

Dengue & Bangladesh

Or

Dengue Crisis in BD

In his poem Flea, the famous British poet of love- John Donne depicts a classic romantic metaphysical attribute by presenting the bite of mosquito in a term of heavenly conjugation; however, the permeating mosquito borne dengue in Bangladesh, currently, is suggesting us a different story.

While dengue fever is endemic in Bangladesh, with infections typically peaking during the monsoon season, this year the uptick in cases started much earlier – toward the end of April. Bangladesh is battling its worst dengue outbreak on record, with more than 1449 people killed and 2,87,249 cases reported since April, according to the World Health Organization, as one of its experts blamed the climate crisis and El Nino weather pattern for driving the surge.

Dengue was first recorded in the 1960s in Bangladesh (then known as East Pakistan) and was known as “Dacca fever”. Since 2010 cases of dengue appear to coincide with the rainy season from May to September and higher temperatures. Bangladesh’s climate conditions are becoming more favorable for the transmission of dengue and other vector-borne diseases including malaria and chikungunya virus due to excessive rainfall, waterlogging, flooding, rise in temperature and the unusual shifts in the country’s traditional seasons.

Epidemiology of dengue

Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes and is found in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas. The primary vectors that transmit the disease are *Aedes aegypti* mosquitoes and, to a lesser extent, *Aedes albopictus*.

Clinical dengue

A viral infection, dengue causes flu-like symptoms, including piercing headaches, muscle and joint pains, fever and full body rashes. It is transmitted to humans through the bite of an infected Aedes mosquito and here is no specific treatment for cases and clinical management is based on supportive therapy however, the early detection of infection and appropriate clinical management of patients can reduce the severity of disease and mortality. The prevention and control of dengue depends on vector control. The CFR so far this year is relatively high compared to previous years for the full-year period. The pre-monsoon Aedes survey shows that the density of mosquitoes, and the number of potential hotspots is at the highest level in the past five years. The higher incidence of dengue is taking place in the context of an unusual

episodic amount of rainfall, combined with high temperatures and high humidity, which have resulted in an increased mosquito population throughout Bangladesh.

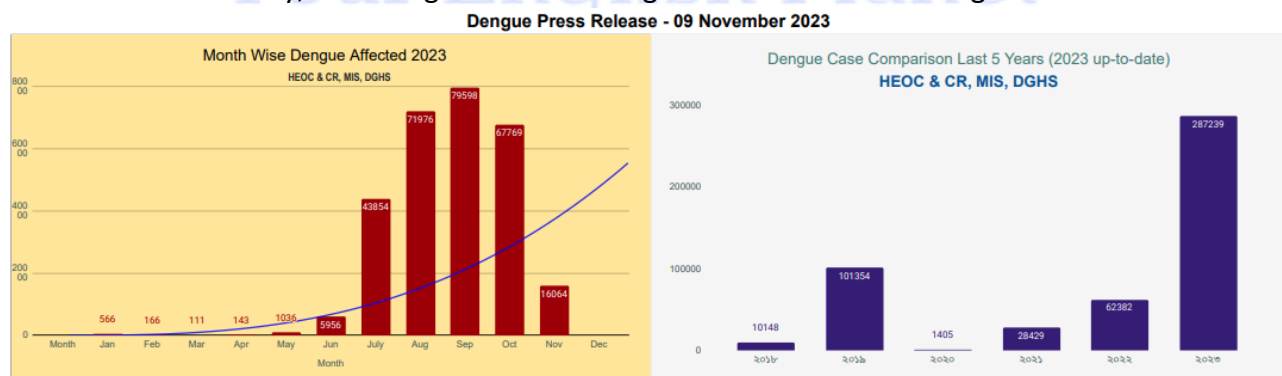
Khalilur Rahman, former chief entomologist at the DGHS, said climate change is playing vital role in increasing the seasonal dengue outbreaks in Bangladesh, as nine months of rainfall a year favours *Aedes* breeding conditions. “*Aedes aegypti* is playing a role in massive dengue transmission in Bangladesh, while [*Aedes*] *albopictus* has also been found here. Raining started in February this year and intermittent rain continues even this rainy season, while the *Aedes* mosquitoes are living in containers [reservoirs in which stagnant water collects], prompting a boom of the deadly disease,” Khalilur Rahman, former Chief Entomologist of Directorate General of Health Services (DGHS) explains. Mr. Rahman said this trend of surging dengue transmission may continue until the end of September this year. “There is no alternative [but] to destroy *Aedes* mosquitoes to control the dengue situation. Conducting anti-mosquito drives and public awareness is a must to tackle the situation,” the entomologist said.

Bangladesh & Dengue

Bangladesh, a South Asian country with over 165 million population, has been a dengue-endemic country since the first recorded outbreak in 2000. Due to multiple risk factors, Bangladesh has been experiencing successive major dengue outbreaks in recent years. Given the fact that if proper preventative strategies are not implemented, poor healthcare infrastructure, inadequate outbreak preparedness, and the lack of community-level awareness of dengue infection may lead to public health disasters.

Description of the current outbreak

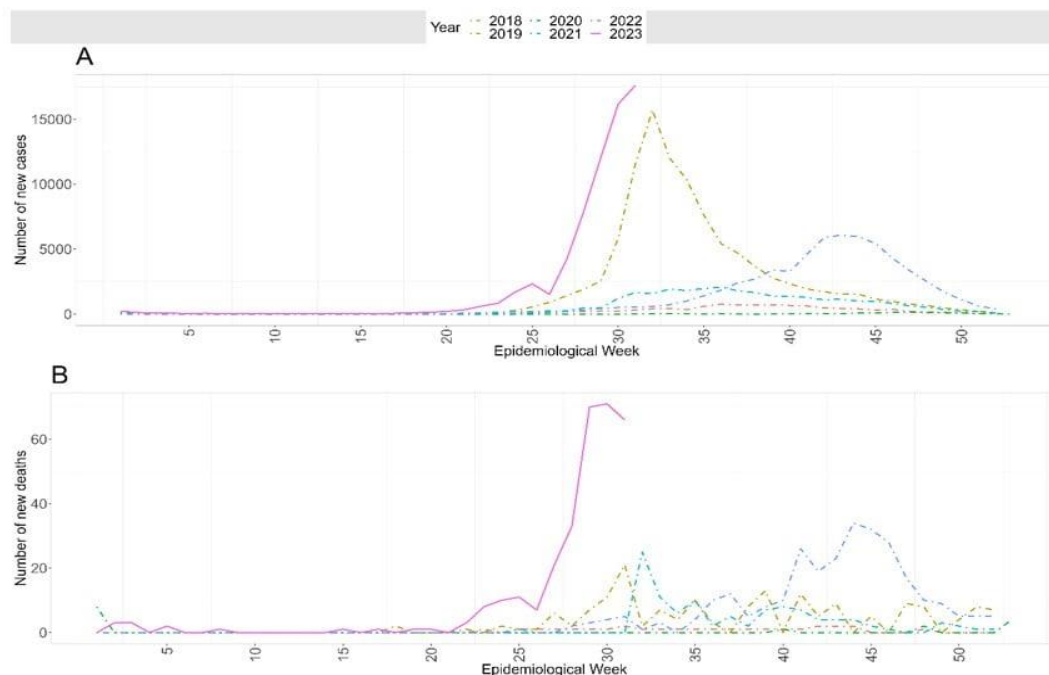
Dengue is endemic in more than 100 countries and every year, 100 million to 400 million people become infected, according to WHO. All 64 districts across Bangladesh have been affected by the outbreak but the capital Dhaka – home to more than 20 million people – has been the worst-hit city, according to WHO – though cases there are starting to stabilize.



Source: Management Information System (MIS) Health Emergency Operation Center & Control Room

Between 1 January and 7 August 2023, a total of 69 483 dengue cases including 327 related deaths (case fatality rate = 0.47%) were reported by the Ministry of Health and Family Welfare (MOHFW). As of 30 June 2023, a total of 7978 cases and 47 deaths were reported, however, the cases started surging rapidly from late June and in the month of July alone 63% of cases (n=43 854) and 62% of deaths (n= 204) were reported.

The number of cases and deaths are higher compared to similar periods in the past five years (Figure 1). Dengue cases started to rise in May 2023 and have been continuing since then, and the peak is unlikely to have been reached. The reported number of dengue cases this year is the highest compared to the same periods recorded since 2000.



The cases are reported from all 64 districts in the country. Cases in Dhaka division started to increase in epidemic week 17 (23-29 April 2023) and in all eight divisions since epidemic week 26 (25 June to 1 July 2023). The most affected area in the Dhaka division is Dhaka city corporation, accounting for 52.8% of cases and 78.9% of deaths. Other affected divisions include Chattogram division (13.2% of cases and 9.2% of deaths), Dhaka division excluding Dhaka city (11.6% of cases and 2.8% of deaths), and Barisal division (10.5% of cases and 4.3% of deaths). The Sylhet division has the lowest number of cases (560) and no deaths reported so far.

Clinical manifestations of dengue in the last two decades

Sex distribution

Gender distribution showed a clear male predominance in all the dengue outbreaks reported in Bangladesh. The proportion of male cases was almost double compared to females in all studies. Male-to-female ratio was as high as 2.7 . In adolescents and adults, significant male excess was also noted in six other culturally and economically diverse Asian countries. However, the difference was not significant in pediatric groups. A study among children in Bangladesh also reported a similar result.

Age distribution

Young adults were predominantly affected by dengue in Bangladesh. During the first epidemic in 2000, more than 80% of cases were adults (> 18 years of age); the peak number of cases occurred between 18 and 33 years of age. Likewise, the majority (62%) of the confirmed case belonged to the 16–30 age group, with a mean age of 29 years in the 2002 outbreak. Older adolescents and young adults also comprised the majority of the cases in 2016 (21–40; 55%), 2018 (15–29; 65%), and 2019 (21–40; 50%) outbreaks.

Its Spreading:

“There is a water supply problem in Dhaka, so people keep water in buckets and plastic containers in their bathrooms or elsewhere in the home. Mosquitoes can live there all year round,” Kabirul Bashar, professor at Jahangirnagar University’s Zoology department, wrote in the Lancet journal last month.

“Our waste management system is not well planned. Garbage piles up on the street; you see a lot of little plastic containers with pools of water in them. We also have multi-story buildings with car parks in the basements. People wash their vehicles down there, which is ideal for the mosquitoes.”

To cope with the onslaught of infections, Bangladesh has repurposed six Covid-19 hospitals to care for dengue patients and requested help from WHO to help detect and manage cases earlier, WHO said.

Climate crisis spreading and amplifying outbreaks

The record number of dengue cases and deaths in Bangladesh comes as the country has seen an “unusual episodic amount of rainfall, combined with high temperatures and high humidity, which have resulted in an increased mosquito population throughout Bangladesh,” WHO said in August.

Those warm, wet conditions make the perfect breeding ground for disease-carrying mosquitoes and as the planet continues to rapidly heat due to the burning of fossil fuels, outbreaks will become more common in new regions of the world.

The global number of dengue cases has already increased eight-fold in the past two decades, according to WHO.

As the climate crisis worsens, mosquito-borne diseases like dengue, Zika, chikungunya and yellow fever will likely continue to spread and have an ever greater impact on human health.

WHO Advice to prevent the Dengue

The proximity of mosquito vector breeding sites to human habitation is a significant risk factor for dengue virus infection. Aedes species mosquitoes can become infected with the virus after biting DENV-infected individuals and then pass the virus onto other individuals within the vicinity. This cycle, therefore, makes the infective mosquito capable of spreading the dengue virus within households and in the neighbourhood, leading to clusters of cases.

The prevention and control of the DENV, virus that causes dengue, depends on effective vector control. Vector control activities should focus on all areas where there is a risk of human-vector contact such as the place of residence, workplaces, schools, and hospitals. WHO promotes a strategic approach known as Integrated Vector Management (IVM) to control mosquito vectors, including Aedes species, the vector of dengue. IVM should be enhanced to remove potential breeding sites, reduce vector populations, and minimize individual exposure. This should involve vector control strategies for larvae and adults (i.e. environmental management and source reduction, especially of water storage practices, and include covering, draining and cleaning household water storage containers on a weekly basis; larvicide in non-potable water using WHO-prequalified larvicides at correct dosages, distribution of insecticide-treated nets (ITNs) for fever/dengue inpatients to contain spread of virus from health facilities, as well as strategies for protecting people and households. Indoor space spraying (fogging) is another approach for rapid containment of dengue infected mosquitoes but may be challenging to deliver in densely populated areas such as camps.

Personal protective measures during outdoor activities include the topical application of repellents to exposed skin or treatment of clothing, and the use of long sleeves shirts and pants. Additionally, in indoors protection can include the use of household insecticide aerosol products, or mosquito coils during the day. Window and door screens, as well as air conditioning can reduce the probability of mosquitoes entering the house. Insecticide-treated nets offer good protection to people against mosquito bites while sleeping. Since Aedes mosquitoes (the primary vector for transmission) are active at dawn and dusk, personal protective measures are recommended particularly at these times of day.

At the earlier of 2023, specifically said from February, we observe the dengue news at the first page of the national dailies with daily 3 to 7 deaths, following the trend till August, the dengue news shifts to the 3rd page with the deaths numbering 9 to 13. We don't want the dengue to be a news of 3rd page of any national daily or any page of the daily. We want proper fitting time-bound down to earth measures to be, efficiently, planned and implemented to keep the dengue away from our life.



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