Update on the Dengue situation in the Western Pacific Region

This report describes the epidemiology of dengue in the World Health Organization Western Pacific Region. Data are compiled from open sources (national indicator-based surveillance systems) with the exception of Cambodia, Lao People’s Democratic Republic, Viet Nam, and the Philippines, where data are provided from WHO Country Offices, and for Pacific Island Countries, where syndromic surveillance data are provided by the Division of Pacific Technical Support. Information is reported based on countries’ standard dengue case definitions and a summary of these definitions and countries’ dengue surveillance systems is included as an annex to this report. Due to differences in surveillance methods and reporting practices, a comparison of trends between countries and areas is not possible however national trends can be observed over time.

Northern Hemisphere

Cambodia
As of epidemiological week 19 of 2023, a total of 2,411 cases, with 4 deaths (Case Fatality Rate (CFR) 0.17%) were reported to the National Dengue Surveillance System in Cambodia since 1 January 2023 (Figure 1); compared to 817 cases and one death in 2022 over the same period.

China
In February 2023, 11 dengue cases were reported respectively in China. There have been a total of 12 dengue cases and no deaths in the country from January 2023 to February 2023 (Figure 2).
Lao People’s Democratic Republic
As of epidemiological week 19, of 2023, 272 dengue cases and 0 death were reported. This is higher compared to the 236 cases reported in epidemiological week 18. The cumulative number of cases reported for 2023 at epidemiological week 19 was 1,829. This is 5 times higher compared to the 342 cases reported during the same period in 2022. There have been no deaths reported in 2023.

Figure 2: Dengue cases reported monthly from 2015-2023 in China
Source: National Health Commission, China

Figure 3: Dengue cases reported weekly from 2018-2023 in Lao PDR
Source: National Centre for Laboratory and Epidemiology, Ministry of Health, Lao PDR
Malaysia
During epidemiological week 20 of 2023, there were 2,244 compared to 2,242 cases in the previous week, which is an increase of 202 cases. Two deaths due to dengue fever complications were reported in week 20. The cumulative number of dengue cases reported to date is 43,619 cases compared to 16,144 cases for the same period in 2022, which is an increase of 27,475 cases (170.2%). As of epidemiological week 20, a total of 28 deaths due to dengue had been reported, compared to 9 death cases in 2022.

![Graph showing dengue cases reported weekly from 2022, 2023, and median 2018-2022 in Malaysia](image)

**Figure 4**: Dengue cases reported weekly from 2022, 2023, and median 2018-2022 in Malaysia
*Source: Department of Health, Malaysia*

Philippines
As of 29 April 2023, epidemiological week 17, a total of 39,947 cases have been reported. The number of cases is 43% higher compared to the same period in 2022 (n=27,928). From 1 January to 29 April 2023, there have been 127 deaths (CFR 0.3%), which is the same as 127 deaths (CFR 0.3%) reported in the epidemiological week 16; which is lower than 166 deaths (CFR 0.6%) for the same period in 2022.

![Graph showing dengue cases reported weekly from 2022 and 2023 in the Philippines](image)

**Figure 5**: Dengue cases reported weekly from 2022 and 2023 in the Philippines
*Source: Department of Health, the Philippines*
(Note: there is a 3-4 week systematic delay in reporting and numbers should be interpreted with caution)
Singapore
As of epidemiological week 19 of 2023, 100 dengue cases were reported in Singapore, leading to a total of 3,067 cases (Figure 6). This is a 65% decrease compared to the same period (epidemiological weeks 1–19) in 2022. Preliminary results of all positive dengue samples serotyped in Apr 2023 showed DEN-1, DEN-2, DEN-3, and DEN-4 at 14.0%, 28.1%, 45.6%, and 12.3% respectively.

Figure 6: Dengue cases reported weekly from 2018-2023 in Singapore
Source: Communicable Diseases Division, Ministry of Health, Singapore

Viet Nam
As of 14 May epidemiological (week 19) 2023, there were 31,731 cases including three deaths cumulatively reported in Viet Nam. Compared to the same period in 2022 (26,763 cases including 21 deaths), the number of cumulative cases nationwide increased by 18.6%, and the number of deaths decreased by 17 cases. During week 19th (from 8 May - 14 May), there were 925 cases reported including no deaths; of those 716 were hospitalized (77.4%). Compared to the previous week (1,018 cases including 803 hospitalizations and one death), the number of cases decreased by 9.1%, number of hospitalizations decreased by 10.8%.

Figure 7: Number of dengue hospital admissions and deaths by weeks in 2022 compared to 2023 as of week 17 2023, Viet Nam
Source: General Department of Preventive Medicine, Ministry of Health, Viet Nam
Note hospitalizations include inpatients and outpatients
The alert threshold is a 5-year mean plus 2 standard deviations
**Southern Hemisphere**

**Australia**

There were 29 dengue cases reported in Australia during the reported fortnight (17 April to 30 April 2023). The number of cases was higher 268 for the current year to 30 April 2023, compared with the trend for the years 2020 -2021 (Figure 8). This may be attributed to COVID-19-related travel restrictions in 2020-2021. Before COVID-19, Australia had seen notifications of overseas-acquired cases from travelers returning from dengue-endemic areas.

![Figure 8: Laboratory-confirmed dengue cases reported monthly from 2015-2023 in Australia](Source: Department of Health, Australia)

**Pacific Islands Countries**

**New Caledonia**

There are no further updates since the previous report. From 1 January to 30 April 2023, 4 confirmed dengue cases were reported in New Caledonia (Figure 9). This is higher compared to the same period in 2022 when a total of one dengue case was reported. Of the 4 confirmed dengue cases in 2023, two were imported cases. 2 imported cases were DENV-1 and DENV-2.

![Figure 9: Dengue cases reported by week from 2021 to 2023 in New Caledonia](Source: Network of sentinel physicians, New Caledonia)
Pacific Island Countries and Areas (PICs) – Dengue-like illness (DLI) Surveillance

During epidemiological week 19 of 2023, Pacific Island Countries and Areas with available surveillance data (15/18 PICs) are reporting no or low numbers of DLI cases. Fiji, Micronesia (Federated State of), Palau, Samoa, Solomon Islands, Tuvalu, and Wallis and Futuna reported a higher weekly number of cases compared with the corresponding epidemiological week of 2022. No other countries reported case numbers above the alert threshold.
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Figure 10. Reported cases of dengue-like illness in Pacific Islands Countries and Areas

*Source: WHO Division of Pacific Technical Support*

Note: Caution should be taken in interpreting these data as there may be changes in the number of sentinel sites reporting to the Pacific Syndromic Surveillance System (PSSS). Furthermore, the syndromic case definition of DLI may capture cases with non-dengue acute febrile illnesses (AFI) with similar clinical manifestations to dengue. This includes AFI such as chikungunya, influenza, hantavirus, leptospirosis, malaria, measles, paratyphoid and typhoid fevers, scrub typhus, yellow fever, zika, other diseases. The PSSS may also capture dengue cases under ‘prolonged fever’ surveillance. Alert threshold for DLI is twice the average number of cases seen in the previous 3 weeks.

FSM: Federated States of Micronesia
## Annex 1. Summary of dengue case definitions, laboratory sampling and testing methods used for surveillance in Member States as of 2023

<table>
<thead>
<tr>
<th>Country</th>
<th>Case definition</th>
<th>Laboratory confirmation required</th>
<th>Surveillance system</th>
<th>Laboratory sampling and testing method</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>Fever, headache, arthralgia, myalgia, rash, nausea and vomiting</td>
<td>Yes</td>
<td>National Notifiable Diseases Surveillance System (NNDSS) indicator-based surveillance system</td>
<td>Testing is recommended in persons who have a clinically compatible illness and have travelled to an area with known dengue activity during the exposure period (3-14 days prior to onset of symptoms). Both confirmed and probable cases are nationally notifiable.</td>
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<td><strong>Cambodia</strong></td>
<td>Suspected dengue: very high fever at 39-40 degrees Celsius for 2-7 days (usually 3-4 days), with 2 or more of the following signs: flushed face, headache, retro-orbital pain, myalgia/arthralgia, cutaneous rash, haemorrhagic signs (petechiae, positive tourniquet test), and leucopenia. Probable dengue: signs of suspected dengue plus laboratory test results (see right column) or that the case occurred in an area where the dengue case has been confirmed.</td>
<td>Yes</td>
<td>National Dengue Control Program (NDCP) enhanced sentinel surveillance system, Communicable Disease Control (CDC) syndromic surveillance system (CamEWARN). Health Management Information System (HMIS) collects data on confirmed cases and deaths.</td>
<td>Data collected for Cambodia Laboratory Information System (CamLIS), comprised of 32 participating hospital laboratories where NS1 detection is conducted. Laboratory testing: Antibody HI&gt;= 1/1280 or IgM/IgG positive by ELISA test in convalescence serum</td>
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<td><strong>China</strong></td>
<td>(i) more than two symptoms of acute onset fever, severe headache, orbital pain, myalgia, arthralgia, fatigue with a history of travel in a dengue endemic area within 15 days before symptom onset or cohabitation with an individual with confirmed dengue; or no travel history, but with a rash or positive tourniquet test AND leucopenia or thrombocytopenia or serum IgM positivity.</td>
<td>No</td>
<td>Reported to the Chinese Centre for Disease Control and Prevention (China CDC) through the Chinese National Notifiable Infectious Disease Reporting Information System (CNNDS).</td>
<td>Laboratory confirmation is done by real-time RT-PCR, NS1 in acute-phase serum, or virus isolation from an acutely infected patient’s serum.</td>
<td>WHO internal communication</td>
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<td><strong>Lao People’s Democratic Republic</strong></td>
<td>WHO dengue case classification (2009) †</td>
<td>No</td>
<td>National Surveillance System for Notifiable Selected Diseases, indicator-based surveillance system that consists of passive weekly reports of clinically suspected cases, on admission, from all health-care facilities across the country.</td>
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<tr>
<td>Country</td>
<td>WHO dengue case classification (2009) †</td>
<td>Yes</td>
<td>Description</td>
<td>Laboratory confirmation</td>
<td>References</td>
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<tr>
<td>Malaysia</td>
<td>WHO dengue case classification</td>
<td>Yes</td>
<td>National Dengue Surveillance System, indicator-based surveillance system</td>
<td>All suspected cases are to be tested by the following laboratory tests: Rapid Combo Test (RCT) (NS1, IgM, IgG), Dengue Antigen and Serology tests by ELISA, Dengue Viral RNA Detection (Real time RT-PCR), Viral Isolation</td>
<td>† A probable dengue case is defined as any case living in or travel to dengue endemic area with fever and two or more of the following: nausea, vomiting, rash, aches and pains, positive tourniquet test, leucopenia and any warning sign. A case with warning signs is defined as a clinically diagnosed case with any of the following: abdominal pain or tenderness, persistent vomiting, clinical fluid accumulation, mucosal bleed, lethargy, restlessness, liver enlargement &gt; 2 cm and increase in haematocrit concurrent with rapid decrease in platelet count. Severe dengue is defined as severe plasma leakage leading to any of the following: shock, fluid accumulation with respiratory distress OR severe bleeding as evaluated by clinician OR severe organ involvement of liver (aspartate amino transferase or alanine amino transferase ≥ 1000), central nervous system (impaired consciousness) or heart and other organs.†</td>
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<td>Singapore</td>
<td>Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column)</td>
<td>No</td>
<td>Samples are tested by the laboratory as ordered by the physician. Laboratory confirmation is done by dengue NS1 (+), IgM (+) or PCR (+)</td>
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<td>Viet Nam</td>
<td>Acute onset of fever continuously lasting from 2-7 days AND at least 2 of the following: haemorrhagic manifestation /presentation; headache, loss of appetite, nausea, vomiting; rash; muscle pain, joint pain, orbital pain; lethargy; abdominal pain.</td>
<td>No</td>
<td>As per the MOH dengue surveillance guideline, in routine surveillance MAC-ELISA is conducted for at least 7% and virus isolation is conducted for at least 3% of clinical cases. In an outbreak, at least 5 to 10 suspected cases are tested.</td>
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<tr>
<td>Pacific Island Countries</td>
<td>WHO dengue case classification</td>
<td>No</td>
<td>Pacific Syndromic Surveillance System</td>
<td>Confirmed case: Isolation of dengue virus or detection of dengue-specific antigen or antibodies in tissue, blood, CSF or other body fluid by an advanced laboratory test</td>
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</table>

Only the minimum criteria required for fulfilling a clinical dengue case definition are included here; additional signs and symptoms required for more severe forms are not listed.

† A probable dengue case is defined as any case living in or travel to dengue endemic area with fever and two or more of the following: nausea, vomiting, rash, aches and pains, positive tourniquet test, leucopenia and any warning sign. A case with warning signs is defined as a clinically diagnosed case with any of the following: abdominal pain or tenderness, persistent vomiting, clinical fluid accumulation, mucosal bleed, lethargy, restlessness, liver enlargement > 2 cm and increase in haematocrit concurrent with rapid decrease in platelet count. Severe dengue is defined as severe plasma leakage leading to any of the following: shock, fluid accumulation with respiratory distress OR severe bleeding as evaluated by clinician OR severe organ involvement of liver (aspartate amino transferase or alanine amino transferase ≥ 1000), central nervous system (impaired consciousness) or heart and other organs.


