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 38 of 2023, a total of 22,847 cases with 39 deaths (Case Fatality Rate (CFR) 0.17%) were reported to the National Dengue Surveillance System in Cambodia since 1 January 2023 (Figure 1); an increase compared to 7,924 cases and 14 deaths (Case Fatality Rate (CFR) 0.18%) reported 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)](image-url)
China
There have been no updates since the previous report. In July 2023, 1,604 dengue cases were reported in China. There have been a total of 1,708 dengue cases and no deaths in the country from January 2023 to July 2023 (Figure 2).

Lao People’s Democratic Republic
In epidemiological week 39 of 2023, 870 dengue cases and no death was reported (Figure 3). The number of reported cases is lower than the numbers reported in epidemiological week 38 (999 cases with no death). The cumulative number of cases reported in 2023 (as of epidemiological week 39) is 26,425. This is a 8.9% increase compared to the 24,255 cases reported during the same period in 2022. There have now been 17 deaths reported in 2023.
Malaysia
During epidemiological week 39 of 2023, there were 2,299 dengue cases, compared to 2,310 cases in the previous week (Figure 4). Three dengue-related deaths were reported in week 39. The cumulative number of dengue cases reported to date is 89,474 cases, a 106% increase compared to 45,930 cases for the same period in 2022. As of epidemiological week 39, a total of 65 deaths due to dengue have been reported, compared to 26 deaths for the same period in 2022.

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

Philippines
During epidemiological Week 36 of 2023, there were 3,355 new dengue cases reported (Figure 5). As of 9 September 2023, a total of 125,975 dengue cases have been reported. The number of cases is 23% lower compared to the same period in 2022 (n=164,054). From 1 January to 9 September 2023, there have been 463 deaths (CFR 0.37%), which is lower than the 593 deaths (CFR 0.36%) reported in the same period in 2022.

![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 40 of 2023, 268 dengue cases were newly reported in Singapore, leading to a total of 7,671 cases (Figure 6); This is lower than the same period (epidemiological weeks 1–40) in 2022, when a total of 28,506 cases were reported. Preliminary results of all positive dengue samples serotyped in September 2023 showed DEN-1, DEN-2, DEN-3, and DEN-4 at 13.7%, 67.9%, 7.1%, and 11.3% respectively.

Viet Nam
As of 1 October 2023 (epidemiological week 39), cumulatively 99,639 dengue cases including 27 deaths were reported in Viet Nam, which is a decrease by 58.6% compared to the same period in 2022 (240,419 cases including 121 deaths).
During epidemiological week 39 (from 25 September to 1 October), 5,666 cases including one death was reported, a 2.7% decreased in cases compared to the previous week (5,824 cases). Of the cases, 4,302 were hospitalized, a 2.1% decrease compared to the previous week (4,394 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 39 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 have been no updates since the previous report. There were 195 dengue cases reported in Australia during the reported fortnight (7 August to 3 September 2023). As of 3 September 2023, the cumulative number of dengue cases is 685. The number of cases for this reported fortnight was higher at 52 cases for the current year, compared to the 20 cases reported in same period in 2022. The number of cases reported in August 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](image)

**Source:** Department of Health, Australia

**Note:** Graph was updated on 3 September 2023

Pacific Islands Countries
New Caledonia
There have been no updates since the previous report. From 1 January to 31 July 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](image)

**Source:** Network of sentinel physicians, New Caledonia
Pacific Island Countries and Areas (PICs) – Dengue-like illness (DLI) Surveillance

During epidemiological week 39 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 38 to week 39, however Fiji, French Polynesia, Palau and Solomon Islands have higher DLI cases compared to the same period in the previous year.
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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>Surveillance system</th>
<th>Laboratory sampling and testing method</th>
</tr>
</thead>
</table>
| Australia | Clinically confirmed case  
Fever, headache, arthralgia, myalgia, rash, nausea and vomiting | Laboratory confirmation required | 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 epidemiologically linked cases is laboratory confirmed.
<table>
<thead>
<tr>
<th>Country</th>
<th>Dengue Situation</th>
<th>National Dengue Case Classification (2009)</th>
<th>Laboratory confirmation</th>
<th>Reference</th>
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</table>
| Cambodia                    | 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/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. | Yes | 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. | 2         |
| China                       | (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. | No | Reported to the Chinese Centre for Disease Control and Prevention (China CDC) through the Chinese National Notifiable Infectious Disease Reporting Information System (CNNDS). | 3         |
| Lao People’s Democratic Republic | WHO dengue case classification (2009) †                                        | 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. | 4         |
| Malaysia                    | WHO dengue case classification (2009) †                                        | Yes | National Dengue Surveillance System, indicator-based surveillance system                                  | 5, 6, 7   |
| Philippines                 | WHO dengue case classification (2009) †                                        | Yes | Philippine Integrated Disease Surveillance and Response (PIDS), indicator-based surveillance system. Reporting delays of 2-3 weeks, making comparison of current weekly and cumulative figures with previous years difficult. | 8,9       |
| Singapore (endemic)         | Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column) | No | 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. | 8,9       |
**Viet Nam (endemic)**

| Description | 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. | No | 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. |

**Pacific Island Countries**

| Description | WHO dengue case classification (2009) † | No | Pacific Syndromic Surveillance System | 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 |

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: