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 22 of 2023, a total of 3,439 cases, with five deaths (Case Fatality Rate (CFR) 0.15%) were reported to the National Dengue Surveillance System in Cambodia since 1 January 2023 (Figure 1); compared to 1,659 cases and four 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
In April 2023, 9 dengue cases were reported respectively in China. There have been a total of 28 dengue cases and no deaths in the country from January 2023 to April 2023 (Figure 2).

Lao People’s Democratic Republic
As of epidemiological week 23 of 2023, 578 dengue cases and zero deaths were reported. This is lower compared to the 589 cases reported in epidemiological week 21. The cumulative number of cases reported for 2023 at epidemiological week 23 was 3,684. This is almost 4 times higher compared to the 1,559 cases reported during the same period in 2022. There have been no deaths reported in 2023.
**Malaysia**

There are no further updates since the previous report. During epidemiological week 21 of 2023, there were 2,638 cases compared to 2,444 cases in the previous week, which is an increase of 194 cases. Three deaths due to dengue fever complications were reported in week 21. The cumulative number of dengue cases reported to date is 46,257 cases compared to 17,496 cases for the same period in 2022, which is an increase of 28,761 cases (164.4%). As of epidemiological week 21, a total of 31 deaths due to dengue had been reported, compared to 10 death cases in 2022.

![Figure 4: Dengue cases reported weekly from 2022, 2023, and median 2018-2022 in Malaysia](Source: Ministry of Health, Malaysia (CPRC Kebangsaan - Kementerian Kesihatan Malaysia | Putrajaya | Facebook)

**Philippines**

As of 3 June 2023, epidemiological week 22, a total of 58,444 cases have been reported. The number of cases is 17% higher compared to the same period in 2022 (n=50,092). From 1 January to 3 June 2023, there have been 203 deaths (CFR 0.3%), which is lower than 244 deaths (CFR 0.5%) for the same period in 2022.

![Reported Dengue Cases by Morbidity Week Philippines, January 1, 2023 (MW 1) – June 3, 2023 (MW 22)](Source: Ministry of Health, Malaysia (CPRC Kebangsaan - Kementerian Kesihatan Malaysia | Putrajaya | Facebook)
Singapore
As of epidemiological week 23 of 2023, 163 dengue cases were reported in Singapore, leading to a total of 3,595 cases (Figure 6). This is a 75% decrease compared to the same period (epidemiological weeks 1–23) in 2022. Preliminary results of all positive dengue samples serotyped in May 2023 showed DEN-1, DEN-2, DEN-3, and DEN-4 at 21.4%, 35.1%, 32.8%, 10.7% respectively.

![Figure 6: Dengue cases reported weekly from 2018-2023 in Singapore](image)

Source: Communicable Diseases Division, Ministry of Health, Singapore
(Note: Following this update, case numbers would be derived from the MOH Singapore’s Weekly Infectious Bulletin Year Excelsheet as available from MOH | Weekly Infectious Diseases Bulletin)

Viet Nam
As of 4 June epidemiological (week 22) 2023, there were 34,878 cases including eight deaths cumulatively reported in Viet Nam. Compared to the same period in 2022 (45,446 cases including 31 deaths), the number of cumulative cases nationwide decreased by 23.3%, and the number of deaths decreased by 23 cases. During week 22nd (from 29 May – 4 June), there were 1,112 cases reported including no deaths; of those 849 were hospitalized (76.3%). Compared to the previous week (1,004 cases including 786 hospitalizations and no deaths), the number of cases increased by 10.8%, number of hospitalizations increased by 8%.
**Southern Hemisphere**

**Australia**

There were 24 dengue cases reported in Australia during the reported fortnight (15 May to 28 May 2023). The cumulative number of cases was higher at 348 for the current year to 28 May 2023, compared with the trend for same period 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.
Pacific Islands Countries
New Caledonia
From 1 January to 31 May 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.

Pacific Island Countries and Areas (PICs) – Dengue-like illness (DLI) Surveillance

During epidemiological week 23 of 2023, Pacific Island Countries and Areas with available surveillance data (15/18 PICs) are reporting no or low numbers of DLI cases. Palau, Solomon Islands, and Wallis and Futuna reported a higher weekly number of cases compared with the corresponding epidemiological week of 2022. Wallis and Futuna has reported case numbers above the alert threshold. Alert threshold for suspected dengue is defined as having twice the average number of cases seen in the previous three weeks.
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>Description</th>
<th>Laboratory sampling and testing method</th>
<th>Reference</th>
</tr>
</thead>
</table>
| Australia | Fever, headache, arthralgia, myalgia, rash, nausea and vomiting | Yes | Dengue is a nationally notifiable disease and cases are monitored through the National Notifiable Diseases Surveillance System (NNDSS) indicator-based surveillance system. | 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 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. | 1 |
<table>
<thead>
<tr>
<th>Country</th>
<th>Dengue Situation</th>
<th>Laboratory Testing</th>
</tr>
</thead>
<tbody>
<tr>
<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, 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>
</tr>
<tr>
<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>
</tr>
<tr>
<td>Lao People's Democratic Republic</td>
<td>WHO dengue case classification (2009) †</td>
<td>No</td>
</tr>
<tr>
<td>Malaysia</td>
<td>WHO dengue case classification (2009) †</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>WHO dengue case classification (2009) †</td>
<td>Yes</td>
</tr>
<tr>
<td>Singapore (endemic)</td>
<td>Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column)</td>
<td>No</td>
</tr>
</tbody>
</table>

**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.

**WHO internal communication**
| Viet Nam (endemic) | 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. | 10 |
| Pacific Island Countries | 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 | 11 |

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, persisting 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: