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 WHO Country Offices. For the Pacific Island Countries, syndromic surveillance data are provided by the Division of Pacific Technical Support. Information is reported based on countries’ standard dengue case definitions, summary of these definitions and countries’ dengue surveillance systems - 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 17 of 2024, the National Dengue Surveillance System reported a total of 5 351 cases with 19 deaths (Case Fatality Rate (CFR) 0.36%) since 1 January 2024 (Figure 1). This is more than double compared to the number reported in 2023 for the same period, with 2 000 cases and 4 deaths.

![Figure 1: Dengue cases reported weekly in 2024 vs endemic and epidemic alert lines in Cambodia;](chart)

*Source: National Dengue Surveillance System (NDCP/CNM/MOH)*
China
There is no update for this reporting period. There has been a total of 107 dengue cases and no death in the country since the beginning of 2024 (Figure 2).

![Figure 2: Dengue cases reported monthly from 2015-2024 (as of March) in China](source)

Lao People’s Democratic Republic
In epidemiological week 18 of 2024 (29 April to 5 May 2024), 154 dengue cases and zero deaths were reported (Figure 3). The number of reported cases is lower than the numbers reported in epidemiological week 17 (232 cases with no deaths), and lower than those in week 18 of 2023 (236 cases with no deaths). The cumulative number of cases reported in 2024 (as of epidemiological week 18) is 2,556. This is a 64.2% increase compared to the 1,557 cases reported during the same period in 2023.

![Figure 3: Dengue cases reported weekly from 2018-2024 in Lao PDR](source)
Malaysia
During epidemiological week 18 of 2024 (28 April to 4 May 2024), a decrease of 242 cases (10.8%) was reported with 1 995 cases as compared to 2 237 cases reported in the previous week (Figure 4). The cumulative number of dengue cases reported up to week 18 of 2024 is 54 882 cases, which is an increase of 41% compared to 38 933 cases for the same period in 2023. 39 dengue-related deaths were reported up to week 18 of 2024, compared to 24 deaths for the same period in 2023.

Philippines
There is no update for this reporting period. During epidemiological Week 48 (26 November to 2 December 2023), there were 2 607 new dengue cases reported, a 41% decrease compared to the same period in 2022 (n=4 415 cases) (Figure 5). As of 2 December 2023, a total of 195 603 dengue cases have been reported. The number of cases is 23% lower compared to the same period in 2022 (n=252 700). From 1 January to 2 December 2023, there have been 657 deaths (CFR 0.34%) as compared to 894 deaths (CFR 0.35%);} reported in the same period in 2022.
Singapore
In epidemiological week 18 (28 April to 4 May 2024), a total of 250 dengue cases were reported in Singapore. Cumulatively, a total of 6 816 cases (Figure 6) have been reported as of 4 May 2024. When compared with week 18 in 2023 (2 966 cases), there has been a 130% increase in cases reported in week 18 of this year. Preliminary results of all positive dengue samples serotyped in April 2024 showed DEN-1, DEN-2, DEN-3, and DEN-4 at 8.5%, 53.5%, 24.3% and 13.7%, respectively.

Viet Nam
As of 12 May 2024 (epidemiological week 19), cumulatively 18 800 dengue cases, including two deaths, were reported in Viet Nam. Compared to the same period in 2023, the number of cumulative cases decreased by 1.6 times, and the number of deaths decreased by 6 (Figure 7). During week 19 (6 to 12 May 2024), a total of 620 cases were reported nationwide. Compared to the previous week, the number of cases decreased by 8%.
Southern Hemisphere

Australia

In April 2024, a total of 272 dengue cases were reported in Australia. As of 30 April 2024, the cumulative number of dengue cases is 676, which is two times higher than the same period in 2023 (338 cases). (Figure 8).

![Figure 8: Laboratory-confirmed dengue cases reported monthly from 2016-2024 in Australia](image)

Source: Department of Health, Australia

Note: Graph was updated as of 30 April 2024

Pacific Islands Countries

New Caledonia

There is no update for this reporting period. From 1 January to 29 February 2024, six confirmed dengue cases were reported in New Caledonia (Figure 9). This is higher compared to the same period in 2023, when a total of three dengue cases were reported. Of the six dengue cases in 2024, two were imported cases and two were probable cases. The serotypes of the cases were DENV-1 (3 cases), DENV-2 (1 case).

![Figure 9: Dengue cases reported by week from 2022 to 2024 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 17 of 2024 (ending 28 April 2024), Pacific Island Countries and Areas (PICs) with available surveillance data (18/21 PICs) reported similar numbers of DLI cases except some countries. Among the PICs, Cook Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia (Federated States of), New Caledonia, Niue, Northern Mariana Islands, Palau, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna have reported DLI cases. The number of cases reported in Fiji, Kiribati, New Caledonia, Samoa and Solomon Islands in week 17 is higher than the number reported in the previous week.
Figure 1. 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.
## Annex 1. Summary of dengue case definitions, laboratory sampling and testing methods used for surveillance in Member States as of 2024

<table>
<thead>
<tr>
<th>Country</th>
<th>Case definition</th>
<th>Surveillance system</th>
<th>Laboratory sampling and testing method</th>
<th>Reference</th>
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</thead>
</table>
| Australia| Fever, headache, arthralgia, myalgia, rash, nausea and vomiting                    | Yes                                                                                  | 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 fourfold or greater rise in titre to dengue virus (proof by neutralization or another specific test)  
  - Detection of dengue virus-specific IgM in cerebrospinal fluid, in the absence of IgM to Murray valley encephalitis, West Nile virus/Kunjin, or Japanese encephalitis viruses.  
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. | 1  |

Dengue is a nationally notifiable disease and cases are monitored through the National Notifiable Diseases Surveillance System (NNDSS) indicator-based surveillance system.
<table>
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<tr>
<th>Country</th>
<th>Dengue Situation Update</th>
<th>National Dengue Control Program (NDCP) enhanced sentinel surveillance system</th>
<th>Communicable Disease Control (CDC) syndromic surveillance system (CamEWARN)</th>
<th>Health Management Information System (HMIS) collects data on confirmed cases and deaths.</th>
<th>Laboratory testing: Antibody HI $\geq 1/1280$ or IgM/IgG positive by ELISA test in convalescence serum</th>
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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/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</td>
<td>Communicable Disease Control (CDC) syndromic surveillance system (CamEWARN).</td>
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<tr>
<td>China</td>
<td>1) Typical dengue fever can be diagnosed with any of the following conditions: - General clinical symptoms of dengue fever, with an epidemiological history (having been to an area where dengue fever is prevalent within 14 days before onset), or living or working in an area where dengue fever cases have occurred within the past month, and with reduced white blood cell count and platelet count (below $100 \times 10^9/L$) - No epidemiological history, but with a rash, bleeding tendency, and positive IgG or IgM antibodies in a single serum sample.</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 (CNNDIS).</td>
<td>A clinically diagnosed case with any of the following laboratory findings: - Isolation of the dengue virus from the serum, cerebrospinal fluid, blood cells, or tissues of an acute-phase patient - Detection of dengue virus gene sequence by RT-PCR or real-time fluorescent quantitative PCR - Detection of dengue virus NS1 antigen in serum from an acute-phase patient - A fourfold or greater increase in specific antibody titer in the convalescent phase compared to the acute phase.</td>
<td>2, 3, WHO internal communication</td>
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<td>Data collected for Cambodia Laboratory Information System (CamLIS), comprised of 32 participating hospital laboratories where NS1 detection is conducted.</td>
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<td>Laboratory testing: Antibody HI $\geq 1/1280$ or IgM/IgG positive by ELISA test in convalescence serum</td>
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2) Dengue Hemorrhagic Fever can be diagnosed when accompanied by any of the following clinical symptoms:
- Bleeding tendency, significant bleeding manifestations (such as gastrointestinal bleeding or hemorrhage in the chest, abdomen, or cranium), hepatomegaly, and ascites; and
- Laboratory findings including thrombocytopenia (platelet count below $100 \times 10^9$/L), hemoconcentration (an increase in hematocrit of more than 20% above normal levels or a decrease of more than 20% after fluid resuscitation), and hypoalbuminemia.

3) Dengue Shock Syndrome: Patients with dengue hemorrhagic fever presenting with cold and clammy skin, restlessness, rapid and weak pulse, low blood pressure with a narrow pulse pressure (less than 20 mmHg or 2.7 kPa), and reduced urine output.

| 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 |
| Philippines | WHO dengue case classification (2009) † | Yes | 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. | Confirmed dengue is a suspect case with positive (+) viral culture isolation and/or PCR. NS1 (+), IgM is used to identify probable dengue. | 6, 7, 8 |
| Singapore (endemic) | Fever, headache, backache, myalgia, rash, abdominal discomfort and thrombocytopenia and laboratory testing (see right column) | Yes | 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. | Laboratory confirmation is done using standard diagnostic tests for the detection of dengue NS1 antigen, IgM and IgG, or RT-PCR. | 9, 10 |
| Vietnam (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. | 11 |
| 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 | 12 |

References:

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: 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