



NIGERIA CENTRE FOR DISEASE CONTROL

PUBLIC HEALTH RISK ASSESSMENT OF ZIKA VIRUS IN NIGERIA AND INTERIM RECOMMENDATIONS

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Background

From May 2015, a large outbreak of the Zika virus was reported in Brazil, followed by reports from many other countries (1). On February 1 2016 the World Health Organization declared a “Public Health Emergency of International Concern” due to the clusters of microcephaly and other neurological abnormalities that *may* be caused by Zika virus. In July, 2016, public health officials in Florida, USA, reported 14 cases of Zika in Miami that were likely to have been contracted from local mosquitoes demonstrating local spread in the USA for the first time. After months of speculation, recently described increases in reported cases of congenital malformations such as microcephaly, and neurological syndromes such as Guillain-Barré syndrome, have been associated with Zika virus outbreaks(2-4). More research is ongoing to establish specific preventive methods and interventions to reduce adverse pregnancy and foetal outcomes (2).

The Zika virus was first identified in monkeys in Uganda in 1947. Even though, human infections were demonstrated by serology to have occurred previously in East Africa(5-7), the virus was demonstrated in the first human case(s) in Nigeria in 1954(8) and subsequently in different settings(9, 10). Further studies have demonstrated transmission in East Africa, West Africa, Asia, and the Pacific Islands. By 2016, 72 countries and territories (Fig. 1, Table 1) had reported evidence of mosquito-borne Zika virus transmission since 2007 (70 with reports since 2015). In principle, all countries with presence of *Aedes (Steogmyia) albopictus* and *Aedes (Steogmyia) aegypti* mosquitoes are at risk of sustained transmission. Human activity aids the spread of the virus to locations far beyond the normal range for the vector. Previous evidence of detection of Zika virus in man, and antibodies to Zika virus in Nigerian populations, together with the presence of the vectors indicate that the virus is widely circulated in Nigeria(11, 12). Thus, in the absence of continued surveillance or periodic national surveys, the epidemiology of the Zika virus in Nigeria remains poorly understood.

Majority of those infected with Zika remain asymptomatic(13). For those who develop symptoms, fever, rash, conjunctivitis, headaches, muscle and joint pains typically start three to six days after infection(13, 14). The virus may however stay in the body for weeks following infection.

Given the public anxiety on Zika virus, the Nigeria Center of Disease Control (NCDC) presents here a review of current epidemiology, a risk assessment to public health and interim recommendations for public health response to Zika virus in Nigeria. It has action points targeting the public health authorities, health care providers and the general public.

Summary review of evidence

Since the discovery of Zika in monkeys, there have been periodic reports of serological and occasionally, clinical evidence of the disease in Asia and Africa. (15, 16). The prior absence of a known link of Zika infection with congenital anomalies and other neurological diseases and paucity of surveillance for birth defects in the countries most affected, partially accounts for the inadequate attention given to the virus. Existing evidence suggests that the virus has been present in many countries prior to the recent link of the increase in neurological defects such as microcephaly and the increased detection of Zika virus in the South Pacific, South America and the United States(17, 18).

Risk Assessment for Nigeria

The current epidemiology of Zika in Nigeria has not been well documented or understood due to paucity of recent data. The virus shares a similar vector; the *Aedes (Stegomyia)* mosquitoes, also responsible for other flavivirus infections recorded in Nigeria such as yellow fever and dengue. Also, the environmental and human behavioural risk factors in areas with reported Zika outbreaks are similar to those found in Nigeria and would thus favour the circulation of Zika. Possible cross-reaction with other endemic flaviviruses like yellow fever and dengue; genetic host factors protecting against infection or disease; low vector competence and transmission efficiency; lack of diagnostic testing; and the absence of systematic surveillance are potential limitations to detect on-going transmission of Zika in Nigeria(19-21).

In light of above, NCDC plans to initiate surveillance to understand and monitor the epidemiology of Zika virus in Nigeria for the appropriate interventions.

Recommendations to the Health Care Practitioners

1. Travelers should be informed of preventive measures before, during and after travel to areas with Zika transmission.
2. Provide intending travelers to areas with ongoing Zika virus transmission with up-to-date advice on how to reduce the risk of becoming infected, including preventing mosquito bites and practicing safer sex or consider abstinence for at least eight weeks upon return and not to donate blood for at least one month after return.
3. Advise pregnant women not to travel to areas with ongoing Zika virus transmission.
4. Consider the possibility of Zika virus infection in diagnosing symptomatic travellers with acute fever, rash, arthralgia, or conjunctivitis, GBS, and a recent history of travel to areas of ongoing Zika virus transmission in the two weeks prior to onset of illness.
5. Advise pregnant women whose sexual partners live in or travel to areas with ongoing Zika virus transmission to ensure safer sexual practices or abstain from sex for the duration of their pregnancy.
6. Advise sexual partners of pregnant women, living in or returning from areas where local transmission of Zika virus is known to occur, to practice safer sex or abstinence from sexual activity for at least the duration of the pregnancy.
7. Advise couples or women planning a pregnancy who are returning from areas where transmission of Zika virus is known to occur, to wait at least eight weeks before trying to conceive; and six months for male partners.
8. Report suspected cases of Zika virus disease to the state Disease Surveillance and Notification Officers (DSNO) and/or NCDC for appropriate public health actions.
9. Be alert to detect and report any increase in neurological syndromes, autoimmune syndromes or congenital malformations in neonates born to parents with a history of travel to areas with Zika virus transmission.
10. Report any neurological or autoimmune syndromes in patients with history of travel to areas with Zika virus transmission to Disease Surveillance and Notification Officers (DSNO) and/or NCDC for appropriate public health actions.
11. Conduct periodic ultrasound scans for pregnant women who have travelled to areas with Zika virus transmission and tested positive to enable detection of fetuses with congenital malformations for appropriate clinical management.

12. Evaluate infants of women infected with Zika virus during pregnancy for possible neurological syndromes or congenital malformations.

Recommendations to the general public

1. Access up-to-date advice to travelers on how to reduce the risk of becoming infected, including preventing mosquito bites and practicing safer sex from health care providers or Public Health authorities.
2. Prevent mosquito bites during trips by following these measures:
 - i. Wear clothing - preferably light coloured - that covers as much of the body as possible.
 - ii. Apply insect repellent containing DEET (diethyltoluamide), or IR 3535 or Icaridin to exposed skin or to clothing in accordance with the label instructions.
 - iii. Use physical barriers such as regular or mesh screens or insecticide treated netting materials on doors and windows, or closing doors and windows.
 - iv. Sleep under mosquito nets, especially during the day, when Aedes mosquitoes are most active.
3. Pregnant women to postpone non-critical travel to areas with ongoing Zika virus transmission
4. Pregnant women whose sexual partners live in or travel to areas with ongoing or recent Zika virus transmission to ensure safe sexual practices or abstain from sex for the duration of their pregnancy.
5. Travelers from areas with ongoing Zika virus transmission to practice safer sex and not to donate blood for at least one month after return to Nigeria, to reduce the potential risk of onwards transmission.

References

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