

How does the ZIKV Infection is Higher Among Black Women?

ORIGINAL

Maria Ivanir Araújo Neves Torres¹,
Allana Maria Garcia Sampaio¹, Álvaro Costa Marques¹,
José Damásio Soares Costa Filho¹, Lenina Alves Teixeira¹,
Ysla Sara Teixeira Silva¹, Modesto Leite Rolim Neto¹

¹ Faculty of Medicine, Federal University of Cariri, UFCA, Barbalha, Ceará, Brazil.

Contact information:

Modesto Leite Rolim Neto
(M.L., Rolim Neto).

Address: 284, Divino Salvador Street, Downtown, Barbalha, Ceara, 63180-000, Brazil.

Tel: +055(88)999042979.

 modestorolim@yahoo.com.br

Abstract

Introduction: ZIKV is a single-stranded RNA, from the *Flaviviridae* family. The infection of this virus became extremely visible during its epidemic in 2015 at South America, after the outbreak many speculations that includes newborns with central nervous system malformations and neurological disorders.

Objective: determine the epidemiological profile of the Brazilian female population afflicted with Zika virus, by means of database research of 2017.

Results: the higher incidence shows the social inequality of those affected by arboviruses: young, poor, black and brown women, the majority of population in the Northeast and North of Brazil.

Conclusion: Brazilian epidemiology of Zika virus and Congenital Zika Virus is concentrated in the black and poor female population due to the historical and cultural Brazilian history of colonization, as it is concentrated in the same region where the *Aedes* mosquito has an easy procreation due to a wet and hot summer leading to propagation of arboviruses.

The Zika virus infection became extremely visible during its epidemic in 2015 at South America, after the outbreak many speculations related to its etiology and the higher incidence of microcephaly and neonatal malformation made it an international concern and emergency [1, 2].

Keywords

Zika virus; Brazil; Women; Newborn Malformations; Epidemiology.

ZIKV is a single-stranded RNA, from the Flaviviridae family that includes the Dengue virus, West Nile virus, Thick-bore encephalitis virus and yellow fever virus [1]. ZIKV was first isolated in Uganda back in 1947, and sporadic cases were before seen Southeast Asia and South America [2].

The virus spread very quickly to Brazil and coincided with an outburst in the incidence of newborns with central nervous system malformations and neurological disorders (**Figure 1**), but to the day there is still the need to a better understand of the congenital Zika virus infection [1, 3].

ZIKV was isolated from *Aedes* species of mosquitoes, recognized as the main vector, thus presenting a special difficulty to health control because they can reproduce in extremely small amounts of water, and their eggs are extremely hardy [2].

The Brazilian northeast region had the largest concentration of Zika cases in 2015 and serious complications happened concomitant with its outbreak. The studies available with ZIKV epidemiology show that back in 2006 at the Yap Island (Oceania) that the incidence was higher among women and mean age was 36 years old from those who searched medical help, a survey conducted at the same area with positive Immunoglobulin M show that males were more likely to have Zika infection than females, and did not differ between age groups [4].

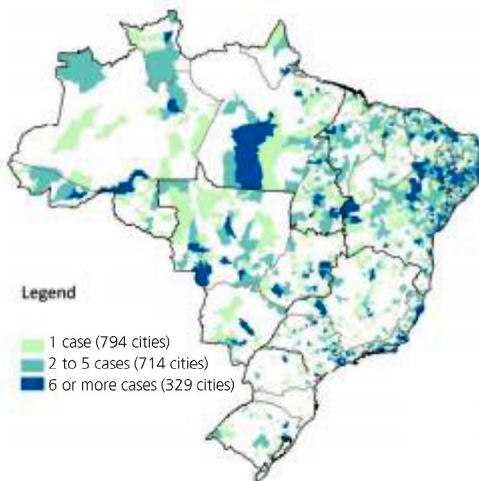
In the Zika outbreak in French Polynesia was seen an increase in the number of neurological and autoimmune complications, such as Guillain-Barré Syndrome [5], 74% of these patients were men [6]. The gender among patients who had access to a medical care was more frequently women, according to studies from Brazil, Yap Island, Thailand and Easter Island [4, 7, 8].

Brazilian data from 2015 declared that between 440000 and 1300000 cases of Zika occurred [9]. In Bahia (Brazilian northeast state) the attack rate was 4.4 in 1000 inhabitants, and some cities it was greater than 25 per 1000 [10].

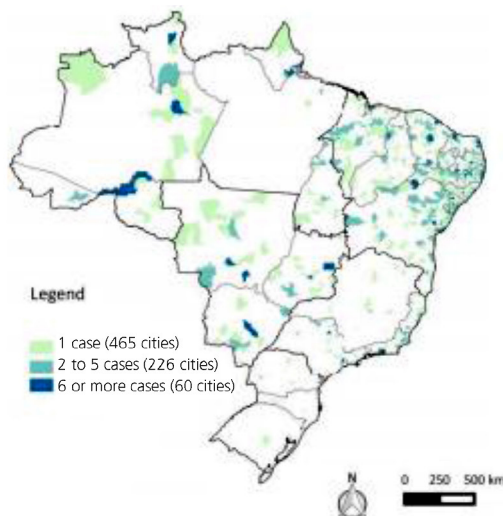
The higher incidence in the northeast region of Brazil of the Zika virus and its congenital complications lit a bigger picture, showing the social inequality of those affected by the arboviruses, they are young, poor, black and brown women as described by Diniz (2016) [11].

Figure 1: Maps special distribution of notified and confirmed cases of microcephaly and/or central nervous system abnormalities, Brazil, 2017 [3].

Notified Cases (n=1.837 cities)



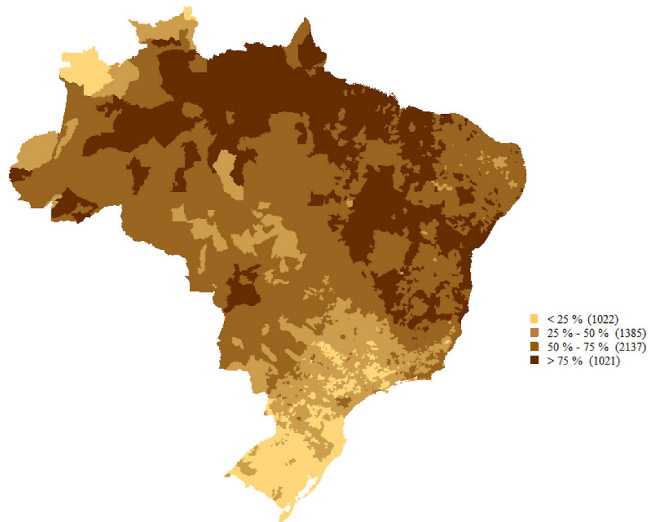
Confirmed Cases (n=751 cities)



Source: Brazilian Ministry of Health, 2017.

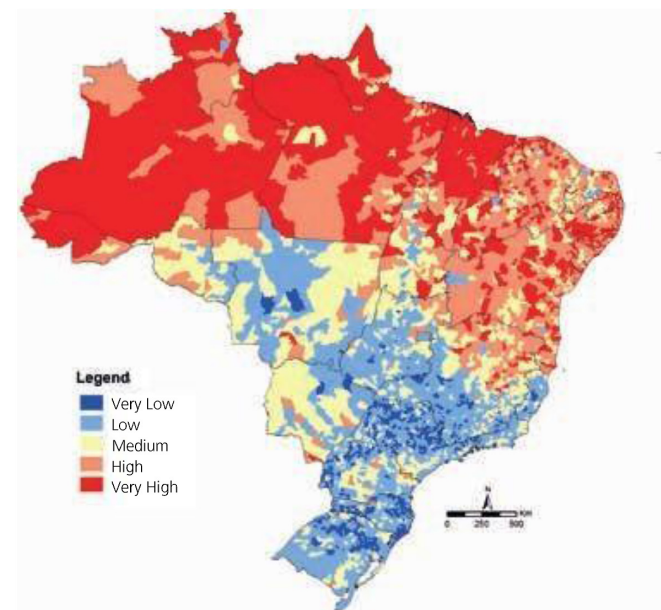
Analyzing the social and race of Brazilian demographics it is notable that in the same northeast region with the predominance of the congenital cases of Zika there is the higher concentration of poor population and black/brown people, as seen in **Figure 2 & 3** [12].

Figure 2: Map demographic sense of black people in Brazil, 2010.



Source: Brazilian Institute of Geographic and Statistic, 2010.

Figure 3: Map Brazilian social vulnerability, 2010.



Source: Brazilian Institute of Geographic and Statistic, 2010.

The brown population is more common in the Northeast and North regions of Brazil, while the black population is more frequent in the Northeast area mostly in the Bahia State, according with the Brazilian Cense of 2010, the same regions concentrate the higher incidence of social vulnerability [12].

It is correct to conclude that in Brazil the epidemiology of Zika virus and Congenital Zika Virus is concentrated in the black and poor female population due to the historical and cultural Brazilian history of colonization, as it is concentrated in the same region where the *Aedes* mosquito has an easy procreation due to a wet and hot summer leading to propagation of arboviruses.

References

1. Lin, H.Z., Tambyah, P.A., Yong, E.L., Biswas, A., Chan, S.Y. A review of Zika Virus infections in pregnancy and implication for antenatal care in Singapore. *Singapore Med. J.* 2017; 58(4):171-178
2. Paixão, E.S., Barreto, F., Teixeira, M.G., Costa, M.C.N., Rodrigues, L.C. History, Epidemiology, and Clinical Manifestations of Zika: A Systematic Review. *AJPH.* 2016, Vol 106, No 4. 606-612
3. Brazilian Ministry of Health. Operational center of emergencies in public health on Microcephaly. *Epidemiological Report* 2017. (SE) 52/2016.
4. Duffy MR, Chen TH, Hancock WT, et al. Zika virus outbreak on Yap Island, Federated States of Micronesia. *N Engl J Med.* 2009; 360(24):2536-2543.
5. Oehler E, Watrin L, Larre P, et al. Zika virus infection complicated by Guillain-Barré syndrome—case report, French Polynesia, December 2013. *Euro Surveill.* 2014; 19 (9):20720.
6. Malet H, Vial A, Musso D. Epidemiological and statistiques health information bulletin [in French]. Papeete, French Polynesia: Health Surveillance Office. Available at: http://www.hygiene-publique.gov.pf/IMG/pdf/no13_-_mai_2015_-_zika.pdf. Accessed May 25, 2017.
7. Buathong R, Hermann L, Thaisomboonsuk B, et al. Detection of Zika virus infection in Thailand, 2012–2014. *Am J Trop Med Hyg.* 2015; 93(2):380-383.
8. Tognarelli J, Ulloa S, Villagra E, et al. A report on the outbreak of Zika virus on Easter Island, South Pacific, 2014. *Arch Virol.* 2015; Epub ahead of print November 26, 2015.

9. Zika virus epidemic in the Americas: potential association with microcephaly and Guillain-Barré syndrome. Stockholm, Sweden: European Centre for Disease Prevention and Control; 2015. Available at: <http://ecdc.europa.eu/en/publications/Publications/zika-virus-americas-association-with-microcephaly-rapid-risk-assessment.pdf>. Accessed January 23, 2017.
10. Ministry of Health of Brazil, Secretary of Health of the State of Bahia. Epidemiological situation of arboviruses. Bull Epidemiol. 2015;11.
11. Diniz, D. Zika: Do Sertão Nordestino à ameaça global. 2016. 1ª ed Rio de Janeiro: Civilização Brasileira. 192pp.
12. Brazilian Institute of Geographic and Statistic. Brazilian Sense of 2010. Rio de Janeiro: IBGE, 2012.

Publish in International Archives of Medicine

International Archives of Medicine is an open access journal publishing articles encompassing all aspects of medical science and clinical practice. IAM is considered a megajournal with independent sections on all areas of medicine. IAM is a really international journal with authors and board members from all around the world. The journal is widely indexed and classified Q2 in category Medicine.