about length of precautions for couples and advised that couples with men who have confirmed Zika fever or symptoms of Zika should consider using condoms or not having sex for at least 6 months after symptoms begin. This includes men who live in and men who traveled to areas with Zika. Couples with men who traveled to an area with Zika, but did not develop symptoms of Zika, should consider using condoms or not having sex for at least 8 weeks after their return in order to minimize risk. Couples with men who live in an area with Zika, but have not developed symptoms, might consider using condoms or not having sex while there is active Zika transmission in the area.
Major countries and organizations involved

World Health Organisation (WHO):
The WHO is supporting countries to control Zika virus disease by taking actions outlined in the “Zika Strategic Response Framework”:


Centers for Disease Control and Prevention (CDC):
CDC’s Emergency Operations Center (EOC) was activated for Zika on January 22, 2016, and moved to a level 1 activation – the highest level – on February 8, 2016
Their work includes:
- Developing laboratory tests to diagnose Zika.
- Monitoring and reporting cases of Zika, which will help improve our understanding of how and where Zika is spreading.
- Providing guidance to travellers and Americans living in areas with current outbreaks.
- Surveillance for the virus in the United States, including US territories.
- Supporting in Puerto Rico, Brazil, Colombia, American Samoa, the US Virgin Islands, and Panama on the ground.

Countries involved:
- Brazil is majorly involved with a current Zika Virus crisis
- Various US territories, such as the Commonwealth of Puerto Rico
- The United States of America
- Nations located in Equatorial Asia such as Indonesia, India
- Many African countries where the Zika Virus is present, such as but not limited to Uganda
 Unfortunately, due to the recentness of this issue, there are few resolutions and treaties released by the UN available on dealing with the Zika Virus. Below, however, there are a few relevant articles and videos on what actions the UN has taken in order to help deal with the spread of the virus.

1. **Zika: UN health agency launches global response strategy; Member States briefed on outbreak**

2. **UN launches multi-partner trust fund for Zika virus response**

3. **Relevant video of a briefing on the Zika Virus in an ECOSOC meeting**

4. **Zika: UN health agency launches database on worldwide virus research**
5. Zika: UN agriculture agency provides expertise to help curb spread of virus

6. European Parliament resolution of 13 April 2016 on the Zika virus outbreak

7. A spot by the UN
   [Link](https://www.youtube.com/watch?v=ghxHxAi_gI)
Research questions

In order to be in a position to discuss the issue at hand, one has to understand what it entails, why it occurs and what its immediate consequences are. Each delegate should seek to find specific information concerning their country and the topic and keep those in mind when drafting their resolution. Here are some questions meant to indirectly be answered in your resolution or serve as a guide for research:

**How do people catch the Zika virus?**
The Zika virus is primarily transmitted to people through the bite of an infected Aedes mosquito, which also transmits chikungunya, dengue and yellow fever. Zika virus can also be transmitted through sex. The Zika virus has been detected in blood, urine, amniotic fluids, semen, saliva as well as body fluids found in the brain and spinal cord.

**Where does the Zika virus occur?**
Local transmission of the Zika virus by Aedes mosquitoes has been reported on the continents of Africa, the Americas, Asia and the Pacific.
There are 2 types of Aedes mosquito known to be capable of transmitting the Zika virus. In most cases, Zika is spread through the Aedes aegypti mosquito in tropical and subtropical regions. The Aedes albopictus mosquito also transmits the virus and can hibernate to survive regions with cooler temperatures.

Can El Niño have an effect on Zika transmission?
The Aedes aegypti mosquito breeds in still water. Severe drought, flooding, heavy rains and temperature rises are all known effects of El Niño, which is the result of a warming of the central to eastern tropical Pacific Ocean. An increase in mosquitoes can be expected due to expanding and favourable breeding sites. Steps can be taken to prevent and reduce the health effects of El Niño.

Can the Aedes mosquito travel from country to country and region to region?
The Aedes mosquito is a weak flyer; it cannot fly more than 400 meters. However, it may be possible for the mosquito to be transported from one place to another accidentally and introduce the Zika virus to new areas.

What are the symptoms of Zika virus disease?
The Zika virus usually causes mild illness. Symptoms most commonly include a slight fever or rash, appearing a few days after a person is bitten by an infected mosquito. Although many will not develop any symptoms at all, others may also suffer from conjunctivitis, muscle and joint pain, and feel tired. The symptoms usually last from 2 to 7 days. There is no known difference in the symptoms of infected pregnant and non-pregnant women.

How is Zika virus disease diagnosed?
Diagnosis is based on symptoms and the person’s recent history (e.g. mosquito bites, or travel to an area where the Zika virus occurs). Laboratory testing can confirm the presence of the Zika virus in the blood. However, this diagnosis may not be reliable as the virus could cross-react with other viruses such as dengue, West Nile and yellow fever. A reliable, rapid point-of-care diagnostic test is a research and development priority.

**How is Zika virus disease treated?**
The symptoms of Zika virus disease can be treated with common pain and fever medicines, rest and plenty of water. If symptoms worsen, people should seek medical advice.

**Is my country party to the relevant bodies, agencies and organizations, how does it cooperate with other countries towards achieving its goals concerning the issue?**

**What strategies are implemented in my country, what measures has it already taken in order to tackle the phenomenon, what is the policy for the future?**

**Is my country supporting or willing to support other countries with high rates of Zika virus disease?**

**In what ways can this issue be resolved?**

**What problems exist in the collaboration among UN countries and how can these be solved (technical assistance, financial contributions)?**