Forecasting Dengue

Why in news?

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Recent Indian study finds that it is possible to forecast the outbreak of the dengue.

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What is the study about?

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- Study focuses on changes in a factor called extrinsic incubation period (EIP) of the dengue virus, by taking into account daily and monthly mean temperatures different climatic zones.
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- The EIP is the time taken for incubation of the virus in the mosquito.
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- During this period, after the mosquito draws blood that is rich in viruses, it escapes the gut and passes through the mosquito’s body and reaches its salivary glands.
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- Once this happens, the mosquito is infectious and capable of transmitting the virus to a human host.
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What are the outcomes of the study?

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- Climatic conditions play an important role in EIP.
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- Lower temperatures (17-18°C) result in longer EIPs thereby leading to decreased virus transmission.
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- From 17 to 30°C, dengue transmission increases fourfold, feeding

increases because of the enhanced metabolism of the mosquito, leading to shorter EIPs.
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- A further increase in temperature beyond 35°C is detrimental to the mosquito’s survival.
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- There is a strong correlation between rainfall and dengue numbers, they propose an increase in breeding grounds for mosquitoes.
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- Given its close link with both temperature and rainfall, it is possible to forecast the outbreak of dengue.
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How it helps in Disease control?

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- This climate-based dengue forecasting model could help health authorities assess the disease intensity in a geographic region.
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- Based on thisauthorities can plan disease-control operations well in advance and optimise the use of resources meticulously.
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- Factors such as population density and migration also need to be included for future risk assessment studies.
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- This will help in mitigating the disease and strategic disease control.
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Source: The Hindu

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