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 39 of 2023, a total of 23,940 cases with 39 deaths (Case Fatality Rate (CFR) 0.16%) were reported to the National Dengue Surveillance System in Cambodia since 1 January 2023 (Figure 1); an increase compared to 8,293 cases and 15 deaths (Case Fatality Rate (CFR) 0.18%) reported in 2022 over the same period.

![Weekly Dengue Case-Reported in Cambodia 2023](image)

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
In August 2023, 4,198 dengue cases were reported in China. There have been a total of 5,906 dengue cases and no deaths in the country from January 2023 to August 2023 (Figure 2).

Lao People’s Democratic Republic
In epidemiological week 41 of 2023, 778 dengue cases and one death was reported (Figure 3). The number of reported cases is lower than the numbers reported in epidemiological week 40 (842 cases with no death). The cumulative number of cases reported in 2023 (as of epidemiological week 41) is 28,045. This is a 9.0% increase compared to the 25,721 cases reported during the same period in 2022. There have now been 18 deaths reported in 2023.
Malaysia
During epidemiological week 41 of 2023, there were 2,271 dengue cases, compared to 2,436 cases in the previous week (Figure 4). No dengue-related deaths were reported in week 41. The cumulative number of dengue cases reported up to the 41st epidemiological week is 94,181 cases, which is an increase of 103% compared to 47,686 cases for the same period in 2022. As of epidemiological week 41, a total of 67 deaths due to dengue have been reported, compared to 28 deaths for the same period in 2022.

[Graph showing dengue cases in Malaysia]

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

Philippines
During epidemiological Week 40 of 2023, there were 3,179 new dengue cases reported (Figure 5). As of 7 October 2023, a total of 149,129 dengue cases have been reported. The number of cases is 31% lower compared to the same period in 2022 (n=216,475). From 1 January to 7 October 2023, there have been 531 deaths (CFR 0.38%), which is less than 769 deaths (CFR 0.36%) reported in the same period in 2022.

[Graph showing dengue cases in the Philippines]

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 41 of 2023, 215 dengue cases were newly reported in Singapore, leading to a total of 7,885 cases (Figure 6); This is lower than the same period (epidemiological weeks 1–41) in 2022, when a total of 28,882 cases were reported. Preliminary results of all positive dengue samples serotyped in October 2023 showed DEN-1, DEN-2, DEN-3, and DEN-4 at 16.3%, 58.7%, 6.5%, and 18.5% respectively.

Viet Nam
As of 15 October 2023 (epidemiological week 41), cumulatively 113,962 dengue cases including 31 deaths were reported in Viet Nam, which is a decrease by 56.8% compared to the same period in 2022 (264,078 cases including 128 deaths).
During epidemiological week 41 (from 9 October to 15 October), 6,504 cases including no deaths were reported, which is a 9.2% decrease in cases compared to the previous week (7,163 cases). Of these cases, 4,863 were hospitalized, which is a 11% decrease compared to the previous week (5,466 hospitalizations) (Figure 7).

![Figure 6: Dengue cases reported weekly from 2018-2023 in Singapore](Source: Communicable Diseases Division, Ministry of Health, Singapore
(Note: Case numbers are derived from the MOH Singapore’s Weekly Infectious Bulletin Year Excelsheet as available from MOH | Weekly Infectious Diseases Bulletin)

![Figure 7: Number of dengue hospital admissions and deaths by weeks in 2022 compared to 2023, as of week 41 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 48 dengue cases reported in Australia during the reported fortnight (18 September to 1 October 2023). As of 1 October 2023, the cumulative number of dengue cases is 783. The number of cases for this reported fortnight was higher at 11 cases for the current year, compared to the 37 cases reported in same period in 2022. The number of cases reported in September 2023 was higher than the reported number of cases for same month in 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 2016-2023 in Australia](source: Department of Health, Australia)

Note: Graph was updated on 23 October 2023

Pacific Islands Countries

New Caledonia

From 1 January to 30 September 2023, four 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 four confirmed dengue cases in 2023, two were imported cases. The serotype of the two 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 41 of 2023, many Pacific Island Countries and Areas (PICs) with available surveillance data (15/18 PICs) reported no or low numbers of DLI cases. Among the PICs, most countries or areas reported similar or decreasing trend in Dengue-Like illness (DLI) cases from Week 40 to week 41, however Fiji, French Polynesia, Federated States of Micronesia, Palau, Vanuatu, and Wallis and Futuna have higher DLI cases compared to the same period in the previous year.
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>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>Dengue is a nationally notifiable disease and cases are monitored through the National Notifiable Diseases Surveillance System (NNDSS) indicator-based surveillance system.</td>
<td>Both confirmed and probable cases are nationally notifiable. A confirmed case requires both laboratory definitive evidence and clinical evidence. A probable case requires either laboratory suggestive evidence and clinical evidence and epidemiological evidence, or clinical evidence and household epidemiological evidence. Laboratory definitive evidence: - Isolation of dengue virus, or - Detection of dengue virus by nucleic acid testing, or - Detection of NS1 antigen in the blood by EIA, or - IgG seroconversion or significant increase in antibody level or fourfold or greater rise in titre to dengue virus (proof by neutralization or another specific test) Laboratory suggestive evidence: - Detection of NS1 antigen in blood by rapid antigen test, or - Detection of dengue virus-specific IgM in blood Epidemiological evidence: - Exposure between 3 – 14 days prior to onset either in a country with known dengue activity or in a dengue-receptive area in Australia where a locally-acquired or imported case has been documented with onset within a month. Household epidemiological evidence: - Living in the same house as a locally-acquired case in a dengue-receptive area of Australia within a month of onset in the case and at least one case in the chain of illness observed.</td>
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<tr>
<td>Country</td>
<td>Dengue Situation Update 683</td>
<td>Epidemiologically linked cases is laboratory confirmed.</td>
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<td>Cambodia</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/arthritis, cutaneous rash, hemorrhagic signs (petechiae, positive tourniquet test), and leukopenia. 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>Data collected for Cambodia Laboratory Information System (CamLIS), comprised of 32 participating hospital laboratories where NS1 detection is conducted. Laboratory testing: Antibody HI $\geq$ 1/1280 or IgM/IgG positive by ELISA 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 leukocytosis or thrombocytopenia or serum IgM positivity.</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). Laboratory confirmation is done by real-time RT-PCR, NS1 in acute-phase serum, or virus isolation from an acutely infected patient's serum. WHO internal communication</td>
<td></td>
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<tr>
<td>Lao People's Democratic Republic</td>
<td>WHO dengue case classification (2009) †</td>
<td>No 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>Malaysia</td>
<td>WHO dengue case classification (2009) †</td>
<td>National Dengue Surveillance System, indicator-based surveillance system 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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<tr>
<td>Philippines</td>
<td>WHO dengue case classification (2009) †</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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<tr>
<td>Country (endemic)</td>
<td>Criteria</td>
<td>Definition</td>
<td>Laboratory confirmation</td>
<td>Reference(s)</td>
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<tr>
<td>Singapore</td>
<td>Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column)</td>
<td>Dengue is a legally notifiable disease in Singapore and notifying the Ministry of Health should not be later than 24 hours from the time of diagnosis.</td>
<td>Laboratory confirmation is done using standard diagnostic tests for the detection of dengue NS1 antigen, IgM and IgG, or RT-PCR.</td>
<td>8,9</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>
<td>10</td>
</tr>
<tr>
<td>Pacific Island Countries</td>
<td>WHO dengue case classification (2009)</td>
<td>No</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>
<td>11</td>
</tr>
</tbody>
</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 distris 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: