

**LETTER TO THE EDITOR****The Appropriate Rainfall to Development of Zika Virus: An Indonesian Case****Ramadhan Tosepu\***

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**Citation:** Saibaba Ramadhan Tosepu. The Appropriate rainfall to Development of Zika Virus: An Indonesian Case. *Ethiop J Health Sci* 2017;27(1):pp. doi: <http://dx.doi.org/10.4314/ejhs.v27i1.12>

**Received:** November 12, 2016

**Accepted:** November 17, 2016

**Published:** January 1, 2017

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**Funding:** Nil

**Competing Interests:** The authors declare that this manuscript was approved by all authors in its form and that no competing interest exists.

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**Dear Editor,**

Zika virus has become a critical problem needing serious attention. This virus is transmitted through mosquito bites, *Aedes*, and it is strongly influenced by climatic factors such as temperature, rainfall and humidity (1,2). Zika virus infections have been spreading in Southeast Asian countries such as Singapore, Myanmar, Thailand, Lao People's Democratic Republic, Cambodia, Malaysia, Philippines, Vietnam and Indonesia (3).

In Indonesia, Zika virus was detected from a young man in Jambi Province (4). Jambi is located in the island of Sumatra, Indonesia. The discovery of this case becomes a serious concern because the young man has never traveled internationally, which contradicts with various studies that claim that the distribution of Zika virus was associated with traveling abroad (5).

In line with this case, a descriptive study was conducted to assess climate rainfall in Jambi province. The results indicated that rainfall max = 2463.0 mm, rainfall min = 16.8 mm with average rainfall = 352.2 mm was appropriate for Zika virus. Rainfall is likely to increase the transmission of Zika virus by accelerating the development of the vector (6,7). A research conducted in Batam, Indonesia, revealed that there is a relationship between the incidence of vector-borne diseases with rainfall (8). The rainy season is the right time for the vector mosquitoes to hatch their eggs (9). Therefore, it can be said that rainfall in the Province of Jambi is one of the factors that can develop Zika virus.

**REFERENCES**

1. Brisbois BW, Ali SH. Climate change, vector-borne disease and interdisciplinary research: social science perspectives on an environment and health controversy. *EcoHealth*. 2010;7(4):425-38.
2. Althouse BM, Hanley KA, Diallo M, Sall AA, Ba Y, Faye O, et al. Impact of climate and mosquito vector abundance on sylvatic arbovirus circulation dynamics in Senegal. *The American journal of tropical medicine and hygiene*. 2015;92(1):88-97.
3. Wiwanitkit S, Wiwanitkit V. Zika virus infection in Asia: Reappraisal on phylogenetic data of Asian lineage. *Asian Pacific Journal of Tropical Medicine*. 2016;9(6):614-5.
4. Perkasa A, Yudhaputri F, Haryanto S, Hayati RF, Ma'roef CN, Antonjaya U, et al. Isolation of Zika virus from febrile patient, Indonesia. *Emerging infectious diseases*. 2016;22(5):924.
5. Imperato PJ. The convergence of a virus, mosquitoes, and human travel in globalizing the Zika epidemic. *Journal of community health*. 2016;41(3):674-9.
6. Gharbi M, Quenel P, Gustave J, Cassadou S, La Ruche G, Girdary L, et al. Time series analysis of dengue incidence in Guadeloupe, French West Indies: forecasting models using climate variables as predictors. *BMC infectious diseases*. 2011;11(1):1.
7. Naish S, Dale P, Mackenzie JS, McBride J, Mengersen K, Tong S. Climate change and dengue: a critical and systematic review of quantitative modelling approaches. *BMC Infectious Diseases*. 2014;14:167-.
8. Ariati J, Musadad DA. Incidence of Dengue Haemorrhagic Fever (DHF) and Climate factors in Batam City of Kepulauan Riau Province. *Jurnal Ekologi Kesehatan*. 2012;11(4 Des):279-86.
9. Hii YL, Zhu H, Ng N, Ng LC, Rocklöv J. Forecast of Dengue Incidence Using Temperature and Rainfall. *PLoS Neglected Tropical Diseases*. 2012;6(11):e1908.