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 by the Division of Pacific Technical Support. Information is reported based on countries’ standard dengue case definition 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, 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 5 of 2023, a total of 580 dengue cases and one death (Case Fatality Rate (CFR) 0.17%) were reported to the National Dengue Surveillance System in Cambodia since 1 January 2023 (Figure 1); compared to 219 cases and zero deaths in 2022 over the same period.

Figure 1: Dengue cases reported weekly in 2023 vs Mean and Mean+2SD during 2015-2020 *excluding 2019 in Cambodia;
Source: National Dengue Surveillance System (NDCP/CNM/MOH)
China
There have been no new updates since the last report. In November 2022, 174 dengue cases were reported respectively in China. There has been a total of 537 dengue cases and no deaths in the country from January 2022 to November 2022. The trend for 2022 remained low (Figure 2).

![Figure 2: Dengue cases reported monthly from 2015-2022 in China](source: National Health Commission, China)

Lao People’s Democratic Republic
During epidemiological week 5 of 2023, 51 dengue cases and 0 deaths were reported. This is higher compared to the 46 cases reported in the previous week (Figure 3). The cumulative number of cases reported for epidemiological weeks 5, 2023 was 271. This is 15.9 times higher compared to the 17 cases reported during the same period in 2022. There have been no deaths reported in 2023.

![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 5 of 2023, there were 2,159 dengue cases and 2 death were reported. This is a increase compared to the 1,910 cases reported in the previous week. From epidemiological weeks 1–5 of 2023, a total of 11,127 cases were cumulatively reported. This is an increase of 211.4 % compared to 3,573 cases reported during the same period (epidemiological weeks 1–5) in 2022. Up until epidemiological week 5 of 2023, a total of 6 deaths due to dengue had been reported (CFR 0.05%), compared to 0 deaths during the same period in 2022 (CFR 0%).

Figure 4: Dengue cases reported weekly from 202, 2023 and median 2018-2023 in Malaysia
Source: Department of Health, Malaysia

Philippines
As of 14 January 2023, epidemiological week, a total of 2,535 dengue cases have been reported. The number of cases is 3% higher compared to the same period in 2022 (n=2,470); From 1 to 14 January 2023 (week 2) there have been seven deaths (CFR 0.3%), which is lower than 16 deaths (CFR 0.6%) for the same period in 2022; 43% lower compared to the 1,085 cases reported in the same period in 2022. Of the 2,535 reported dengue cases, more than half (1,454, 57%) were tested for NS1, IgM or PCR test. 73% of the case tested for NS1 test were positive.
**Singapore**

During epidemiological week 1 of 2023, 284 dengue cases were reported in Singapore. In 2022, there were a total of 32,130 cases (Figure 6). This is an increase of 512% compared to 5,248 dengue cases reported during the same period (epidemiological weeks 1–52) in 2021. Preliminary results of all positive dengue samples serotyped in December 2022 showed DEN-1 (21.3%), DEN-2 (9.8%), DEN-3 (63.1%) and DEN-4 (5.7%) respectively.
Viet Nam
As of 12 February epidemiological (week 6) 2023, there were 11,991 cases and no deaths reported cumulatively in Viet Nam. A reported 1,936 (78.0%) cases were hospitalized. Compared to the same period in 2022 (5,507 cases including two deaths), the number of cumulatives cases nationwide is 2.1 times higher, and the number of deaths decreased by two cases. From epidemiological weeks 1–52 of 2022, there were 367,729 dengue cases and 140 deaths (CFR 0.04%) cumulatively reported in Viet Nam (Figure 7). Compared to the same period in 2021 (72,88 cases and 27 deaths, CFR 0.04%), the cumulative number of cases was 5 times higher.

Southern Hemisphere
Australia
There were 24 dengue cases reported in Australia during the reported fortnight (12 December 2022 to 8 January 2023). In 2023, the number of cases is remained low at 355 for the year 2022 to 8 January 2023, compared with the trend for the years before 2020 (Figure 8). This may be attributed to COVID-19 related travel restrictions in 2020-2021. Prior to COVID-19, Australia had seen notifications in overseas-acquired cases from travellers returning from dengue endemic areas.
Pacific Islands Countries
New Caledonia
There are no further updates since the previous report. From 1 January to 30 November 2022, 3 confirmed dengue cases were reported in New Caledonia (Figure 9). This is lower compared to the same period in 2021 when a total of 116 dengue cases were reported. Of the 3 confirmed dengue cases in 2022, two were imported cases. All 3 dengue cases were DENV-2.

Figure 9: Dengue cases reported by week from 2020 to 2022 in New Caledonia
Source: Network of sentinel physicians, New Caledonia

Pacific Island Countries and Areas (PICs) – Dengue-like illness (DLI) Surveillance
During epidemiological week 5 of 2023, Pacific Island Countries and Areas with available surveillance data (15/18 PICs) are reporting no or low numbers of DLI cases. Solomon Islands reported a higher weekly number of cases compared with the corresponding epidemiological week of 2021. No countries reported case numbers above the alert threshold.
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>Australia</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>Cambodia</td>
<td>Suspected dengue: very high fever at 39-40 degrees celcius for 2-7 days (usually 3-4 days), with 2 or more of the following signs: flushed face, headache, retro-orbital pain, myalgia/arthritis, 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&lt;br&gt;Communicable Disease Control (CDC) syndromic surveillance system (CamEWARN).&lt;br&gt;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.&lt;br&gt;Laboratory testing: Antibody HI&gt;= 1/1280 or IgM/IgG positive by ELSA test in convalescence serum</td>
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<td>China</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>
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<td>Lao People’s Democratic Republic</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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<td>Malaysia</td>
<td>WHO dengue case classification (2009)†</td>
<td>Yes</td>
<td>National Dengue 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>
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<td>Philippines</td>
<td>WHO dengue case classification (2009)†</td>
<td>Yes</td>
<td>Philippine Integrated Disease Surveillance and Response (PIDSR), indicator-based surveillance system. Reporting delays of 2-3 weeks, making comparison of current weekly and cumulative figures with previous years difficult.</td>
<td>Confirmed dengue is a suspect case with positive (+) viral culture isolation and/or PCR. NS1 (+), IgM is used to identify probable dengue.</td>
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<td>Singapore (endemic)</td>
<td>Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column)</td>
<td>No</td>
<td>Laboratory confirmation is done by dengue NS1 (+), IgM (+) or PCR (+)</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 (endemic)</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>
<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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<tr>
<td>Pacific Island Countries</td>
<td>WHO dengue case classification (2009)†</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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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.10

References:


