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Influence of Climate Change on the Transmission of Vector Borne Diseases

Kishore K Srivastava*

Department of Microbiology, Central Drug Research Institute, Lucknow, India

Over the last 4 decades, a number of arthropod-borne infections were recognized for the first time. Some have become of considerable public health importance, consisting of dengue hemorrhagic fever (DHF), and others are spreading geographically and their prevalence is increasing. There has been a crucial recrudescence of numerous long-known vector-borne sicknesses. Malaria, leishmaniasis, dengue, and plague have resurged in numerous foci, in a few instances where they were thought to be under effective control. In most instances, the appearance of latest diseases and syndromes and the resurgence of old may be associated with ecological changes which have favored increased vector densities. Dam construction, irrigation and other development projects, urbanization, and deforestation have all resulted in changes in vector population densities that appear to have enabled the emergence of new diseases and the resurgence of old diseases. Greatly increased human travel has spread infectious agents, introducing them into areas in which they had been hitherto absent. It is critical to understand the elements that caused increased vector densities and consequently the transmission of disease to prevent the emergence and resurgence of more diseases, in addition to serve as a basis for effective control [1].

The climate variables that immediately influence vector-borne diseases' ecosystems are mainly temperature and rainfall. This isn't only because the vectors bionomics is strongly based upon those variables, but also because maximum of the factors of the systems are impacted, such as the host behavior and development and the pathogen amplification. The impact of the climate changes at the transmission styles of these diseases isn't easily understood, since many confounding factors are acting together. Consequently, understanding of those impacts is often based on hypothesis derived from mathematical models. Nevertheless, a few direct evidences may be found for several vector-borne diseases [2].

The effect of global warming on insect-borne diseases and on highland malaria especially remains controversial. Temperature is known to influence transmission intensity through its effects at the populace growth of the mosquito vector and on pathogen development in the vector. Spatiotemporal facts at a regional scale in highlands of Colombia and Ethiopia supplied a possibility to observe how the spatial distribution of the disease modifications with the inter annual variability of temperature. We provide proof for an growth in the altitude of malaria distribution in warmer years, which means that climate change will, without mitigation, bring about an growth of the malaria burden in the densely populated highlands of Africa and South America [3].

Predicting the effect of natural disasters such as hurricanes on the transmission dynamics of infectious diseases poses significant challenges. In this paper, we put forward a simple modelling framework to investigate the impact of heavy rainfall events (HREs) on mosquito-borne disorder transmission in temperate areas of the world such as the southern coastal areas of the USA. The recent Hurricane Harvey in Texas motivates the simulations reported. Overall, we find that the impact of vector- borne disease transmission is likely to be more the earlier the HREs arise in the transmission season [4].

Many important endemic and rising diseases are transmitted through vectors which are biting arthropods. The functional traits of vectors can have an effect on pathogen transmission rates directly and also via their impact on vector populace dynamics. Increasing empirical evidence indicates that vector traits vary significantly across individuals, populations, and environmental conditions, and at time scales relevant to disease transmission dynamics [5].

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Conflict of Interest

None

References

1. Gratz NG (1999) Emerging and resurging vector-borne diseases. Annu Rev Entomol 44:51-75.
2. Fouque F, Reeder JC (2019) Impact of past and on-going changes on climate and weather on vector-borne diseases transmission: a look at the evidence. Infect Dis Poverty 8:1-9.
3. Siraj AS, Santos-Vega M, Bouma MJ, Yadeta D, Carrascal DR, et al. (2014) Altitudinal changes in malaria incidence in highlands of Ethiopia and Colombia. Sci 343:1154-1158.
4. Chowell G, Mizumoto K, Banda JM, Poccia S, Perrings C (2019) Assessing the potential impact of vector-borne disease transmission following heavy rainfall events: a mathematical framework. Philos Trans R Soc Lond B Biol Sci 374:20180272.
5. Cator LJ, Johnson LR, Mordecai EA, El Moustaid F, Smallwood TR et al. (2020) The role of vector trait variation in vector-borne disease dynamics. Front Ecol Evol 8:189.

***Corresponding author:** Kishore K Srivastava, Department of Microbiology, Central Drug Research Institute, Lucknow, India, E-mail: kishoresrivastava@434gmail.com

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