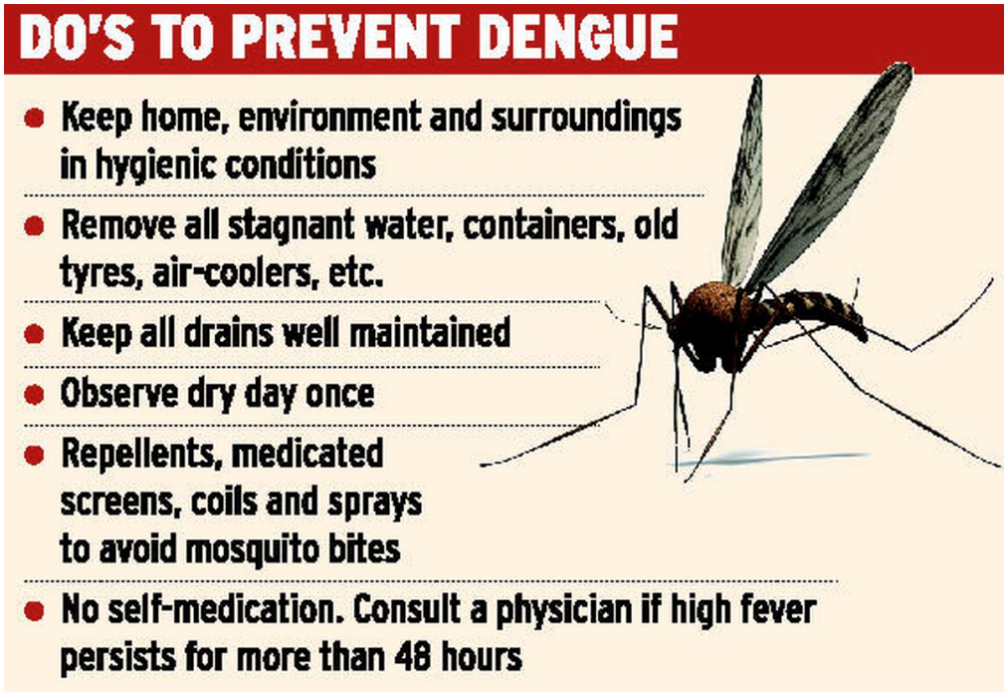
Higher Dengue Infections in Europe

Why in news?

Recent research by EU health agency shows that warmer conditions are helping the Aedes albopictus mosquito to transmit dengue, chikungunya and Zika viruses in Europe.

What is Dengue Fever?

- **Causes** – It is a ***viral infection***, and there are four serotypes of the dengue virus - DEN-1, DEN-2, DEN-3 and DEN-4.
- **Infection** – Each virus interacts differently with antibodies in the human body and is capable of manifesting into
    - Dengue fever
    - Dengue hemorrhagic fever
    - Dengue shock syndrome.
- **Spread** – Dengue is found in *tropical and sub-tropical* climates worldwide, mostly in *urban and semi-urban* areas.
- **Vector borne disease** – It is spread *through the mosquito vector*.
- It is the world's *fastest-growing vector borne disease*.
- **Transmission** – It is transmitted to humans *by the* ***Aedes mosquito species*****,** which also spreads Chikungunya and Zika virus.
- It is *primarily by the Aedes aegypti* mosquito while other species within the Aedes genus are normally secondary to Aedes aegypti.
- **Symptoms** – Mostly asymptomatic, but the most common symptoms are *high fever, headache, body aches, nausea* and rash.
- **Diagnosis** – IgM, IgG antibodies test and NS1 antigen test.
- Both are done through ELISA kits and hence are popularly known as ***Elisa test***.
- **Treatment** – No specific treatment but generally treated with ***pain medicine***.
- **Prevention -** Prevention and control of dengue depend on vector control.
- There is *no specific treatment* for dengue/severe dengue, and early detection and access to proper medical care greatly lower fatality rates of severe dengue.

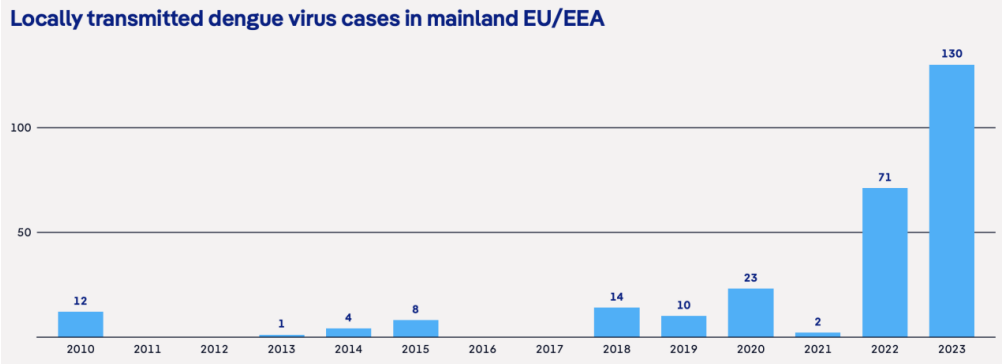


- **Vaccine** – ***Dengvaxia*** was the first vaccine to receive a nod in 2015, and has been licensed in 20 countries since.
- It is a *live attenuated vaccine*.
- WHO recommends 'Dengvaxia' for children aged 9 to 16 years.
- **Challenges** – Dengvaxia's *efficacy is limited* to those with confirmed previous infections.
- Dengvaxia is *not licensed in India*.

Global Burden of Dengue
• *About half of the world's population* is now at risk of dengue with an estimated 100–400 million infections occurring each year. • The incidence of dengue has grown dramatically around the world in recent decades, about *5.2 million cases in 2019*. • The *highest number of dengue cases was recorded in 2023*, affecting over 80 countries in all regions of WHO. • It resulted in a historic high of *over 6.5 million cases* and more than 7300 dengue-related deaths reported. • **Factors for increasing risk of spread –** The *changing distribution of the vectors* (chiefly Aedes aegypti and Aedes albopictus mosquitoes), especially in previously dengue naïve countries. • The consequences of *El Niño phenomena in 2023* and *climate change* leading to increasing temperatures and high rainfall and humidity. • *Fragile health systems* in the midst of the COVID-19 pandemic. • The *political and financial instabilities* in countries facing complex humanitarian crises and high population movements.

Why there is rise in dengue cases in Europe?

- There are different types of Aedes mosquito, but the one most widespread in Europe is the ***aedes albopictus***.



- **High temperature** – Europe is experiencing *higher heat shocks* in recent times due to climate change.
- Not only during the day but also at night, may contribute to the spread of dengue in southern Europe.

Temperatures need to be high between 15 and 35 degrees Celsius for the mosquitos to thrive.

- **High mosquito population** – *Longer stints of high temperatures* offer more time for the mosquitoes to breed, ultimately resulting in more mosquitoes as summers start early and stretch late into fall.
- **Travel-related transmission of the virus** – Because dengue is *not endemic in Europe*, this occurs when a traveler brings the virus from abroad.
- **Expansion of mosquito populations** – The Aedes albopictus mosquito was first detected in Europe in the early 2000s.
- It has since spread to many more areas around the Mediterranean and Central Europe and has increased in abundance in areas close to larger population centers.

What lies ahead?

- **Awareness campaign** – Doctors across Europe should ***increase their awareness of the symptoms*** of dengue, because most cases are mild or asymptomatic and therefore hard to spot.
- **Vector control** - Vector control describes measures used to limit or eradicate human contact with the "vector," the thing that transmits a disease in this case the mosquito.

Measures by India to control Spread of Dengue
• Established *Sentinel Surveillance Hospitals* with laboratory support for augmentation of diagnostic facility for Dengue in endemic States. • Government is providing *free testing/treatment* of dengue in government hospitals. • *Rate of Elisa test* to confirm dengue have been *capped* in private hospitals. • More than 15 lakh houses are been visited by health department for *breeding checking*. • Genome sequencing involving *analysing the genetic makeup of the virus* and aims to create a comprehensive understanding of dengue. • Under National Health Mission, *budgetary support* is provided to the States/UTs for Dengue and Chikungunya control activities.

References

1. DW| Higher spread of Dengue in Europe
2. WHO| Dengue Infection