Dengue in Nepal: Challenges and Charting a Path Forward

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Dengue fever, a rapidly spreading mosquito-borne viral disease, has emerged as a significant public health concern in Nepal. The escalating number of Dengue cases in recent years demands a comprehensive examination of the current landscape, challenges faced, and strategies needed for effective prevention and management.

Epidemiological Overview: Dengue is a viral infection caused by Dengue virus (DENV) which have four serotypes (DENV 1-4) and transmitted to humans through the bite of infected Aedes aegypti and Aedes albopictus mosquitoes, which are known vectors for dengue transmission. There is no cross immunity between the different serotypes which means that infection with one serotype provides long-term immunity to the homologous serotype but not to the other serotypes; sequential infections put people at greater risk for severe dengue.[1] The first case of dengue was reported in 2004 in Nepal, and since then Dengue has transitioned from sporadic outbreaks to a persistent public health threat. The annual reports from the Epidemiology and Disease Control Division (EDCD) reveal a concerning rises in the incidence of Dengue cases, particularly in urban centers like Jhapa and Chitwan.[2] Nepal reported the highest number ever recorded in the country in the year 2022 with 54,784 cases and 88 deaths. Nepal has all four dengue serotypes circulating, but in 2022, DENV-1 and DENV-3 were the most prevalent, with no evidence of DENV-4.[3]

Challenges Faced: Despite progress, Nepal's healthcare system grapples with challenges in Dengue management. Although the Government of Nepal published the National Guidelines on Prevention, Management, and Control of Dengue in Nepal, in 2019, its implementation seems ineffective, particularly that of general preventive measures, such as vector management.[4] Socio-economic factors such as poor housing, water storage practices and unplanned urbanization contribute to the conducive environment for Aedes mosquitoes, exacerbating the Dengue burden. Other factors like climate change, open border with India, gaps in surveillance systems, lack of effective vector surveillance mechanism have been explained as the causes for frequent outbreaks of Dengue in Nepal.[4,5]

Vector Control Strategies: Effective vector control is pivotal in Dengue prevention. The ongoing efforts, such as the use of insecticides and community-based interventions, need evaluation and enhancement. The study by Dhimal et al. have underscored the importance of integrated vector management strategies tailored to local contexts for sustainable control.[6]

Diagnostic and Treatment Advances: the severity of disease and mortality due to Dengue infection can largely be reduced by early diagnosis and treatment which warrants advancements in Dengue diagnostics with enhancement in laboratory facilities and effective and timely clinical management.

Public Awareness and Education: Community awareness is a cornerstone of Dengue prevention. Ongoing public health campaigns must be reinforced with targeted educational programs. The study by Griffiths et al. have highlighted the effectiveness of community engagement in reducing mosquito breeding sites, emphasizing the need for sustained educational initiatives.[7]

Collaborative Efforts: Addressing Dengue requires a collaborative approach. Government bodies, NGOs, and international partners play pivotal roles. Collaborative initiatives, such as the "Dengue Prevention and Control Program," showcase the potential of united efforts in curbing the Dengue menace.

As Nepal grapples with the escalating Dengue burden, a concerted effort is imperative. Increased research funding, strengthened healthcare infrastructure, sustained community engagement, improved case and vector surveillance mechanism, long-term and effective vector control measures should be the vital components of a robust strategy. The interdisciplinary collaborations are warranted to unravel Dengue's complexities and pave the way for a healthier Nepal.

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