



Dengue

Why in News?

According to a study, the ongoing spread of [Dengue](#) in India has been attributed to a late withdrawal of monsoon.

- Dengue transmission is closely associated with three key factors — **rainfall, humidity and temperature** — which dictate the geographies in which dengue spreads and the transmission rate.

What are the Highlights of the Study?

- In India, the **number of months suitable for dengue transmission by Aedes aegypti mosquitoes** has risen to 5.6 months each year.
 - It accounts for a **1.69% increase between 1951-1960 and 2012-2021.**
- The study projected “**expansion of Aedes aegypti in the hot arid regions of the Thar Desert** and Aedes albopictus in cold upper Himalayas as a result of future climatic changes.
 - Dengue spreads through the bite of two mosquitoes — **Aedes aegypti and Aedes albopictus.**
 - Currently, **Aedes aegypti is prevalent in the southern peninsula, eastern coastline**, north-eastern states and the northern plains.
 - Aedes albopictus dominates the eastern and western coastlines, north-eastern states and the lower Himalayas.

What is Dengue?

- **About:**
 - Dengue is a mosquito-borne tropical disease caused by the **dengue virus (Genus Flavivirus)**, transmitted by several species of female mosquito within the genus Aedes, principally Aedes aegypti.
 - This mosquito also transmits [chikungunya](#), yellow fever and [Zika infection](#).
 - There are 4 distinct, but closely related, serotypes (separate groups within a species of microorganisms that all share a similar characteristic) of the virus that cause dengue (DEN-1, DEN-2, DEN-3 and DEN-4).
- **Symptoms:**
 - Sudden high fever, severe headaches, pain behind the eyes, severe bone, joint, and muscle pain, etc.
- **Diagnosis and Treatment:**
 - Diagnosis of dengue infection is done with a blood test.
 - There is no specific medicine to treat dengue infection.
- **Status of Dengue:**
 - **Incidence of dengue has grown dramatically** around the world in recent decades, with a vast majority of cases under-reported, according to the [World Health Organization \(WHO\)](#).
 - WHO estimates 39 crore dengue virus infections per year, of which 9.6 crore show symptoms.
 - According to data shared by the [National Center for Vector Borne Diseases Control](#),

India recorded 63,280 dengue cases as of September, 2022

▪ **Controlling Dengue Using Bacteria:**

- Recently researchers from the World Mosquito Program have used mosquitoes infected with Wolbachia bacteria to [successfully control dengue](#) in Indonesia.
- **Method:**
 - The scientists infected some mosquitoes with Wolbachia and then released them in the city where they bred with local mosquitoes, until nearly all mosquitoes in the area were carrying Wolbachia bacteria. This is called the **Population Replacement Strategy**.
 - At the end of 27 months, the researchers found that the incidence of dengue was 77% lower in areas where Wolbachia-infected mosquitoes had been released, as compared to areas without such deployments.

▪ **Dengue Vaccine:**

- The dengue vaccine CYD-TDV or [Dengvaxia](#) was approved by the US Food & Drug Administration in 2019, the first dengue vaccine to get the regulatory nod in the US.
 - Dengvaxia is basically a **live, attenuated dengue virus** which has to be administered in people of ages 9 to 16 who have laboratory-confirmed previous dengue infection and who live in endemic areas.
- **Vaccine manufacturer Indian Immunologicals Limited (IIL) is developing India's first Dengue vaccine** and has received permission for a Phase-1 trial.
 - The vaccine is being produced in collaboration with the National Institutes of Health in the US.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Which of the following diseases can be transmitted from one person to another through tattooing? (2013)

1. Chikungunya
2. Hepatitis B
3. HIV-AIDS

Select the correct answer using the codes given below:

- (a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (b)

- The problem of transfusion-transmitted diseases (TTD) is directly proportionate to the prevalence of the infection in the blood donor community.
- Several infectious diseases have been found to be associated with tattooing, including some TTDs.
- Hepatitis B virus is spread when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. **Hence, 2 is correct.**
- HIV-AIDS spreads only through certain body fluids from a person who has HIV. These fluids are blood, semen, pre-seminal fluids, rectal fluids, vaginal fluids, and breast milk. It is transmitted by sexual intercourse or sharing injection, drug equipment, such as needles, etc. **Hence, 3 is correct.**
- Chikungunya virus is transmitted from people to people through mosquito bites, most often by *Aedes aegypti* and *Aedes albopictus* mosquitoes. These are the same mosquitoes that transmit dengue virus. Mosquitoes become infected when they feed on a person already infected with the virus. It is not a TTD. **Hence, 1 is not correct. Therefore, option (b) is the correct answer.**

Source: DTE

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