ASIA DENGUE
Policy Working Group

Healthcare Landscaping and Dengue Policy Mapping

Report

May 2025

Acknowledgements

This Policy Map was developed with the support of an independent grant from MSD (known as Merck & Co., Inc., Rahway, NJ, USA in the United States and Canada). We thank them for their generous contribution. The company did not provide input or guidance on the content or findings.

ASIA DENGUE
Policy Working Group

Acknowledgements

Asia Dengue Voice and Action (ADVA) is a scientific working group that is committed to decreasing the burden of dengue across Asia and achieving the WHO goal of Zero Dengue Deaths by 2030. Through its flagship annual Asia Dengue Summit event and other advocacy activities, ADVA convenes the wider community to drive action for dengue control.

Vista Health Pte Ltd, a global value-based healthcare agency, offers strategic consulting and tech-enabled solutions across all sectors of healthcare, building lasting partnerships with payers, providers, patients, and industry. For more information, visit: https://vista.health/

EquiHealth, the non-profit arm of Vista Health Pte Ltd, focuses on advancing health equity, patient support & advocacy and sustainability. It works to address barriers that prevent communities from accessing essential health opportunities by fostering multi-stakeholder collaboration across public and private sectors, NGOs, patient groups, and research institutions.

As ADVA's strategy and operations partner, it leads the strategic direction and vision, and undertakes critical activities and administration related to the Asia Dengue Policy Working Group.

Authorship

This report was produced by the Asia Dengue Policy Working Group.

Contributing authors are as follows:

Francis Kwong	Secretariat, Asia Dengue Policy Working Group and Asia Dengue Voice & Action (ADVA) Group
Dafydd Green	Advisor & Relationship Manager, Asia Dengue Policy Working Group
William Brown	Director, Asia Dengue Policy Working Group
Rie Tai	Manager, Asia Dengue Policy Working Group
Kimberly Abalde	Associate, Asia Dengue Policy Working Group
Tammie Tan	Associate, Asia Dengue Policy Working Group

Authorship

We would like to thank the following experts who have contributed their time and expertise towards the development of this report.

Michael MacDonald	Public health entomologist, Independent Consultant
Atik Ahsan	Senior Programme Manager, Environmental Health and WASH, HSPSD, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)
Kabirul Bashar	Public health entomologist, scientist, and public speaker on dengue, chikungunya, malaria, and filariasis in Bangladesh
Mohammad Shafiul Alam	Scientist, Infectious Diseases Division, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)
Sebastian Boyer	Entomologist, Institut Pasteur in Cambodia
Bhaskar Shenoy	MBBS, MD (Paed), FRCPCH(UK), Diploma in ID, Fellowship in PID Head, Department of Paediatrics Chief, Division of Paediatric Infectious Diseases, Manipal Hospital, Bangalore, India Chairperson, Paediatric Infectious Diseases Academy
Eggi Arguni	Paediatric Infectious Disease Consultant at the Department of Child Health, Dr Sardjito General Hospital/Faculty of Medicine, Public Health, and Nursing at Universitas Gadjah Mada (UGM)
Vanessa Daniel	Southeast Asia Director, Drugs for Neglected Diseases initiative (DNDi)
Lulu Bravo	Professor Emeritus at the College of Medicine, University of the Philippines Manila; Head of the Vaccine Study Group of the NIH – UPM
Hasitha Tissera	Senior Medical Epidemiologist, Ministry of Health (MoH) Sri Lanka
Terapong Tantawichien	Head of Department of Internal Medicine, Chulalongkorn University Chairman of Tropical Medicine Cluster, Chulalongkorn University
Usa Thisyakorn	Professor of Paediatrics and Executive Director of Tropical Medicine Cluster at Chulalongkorn University Advisor of Faculty of Tropical Medicine, Mahidol University, Department of Health, Bangkok Metropolitan Administration and Faculty of Medicine, Thammasat University
Kien Quoc Do	Senior Epidemiologist, Institut Pasteur in Ho Chi Minh City (Vietnam)

Contents Page and Navigation

Click the arrow buttons to navigate through the report

Section	Sub-section		Link
Objectives and Methodology			→
Healthcare and Dengue Landscape	Country overview		→
	Spending and Financing		→
	Healthcare Infrastructure		→
	Dengue Infection Landscape		→
Dengue Policy Mapping Results	Dengue prioritisation in countries		→
	HIC	Singapore	→
	UMIC	Malaysia	→
		Indonesia	→
		Thailand	→
	LMIC	The Philippines	→
		Vietnam	→
		India	→
		Bangladesh	→
		Cambodia	→
		Sri Lanka	→

Back to Contents Page

Click this button at the top right corner to go back to the Contents Page

Abbreviations – HIC: High income country; LMIC: Lower-middle income country; UMIC: Upper-middle income country

Objectives and Methodology

Overview of healthcare and dengue landscape analysis through literature review of documents and expert validation

Objective	To analyse and establish the epidemiological and healthcare trends, as well as policy frameworks surrounding dengue across target countries in Asia, with the aim of **understanding the trends of the disease policy landscape and identifying key unmet needs within the nine (9) thematic priorities** of the Asia Dengue Policy Working Group. ➢ **Dengue-specific** • Strengthen vector control • Enhance entomological surveillance • Improve patient surveillance • Advocate for the adoption of vaccines • Strengthen diagnostics and dengue case management • Improve dengue patient care management ➢ **Health system** • Focus on new and impactful community engagement • Improve funding and resource allocation • Enact policy change in endemic and non-endemic countries that are at risk of dengue impact
Methodology	**1) A policy mapping rubric was developed** • The rubric evaluated key aspects of dengue management, including vector control, entomological surveillance, case reporting, vaccination, diagnostics, patient care management, and resource allocation **2) Analysis of the healthcare and dengue control landscapes from a review of publicly available literature and national-level dengue policies** (i.e., dengue-related legislation and acts), plans, and programmes **3) Validation** of desk research findings **with experts** in the dengue and health policy fields *Experts include current and previous national dengue programme directors, researchers and policy advisors.*
Countries for Assessment	10 Asian countries were prioritised based on factors including the degree of dengue virus endemicity, population coverage of dengue initiatives, and political infrastructure (centralised/decentralised). Countries were grouped according to their World Bank Territory Classification to ensure representation across high-income (HIC), upper-middle-income (UMIC), and lower-middle-income (LMIC) countries.

Healthcare and Dengue Landscape

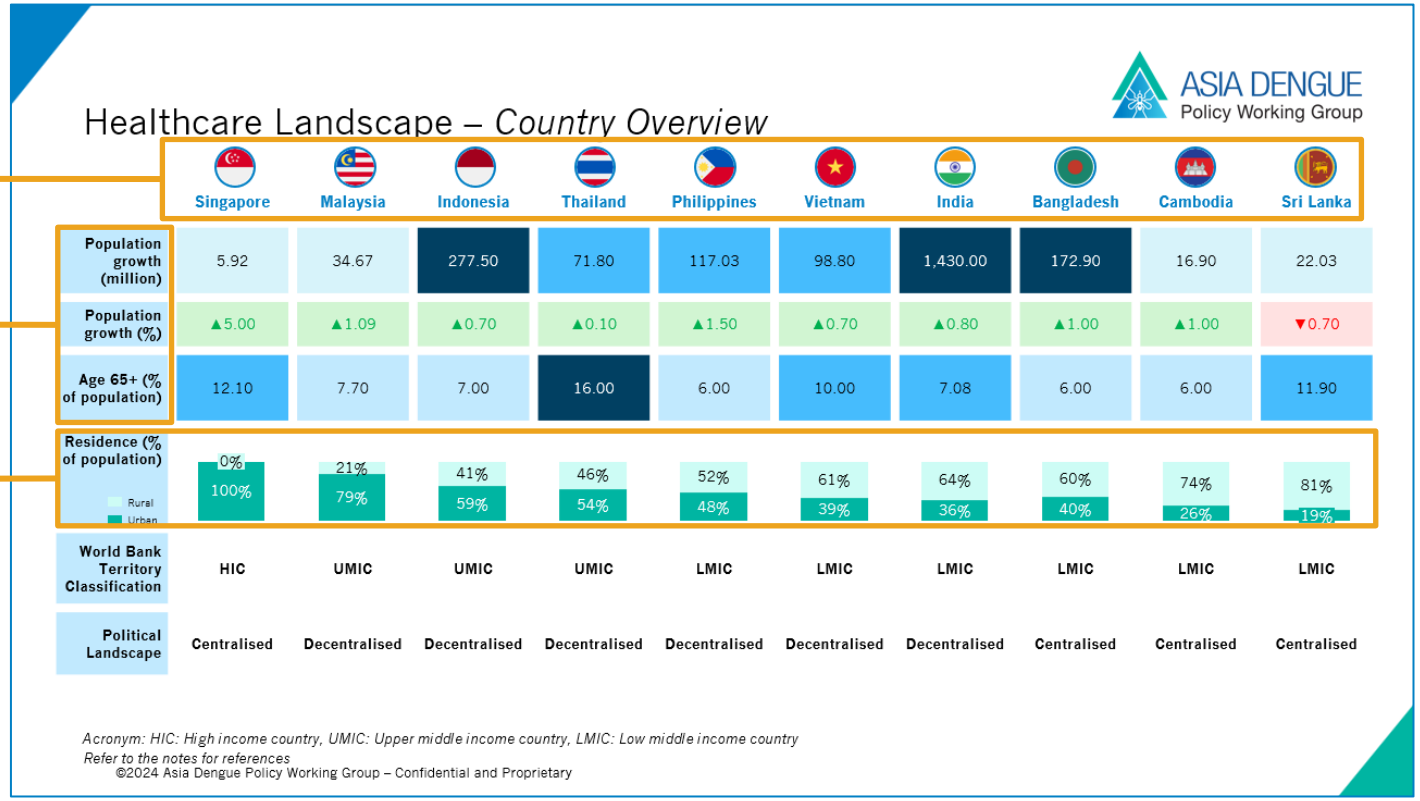
Slide Navigation Guide

Organisation of information within the slides in this section

1) **Countries of focus**

2) **Assessment parameters**

3) **Reading by row**
Performance / Latest data available across countries on a specific assessment parameter



Back to Contents Page

ASIA DENGUE Policy Working Group

Healthcare Landscape – *Country Overview*

	Singapore	Malaysia	Indonesia	Thailand	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
Population (million)	5.92	34.67	277.50	71.80	117.03	98.80	1,430.00	172.90	16.90	22.03
Population growth (%)	▲5.00%	▲1.09%	▲0.70%	▲0.10%	▲1.50%	▲0.70%	▲0.80%	▲1.00%	▲1.00%	▼0.70%
Age 65+ (% of population)	12.10%	7.70%	7.00%	16.00%	6.00%	10.00%	7.08%	6.00%	6.00%	11.90%
Residence (% of population) Rural / Urban	0% / 100%	21% / 79%	41% / 59%	46% / 54%	52% / 48%	61% / 39%	64% / 36%	60% / 40%	74% / 26%	81% / 19%
World Bank Territory Classification	HIC	UMIC	UMIC	UMIC	LMIC	LMIC	LMIC	LMIC	LMIC	LMIC
Political Landscape*	Centralised	Decentralised	Decentralised	Centralised	Decentralised	Decentralised	Decentralised	Decentralised	Centralised	Centralised

** Centralised vs Decentralised political landscape refers to how health-related (including dengue) programmes / initiatives are administered / implemented in the country*
Refer to the notes for references
Abbreviations – HIC: High income country, UMIC: Upper middle income country, LMIC: Low middle income country

Legend:
▲ Positive growth
▼ Negative growth
Low ***High***

ASIA DENGUE Policy Working Group

Healthcare Landscape – *Spending and Financing*

	Singapore	Malaysia	Indonesia	Thailand	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
Total Healthcare Spending per capita (US$m)	3,970	487	161	364	178	173	74	58	122	166
Total										
Public	63%	56%	59%	70%	42%	43%	34%	17%	27%	46%
Private	37%	44%	41%	30%	58%	57%	66%	83%	73%	54%
GDP (US$bn)	$501.43	$399.65	$1,370.00	$514.94	$437.15	$429.72	$3,550.00	$437.42	$31.77	$84.36
Healthcare Spending (% of GDP)	5.57%	4.38%	3.71%	5.16%	5.10%	4.59%	3.28%	2.36%	7.53%	4.07%
Healthcare Spending on Dengue (US$ per capita)	$171.28 – $382.60	$2.12	$1.37	$5.91	$0.30	$0.96	$2.39	$0.01	$0.20 – $0.85	$0.16
Source of Financing										
Public	54%	58%	59%	70%	42%	43%	34%	17%	27%	46%
Private	23%	11%	13%	21%	12%	17%	16%	10%	18%	10%
OOP	23%	32%	27%	9%	46%	40%	50%	73%	55%	44%
Presence of NIP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Refer to the notes for references

Abbreviations – GDP: Gross domestic product, OOP: Out of pocket, NIP: National Immunisation Program

Legend: ***Low*** ***High***

ASIA DENGUE Policy Working Group

Healthcare Landscape – *Healthcare Infrastructure*

	Singapore	Malaysia	Indonesia	Thailand	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
Healthcare Infrastructure (Public / Private)	73% / 27%	42% / 58%	37% / 63%	75% / 25%	40% / 60%	86% / 14%	37% / 63%	5% / 95%	85% / 15%	66% / 34%
Number of nurses per 1,000 patients	7.80	3.40	4.00	3.10	4.80	1.50	1.70	0.60	1.00	2.40
Number of doctors per 1,000 patients	2.80	2.20	0.70	0.90	0.80	0.80	0.70	0.70	0.20	1.20
Number of hospitals per 1,000 patients	2.65	2.01	1.36	2.34	0.96	2.55	1.60	0.88	0.74	4.02

Refer to the notes for references

Legend: ***Low*** ***High***

ASIA DENGUE Policy Working Group

Dengue Infection Landscape

	Singapore	Malaysia	Indonesia	Thailand	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
Public awareness of dengue*	High	High	Mid to High	Mid	Mid to High	Low to Mid	High	Low	Mid	Mid
2024 Dengue Incidence Rate (per 100,000)	226.19	344.29	52.87 *As of Jul 2024*	143.62	294.24 *As of Nov 2024*	107.37	16.04	58.32	107.62	215.88
Spread of endemicity	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide	Nationwide
2024 Case fatality rate (%)	0.124%	0.096%	0.590%	0.082%	0.260%	0.026%	0.101%	0.568%	0.242%	0.048%
2024 dengue-related deaths	17	117	884	84	886	28	236	575	46	24
Serotype distribution	20%, 58%, 14%, 8%	33%, 36%, 27%, 3%	3%, 18%, 72%, 6%	29%, 5%, 35%, 31%	90%, 3%, 7%	40%, 30%, 20%, 10%	23%, 45%, 29%, 3%	20%, 74%, 0%, 6%	32%, 37%, 23%, 8%	13%, 46%, 37%, 4%

DENV-1
DENV-2
DENV-3
DENV-4

** "Public awareness of dengue" refers to the general understanding and knowledge of people in a country about the disease's transmission, symptoms, prevention, and management to reduce its spread and impact*
Refer to the notes for references

Legend: ***Low*** ***High***

Dengue Policy Mapping Results

Slide Navigation Guide

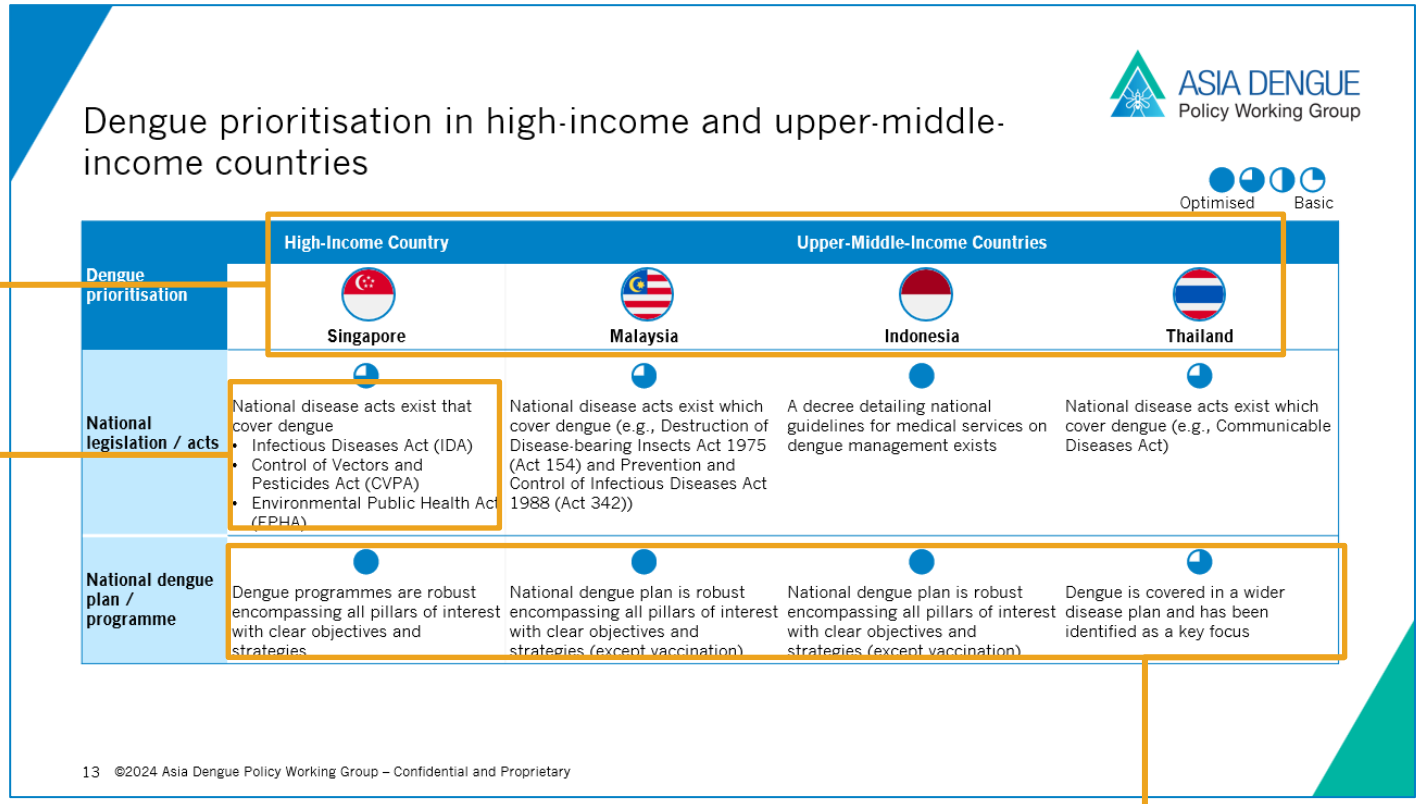
Organisation of information within the slides in this section (1/5)

1) Countries grouped according to their World Bank Territory Classification

2) Per country evaluation
Outlines key details of a specific topic of interest

Optimised ●◕◑◔ **Basic**

The degree of optimisation of a specific topic of interest
(Note: These are qualitative assessments; Refer to country deep-dive slides for further details)



3) Reading by row
Comparison of the extent of optimisation of a specific topic/pillars of interest across different countries
Pillars of interest include: Vector control, Entomological surveillance, Case reporting, Vaccination, Diagnostics, Patient care management, and Resource allocation

Criteria for the degree of optimisation per country

ASIA DENGUE Policy Working Group

Optimised Basic

Criteria	●	◕	◑	◔
National legislation / acts	• Existence of a national dengue legislation / act	• Wider disease legislation / act exists which covers dengue comprehensively	• Wider disease legislation / act exists which covers dengue, but it is not fully comprehensive	• No existence of a national legislation / act covering dengue
National dengue plan / programme	• Dengue programme is robust and encompasses all pillars of interests with clear objectives and strategies	• Dengue programme is robust and encompasses most pillars of interests with clear objectives and strategies	• Existence of a dengue programme, with some coverage of dengue pillars	• No existence of a national dengue plan / programme
Resource allocation for dengue control / management	• Clear allocation of budget across the country is published for dengue control activities	• Clear allocation of budget across the country is published for some dengue control activities	• Some budget is allocated across the country for dengue control activities	• No budget allocated / lack of publicly available budget data for dengue control activities
Involvement of stakeholders	• Centralised coordination of dengue control and management in the country	• Decentralised coordination of dengue control and management, with some level of alignment across the country	• Decentralised coordination of dengue control and management, with siloed efforts across the country	• No coordination of dengue control and management in the country

Dengue prioritisation in high-income and upper-middle-income countries

Optimised Basic

Dengue prioritisation	High-Income Country	Upper-Middle-Income Countries		
	 Singapore	 Malaysia	 Indonesia	 Thailand
National legislation / acts	National disease acts exist that cover dengue • Infectious Diseases Act (IDA) • Control of Vectors and Pesticides Act (CVPA) • Environmental Public Health Act (EPHA)	National disease acts exist which cover dengue (e.g., Destruction of Disease-bearing Insects Act 1975 (Act 154) and Prevention and Control of Infectious Diseases Act 1988 (Act 342))	A decree detailing national guidelines for medical services on dengue management exists	National disease acts exist which cover dengue (e.g., Communicable Diseases Act)
National dengue plan / programme	Dengue programmes are robust encompassing all pillars of interest with clear objectives and strategies	National dengue prevention and control plan is robust encompassing all pillars of interest with clear objectives and strategies (except vaccination)	National dengue plan is robust encompassing all pillars of interest with clear objectives and strategies (except vaccination)	Dengue is covered in a wider disease plan and has been identified as a key focus

Dengue prioritisation in high-income and upper-middle-income countries

ASIA DENGUE Policy Working Group

Optimised Basic

Dengue prioritisation	High-Income Country	Upper-Middle-Income Countries		
	Singapore	Malaysia	Indonesia	Thailand
Resource allocation for dengue control / management	• National budget allocations / monetary investment for select dengue control and management strategies are transparent and clearly published	• Government annually approves fund allocation for programme management and additional funds during sporadic outbreaks • The National Dengue Strategic Plan details budget required for each initiative across 5 years	• Budget allocations for select dengue control and management strategies are transparent and clearly published • Funding is largely sourced from the central government • Regional government participate in funding to a smaller proportion	• Initiatives and programmes are largely funded by the Thai government (allocation of resources for specific initiatives not publicly available)
Involvement of stakeholders	• Centralised coordination of dengue control and management by the government (NEA, MoH) and existence of a dedicated dengue task force	• Decentralised coordination of dengue control and management by the government • Intersectoral dengue special task force meets with ministries, departments, and other agencies 12 times a year	• Decentralised implementation of dengue prevention programmes where regional governments are involved in the implementation of dengue prevention programmes	• Decentralised coordination of dengue control and management by the government (MoPH, BMA, DDC)

Abbreviations – MoPH: Ministry of Public Health, BMA: Bangkok Metropolitan Administration, DDC: Department of Disease Control

Dengue prioritisation in lower-middle-income countries

ASIA DENGUE Policy Working Group

Optimised Basic

Dengue prioritisation	Lower-Middle-Income Countries					
	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
National legislation / acts	• National disease act exists which covers dengue (e.g., REPUBLIC ACT No. 11332)	• National disease act exists which covers dengue (e.g., law on prevention and control of infectious diseases)	• National and state disease act exists which covers dengue (e.g., The Epidemic Diseases Act, 1897, Karnataka Epidemic Diseases Act 2020)	• No existence of a national legislation / act covering dengue	• No existence of a national legislation / act covering dengue	• No existence of a national legislation / act covering dengue
National dengue plan / programme	• National Dengue Prevention and Control Programme is robust encompassing all pillars of interest with clear objectives and strategies (except vaccination)	• National dengue plan has not been updated • Existing initiatives are decentralised; local governments carrying out prevention and management activities	• Clear objectives and initiatives are outlined for vector control, surveillance, diagnosis, and patient management • Vaccination is not a priority	• There are plans for a national dengue strategy (implementation not confirmed) • Vector control efforts primarily focus on adult mosquitos	• National dengue plan encompasses all pillars of interest with clear strategies (except vaccination)	• National dengue programmes are robust encompassing all pillars of interest with clear objectives and strategies

ASIA DENGUE Policy Working Group

Dengue prioritisation in lower-middle-income countries

Optimised ● ◕ ◑ ◔ Basic

Dengue prioritisation	Lower-Middle-Income Countries					
	Philippines	Vietnam	India	Bangladesh	Cambodia	Sri Lanka
Resource allocation for dengue control / management	◔ • Specific budget allocations for dengue prevention and management are not publicly available	◔ • Government focused on surveillance and outbreak response • Investment in other aspects of dengue control, prevention, and management is lacking	◑ • NVBDC under National Health Mission, budgetary support is provided to states for dengue control activities	◔ • Specific budget allocations for dengue prevention and management are not publicly available	◔ • Specific budget allocations for dengue prevention and management are not publicly available	● • Initiatives funded by MoH and Nutritious and Indigenous Medicine • National Dengue Control Unit (MoH) implements plans
Involvement of stakeholders	◑ • Decentralised coordination of dengue control and management by the local government (e.g., Provincial health office)	◑ • Peoples Committees perform the state management of the prevention and control of infectious diseases according to the Government's decentralisation	◑ • Decentralised coordination of dengue control and management by the government • States responsible for programme implementation	◑ • Decentralised coordination of dengue control and management by the local government (siloed efforts across city corporations)	● • Centralised coordination of dengue control and management by the government • CDC will likely integrate CNM for vector control activities	● • Centralised coordination of dengue control and management by the government (MoH) including a dedicated national dengue control unit

Abbreviations – CDC: Centers for Disease Control and Prevention, CNM: Cambodia National Malaria Center, NVBDC: National Center for Vector Borne Diseases Control, MoH: Ministry of Health, DoH: Department of Health, MoHFW: Ministry of Health and Family Welfare, NDCP: National Dengue Control Program

Slide Navigation Guide

Organisation of information within the slides in this section (1/4)

1) Country focus

2) Brief background on dengue in the country

3) Key stakeholders
Key stakeholders in the country with a major role in dengue management, including planning and implementation

Slide Navigation Guide

Organisation of information within the slides in this section (2/4)

1) Country focus

2) Dengue strategies
Brief introduction on the dengue acts, plans, and/or programmes implemented in the country

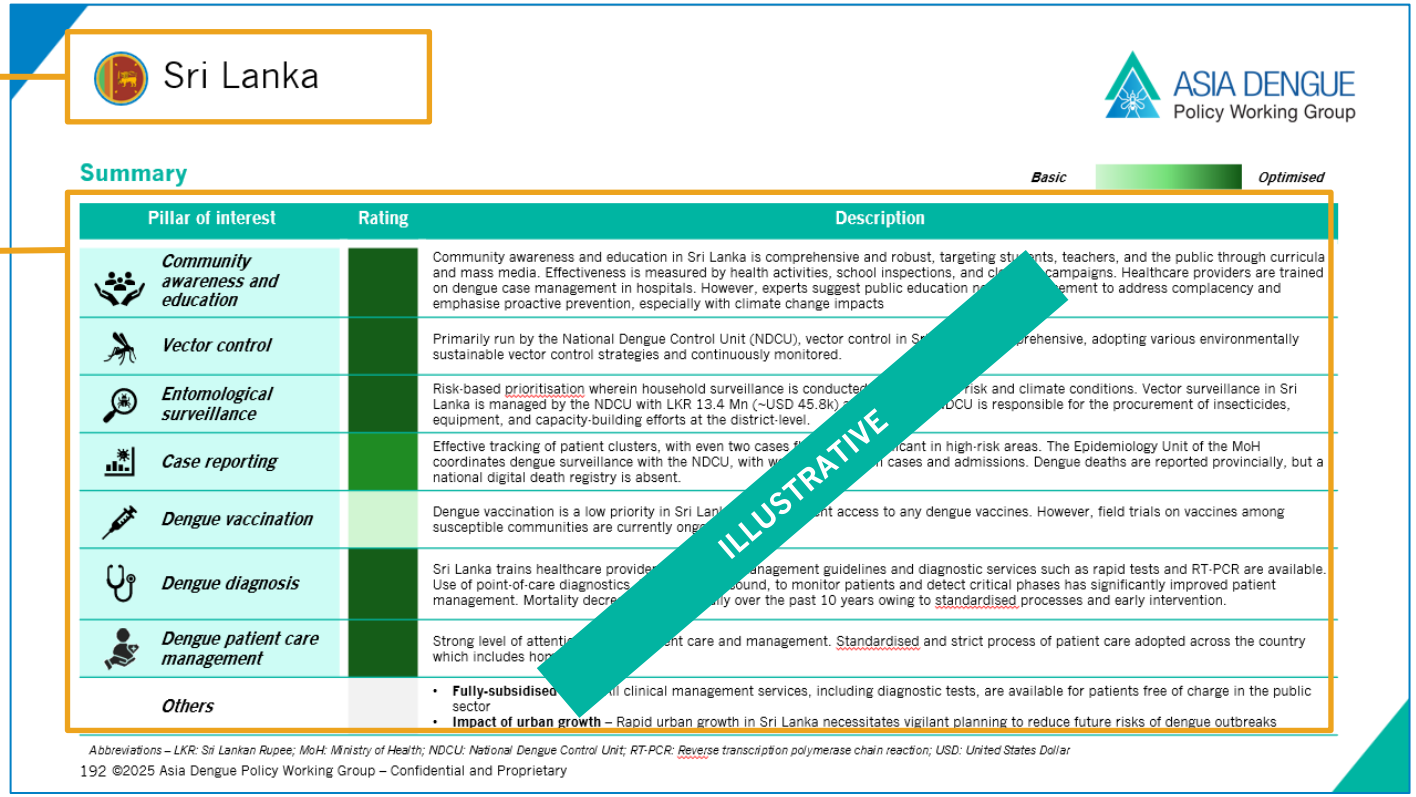
Slide Navigation Guide

Organisation of information within the slides in this section (3/4)

1) Country focus

2) Summary
Key takeaways of each pillar of interest

The overall assessment rating of each pillar is also shown



ASIA DENGUE Policy Working Group

Slide Navigation Guide

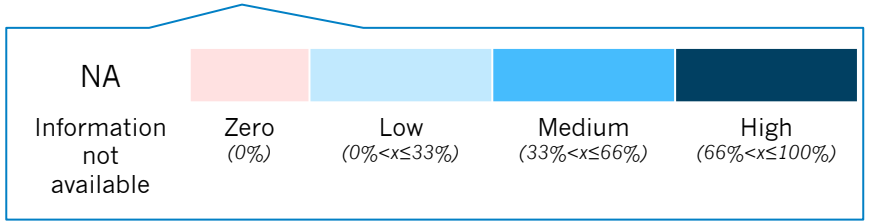
Organisation of information within the slides in this section (4/4)

1) Country focus

2) Pillar of interest

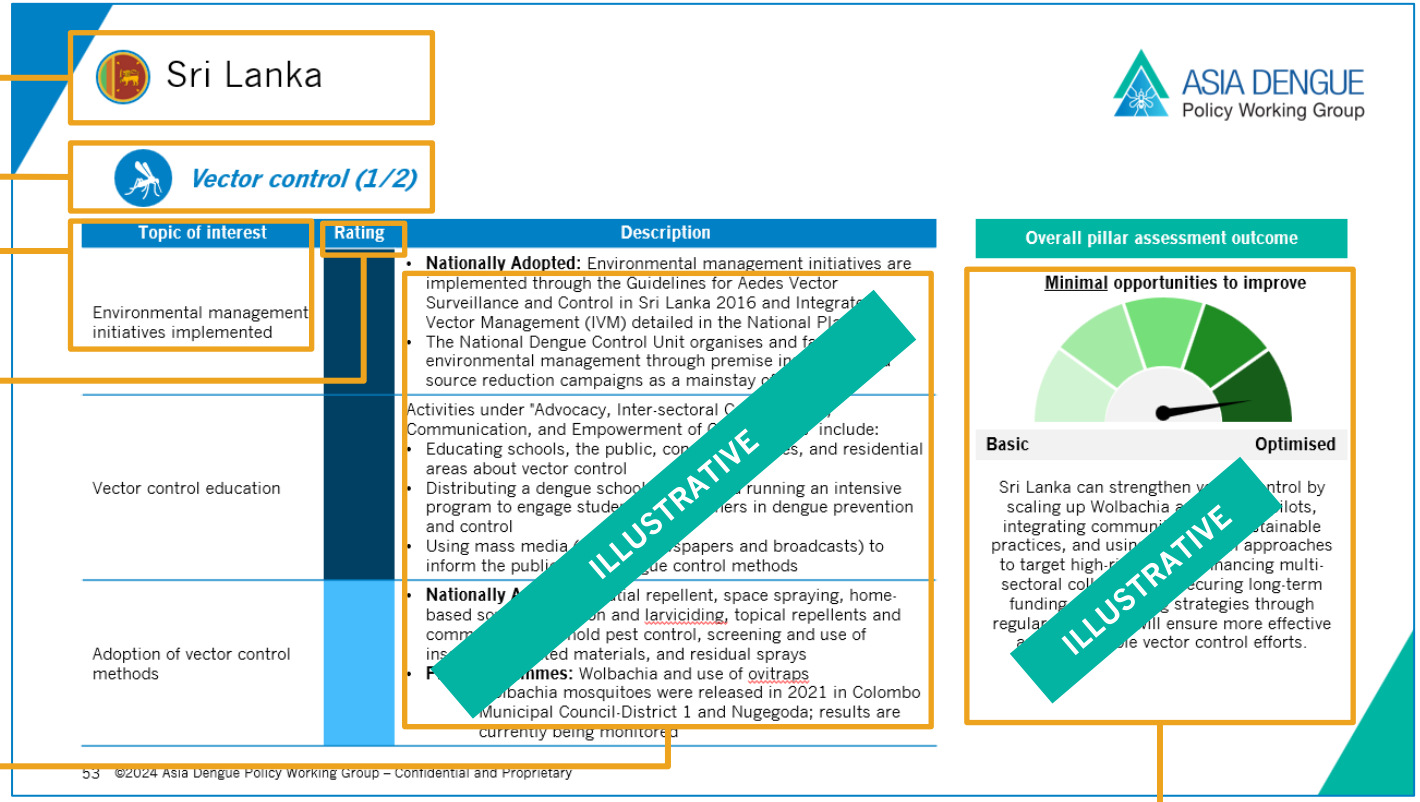
3) Topic of interest

4) Rating for topic of interest
Ratings given are based on the scoring given to the topic of interest as outlined in the pre-developed policy map scorecard



5) Description
Information on key aspects of initiatives related to the specific topic of interest within the pillar

6) Assessment outcome
Specifies the overall extent of improvement opportunities for dengue policies / programmes in terms of each pillar of interest and outlines key recommendations. The overall assessment is qualitative and based on the average performance of topic of interests.



Criteria for the rating of each pillar of interest (1/2)

Criteria				
Community awareness and education	• Existence of robust educational programmes / resources for both the public and healthcare providers, with a mechanism / system in place to monitor and evaluate the effectiveness	• Existence of robust educational programmes / resources for the public / healthcare providers, but without a mechanism / system in place to monitor and evaluate the effectiveness	• Existence of some educational programmes / resources for the public / healthcare providers, without a mechanism / system in place to monitor and evaluate the effectiveness	• No existence of an educational programme / resource for the public and healthcare providers, with no mechanism to measure effectiveness
Vector control	• Environmentally sustainable vector control measures are in place, with nationwide adoption of innovative strategies	• Environmentally sustainable vector control measures are in place, with pilot programmes of innovative strategies	• Some environmentally sustainable vector control measures are in place	• No existence of environmentally sustainable vector control measures are in place
Entomological surveillance	• Formal establishment of a robust entomological surveillance system, with data collected frequently and used for outbreak prevention / forecasting	• Formal establishment of a robust entomological surveillance system, though collected data may not be used for outbreak prevention / forecasting	• No formal establishment of an entomological surveillance system, though some activities are conducted	• No existence of an entomological surveillance system
Case reporting	• Robust and comprehensive case reporting system, with published data monitored frequently and used for outbreak prevention / forecasting	• Robust and comprehensive case reporting system, data may not be publicly available, but is monitored frequently and used for outbreak prevention / forecasting	• Case reporting system is established, collected data may be used for some level of outbreak prevention / forecasting	• No existence of a case reporting system

Criteria for the rating of each pillar of interest (2/2)

Criteria				
Dengue vaccination	• Dengue vaccines are approved and included in the national immunization program, with high public acceptance and willingness to receive them	• Dengue vaccines are approved, but have yet to be included in the national immunisation program, with moderate level of public acceptance and willingness to receive them	• Dengue vaccines are approved, but have yet to be included in the national immunisation program, with low level of public acceptance and willingness to receive them	• Dengue vaccines have not been approved in the country
Dengue diagnosis	• Dengue diagnostic services are widely available across the country, with full coverage for tests	• Dengue diagnostic services are widely available across the country, with partial coverage for tests	• Dengue diagnostic services' availability vary across the country, with partial coverage for tests	• Dengue diagnostic services are available across the country, with no coverage for tests
Dengue patient care management	• Dengue patient care management services are widely available across the country, with full coverage for tests	• Dengue patient care management services are widely available across the country, with partial coverage for tests	• Dengue patient care management services' availability vary across the country, with partial coverage for tests	• Dengue patient care management services are available across the country, with no coverage for tests

Singapore

Singapore

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- In Singapore, the government's focus on tackling dengue initially centred on vector control before expanding to incorporate integrated strategies. These include novel surveillance systems to track both dengue vectors and cases, as well as the introduction of the *Wolbachia* mosquito project.
- There is significant government investment, both in terms of time and resources, in dengue control, prevention, and management in Singapore, with more recent investment in the *Wolbachia* programme.
- There are three (3) laws and legislation to cover the prevention and control of vector-borne diseases – (i) Infectious Diseases Act 1976, (ii) Control of Vectors and Pesticides Act 1998, (iii) Environmental Public Health Act (EPHA).

Key stakeholders

Ministry of Health (MOH) Singapore	• Oversees the public health aspects of dengue management, including disease surveillance, clinical management, and policy formulation. MOH also collaborates with NEA on various initiatives such as to implement preventive measures and conduct research on dengue vaccines
National Environment Agency (NEA)	• Primary government agency responsible for vector control, leading efforts to reduce mosquito populations and promote preventive measures through public education. One of NEA's divisions, Environmental Health Institute, conducts research and provides scientific expertise on vector-borne diseases
Inter-Agency Dengue Task Force (IADTF)	• Comprises representatives from various government agencies, along with private and professional organisations, coordinating efforts to ensure a holistic approach to dengue prevention and control

Singapore

ASIA DENGUE Policy Working Group

Dengue strategies

Singapore's Dengue Control Initiatives

The country does not have a formal dengue control strategy plan, but its efforts are well-established through a comprehensive, multi-pronged approach that integrates various strategies and stakeholders in dengue management.

From its inception since 1965, Singapore's dengue prevention programme has focused on environmental management and public education. The critical features driving Singapore's more than 5 decades of dengue control efforts—source reduction, vector surveillance, community education, and legislation—were established within the first 5 years of the programme.

One of the key initiative includes National Environment Agency (NEA)'s comprehensive dengue control programme, which has been endorsed by the World Health Organisation. The objective of the programme is to (i) use pre-emptive field mosquito surveillance and control to reduce the incidence of mosquito breeding by destroying all breeding habitats and removing all potential ones, and (2) allow quick detection of dengue cases so that pre-emptive operations can be carried out to minimise secondary dengue transmission.

MOH works closely with various ministries and government agencies, academia, and the public to advance dengue prevention and control efforts. Over the years, the system development has been guided by 4 key principles that are consistent with those recommended by the World Health Organization, (1) inter-epidemic surveillance and control, (2) risk-based prevention and intervention, (3) coordinated inter-sectoral cooperation, and (4) development and adoption of science and technology.

Through public-private-people partnerships and leveraging the latest scientific and technological expertise in vector control, Singapore's dengue vector control programme continues to aim to adapt to future challenges.

Singapore

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Overall Rating	Description
Community awareness and education		Educational programs are embedded in the national elementary and secondary curricula; a community alert system is adopted to notify the public of dengue risk in specific areas; healthcare providers also receive essential training and support to engage patients and curb dengue transmission.
Vector control		Comprehensive dengue prevention measures are nationally adopted, which include environmental management initiatives and the nation's innovative vector control program '*Project Wolbachia*'.
Entomological surveillance		Entomological investigations are carried out by the NEA and monitor Gravitrap *Aedes aegypti* indices. Data is used for forecasting and the management of dengue outbreaks.
Case reporting		Singapore mandates immediate reporting of confirmed cases and subsequent serological testing be undertaken. Cases are reported daily on the NEA website, weekly in the Notifiable Infectious Disease Report, and quarterly in the Quarterly Dengue Surveillance Data report.
Dengue vaccination		Singaporeans have moderate awareness of dengue vaccines. As of 2024, only Dengvaxia is available in the private sector and is not included in the national immunisation program.
Dengue diagnosis		WHO guidelines are adopted for dengue management, with diagnostic services available and partially subsidised in the public sector. However, budget allocations for dengue diagnosis are not clearly stated.
Dengue patient care management		Treatment and symptom management services are partially subsidised. However, there is room for improvement in transparent allocation of budget for dengue patient care management.

Abbreviations – WHO: World Health Organisation

Singapore

ASIA DENGUE Policy Working Group

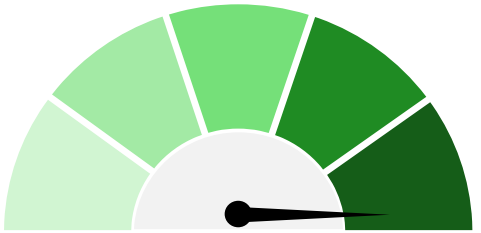
Community awareness and education (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and resources		Educational programmes exist that are run by the government and are embedded in the national curricula. • National Dengue Prevention Campaign 2024 engages the public to raise dengue awareness and reduce *Aedes* larval habitats • 3P (People, Public and Private) Network Division drives NEA (National Environment Agency)'s educational efforts, ensuring effective outreach to communities. • Dengue education is integrated into primary/secondary school curricula, emphasising the connection between climate change and vector-borne diseases. • Ongoing efforts are made to maintain and improve the effectiveness of outreach by implementing targeted outreach and publicity strategies tailored to different age groups and communication channels. Furthermore, a Dengue Community Alert System is employed, using color-coded banners (purple, red, yellow, or green) to inform the public about the dengue situation at their estates, with purple representing areas with persistently high *Aedes* mosquito population, and green signifying that the dengue cluster has been closed and is under surveillance.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Singapore has established comprehensive community awareness and education efforts for dengue management. To maintain their effectiveness and long-term impact, it is crucial to continuously monitor these initiatives and consider exploring digital and interactive engagement to further enhance outreach. Furthermore, while internal assessments are in place, providing updates on the impact of education programs could strengthen public trust, promote individual accountability, and encourage greater community participation.

Abbreviations – MoH: Ministry of Health; NEA: National Environmental Agency

Singapore

ASIA DENGUE Policy Working Group

Community awareness and education (2/2)

Legend

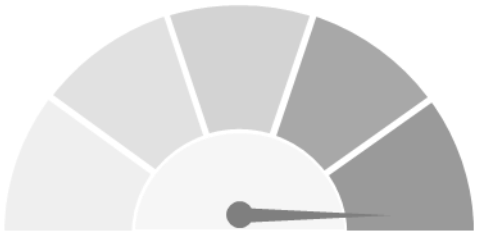
Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		There is limited information publicly on the mechanisms/ system to monitor and evaluate the effectiveness of the educational program.
		• However, various methods are employed for internal planning purposes through:
		  • Public surveys (e.g., self-reported behaviours related to source reduction)
		  • Feedback from program partners on effectiveness of programs
		  • Media monitoring (e.g., insights into public awareness and behaviour towards dengue prevention)
		  • Usage levels of the myENV application *(myENV is a one-stop platform for information, including water levels and dengue hot spots)*

Educational programs targeted to healthcare providers		Dengue education programs provide the essential education and support to healthcare providers. • NEA and MOH are partnering with General Practitioner clinics and polyclinics in 2024 to engage patients diagnosed or suspected of dengue infection, aiming to prevent community transmission. • Additional support includes distributing dengue educational materials (e.g., posters, brochures) to hospitals and clinics and reminding healthcare providers to remain vigilant for dengue fever symptoms.

Overall pillar assessment outcome



Basic — Optimised

Recommendations

Singapore has established comprehensive community awareness and education efforts for dengue management. To maintain their effectiveness and long-term impact, it is crucial to continuously monitor these initiatives and consider exploring digital and interactive engagement to further enhance outreach. Furthermore, while internal assessments are in place, providing updates on the impact of education programs could strengthen public trust, promote individual accountability, and encourage greater community participation.

Abbreviations – MoH: Ministry of Health; NEA: National Environmental Agency

Singapore

ASIA DENGUE Policy Working Group

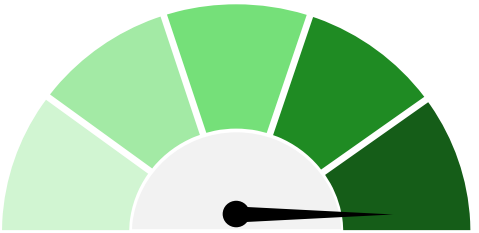
Vector control (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		**Nationally Adopted:** • High-rise apartment blocks have been redesigned without roof gutters, while cylindrical bamboo pole holders are replaced in older flats with brackets, effectively removing two key areas prone to rainwater accumulation and vector breeding. • A "no gutter law" means that new buildings are not allowed to have roof gutters due to concerns about them becoming mosquito breeding grounds; this policy is enforced through the NEA's Code of Practice on Environmental Health (COPEH), requiring rainwater to be drained directly through downpipes instead of gutters. • Vector control activities of the Public Utilities Board (PUB) include designing drains for maintainability.
Vector control education		Educational programs focused on sustainable vector control methods are implemented nationally. • Conducts targeted outreach to educate schools, the public, construction sites, and residential areas on vector control. • Uses an updated tagline 'BLOCK' (Break, Lift, Overturn, Change, Keep) message to deliver a memorable and effective dengue prevention message. • Utilises mass media, including broadcasts and posters in public settings, to inform the public about dengue control strategies.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Vector control methods and programmes should be continuously assessed to maintain their effectiveness and sustain current achievements. Singapore can further strengthen its efforts by continuing to integrate innovative technologies, such as AI-driven predictive analytics and smart ovitraps, to enhance real-time monitoring and enable more targeted interventions. Singapore should also consider providing a breakdown of costs to implement nationwide vector control programmes to enable e.g., calculation of return on investment for cases prevented.

Abbreviations – PUB: Public Utilities Board

Singapore

ASIA DENGUE Policy Working Group

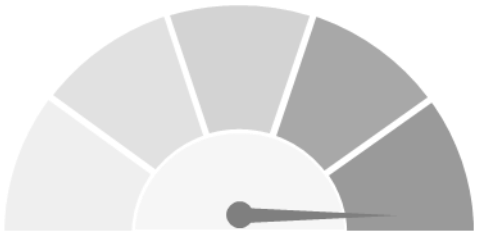
Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		**Nationally Adopted:** • Space spraying (e.g., fogging in emergency situations), home-based source reduction, larviciding, topical repellents, commercial household pest control, and mosquito traps are implemented. **Pilot Programmes:** • Launched in 2016, *Project Wolbachia* (and the use of the '*Gravitraps*') reduced the *Aedes aegypti* mosquito population by 80–90% in dengue-endemic areas and covers 580,000 households (35% of all households). • Further expansion was announced in Nov 2024 to cover 50% of all households by 2026.
Monitoring and evaluation of vector control initiatives / programs		Indicators to assess the effectiveness of Singapore's *Wolbachia* program include: • Odds ratio of *Wolbachia* exposure distribution (i.e., probability of living in an intervention cluster) among laboratory-confirmed reported dengue cases compared to test-negative controls. • Laboratory-confirmed reported dengue case counts normalised by population size in the intervention versus non-intervention clusters. • Efficacy of male *Wolbachia-Aedes* deployment in reducing *Ae. aegypti* mosquito populations.

Overall pillar assessment outcome



Basic — Optimised

Recommendations

Vector control methods and programmes should be continuously assessed to maintain their effectiveness and sustain current achievements. Singapore can further strengthen its efforts by continuing to integrate innovative technologies, such as AI-driven predictive analytics and smart ovitraps, to enhance real-time monitoring and enable more targeted interventions. Singapore should also consider providing a breakdown of costs to implement nationwide vector control programmes to enable e.g., calculation of return on investment for cases prevented.

Abbreviations – FY: Financial Year

Singapore

ASIA DENGUE Policy Working Group

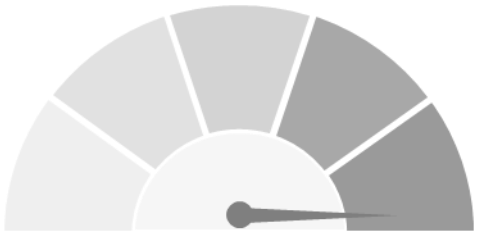
Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Resource allocation for vector control		Government expenditure budget for *Project Wolbachia* was SGD 376,200 (USD 282,000) in FY2024 and estimated to be SGD 110,100 (~USD 82,600) in FY2025.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Vector control methods and programmes should be continuously assessed to maintain their effectiveness and sustain current achievements. Singapore can further strengthen its efforts by continuing to integrate innovative technologies, such as AI-driven predictive analytics and smart ovitraps, to enhance real-time monitoring and enable more targeted interventions. Singapore should also consider providing a breakdown of costs to implement nationwide vector control programmes to enable e.g., calculation of return on investment for cases prevented.

Abbreviations – FY: Financial Year

Singapore

ASIA DENGUE Policy Working Group

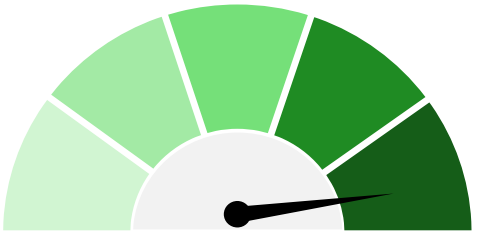
Entomological surveillance (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		Entomological investigation is carried out by NEA officers around the residence and/or workplace of notified cases, particularly if these cases form a cluster.
Indicators used for surveillance		• Common indicators for surveillance such as Container Index (CI), Pupae Index (PI), and Breteau Index (BI) are not used for entomological surveillance. • House Index (HI), was previously used however was rendered insensitive after the HI levels dropped below target levels. • The Gravitrap *Aedes aegypti* Index (GAI), has served as a more effective indicator than traditional indicators (directly correlates with the adult mosquito population), while *Aedes aegypti* Breeding Percentage (BP) is used as a valuable indicator for spatial risk mapping.
Frequent and timely collection of entomological surveillance data		Gravitraps are monitored weekly across various locations to assess mosquito population levels and trends.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Singapore can enhance entomological surveillance programmes by ensuring transparency in budget allocations within existing frameworks to help ensure sustained and adequately resourced monitoring efforts. Given Singapore's advancements in entomological surveillance, experts can also continue to conduct training on best practices for other countries in the region.

Abbreviations – BI: Breteau Index; CI: Container Index; GAI: Gravitrap Aedes aegypti Index; HI: House Index; NEA: National Environmental Agency; PI: Pupae Index

Singapore

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		Entomological surveillance data is integrated into a model for spatial prediction and temporal forecasting to identify high-risk dengue areas and project case trends over the coming months/years. • The model takes into account various information and data, including mosquito population levels and population density. • In the dengue forecast for 2020, dengue virus serotype 2 (DENV-2) remained the predominant strain, while serotype 3 (DENV-3) showed an increase in circulation. • NEA emphasised the need to safeguard public health and enforce dengue prevention measures nationwide.
Resource allocation for entomological surveillance		Budget allocations for entomological surveillance are available, but information on the specific resources allocated are not publicly available

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Singapore can enhance entomological surveillance programmes by ensuring transparency in budget allocations within existing frameworks to help ensure sustained and adequately resourced monitoring efforts. Given Singapore's advancements in entomological surveillance, experts can also continue to conduct training on best practices for other countries in the region.

Abbreviations – NEA: National Environmental Agency; PI: Pupae Index

Singapore

ASIA DENGUE Policy Working Group

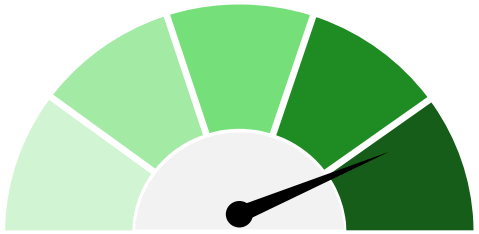
Case reporting

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		Through the MoH's Communicable Diseases Live and Enhanced Surveillance (CD-LENS) system launched in 2006, medical practitioners can notify the MoH of cases of infectious diseases, including dengue
Indicators used for surveillance		The Quarterly Dengue Surveillance Data identifies: • Suspected (clinical) cases of dengue and severe dengue • Confirmed (laboratory-tested) cases of dengue and severe dengue • Number of deaths from dengue or severe dengue
Frequent and timely collection of patient surveillance data		Updates of patient data are captured in the Dengue Surveillance Data frequently (daily, weekly, and quarterly)
Utilisation of data for outbreak prevention / forecasting		Case report data has been utilised in a model using the Least Absolute Shrinkage and Selection Operator (LASSO) method to forecast weekly dengue notifications in 2015. However, the model's continued use for future forecasting has not been made publicly available.
Resource allocation for case reporting		Budget allocations for case reporting are available, but information on the specific resources allocated are not publicly available

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen disease management efforts, Singapore could establish a comprehensive digital dengue death registry to enhance the tracking and analysis of mortality trends. The country could also consider integrating real-time case report data into predictive models to improve forecasting accuracy. Additionally, allocating a dedicated budget for patient surveillance would ensure consistent data collection and analysis, further strengthening existing efforts.

Singapore

ASIA DENGUE Policy Working Group

Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Singapore's Ministry of Health (MoH) and the Health Sciences Authority (HSA) and provide key considerations for dengue vaccination
Physical access to vaccines		Vaccines are available and accessible only in the private sector • Dengvaxia is the only licensed vaccine in Singapore approved by the Health Sciences Authority (HSA) • Dengvaxia is not recommended for those without prior dengue infection • Singapore does not track the number of people who have taken the vaccine
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in the NIP and can only be accessed in the private market
Financial access to vaccines		Dengue vaccination is not included in the NIP and is not eligible for government subsidy. Vaccines are paid fully OOP by patients.
Knowledge and awareness of dengue vaccination		According to a KAP study, 51% of Singaporeans have knowledge of dengue vaccines and vaccination

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To enhance dengue vaccination efforts in Singapore, public health programmes should address concerns about the safety and efficacy of a dengue vaccine and emphasise the importance of dengue vaccination. Policymakers should consider supporting research initiatives uncovering possible reasons for the limited willingness of the public for dengue vaccination. Increased resource allocation and subsidy options can improve vaccine access and adoption, while continued investment in research and development will support the development of more effective vaccines and prophylaxis.

Abbreviations – HSA: Health Sciences Authority; MoH: Ministry of Health; NIP: National Immunisation Programme; OOP: Out of pocket

Singapore

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Willingness to be vaccinated		According to a KAP study, 25% of Singaporeans have high (7-9 out of 10) willingness to take the dengue vaccine, while 61% have a moderate willingness (4-6 out of 10)
Research and advocacy for new vaccines and other prophylaxis methods / R&D		Ongoing research and developments: • In Dec 2022, scientists at Duke-NUS Medical School achieved high-resolution imaging of a key dengue protein. This advancement provides deeper insights into the virus' structure, potentially informing the development of more effective vaccines. • In Sep 2024, Duke-NUS researchers identified a link between the body's initial immune response and its defence against dengue reinfections, offering valuable information for vaccine development. • The Singapore-MIT Alliance for Research and Technology (SMART) has been working on enhancing dengue vaccination efficacy. In 2020, SMART researchers developed a method to induce strong and broad immunity to the dengue virus in mice, marking a significant step toward more effective vaccines.
Resource allocation for dengue vaccination		Budget allocations for dengue vaccination are available but information on specific resources allocated not available

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To enhance dengue vaccination efforts in Singapore, public health programmes should address concerns about the safety and efficacy of a dengue vaccine and emphasise the importance of dengue vaccination. Policymakers should consider supporting research initiatives uncovering possible reasons for the limited willingness of the public for dengue vaccination. Increased resource allocation and subsidy options can improve vaccine access and adoption, while continued investment in research and development will support the development of more effective vaccines and prophylaxis.

Abbreviations – MIT: Massachusetts Institute of Technology; NUS: National University of Singapore; SMART: Singapore-MIT Alliance for Research and Technology

Singapore

ASIA DENGUE Policy Working Group

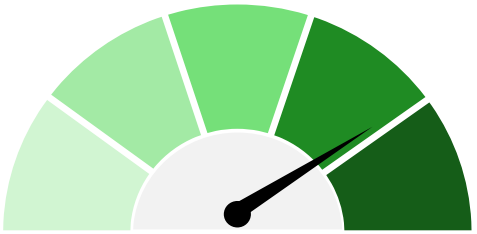
Dengue diagnosis (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found*
Frequency of training of specialists / lab technicians	NA	*No available information found*
Existence and adoption of dengue clinical guidelines		WHO guidelines for diagnosis, treatment, prevention, and control are adopted nationally • Dengue cases are legally required to be reported to the Ministry of Health, including serotypes, no later than 24 hours from the time of diagnosis to the MoH (via Form MD 131 or electronically via CD-LENS) • If a dengue fever (DF) case later meets the criteria for dengue haemorrhagic fever (DHF), it must be re-notified.
Availability of / access to diagnostic services in the public sector		Various types of diagnostic services are widely available in Singapore, including antigen detection rapid tests, virus culture, and serology ELISA tests
Financial access to diagnostic services		Diagnostic services are partially-subsidised by the government • Before government subsidy, a dengue blood test would cost S$70-80 at a general practitioner clinical and S$50-60 at a polyclinic

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To improve dengue diagnosis and management in Singapore, regular training for healthcare providers and laboratory technicians is essential. Policymakers should also ensure transparency in resource allocation to help ensure sustained and adequately resourced monitoring efforts. Furthermore, expanded subsidies would enhance access to diagnostic services. Ongoing research and advocacy for innovative diagnostic tools should be supported to improve early prediction and clinical decision-making for severe dengue.

Abbreviations – DF: Dengue fever; DHF: Dengue Haemorrhagic Fever; MoH: Ministry of Health; WHO: World Health Organisation

Singapore

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for innovative diagnostics / R&D		Ongoing research indicates a focus on improving early dengue diagnosis in Singapore • In Dec 2023, researchers at NTU and the National Centre for Infectious Diseases (NCID) identified two compounds (sST2 and suPAR) in the blood of dengue patients that could determine if a patient is at risk of severe dengue in the early phases of the disease. The scientists are working on validating and adapting lateral flow test kits for sST2 and suPAR into a single kit that could test for severe dengue, in hopes of a higher accuracy of predicting severe dengue than the WHO-prescribed guidelines.
Resource allocation for dengue diagnosis		Budget allocations for dengue diagnosis are available but information on specific resources allocated not available

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To improve dengue diagnosis and management in Singapore, regular training for healthcare providers and laboratory technicians is essential. Policymakers should also ensure transparency in resource allocation to help ensure sustained and adequately resourced monitoring efforts. Furthermore, expanded subsidies would enhance access to diagnostic services. Ongoing research and advocacy for innovative diagnostic tools should be supported to improve early prediction and clinical decision-making for severe dengue.

Abbreviations – NCID: National Centre for Infectious Diseases; NTU: Nanyang Technological University; WHO: World Health Organisation

Singapore

ASIA DENGUE Policy Working Group

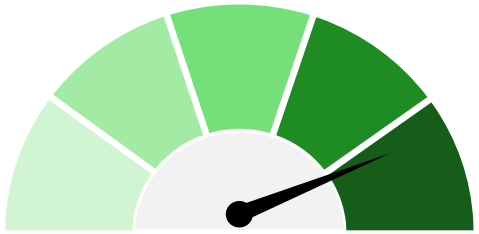
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		• Singapore adopts international guidelines in the management of dengue. Clinical recommendations/guidelines exist for dengue fever and dengue haemorrhagic fever in adults, children, and pregnancy
Physical access to treatment / symptom management services		• Citizens are encouraged by the government to seek medical attention at their primary care doctor if they are displaying symptoms
Financial access to treatment / symptom management services		• Financial access to dengue treatment and management is facilitated through a combination of public healthcare subsidies and insurance options • Singapore's healthcare financing framework, which includes Medisave, Medishield Life, and government subsidies, help mitigate out-of-pocket expenses for citizens and permanent residents. However, there are no specifics regarding the amount covered for dengue and its complications
Resource allocation for dengue patient care management		Budget allocations for dengue patient care management are available, but information on the specific resources allocated are not publicly available

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Singapore can introduce clear budget allocations for dengue-related healthcare and provide transparent details on the extent of financial coverage for treatment and complications. Enhancing public awareness of available financial support and expanding targeted subsidies for high-risk or vulnerable groups could also further improve access to timely care.

Malaysia

Malaysia

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- The government's focus and strategy in tackling dengue in Malaysia has transitioned from vector control alone to integrated approaches, including surveillance systems to monitor dengue vector and dengue cases, and the development of *Wolbachia* mosquito programmes.
- There is significant government investment, both in terms of time and resources, in dengue control, prevention, and management in Malaysia, funded primarily by the treasury.
- Allocation of resources varies by state based on factors such as population density and healthcare access. For instance, urban areas like Klang Valley receive higher funding. Rural states face different needs due to dispersed populations.
- There are three (3) laws and legislation to cover the prevention and control of vector-borne diseases – (i) Destruction of Disease-Bearing Insects Act 1975 (Act 154), (ii) Prevention and Control of Infectious Diseases Act 1988 (Act 342), (iii) Local Government Act 1976 (Act 171).

Key stakeholders

Ministry of Health Malaysia	• Developed the *National Dengue Prevention and Control Strategic Plan 2022-2026* along with various stakeholders from State Health Departments, the Institute of Medical Research (IMR), and the National Public Health Laboratory. The MoH also published the clinical practice guidelines for dengue management.
Malaysia Health Technology Assessment Section (MaHTAS)	• Published the *Integrated Vector Management for Aedes Control* document which outlines Malaysia's approach for dengue prevention and control.
Ministry of Science, Technology, and Innovation (MOSTI)	• Provides grants for research and development in dengue diagnostics and therapeutics.

Abbreviations – MaHTAS: Malaysia Health Technology Assessment Section; MoH: Ministry of Health; MOSTI: Ministry of Science, Technology, and Innovation

Malaysia

Dengue strategies

Pelan Strategik Pencegahan Dan Kawalan Denggi Kebangsaan 2022-2026
(*"National Dengue Prevention and Control Strategic Plan 2022-2026"***)**

The main objectives of the plan are to:

i. Strengthen dengue surveillance systems,

ii. Ensure access to dengue detection, diagnosis, and treatment, and

iii. Strengthen efforts towards dengue prevention and control

In the development of this plan, the previous *National Dengue Prevention and Control Strategic Plan 2016-2020* was reviewed assessing the appropriateness of previous strategies and action plans based on technological developments and current needs. Various key stakeholders from the MoH, State Health Departments, the Institute of Medical Research (IMR), and the National Public Health Laboratory were involved in the preparation of the strategic plan.

Resources, including funding, are allocated based on the initiatives outlined in the national action plan.

Abbreviations – IMR: Institute of Medical Research; MoH: Ministry of Health

Malaysia

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in Malaysia is comprehensive and robust, with various platform and resources available that provide updated dengue-related information to the public on the federal, state and district level. However, awareness and education campaigns are missing out on targeting healthcare providers currently.
Vector control		Integrated Vector Management (IVM) measures are adopted nationally, supported by the MaHTAS. Vector control efforts are consistently monitored by the National CPRC Dengue Operations Room.
Entomological surveillance		The National Public Health Laboratory coordinates vector surveillance efforts in Malaysia. Innovative surveillance initiatives, such as the Unmanned Aerial System (UAS), have also been implemented as part of a collaboration between MoH and MOSTI.
Case reporting		Dengue cases in Malaysia, including suspected cases, are reported and managed through Malaysia's eNotification and eDengue systems, supervised by the Information Management Division of the MoH.
Dengue vaccination		Acceptance rates and willingness (88.4%) of the public to be vaccinated for dengue is high in Malaysia but financial barriers and low awareness of available dengue vaccines might be hindering uptake of dengue vaccines.
Dengue diagnosis		Malaysia trains healthcare providers on dengue management guidelines, with diagnostic services such as rapid tests being available. Diagnostic services are fully-subsidised in the public sector.
Dengue patient care management		Malaysia have clinical guidelines for dengue patient care management, with separate guidelines for the management of adults and children. A team has also been established to ensure compliance of hospitals and clinics to guidelines.
Others		• **Research and development:** There are opportunities for increased investment in research on dengue treatment and diagnostics.

Abbreviations – IVM: Integrated Vector Management; MaHTAS: Malaysia Health Technology Assessment Section; MoH: Ministry of Health; MOSTI: Ministry of Science, Technology and Innovation; UAS: Unmanned Aerial System

Malaysia

ASIA DENGUE Policy Working Group

Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Health education and promotion regarding the prevention of dengue fever is fully integrated into the health system under the Health Education Division in MoH via: • Community involvement through social mobilisation of local resident committees and organisations including Gotong Royongs (clean-up efforts) to destroy hotspot areas by removing larvae and eggs. • Anti-dengue community kiosks which disseminate information to residents about dengue outbreaks in hotspot localities. • Implementation of MoH's dengue control initiatives in hotspot localities with Higher Education Institutions (HEIs). • Optimisation of social media and spreading information about dengue and collaborative network with the local community. • iDengue portal system which distributes up-to-date information about dengue fever to the public.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		• Monitoring and evaluation of dengue prevention and control activities are carried out at the national, state, and district-levels to ensure effective programme implementation. • The National Crisis Preparedness and Response Centre (CPRC) Dengue Operations Room monitors the coverage and effectiveness of dengue prevention and control activities including dengue health education activities.
Educational programs targeted to healthcare providers		There are no education programmes targeted at healthcare providers.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To optimise community awareness and education programmes, the MoH should introduce targeted educational programmes for healthcare providers to bridge the knowledge gap, ensuring HCPs are well-equipped to diagnose, treat, and counsel on dengue prevention and control.

Malaysia

ASIA DENGUE Policy Working Group

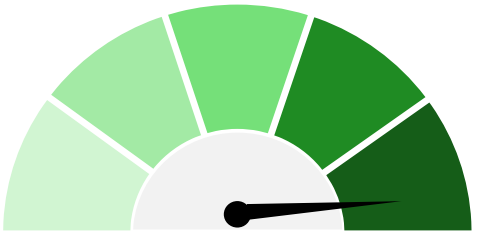
Vector control (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		• **Nationally adopted:** Integrated Vector Management (IVM) for dengue prevention and control is nationally implemented. The Malaysian Health Technology Assessment Section (MaHTAs) published the "Integrated Vector Management For Aedes Control" document.
Vector control education		• The MaHTAs published the "Integrated Vector Management for Aedes Control" document. The IVM approach for dengue prevention and control includes community engagement activities and intersectoral collaboration.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Continued promotion and adoption the IVM strategy, emphasising community engagement, and intersectoral collaboration is essential. Scaling up proven vector control methods, including *Wolbachia* mosquito releases, should remain a priority, with plans for expansion by 2025. Adequate and sustained budget allocations are critical to addressing resource gaps; ensuring funding matches programme needs should be prioritised.

Abbreviations – IVM: Integrated Vector Management; MaHTAS: Malaysia Health Technology Assessment Section

Malaysia

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control measures *(e.g., use of mosquito repellents, water based insecticides, bed nets, or mosquito traps, screening and insecticide-treated materials)*
		✓ **Community-based measures**
		• Source reduction
		• Chemical and biological methods
		  • Adulticiding *(e.g., Thermal Space Spray / Ultra-Low-Volume Space Spray; In monsoon season, frequent fogging (1-2 times) per week is conducted in districts/regions)*
		  • Larviciding
		  • Autodissemination/lethal ovitraps (*e.g., installation of ovitraps and adult mosquito traps on a weekly basis)*
		• *Wolbachia* or genetically modified mosquitoes:
		  • In 2019, *Wolbachia* mosquitoes were released to selected regions, namely peninsular Malaysia, as a replacement method.
		  • As of Jun 2022, *Wolbachia* mosquitoes have been released in 25 localities with high burden areas.
		  • The government is looking to expand the *Wolbachia* project in 2025.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Continued promotion and adoption the IVM strategy, emphasising community engagement, and intersectoral collaboration is essential. Scaling up proven vector control methods, including *Wolbachia* mosquito releases, should remain a priority, with plans for expansion by 2025. Adequate and sustained budget allocations are critical to addressing resource gaps; ensuring funding matches programme needs should be prioritised.

Abbreviations – IVM: Integrated Vector Management; MaHTAS: Malaysia Health Technology Assessment Section

Malaysia

ASIA DENGUE Policy Working Group

Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		• The National CPRC Dengue Operations Room monitors the coverage and effectiveness of dengue prevention and control activities including dengue health education activities.
Resource allocation for vector control		• Latest budget allocations (2022-2026) for vector control are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years. • The amount required for dengue prevention and control activities in 2021 was MYR 31 million (USD 6.5 million). However, due to financial constraints, only MYR 8 million (USD 1.7 million) was allocated to the vector-borne disease sector and disease control division including vector control, under the Ministry of Health. • Malaysia spent an estimated USD 73.5 million (95% CI USD 62.0million, USD 86.3 million) for the national dengue vector control, constituting 0.03% of the country's GDP in 2010 (USD 247.5 billion). 92.2% of these costs were incurred at District Health Department level out of which human resource costs made up 64.8% of total national vector control costs while pesticide, fogging equipment, personal protective equipment (PPE), and outsourced fogging activity made up 19.4% of the total national vector control costs.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Continued promotion and adoption the IVM strategy, emphasising community engagement, and intersectoral collaboration is essential. Scaling up proven vector control methods, including *Wolbachia* mosquito releases, should remain a priority, with plans for expansion by 2025. Adequate and sustained budget allocations are critical to addressing resource gaps; ensuring funding matches programme needs should be prioritised.

Abbreviations – CI: Confidence interval; CPRC: Crisis Preparedness Response Centre; GDP: Gross Domestic Product; MYR: Malaysian Ringgit; PPE: Personal Protective Equipment; USD: United States Dollar

Malaysia

ASIA DENGUE Policy Working Group

Entomological surveillance (1/2)

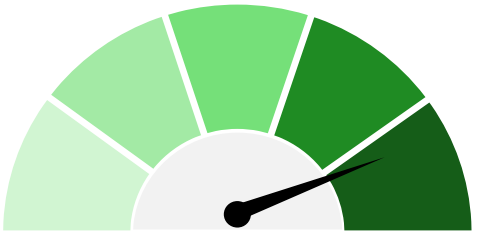
Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		• **Dengue virus surveillance system (DVSS)** is in place to identify current dominant dengue virus serotype. The National Public Health Laboratory acts as a national reference laboratory that coordinates dengue surveillance programmes such as the DVSS and Severe Dengue Surveillance. • Entomological surveillance activities are based on the distribution of recent and past cases. To improve the surveillance system, a new initiative requiring sharing of genotype data for death cases and severe dengue on a monthly basis to Disease Control Division of the MoH including a review of the dengue virus surveillance protocol is being implemented. • **Unmanned Aerial System (UAS):** The use of drones in dengue control activities is a new innovation introduced in a joint discussion between the Engineering Division of the MoH and the Ministry of Science Technology and Innovation (MOSTI). A combination of drone technology is used to observe data such as aquatic habitats and water source mapping from the surface to produce a dengue risk profile in a locality.
Indicators used for surveillance		✓ Container Index (CI) ✓ House Index (HI) ✓ Study of adult mosquitoes (identify population and density): Results include species information, adult mosquito density, spermatozoa status, and parity status × Pupae Index (PI) × Breteau Index (BI)

Abbreviations – DVSS: Dengue virus surveillance system; MOSTI: Ministry of Science, Technology and Innovation; UAS: Unmanned Aerial System

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The MoH should enhance entomological surveillance by strengthening the DVSS. Expanding the use of indicators, such as breteau and pupae indices, will improve outbreak monitoring and forecasting. Sufficient and sustained resource allocation is crucial to support entomological surveillance activities. Additionally, leveraging surveillance data for predictive modelling can help pre-empt outbreaks and guide targeted interventions.

Malaysia

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of entomological surveillance data		Trends of dengue virus serotypes are reported weekly to MoH for monitoring changes in dengue virus serotype.
Utilisation of data for outbreak prevention / forecasting		Any change in certain serotypes identified will be notified to the State Health Department as a preparatory step to face an increase in cases and outbreaks and to enhance prevention and control measures.
Resource allocation for entomological surveillance		• Latest budget allocations (2022-2026) for entomological surveillance are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years. • The amount required for dengue prevention and control activities in 2021 was RM31 million (USD$6.5 million). However, due to financial constraints, only RM8 million (USD$1.7 million) was allocated to the vector-borne disease sector and disease control division including entomological surveillance, under the Ministry of Health.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

The MoH should enhance entomological surveillance by strengthening the DVSS. Expanding the use of indicators, such as breteau and pupae indices, will improve outbreak monitoring and forecasting. Sufficient and sustained resource allocation is crucial to support entomological surveillance activities. Additionally, leveraging surveillance data for predictive modelling can help pre-empt outbreaks and guide targeted interventions.

Abbreviations – MoH: Ministry of Health

Malaysia

ASIA DENGUE Policy Working Group

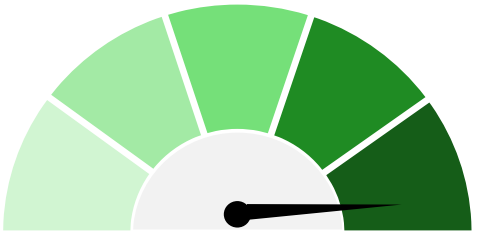
Case reporting (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		• **eNotification system:** Widely disease notification system used in all government and private health facilities. Case registration is made according to the address of the source of infection. However, if the source of infection cannot be identified, registration is based on the current address of the case's residence. Furthermore, in order to address the issue of dengue case classification discrepancies, a new initiative to re-align the classification of dengue cases in the Malaysian eCDC system with WHO's classification will be implemented. *(Note: No information on what eCDC stands for).* • **eDengue system:** A case management and data reporting system for healthcare professionals. Under the supervision of the Information Management Division of the MoH. Technical meetings are held periodically to monitor and prevent system failures, conduct system and data security control, software upgrades, technical review of logs and capacity planning for the server system.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Case reporting in Malaysia is near optimisation with comprehensive and robust surveillance systems mandating immediate notification of cases. Malaysia is actively working to further improve its surveillance systems, particularly addressing issues on dengue classification discrepancies. Establishing a digital death registry could further enhance case reporting national efforts and improve mortality tracking.

Malaysia

ASIA DENGUE Policy Working Group

Case reporting (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Indicators used for surveillance		The following indicators are used: ✓ Suspected cases • All cases of suspected dengue fever must be notified by a medical practitioner within 24 hours to the nearest district health office. ✓ Confirmed cases • Since 2014, cases that meet the clinical definition and laboratory tests (positive NS1 test/dengue serology IgM/IgG/PCR/dengue virus isolation) must be registered in the eNotification system. ✓ Dengue-related deaths recorded by state • For every dengue death, case registration must be entered in the eDengue system within 3 days after the date of death. × Circulating serotypes
Frequent and timely collection of patient surveillance data		• To ensure that the registration of dengue cases is carried out in an orderly manner and real-time, the eDengue system was developed in 2009. • Under the Prevention and Control of Infectious Diseases Act 1998 (Act 342), all cases of suspected dengue fever must be notified by a medical practitioner within 24 hours to the nearest district health office.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Case reporting in Malaysia is near optimisation with comprehensive and robust surveillance systems mandating immediate notification of cases. Malaysia is actively working to further improve its surveillance systems, particularly addressing issues on dengue classification discrepancies. Establishing a digital death registry could further enhance case reporting national efforts and improve mortality tracking.

Malaysia

ASIA DENGUE Policy Working Group

Case reporting (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		• The eDengue system can detect outbreaks automatically • Integrated with eNotification system, Dengue Outbreak Management System, and iDengue system.
Resource allocation for case reporting		• Latest budget allocations (2022-2026) for case reporting are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Case reporting in Malaysia is near optimisation with comprehensive and robust surveillance systems mandating immediate notification of cases. Malaysia is actively working to further improve its surveillance systems, particularly addressing issues on dengue classification discrepancies. Establishing a digital death registry could further enhance case reporting national efforts and improve mortality tracking.

Malaysia

ASIA DENGUE Policy Working Group

Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		International clinical guidelines for dengue vaccination are adopted nationally • Dengue vaccines are approved for use in individuals aged ≥4 years old and requires 2 doses to be administered 3 months apart regardless of whether they have previously been infected with the dengue virus.
Physical access to vaccines		The Drug Control Authority (DCA) granted conditional approval of Takeda's Qdenga vaccine; the vaccine is available in most private hospitals and clinics.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in the NIP.
Financial access to vaccines		• Dengue vaccines are paid fully out-of-pocket in the private sector. • Private clinics are overcharging for the vaccine with Qdenga being offered at some clinics for more than MYR500 (~USD112) for two doses. • Individuals who get vaccinated (incl. dengue vaccination) are eligible for income tax reliefs of up to MYR10,000 (~USD2,240).
Knowledge and awareness of dengue vaccination		The public has very little knowledge / awareness of dengue vaccines.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To improve the uptake of dengue vaccines, the MoH should consider subsidising vaccines to minimise OOP followed by including in the NIP. Increasing public awareness of dengue vaccines through targeted campaigns and education to fill the knowledge gaps is essential, particularly given the high willingness to vaccinate. Additionally, the government should consider supporting research efforts to sustain long-term dengue prevention efforts, generate evidence-based insights on dengue vaccines, and dengue prophylaxis/treatment.

Abbreviations – DCA: Drug Control Authority; MoH: Ministry of Health; MYR: Malaysian Ringgit; NIP: National Immunisation Programme; OOP: Out of pocket; USD: United States Dollar

Malaysia

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Willingness to be vaccinated		According to a systematic review and meta-analysis of questionnaire-based studies in Malaysia, the acceptance rate for a dengue vaccine was high at 88.4%. Public misinformation about dengue vaccines hampers uptake. *Information on dengue vaccine uptake not available*
Research and advocacy for new vaccines and prophylaxis methods / R&D		MaHTAs conducted horizon scanning of the Qdenga vaccine and published a report in 2020 to assess the efficacy and cost-effectiveness of the vaccine The Dengue Alliance, a global partnership spearheaded by institutions in dengue-endemic countries, is driving critical preclinical research for dengue treatments, evaluating the efficacy of repurposed drug candidates, and conducting clinical trials for the most promising dengue treatments.
Resource allocation for dengue vaccination		• Latest budget allocations (2022-2026) for dengue vaccination are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years. • Selangor recently allocated RM 4Mn (~USD 900k) in the 2025 national budget for dengue control and prevention. The state intends to implement a dengue vaccination programme.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To improve the uptake of dengue vaccines, the MoH should consider subsidising vaccines to minimise OOP followed by including in the NIP. Increasing public awareness of dengue vaccines through targeted campaigns and education to fill the knowledge gaps is essential, particularly given the high willingness to vaccinate. Additionally, the government should consider supporting research efforts to sustain long-term dengue prevention efforts, generate evidence-based insights on dengue vaccines, and dengue prophylaxis/treatment.

Abbreviations – MaHTAS: Malaysia Health Technology Assessment Section

Malaysia

ASIA DENGUE Policy Working Group

Dengue diagnosis (1/2)

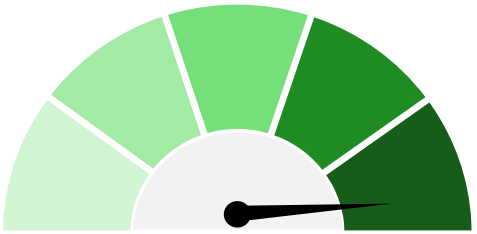
Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians		Periodic training on the treatment and management of dengue fever is conducted for healthcare professionals across all health facilities to their competence remains at an optimal level. *Information on training frequency not available*
Existence and adoption of dengue clinical guidelines		Malaysia has local clinical guidelines for dengue diagnosis which are typically updated every 5 years. • 2015: Management of dengue infection in adults (3rd edition) • 2020: Management of dengue in children (2nd edition) *NOTE: These also provide guidance on patient care management*
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) • In 2014, MoH procured and supplied Dengue NS1 antigen and IgM/IgG diagnostic test kits to all State Health Departments for use at district health clinics; however, these are only available in primary care clinics.

Abbreviations – IMR: Institute of Medical Research; MoH: Ministry of Health

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Malaysia has a solid foundation for dengue diagnosis and management, with regular training of healthcare providers. To further optimise dengue management, clinical guidelines should be consistently monitored and updated to align with latest clinical evidence. Furthermore, to minimise financial barriers and increase uptake of services by the public for early detection, the government should consider integrating diagnostic services into education campaigns. Furthermore, policymakers should consider exploring local diagnostic manufacturing capabilities.

Malaysia

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		Dengue diagnosis is fully subsidised in the public sector while the private sector requires patients to pay fully OOP
Research and advocacy for innovative diagnostics / R&D		The Ministry of Science, Technology, and Innovation (MOSTI) offers various grants to support research and development initiatives focused on diagnostics and therapeutics.
Resource allocation for dengue diagnosis		• Latest budget allocations (2022-2026) for dengue diagnosis and case management are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Malaysia has a solid foundation for dengue diagnosis and management, with regular training of healthcare providers. To further optimise dengue management, clinical guidelines should be consistently monitored and updated to align with latest clinical evidence. Furthermore, to minimise financial barriers and increase uptake of services by the public for early detection, the government should consider integrating diagnostic services into education campaigns. Furthermore, policymakers should consider exploring local diagnostic manufacturing capabilities.

Abbreviations – MOSTI: Ministry of Science, Technology, and Innovation; OOP: Out of pocket

Malaysia

ASIA DENGUE Policy Working Group

Dengue patient care management (1/3)

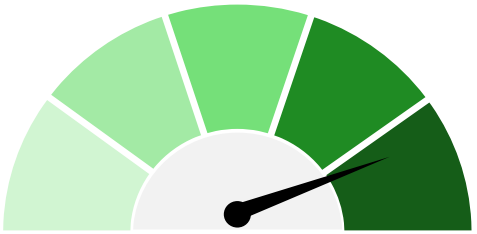
Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Existence and adoption of dengue clinical guidelines		• Local clinical practice guidelines (CPG) for dengue management is available nationally which are typically updated every 5 years
		  • 2015: Management of dengue infection in adults (3rd edition)
		  • 2020: Management of dengue in children (2nd edition)
		NOTE: These also provide guidance on dengue diagnosis
		• All members involved in the treatment of dengue fever must undergo CPG training related to dengue fever. The training programme is coordinated by the Medical Development Division and the Family Health Development Division of the MoH.
		• The "Dengue Champion" was established to ensure clinical management of cases in hospitals and health clinics comply with treatment standards based on CPG.
		  • Consists of Clinical Medical Specialists in each state and the Dengue Management Team at hospitals.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen dengue clinical management, the MoH should continue enforcing compliance with national CPGs through comprehensive training for healthcare providers, including expansion of the "Dengue Champion" programme to all hospitals and clinics. Providing clear financial pathways for dengue treatment, such as subsidies or insurance coverage, will improve equity in access.

Abbreviations – CPG: Clinical Practice Guideline; MoH: Ministry of Health

Malaysia

ASIA DENGUE Policy Working Group

Dengue patient care management (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Physical access to treatment / symptom management services		• Every dengue fever patient who received outpatient treatment will be provided with a dengue patient monitoring record card as a guide for home care and required to return to the hospital/clinic for follow-up treatment. • Every patient who needs further treatment is referred to a designated referral facility. Patients who require intensive treatment are referred to a referral hospital (e.g., general hospital, specialist hospital / university hospital). The cluster hospital system was created for the purpose of referral from non-specialist hospitals to specialist hospital in nearby areas.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen dengue clinical management, the MoH should continue enforcing compliance with national CPGs through comprehensive training for healthcare providers, including expansion of the "Dengue Champion" programme to all hospitals and clinics. Providing clear financial pathways for dengue treatment, such as subsidies or insurance coverage, will improve equity in access.

Abbreviations – CPG: Clinical Practice Guideline; MoH: Ministry of Health

Malaysia

ASIA DENGUE Policy Working Group

Dengue patient care management (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to treatment / symptom management services		Public hospitals provide free or highly subsidised symptom management services. *Information on coverage not available*
Resource allocation for dengue patient care management		• Latest budget allocations (2022-2026) for dengue patient care management are available but information on specific resources allocated not available. • The Government allocates funds to manage programmes and initiatives across 5 years

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen dengue clinical management, the MoH should continue enforcing compliance with national CPGs through comprehensive training for healthcare providers, including expansion of the "Dengue Champion" programme to all hospitals and clinics. Providing clear financial pathways for dengue treatment, such as subsidies or insurance coverage, will improve equity in access.

Indonesia

Indonesia

Prioritisation of Dengue

- The Indonesian government has increased its prioritisation of dengue management over the past 5 years, particularly through vaccine campaigns and vector control initiatives, such as the development of *Wolbachia* mosquito programmes
- There is allocation of resources and funding for dengue management initiatives; however, specific funding allocations for different pillars of dengue management are not publicly disclosed
- There are eight laws and legislation to cover the control of vector-borne diseases and its complications, which includes – Law No. 4 of 1984 on Communicable Disease Outbreaks, Minister of Home Affairs Decree No. 31-VI of 1994 on the Establishment of Operational Working Groups for Dengue Hemorrhagic Fever Eradication, Minister of Health Regulation No. 1501 of 2010 on Certain Types of Communicable Diseases That Can Cause Outbreaks and Their Control Efforts and Minister of Health Regulation No. 82 of 2014 on the Control of Communicable Diseases

Key stakeholders

Ministry of Health Indonesia	• Led the development of Indonesia's *National Strategy for Dengue Control 2021–2025* through the Directorate General of Disease Prevention and Control, overseeing the overall strategy development and implementation.
Center for Tropical Medicine, Universitas Gadjah Mada (CTM UGM)	• Collaborated in organising intersectoral discussions and literature reviews, contributing academic and research expertise

Abbreviations – CTM UGM: Center for Tropical Medicine, Universitas Gadjah Mada

Indonesia

Dengue strategies

Strategi Nasional Penanggulangan Dengue 2021 – 2025
(*"National Strategy for Dengue Control 2021 – 2025"***)**

The strategy aims to reduce public health burden of dengue through six key areas:

i. Enhance effective, safe, and continuous vector management,
ii. Improve access to and quality of dengue case management,
iii. Strengthen comprehensive dengue surveillance and responsive outbreak management
iv. Increase sustainable community engagement
v. Strengthen government commitment, policy and programme management, and partnership, and
vi. Improve assessment, invention, innovation, and research as the basis of evidence-based policy and programme management

The national strategy was developed through a collaborative effort involving multiple stakeholders. Initial meetings with the Sub-Directorate of Arboviruses, cross-program teams, consultants, and experts first outlined the drafting process. Workshops and focus group discussions then identified key challenges, with the strategy document finalised after thorough consultations and reviews.

The government is currently in the process of reviewing and updating the next edition of the strategy, and it is expected to be published this year.

Indonesia

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Prevention of dengue is done through socio-anthropological approaches, while continuous training workshops improve healthcare worker capacity; however, there remains a lack of mechanisms to assess program effectiveness remain unavailable
Vector control		Budget of IDR 258 billion has been allocation for vector control, with dengue prevention programmes and measures nationally adopted.
Entomological surveillance		Indonesia adopts a robust entomological system; however, specific allocations for entomological surveillance and its transparency of surveillance indicators and data used for outbreak prevention or forecasting are not clearly defined.
Case reporting		Indonesia has implemented several interventions for dengue surveillance under Strategy 3 of 'National Strategy for Dengue Control'. However, reports typically look at dengue hemorrhagic fever cases which may not be an accurate representation of the true disease burden.
Dengue vaccination		Indonesians have increasing awareness of dengue vaccination; however, approved vaccines like Qdenga and Dengvaxia are also not part of the national immunisation program and remain optional.
Dengue diagnosis		Dengue diagnosis is widely adopted in clinical guidelines, but gaps remain in access to diagnostic facilities, with primary healthcare centers lacking adequate laboratory capacity.
Dengue patient care management		Treatment and symptom management services are partially subsidised in Indonesia, with a budget of IDR 63 billion allocated to improve access and quality of dengue care management and diagnosis.

Indonesia

ASIA DENGUE Policy Working Group

Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Indonesia has enhanced dengue prevention efforts through socio-anthropological approaches and widespread dissemination of information to at-risk groups. • The Ministry of Health launched a dengue education car in July 2022 which operated at 100 locations, targeting elementary schools, markets, hospitals, and community groups in cities. • Tailored messages are disseminated, particularly in rural areas, through various platforms including leaflets and social media • Local engagement is strong in the community, where volunteer cadres organise clean-up efforts about once every month. However, sustainability concerns have arisen likely due to a lack of incentives for volunteers.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		There has been no structured monitoring and evaluation system in place.
Educational programs targeted to healthcare providers		Continuous training workshops have been held at primary health facilities to enhance the capacity of healthcare workers to manage dengue cases.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

Indonesia can enhance dengue community awareness and education by incorporating dengue prevention into school curriculums to promote early literacy on the topic and implementing regular training programs for healthcare workers to strengthen their knowledge of dengue prevention. The government should also develop mechanisms to evaluate the effectiveness of awareness campaigns and educational initiatives, ensuring their sustainability and effectiveness for the public.

Indonesia

ASIA DENGUE Policy Working Group

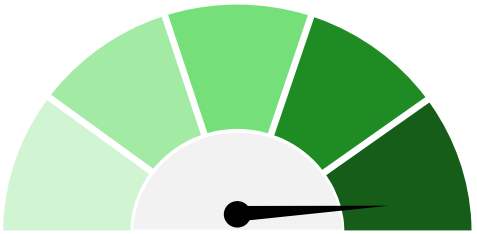
Vector control (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		**Nationally Adopted:** The Directorate of Infectious Disease Prevention manages developing infectious diseases such as dengue, under the program 'P2M (Penanggulangan Kejadian Luar Biasa Penyakit Menular)'. • Community participation is encouraged through the "3M Plus" strategy to cover, drain and dispose of water sources at homes.
Vector control education		Efforts to enhance community understanding are conducted through outreach initiatives and collaborations with educational institutions and workplaces. • According to the Dengue Fever Disease Control Program, its Health Office coordinated "Fogging, Monitoring and Evaluation" activities aiming to evaluate the implementation of proper fogging according to procedures. • Under the Gerakan 1 Rumah 1 Jumantik (G1R1J) program, all family members are to monitor and eradicate mosquito larvae. • Trained volunteers (Jumantik) from the communities help to monitor the areas and educate the public on dengue prevention and control.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen current initiatives for vector control, it is essential to continue implementing, evaluating and scaling up of community-driven activities to encourage vector control, supported by health volunteers for sustained long-term behavioral change. The government can also consider investing more in expanding vector control innovative measures nationally and efficiently allocating resources for targeted interventions (especially in high-risk areas).

Indonesia

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control products (e.g., topical repellents)
		✓ **Community-based measures**
		• Source reduction
		• Chemical methods:
		  • Adulticiding *(e.g., fogging)*
		  • Larvaciding
		• Biological methods *(e.g., larvivorous fish)*
		• *Wolbachia* or genetically modified mosquitoes:
		  • In partnership with the World Mosquito Program, the first trial of releasing Wolbachia mosquitoes was successfully completed in 2020, resulting in a 77% reduction in dengue cases within the targeted areas.
		  • Given the program's high success rate, plans are underway to expand it to 25 additional cities, although the implementation timeline and preparatory measures are still being discussed.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen current initiatives for vector control, it is essential to continue implementing, evaluating and scaling up of community-driven activities to encourage vector control, supported by health volunteers for sustained long-term behavioral change. The government can also consider investing more in expanding vector control innovative measures nationally and efficiently allocating resources for targeted interventions (especially in high-risk areas).

Indonesia

ASIA DENGUE Policy Working Group

Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		Performance & impact Indicators for the 2021-2025 dengue control program include: • Epidemiological metrics such as incidence rate and mortality rates of dengue. • Operational indicators such as coverage of interventions (e.g., fogging, larviciding, public education) and utilization rate of community interventions like insecticide-treated nets. • Program-specific indicators such as utilisation rate of mobile health units and reduction in dengue incidence of *Wolbachia* program.
Resource allocation for vector control		The highest estimated budget allocation is for dengue prevention under "Strategy 1 - Vector Management" of the 'National Strategy for Dengue Control', amounting to ~IDR 259 billion (USD 16 million).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen current initiatives for vector control, it is essential to continue implementing, evaluating and scaling up of community-driven activities to encourage vector control, supported by health volunteers for sustained long-term behavioral change. The government can also consider investing more in expanding vector control innovative measures nationally and efficiently allocating resources for targeted interventions (especially in high-risk areas).

Abbreviations – IDR: Indonesian Rupiah; USD: United States Dollar

Indonesia

ASIA DENGUE Policy Working Group

Entomological surveillance (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		The current dengue surveillance system incorporates suspect case reporting through the Early Warning Alert and Response System (EWARS). • Efforts are underway to update the guidelines for surveillance, as well as enhancing the reporting system through reporting activities and primary health facilities.
Indicators used for surveillance		Indicators for dengue surveillance have been referenced for use nationwide; however, information regarding the indicators are limited. • Common indicators for surveillance such as Container Index (CI), Pupae Index (PI), House Index (HI) and Breteau Index (BI) are used for entomological surveillance. • Other indicators include: Positive House Index (PHI), Free Larvae Index (FLI) Ovitrap Index (OI), and Ovitrap Density Index (ODI).
Frequent and timely collection of entomological surveillance data		Greater emphasis is being placed on case reporting, with lower frequency of entomological surveillance data published. • Efforts are focused on improving compliance with the 24-hour reporting requirement for dengue suspects and diagnoses. • Example initiatives include developing a robust dengue surveillance network to enhance coordination between primary health facilities and hospitals.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

Indonesia should ensure consistency in data collection and reporting for the adopted indicators nationwide. A national framework should also be established to regularly publish entomological surveillance data, which would facilitate outbreak prevention and forecasting efforts for dengue control. Lastly, transparency in budget allocation for entomological activities could be considered to help efficiently identify and allocate areas that require greater investment.

Abbreviations – BI: Breteau index, CI: container index, EWARS: early warning alert and response system, FLI: free larvae index, HI: house index, ODI: ovitrap density index, OI: ovitrap index, PHI: positive house index, PI: pupae index

Indonesia

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		Entomological surveillance data is utilised for forecasting, but it is not publicly available.
Resource allocation for entomological surveillance		The funding allocated under Strategy 1 of the 'National Strategy for Dengue Control' includes vector surveillance activities; however, the exact amount designated for entomological surveillance is not clearly outlined.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Indonesia should ensure consistency in data collection and reporting for the adopted indicators nationwide. A national framework should also be established to regularly publish entomological surveillance data, which would facilitate outbreak prevention and forecasting efforts for dengue control. Lastly, transparency in budget allocation for entomological activities could be considered to help efficiently identify and allocate areas that require greater investment.

Indonesia

ASIA DENGUE Policy Working Group

Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		Under Strategy 3 of the 'National Strategy for Dengue Control', several interventions have been designed: • Enhancing early warning systems for dengue • Strengthening the integrated dengue data management system • Building regional capacity for responsive outbreak management
Indicators used for surveillance		✓ Suspected cases – including hospitalised patients and those with clinical manifestations of dengue ✓ Confirmed cases – through serological examination, antigen detection, and PCR ✓ Dengue-related deaths for each district and city × Circulating serotypes The government generally reports dengue hemorrhagic fever cases rather than total dengue infections, which would provide a more accurate representation of the true disease burden
Frequent and timely collection of patient surveillance data		Reports are published weekly but are restricted to internal use and not publicly accessible

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To improve dengue case reporting, it is recommended to include reporting of total dengue infections for a better representation of the disease burden. Additionally, the development of a real-time digital platform for patient data collection, integrated with predictive analytics tools, is essential to enable effective outbreak forecasting. Investments should also be directed toward capacity building for health workers in surveillance, ensuring that the allocated budget is used effectively to create a robust and responsive reporting system.

Abbreviations – PCR: Polymerase chain reaction

Indonesia

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		Data is utilised for outbreak prevention, but it is not publicly available.
Resource allocation for case reporting		The surveillance system was strengthened to enable early detection of dengue cases, facilitate rapid response, and improve preparedness and management of extraordinary events, supported by a budget allocation of IDR 28 billion (USD 1.7 million).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To improve dengue case reporting, it is recommended to include reporting of total dengue infections for a better representation of the disease burden. Additionally, the development of a real-time digital platform for patient data collection, integrated with predictive analytics tools, is essential to enable effective outbreak forecasting. Investments should also be directed toward capacity building for health workers in surveillance, ensuring that the allocated budget is used effectively to create a robust and responsive reporting system.

Abbreviations – IDR: Indonesian Rupiah; USD: United States Dollar

Indonesia

ASIA DENGUE Policy Working Group

Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		According to the 'National Strategy for Dengue Control', dengue clinical guidelines align with international standards and have been integrated into broader vector-borne disease management strategies • Guidelines are designed to be adaptable for use in various healthcare settings, including primary health facilities and hospitals
Physical access to vaccines		Dengue vaccines (Qdenga and Dengvaxia) have a distribution permit in Indonesia for those aged 6 to 45 years regardless of prior dengue exposure • A dengue vaccine pilot programme is currently being rolled out in East Kalimantan, initiating the programme at elementary schools in Balikpapan. As of Oct 2024, 90% of the target population in Balikpapan have been vaccinated. The initiative has been expanded to Samarinda City. The East Kalimantan Provincial Health Office reaffirmed its commitment to advancing this initiative.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in the NIP
Financial access to vaccines		Vaccines can be obtained at several private hospitals; however, they remain an optional immunisation and are not currently supported by government funding allocations

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

It is recommended for Indonesia to incorporate dengue vaccines into the national immunisation program, complemented by the development of a comprehensive distribution network that prioritises underserved and high-risk areas to enhance vaccine accessibility. Public awareness campaigns should also be strengthened to educate the public about the availability, safety, and benefits of dengue vaccines, increasing vaccination rates across the country.

Abbreviations – NIP: national immunisation programme

Indonesia

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Knowledge and awareness of dengue vaccination		There is a relatively low awareness of dengue vaccination in the nation. 49% of Indonesians were knowledgeable about dengue disease, but only 26% were aware of vaccines. • Campaigns have been rolled out to improve awareness among the public and healthcare practitioners.
Willingness to be vaccinated		The willingness to receive the vaccine was moderate, with 62% of individuals expressing willingness to be vaccinated in Indonesia.
Research and advocacy for new vaccines and other prophylaxis methods / R&D		Under section 2.7 of the 'National Strategy for Dengue Control', a roadmap will be created leveraging the outcomes of inventions, innovations, and research to enhance dengue prevention strategies, including advancements such as vaccines. • However, details about vaccine research outlined in the roadmap have not been made publicly available.
Resource allocation for dengue vaccination		A budget of IDR 34 billion (USD 2 million) has been allocated for dengue vaccination initiatives under section 6 of the 'National Strategy for Dengue Control'.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

It is recommended for Indonesia to incorporate dengue vaccines into the national immunisation program, complemented by the development of a comprehensive distribution network that prioritises underserved and high-risk areas to enhance vaccine accessibility. Public awareness campaigns should also be strengthened to educate the public about the availability, safety, and benefits of dengue vaccines, increasing vaccination rates across the country.

Abbreviations – IDR: Indonesian Rupiah; USD: United States Dollar

Indonesia

ASIA DENGUE Policy Working Group

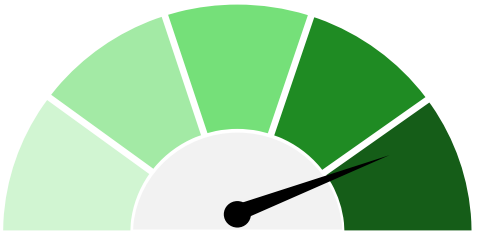
Dengue diagnosis (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians		Seminars for healthcare practitioners are conducted regularly each year. • MOH organises an annual training for relevant personnel, including laboratory technicians.
Existence and adoption of dengue clinical guidelines		Guidelines used for the diagnosis and management of dengue in Indonesia include: • Dengue Guidelines for Diagnosis, Treatment, Prevention and Control (WHO, 2009) • Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Hemorrhagic Fever (WHO, 2011) • Indonesia Guidelines for Prevention and Control of Dengue Fever in Indonesia (2017)

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Indonesia can consider prioritising the equipping of primary care facilities with essential diagnostic tools and ensure regular training programs for healthcare providers. Additionally, a portion of the allocated budget should be directed towards R&D initiatives to foster innovation in diagnostic technologies and ensure access even to remote areas. Providing a detailed funding breakdown can improve accountability and enable focused efforts to strengthen diagnostic infrastructure and capacity.

Abbreviations – MoH: Ministry of Health, NA: not applicable, WHO: World Health Organisation

Indonesia

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) According to the 2017 guidelines, dengue diagnosis is based on clinical criteria and laboratory methods in Indonesia. • This includes anti-dengue serological tests, dengue non-structural antigen-1 (NS1) detection, or PCR • Guidelines also mention the availability of rapid tests, such as Dengue Rapid Strip Test, with the ELISA examination principle

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Indonesia can consider prioritising the equipping of primary care facilities with essential diagnostic tools and ensure regular training programs for healthcare providers. Additionally, a portion of the allocated budget should be directed towards R&D initiatives to foster innovation in diagnostic technologies and ensure access even to remote areas. Providing a detailed funding breakdown can improve accountability and enable focused efforts to strengthen diagnostic infrastructure and capacity.

Abbreviations – ELISA: enzyme-linked immunosorbent assay, NS1: non-structural antigen-1, PCR: polymerase chain reaction

Indonesia

ASIA DENGUE Policy Working Group

Dengue diagnosis (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		Primary healthcare facilities in Indonesia should be equipped with haematology analysers capable of performing routine blood tests, including leukocyte counts, hematocrit levels, and platelet counts. • However, at present, not all primary care services have laboratories with the capacity to conduct these tests. Rapid diagnostic tests are provided free of charge to public health centers at the district level.
Research and advocacy for innovative diagnostics / R&D		While there is strong advocacy for enhancing diagnostic capabilities in hospitals, there remains a significant gap in initiatives and funding for research, development, and innovation in diagnostic technologies.
Resource allocation for dengue diagnosis		An allocation of IDR 63 billion (USD 3.9 million) has been designated under Strategy 2 of the 'National Strategy for Dengue Control', focusing on enhancing access to and improving the quality of dengue diagnosis and management.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Indonesia can consider prioritising the equipping of primary care facilities with essential diagnostic tools and ensure regular training programs for healthcare providers. Additionally, a portion of the allocated budget should be directed towards R&D initiatives to foster innovation in diagnostic technologies and ensure access even to remote areas. Providing a detailed funding breakdown can improve accountability and enable focused efforts to strengthen diagnostic infrastructure and capacity.

Abbreviations – IDR: Indonesian Rupiah; USD: United States Dollar

Indonesia

ASIA DENGUE Policy Working Group

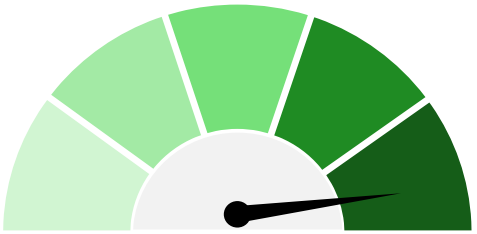
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Clinical Practice Guidelines (PPK) for dengue infection are made available in all primary-level health facilities (e.g., using IMCI charts) through dedicated PPK development workshops
Physical access to treatment / symptom management services		Patients can receive dengue treatment and symptom management services from public and private healthcare facilities • Dengue treatment capabilities are established in local health centers to reduce reliance on higher-tier facilities • Access is further improved through mobile health units in hard-to-reach areas
Financial access to treatment / symptom management services		The cost of treatment may be subsidised or fully covered; however, some out-of-pocket expenses could arise depending on the level of service and the specific healthcare facility
Resource allocation for dengue patient care management		An allocation of IDR 63 billion (USD 3.9 million) has been designated for Strategy 2, focusing on enhancing access to and improving the quality of dengue diagnosis and management.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen dengue patient care management, the nation can prioritise equitable resource distribution to ensure that rural and underserved areas have access to necessary medical supplies, diagnostics, and trained healthcare personnel. Indonesia can also consider investing more in resources, implementing measures to further reduce out-of-pocket expenses, such as waiving fees for essential dengue-related services or providing transport subsidies for rural patients.

Abbreviations – IDR: Indonesian Rupiah; IMCI: Integrated Management of Childhood Illness; PPK: Pedoman Praktik Klinis; USD: United States Dollar;

Thailand

Thailand

Prioritisation of Dengue

- Thailand has intensified dengue management efforts through a multifaceted approach, focusing on both vector control and vaccination campaigns to reduce dengue incidence
- There is allocation of resources and funding for dengue management initiatives; however, specific funding allocations for different pillars of dengue management are not publicly disclosed
- There are two main laws and legislations to cover the control of vector-borne diseases and their complications, which includes – International Health Regulations (IHR) 2005, Communicable Diseases Act, B.E. 2558 (2015), as well as local governments' legislations for vector-borne diseases' control

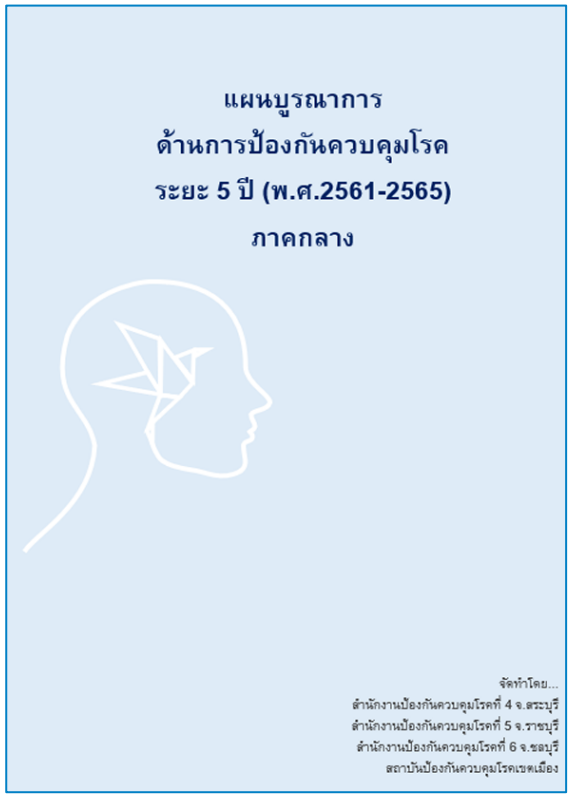
Key stakeholders

Ministry of Public Health Thailand	• Led the formulation and implementation of dengue prevention and control policies, particularly through the Department of Disease Control
Academic and Research Institutions	• Universities and research centers such as Mahidol University and Thammasat University contribute to the national strategy by providing evidence-based insights and developing innovative control measures

Abbreviations – IHR: International Health Regulations

Thailand

Dengue strategies



Second Phase (2023-2027) of the International Cooperation Action Plan on Disease and Health Hazard Prevention and Control

The action plan outlines Thailand's strategic objectives and collaborative efforts in managing diseases, including vector-borne illnesses like dengue. Objectives pertinent to dengue include:

i. Strengthening international collaboration,
ii. Capacity building,
iii. Integrated surveillance systems,
iv. Community engagement and education, and
v. Policy development and implementation

Thailand's Department of Disease Control (DDC) developed the national plan in alignment with WHO's global strategy, reinforcing its commitment to a cohesive and effective approach to addressing the growing threat of dengue and other arboviral diseases.

Abbreviations – DDC: Department of Disease Control

Thailand

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Educational programs are embedded in the national curricula to raise awareness among children. Health volunteers are also active in villages to educate communities on dengue prevention.
Vector control		Dengue prevention measures are nationally adopted, which includes training Ecohealth volunteers to carry out vector-control activities and environmental management initiatives. However, more funding is required to sustain programs, including innovative methods such as the pilot *Wolbachia* program
Entomological surveillance		Investigations are routinely conducted in endemic areas and indicators are used for monitoring. However, limited budget allocations for entomological surveillance hinder its sustainability.
Case reporting		Thailand employs a national surveillance system to track and report dengue cases, risk clusters and even reporting delays. However, there is an absence of a dengue death registry and budget allocations for patient surveillance are not clearly stated.
Dengue vaccination		There is growing optimism in Thailand to be vaccinated; however, more efforts are required to roll-out dengue vaccines nationwide and potentially include the vaccines in NIP.
Dengue diagnosis		Local clinical guidelines are adopted for dengue diagnosis and management, with training for healthcare professionals provided. However, budget allocations for dengue diagnosis are not clearly stated.
Dengue patient care management		Thailand has established guidelines for treatment and symptom management, with services fully covered. However, budget allocations for dengue patient care management are not clearly stated.

Abbreviations – NIP: national immunisation programme

Thailand

ASIA DENGUE Policy Working Group

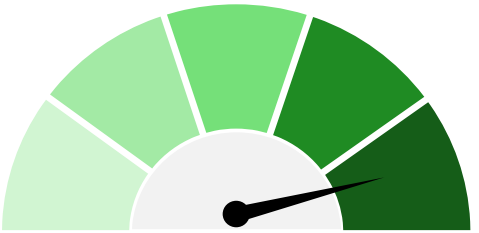
Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Score	Description
Availability of public education programs and support resources		Most villages in Thailand have health volunteers dedicated to educating the communities on dengue prevention. Moreover, dengue education is part of the school curriculum to raise awareness among children. • The National 5-Year Integrated Plan for Dengue Control aims to build health literacy on mosquito-borne diseases among primary and secondary school students.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		Within the National 5-Year Integrated Plan for Dengue Control , a section of the budget has been given to monitoring and evaluating the curriculum for mosquito-borne diseases.
Educational programs targeted to healthcare providers		As outlined in Activity 1.2 of the National 5-Year Integrated Plan for Dengue Control, training is conducted for healthcare professionals managing dengue patients.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Thailand should further strengthen community awareness and education efforts to ensure its effectiveness and sustainability. This can include conducting more targeted campaigns addressing common misconceptions, important knowledge about dengue disease, and encouraging community-driven mosquito control initiatives, such as having more residents checking for possible mosquito breeding spots.

Thailand

ASIA DENGUE Policy Working Group

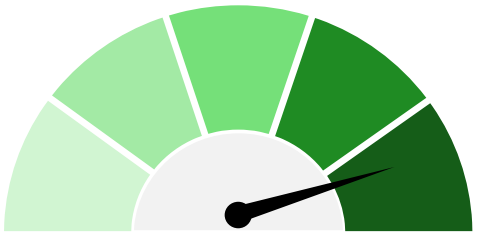
Vector control (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Score	Description
Environmental management initiatives implemented		**Nationally Adopted:** • Ecohealth volunteers are trained to carry out vector-control activities, including waste management on public properties. • Other vector control activities by the government include spraying insecticides and addressing water leakage issues. • However, climate change has led to an increase in mosquito breeding and growth, making it challenging to sustain control efforts.
Vector control education		Educational programs focused on sustainable vector control methods are in development: • A collaborative network has been established to monitor, prevent, and control waterborne diseases through public communication efforts. • A Vector Control Unit was created within the Communicable Disease Control Unit, in accordance with the Communicable Disease Act B.E. 2558. • A program tailored for the Lua minority ethnic group educated the community on vector control methods and increased awareness of dengue disease. However, it is observed that maintaining engagement and awareness during non-outbreak periods can be challenging.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Given the effects of climate change increasing mosquito breeding and growth, Thailand could strengthen public-private partnerships in the country to promote innovative pilot programs such as the *Wolbachia* project, as well as increase funding and resources for such projects. Further efforts are also required to improve vector control education, which could include community workshops and digital tools to build awareness, and empower citizens to take proactive measures against dengue

Thailand

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Score	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control products *(e.g., spatial repellents, mosquito nets and mosquito traps 'Leotrap')*
		✓ **Community-based measures**
		• Source reduction
		• Chemical methods
		  • Adulticiding *(e.g., fogging)*
		  • Larviciding
		• Biological methods *(e.g., predacious copepods)*
		
		Pilot Programmes:
		• In 2016, Chachoengsao Province introduced *Wolbachia* mosquitoes to combat dengue. However, scaling up the initiative was difficult due to limited collaboration between the government and non-governmental organisations capable of supplying the mosquitoes, as well as budgetary constraints

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Given the effects of climate change increasing mosquito breeding and growth, Thailand could strengthen public-private partnerships in the country to promote innovative pilot programs such as the *Wolbachia* project, as well as increase funding and resources for such projects. Further efforts are also required to improve vector control education, which could include community workshops and digital tools to build awareness, and empower citizens to take proactive measures against dengue

Thailand

ASIA DENGUE Policy Working Group

Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Score	Description
Monitoring and evaluation of vector control initiatives / programs		Metrics for dengue monitoring and evaluation of vector control initiatives have been included in the guidelines: • Disease surveillance indicators such as case tracking and serotype surveillance • Vector surveillance indicators • Assessing public knowledge and preventive practices for dengue through Knowledge, Attitudes, and Practices (KAP) surveys
Resource allocation for vector control		The government prioritizes and allocates significant resources to vector control, with the estimated national cost of dengue reaching US$158 million in Thailand, of which 28% is allocated to vector control efforts. However, there is a need to allocate more funding towards innovative vector control technologies (e.g. *Wolbachia*) to enhance effectiveness.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Given the effects of climate change increasing mosquito breeding and growth, Thailand could strengthen public-private partnerships in the country to promote innovative pilot programs such as the *Wolbachia* project, as well as increase funding and resources for such projects. Further efforts are also required to improve vector control education, which could include community workshops and digital tools to build awareness, and empower citizens to take proactive measures against dengue

Abbreviations – KAP: Knowledge, Attitudes, and Practices

Thailand

ASIA DENGUE Policy Working Group

Entomological surveillance (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		Entomological surveillance is routinely conducted in endemic areas. In Thailand, it is standard practice to implement mosquito control measures within 24 hours of a reported dengue case.
Indicators used for surveillance		✓ House Index (HI) ✓ Container Index (CI) ✓ Breteau Index (BI) × Pupae Index (PI)
Frequent and timely collection of entomological surveillance data		In Thailand, the Department of Disease Control (DDC) conducts regular visual larval surveys nationwide to monitor dengue fever outbreaks. • Since 2016, the DDC has transitioned from a paper-based system to a digital platform for conducting larval surveys. • However, limited resources hinder the ability to conduct widespread, year-round surveillance.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

Thailand should prioritize developing the insect-borne disease surveillance system to manage databases and use big data analytics to forecast trends (including for dengue) at regional and provincial levels. Integrating the "Prevent, Detect, Respond" principle with vector management and epidemiological analysis, along with clear budget allocation, would further strengthen dengue outbreak prevention and management.

Abbreviations – BI: Breteau index, CI: container index, DDC: Department of Disease Control, HI: house index, PI: pupae index

Thailand

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend Zero (0%) | Low (0%<x≤33%) | Medium (33%<x≤66%) | High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		The use of entomological surveillance data for forecasting or outbreak management in Thailand is unclear since surveillance data is not fully transparent or easily accessible to researchers. • A 2024 study based on in-depth interviews with key dengue experts in Thailand suggested that Thailand should develop an insect-borne disease surveillance system to manage databases and analyse big data to identify connections or forecast disease trends at regional and provincial levels. • This approach would emphasise the "Prevent, Detect, Respond" principle and integrate disease vector management with epidemiological analysis to assess factors influencing outbreaks.
Resource allocation for entomological surveillance	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Thailand should prioritize developing the insect-borne disease surveillance system to manage databases and use big data analytics to forecast trends (including for dengue) at regional and provincial levels. Integrating the "Prevent, Detect, Respond" principle with vector management and epidemiological analysis, along with clear budget allocation, would further strengthen dengue outbreak prevention and management.

Abbreviations – NA: not applicable

Thailand

ASIA DENGUE Policy Working Group

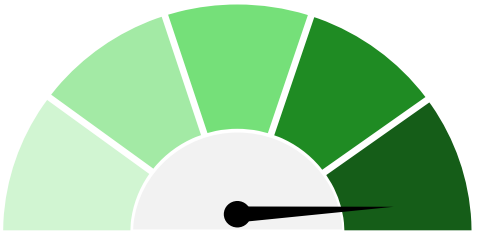
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		The National Disease Surveillance System (NDSS) tracks and reports cases of dengue and its related complications, such as dengue haemorrhagic fever and dengue shock syndrome.
Indicators used for surveillance		✓ Suspected cases ✓ Confirmed cases ✓ Dengue-related deaths × Circulating serotypes NDSS also typically looks at: • Risk clusters and reporting delays identified through real-time dengue surveillance • Hospitalised dengue cases which may potentially underestimate the true number of dengue infections.
Frequent and timely collection of patient surveillance data		Weekly dengue data is captured by the Department of Disease Control.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance disease surveillance, Thailand could establish a national digital dengue death registry for accurate tracking of dengue-related fatalities and strengthen the case reporting system to capture unreported cases or those managed outside hospital settings. The nation should also allocate clear budget for case reporting and surveillance to ensure sustained resources, contributing to better outbreak management and prevention.

Abbreviations – NDSS: National Disease Surveillance System

Thailand

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		Case report data utilised for forecasting; however, data is not publicly available. • A weekly update from the Department of Disease Control highlighted an ongoing risk of dengue in areas experiencing rainfall, which leads to outdoor stagnant water, creating mosquito breeding grounds
Resource allocation for case reporting	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To enhance disease surveillance, Thailand could establish a national digital dengue death registry for accurate tracking of dengue-related fatalities and strengthen the case reporting system to capture unreported cases or those managed outside hospital settings. The nation should also allocate clear budget for case reporting and surveillance to ensure sustained resources, contributing to better outbreak management and prevention.

Abbreviations – NA: not applicable

Thailand

ASIA DENGUE Policy Working Group

Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

0	Rating	Description
Existence and adoption of dengue clinical guidelines		Thailand's clinical practice guidelines for dengue management in adults recognise the importance of a vaccine but do not provide guidance on its adoption or administration.
Physical access to vaccines		Dengue vaccines (including both Qdenga and Dengvaxia) are only available in the private sector. • The government is considering vaccine demonstration projects in select areas before national rollout *(specific details not publicly available).* • The National Vaccine Institute in Thailand has also supported an observational study of another dengue vaccine, TDV, in two provinces to assess its real-world effectiveness.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in NIP. However, discussions are said to be currently underway to include dengue vaccination in NIP within 3 to 5 years. A committee is planned to be set up to prepare for the inclusion of dengue vaccination in the NIP.
Financial access to vaccines		Dengue vaccines can be accessed OOP: • Dengvaxia is priced at approximately 2,910 Thai Baht per dose • Qdenga costs around 1,639 Thai Baht per dose Additionally, the vaccine is not referenced in broader plans or clinical guidelines.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To strengthen dengue vaccination efforts in Thailand, the government should expand initiatives such as vaccine demonstration projects. This can enhance public awareness on the important roles of vaccines and vector control, addressing concerns regarding vaccine safety, efficacy, and confidence. The government should also allocate clear funding for dengue vaccination to help build a comprehensive vaccination strategy and its inclusion into the NIP.

Abbreviations – NIP: National Immunisation Programme, OOP: Out of pocket

Thailand

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Knowledge and awareness of dengue vaccination		Dengue prevention efforts have largely centered on vector control and public health campaigns to reduce mosquito populations and prevent bites, resulting in limited public awareness about the vaccine.
Willingness to be vaccinated		There is growing optimism in Thailand around the use of vaccines in dengue prevention, although concerns linger regarding their safety and efficacy.
Research and advocacy for new vaccines and other prophylaxis methods / R&D		Thailand actively promotes research and development in dengue prevention, including control strategies, new technologies for vector control, and clinical trials for vaccines. • It is stated that the government must dedicate resources towards the research and development of safe, effective and cost-effective vaccines.
Resource allocation for dengue vaccination	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen dengue vaccination efforts in Thailand, the government should expand initiatives such as vaccine demonstration projects. This can enhance public awareness on the important roles of vaccines and vector control, addressing concerns regarding vaccine safety, efficacy, and confidence. The government should also allocate clear funding for dengue vaccination to help build a comprehensive vaccination strategy and its inclusion into the NIP.

Abbreviations – NIP: national immunisation programme, R&D: research & development

Thailand

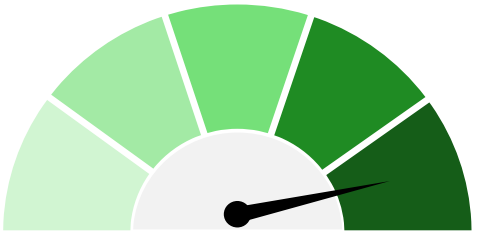
Dengue diagnosis (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians		The exact frequency is not publicly available, but specialists are trained through the World Health Organization's Special Programme for Research and Training in Tropical Diseases (TDR).
Existence and adoption of dengue clinical guidelines		Clinical guidelines exist and are regularly updated for both paediatric and adult dengue. For instance, the guidelines for the Management of Dengue Haemorrhagic Fever (DHF) have been updated to refine diagnosis and treatment protocols, inpatient admission criteria, and referral criteria. • In addition, each province has conducted training sessions for newly graduated doctors and nurses on the diagnosis and management of the disease.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To improve dengue diagnosis and management in Thailand, a centralised database can be established to track healthcare providers trained, and the frequency of training. Increased transparency in resource allocation and coverage of services are also important to enhance access to diagnostic services. Lastly, Thailand can further leverage public-private partnerships to expand access to affordable diagnostics and enhance diagnostic capabilities nationwide.

Abbreviations – DHF: dengue haemorrhagic fever, NA: not applicable, TDR: Research and Training in Tropical Diseases

Thailand

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) Various types of diagnostic services are widely available in Thailand, including laboratory tests (serological tests and nucleic acid detection). • Despite the widespread use of rapid diagnostic tests, confirmation is still necessary due to the risk of cross-reactions.
Financial access to diagnostic services		Diagnostic services are fully subsidised at government hospitals. However, detailed information on the services covered is not readily available.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To improve dengue diagnosis and management in Thailand, a centralised database can be established to track healthcare providers trained, and the frequency of training. Increased transparency in resource allocation and coverage of services are also important to enhance access to diagnostic services. Lastly, Thailand can further leverage public-private partnerships to expand access to affordable diagnostics and enhance diagnostic capabilities nationwide.

Abbreviations – ELISA: enzyme-linked immunosorbent assay, NS1: non-structural antigen-1, PCR: polymerase chain reaction

Thailand

ASIA DENGUE Policy Working Group

Dengue diagnosis (3/3)

Legend Zero (0%) | Low (0%<x≤33%) | Medium (33%<x≤66%) | High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for innovative diagnostics / R&D		Ongoing research, especially through public-private partnerships, to improve dengue diagnosis: • The Department of Disease Control and Bangkok Metropolitan Administration organized the "ASEAN DENGUE DAY 2023" event, which involved support from private companies like Kao Industrial (Thailand) Co., Ltd. and Takeda (Thailand) Co., Ltd.
Resource allocation for dengue diagnosis	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To improve dengue diagnosis and management in Thailand, a centralised database can be established to track healthcare providers trained, and the frequency of training. Increased transparency in resource allocation and coverage of services are also important to enhance access to diagnostic services. Lastly, Thailand can further leverage public-private partnerships to expand access to affordable diagnostics and enhance diagnostic capabilities nationwide.

Abbreviations – NA: not applicable, R&D: research & development

Thailand

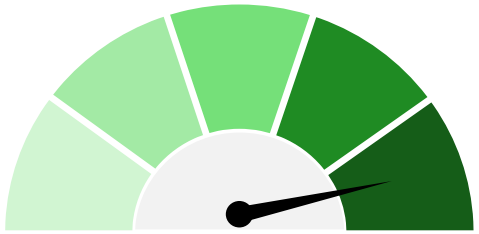
Dengue patient care management

Legend

Zero	Low	Medium	High
(0%)	*(0%<x≤33%)*	*(33%<x≤66%)*	*(66%<x≤100%)*

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		The Department of Medical Services developed the 2020 guidelines for the diagnosis and treatment of dengue fever in adults.
Physical access to treatment / symptom management services		Dengue cases are treated in both public and private hospitals in Thailand.
Financial access to treatment / symptom management services		Dengue treatment/ symptom management services are fully covered by the government. • In rural areas, hospitalized dengue patients had most of their direct medical costs covered by the Thai Universal Coverage Scheme for healthcare • However, severe dengue cases are often mismanaged in smaller hospitals, leading to delayed referrals.
Resource allocation for dengue patient care management	NA	*No available information found.*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Thailand should introduce clear budget allocations for dengue-related healthcare and provide transparent details on the extent of financial coverage for treatment and complications. Moreover, more workshops on dengue clinical practice and treatment should be conducted between larger and smaller hospitals to enhance case management in smaller facilities, improve referral rates, and ensure more timely care.

Abbreviations – NA: not applicable

Philippines

Philippines

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- Dengue was first reported in the Philippines as “Philippine Haemorrhagic Fever” in 1954.
- The Philippines has over 70 years of experience dealing with dengue, contributing significantly to regional policy development.
- The Department of Health (DOH) continues to collaborate with international health partners, such as the World Health Organization and the Research Institute for Tropical Medicine, to enhance diagnostic capabilities, clinical management, and community-based interventions. These partnerships aim to strengthen the country's capacity to address dengue and other aedes-borne viral diseases effectively.

Key stakeholders

Department of Health	• Involved in the development and implementation of initiatives outlined in the *Dengue Prevention and Control Programme.*
PhilHealth *Your Partner in Health*	• A government-owned and controlled corporation that provides health insurance to the country. The organisation provides universal health coverage in the Philippines, and is attached to the DOH.
Department of Science and Technology (DoST), Department of Education (DepEd), Department of Interior and Local Government (DILG)	• Collaborate with the DOH in conducting Philippines’ dengue vector surveillance programme through installation of DoST Ovicidal/Larvicidal traps nationwide to all public elementary and secondary schools.

Abbreviations – DepEd: Department of Education; DILG: Department of Interior and Local Government; DOH: Department of Health; DoST: Department of Science and Technology

Philippines

Dengue strategies

Dengue Prevention and Control Programme

The programme outlined the following key indicators :
- To reduce dengue morbidity by at least 25% by 2022
- To reduce dengue mortality by at least 50% by 2022
- To maintain Case Fatality Rate to <1% every year

The main objectives of the plan are:

i. To enhance Philippine Dengue Prevention and Control program management and implementation as well as the capacity of national, regional, and local levels
ii. To expand coverage of quality anti-dengue preventive and control services
iii. To improve compliance to national and local policies in dengue prevention control
iv. To reduce financing of dengue from out-of-pocket sources

To achieve these goals, the plan outlines eight strategies:

i. Establish good governance practices and management systems to support dengue prevention and control initiatives
ii. Generate and utilise quality and timely information for programme direction, planning, implementation and management
iii. Expand and sustain the provision of quality diagnostics and treatment services
iv. Promote behaviour change among communities towards the practice of early consults and responsive personal and environmental vector prevention practices
v. Operationlised area stratified integrated vector management
vi. Institutionalise mechanisms to ensure compliance to programme protocol
vii. Support financing schemes to reduce OOP expenses for dengue especially among the poor
viii. Strengthen advocacy and mobilisation of support and involvement of all concerned partners at various levels

The programme emphasises the adoption of the Enhanced 4S Strategy:

S – Search and Destroy
S – Seek Early Consultation
S – Self Protection Measures
S – Say yes to fogging only during outbreaks

Note: The Dengue Prevention and Control Programme is the latest national plan published on online sources.

Abbreviations – DOH: Department of Health; LGU: Local government unit

Philippines

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in the Philippines is comprehensive and robust, targeting students, healthcare providers, and the public through curricula, mass media, and the annual celebration of ASEAN Dengue Day. However, mechanisms in place to evaluate the effectiveness of awareness and education programmes is unclear.
Vector control		Vector control strategies adopted nationwide are environmentally sustainable but monitoring and evaluation systems are unclear. There are currently no *Wolbachia* release programmes in the Philippines.
Entomological surveillance		Vector surveillance in the Philippines is primarily done through monitoring of ovicidal/larvicidal mosquito indices. The programme is a joint collaborations between the DOST, DepEd, DoH, and DILG.
Case reporting		Case reporting is done through the Philippine Integrated Disease Surveillance and Response (PIDSR) where all suspected and confirmed cases are reported to the National Epidemiology Centre (NEC).
Dengue vaccination		Dengue vaccination is a low priority in the Philippines due to very high public hesitancy in dengue vaccination. The Philippines is focused on tackling misinformation and raising awareness on vaccination and dengue vaccines.
Dengue diagnosis		Various types of diagnostic services are available for Filipino citizens with partial coverage by the government for selected tests. Innovative diagnostic tests developed locally are also available at affordable rates.
Dengue patient care management		Clinical guidelines for dengue management in Philippines are available with recommendations based on the patient type. However, information on the type of services available are unclear.
Others		• **Lack of standardisation in guidelines:** Various dengue management guidelines published lack standardisation and raise confusion in their adoption

Abbreviations – DepEd: Department of Education; DILG: Department of Interior and Local Government; DoH: Department of Health; DOST: Department of Science and Technology; NEC: National Epidemiology Centre; PIDSR: Philippine Integrated Disease Surveillance and Response

Philippines

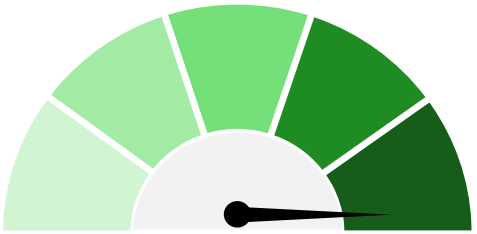
Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Public education programmes are implemented nationally: • Dengue information, education and communication (IEC) materials are distributed in both public and private schools. • Dengue-related information, including the "4S Laban Sa Dengue (4S Fight Against Dengue)" strategy, is relayed through mass media (e.g., radios, news). • ASEAN Dengue Day is celebrated every June 15th.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)	NA	*No available information found.*
Educational programs targeted to healthcare providers		Training and capacity building of nurses and barangay (district) health workers in anti-dengue measures and Ovicidal and Larvicidal traps are conducted as part of the country's dengue vector surveillance programme.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Monitoring and evaluation of community awareness and education programmes is necessary to ensure the effectiveness of implemented initiatives. Policymakers should ensure that initiatives are targeting the intended audiences and should thus, consider setting up regulatory / monitoring bodies to routinely monitor programmes.

Abbreviations – IEC: Information, education, and communication

Philippines

ASIA DENGUE Policy Working Group

Vector control (1/3)

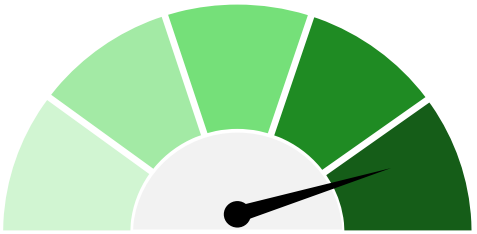
Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		Environmentally sustainable vector control strategies are implemented nationwide. However, frequent rainfall in the Philippines throughout the year make implementing vector control initiatives difficult.

Vector control education		• Research Institute for Tropical Medicine, through its Medical Entomology Department, offers a training programme titled "Training on Dengue Vector Surveillance in Support of Integrated Vector Management."
		  • Aimed to equip local health personnel with knowledge of basic entomology and vector control to support the implementation of vector surveillance.
		  • Includes lectures, laboratory and field work.
		• Dengue Vector Surveillance Programme includes
		  • Communicating anti-dengue measures such as Ovicidal and Larvicidal trap information and education campaign.
		  • Training and capacity-building of educators, teachers, school principals, nurses, and barangay (district) health workers in anti-dengue measures and Ovicidal and Larvicidal trap information.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The Philippines should continue promoting environmentally sustainable vector control strategies. Scaling up proven methods such as the distribution of ovicidal/larvicidal trap kits and larviciding guidelines is essential, alongside exploring innovative approaches like *Wolbachia* mosquito releases. Strong monitoring and evaluation efforts with clear metrics for all vector control activities should be in place to ensure accountability and effectiveness. Adequate and transparent resource allocation should be prioritised to sustain and expand initiatives.

Philippines

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Personal protection measures** • Commercial household pest control products *(e.g., topical and spatial repellents, screening and insecticide-treated materials)* ✓ **Community-based measures** • Source reduction *(e.g., regular inspection of Aedes larval habitats)* • Chemical and biological methods • Adulticiding *(e.g., fogging)* • Larviciding: *There are Guidelines on the Application of Larvicides on the Breeding Sites of Dengue Vector Mosquitoes in Domestic Water* • Autodissemination or lethal ovitraps: *The Department of Science and Technology (DOST) spearheads the programme to deploy ovicidal/larvicidal trap kits to all public elementary and secondary schools in collaboration with the Department of Education, DoH, and the Department of the Interior and Local Government (DILG)* × *Wolbachia* or genetically modified mosquitoes: Unavailable due to resource constraints **Pilot vector control strategies:** ○ There is ongoing research by Industrial Technology Development Institute, at the Philippine Department of Science and Technologyon using an extract from black pepper to reduce mosquito populations

Overall pillar assessment outcome

Basic — Optimised

Recommendations

The Philippines should continue promoting environmentally sustainable vector control strategies. Scaling up proven methods such as the distribution of ovicidal/larvicidal trap kits and larviciding guidelines is essential, alongside exploring innovative approaches like *Wolbachia* mosquito releases. Strong monitoring and evaluation efforts with clear metrics for all vector control activities should be in place to ensure accountability and effectiveness. Adequate and transparent resource allocation should be prioritised to sustain and expand initiatives.

Abbreviations – DILG: Department of Interior and Local Government; DoH: Department of Health; DOST: Department of Science and Technology

Philippines

ASIA DENGUE Policy Working Group

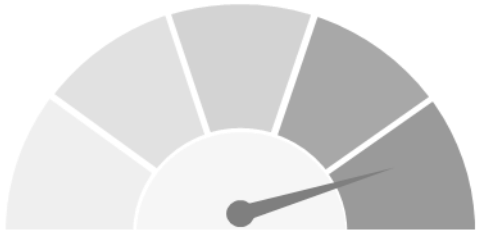
Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		• Dengue Vector Surveillance Programme includes monitoring of Ovicidal and Larvicidal traps in schools • In 2023, researchers conducted an efficacy assessment of autodissemination using Pyriproxyfen-treated Ovitraps to reduce dengue incidence in Parañaque City. The study suggested the control strategy to be effective. • Another study in 2024 investigated insecticide resistance in *Aedes aegypti* from the National Capital Region of the Philippines. The study noted that most of the *Ae. aegypti* populations from NCR exhibited phenotypic resistance to permethrin, etofenprox, and DDT. The studies recommended policymakers consider implementing insecticide rotation and utilising alternative chemicals with different modes of action to delay insecticide resistance and ensure the continuing efficacy of interventions. • Information on monitoring activities for other vector control strategies is unknown
Resource allocation for vector control		• Information on budget sources is available but information on exact budget allocations is unknown • The Centre for Health Development provides funds for the procurement of logistical needs or coordinates with respective local governmental units to support the application of larvicides on *Aedes* larval habitats

Overall pillar assessment outcome



Basic — Optimised

Recommendations

The Philippines should continue promoting environmentally sustainable vector control strategies. Scaling up proven methods such as the distribution of ovicidal/larvicidal trap kits and larviciding guidelines is essential, alongside exploring innovative approaches like *Wolbachia* mosquito releases. Strong monitoring and evaluation efforts with clear metrics for all vector control activities should be in place to ensure accountability and effectiveness. Adequate and transparent resource allocation should be prioritised to sustain and expand initiatives.

Philippines

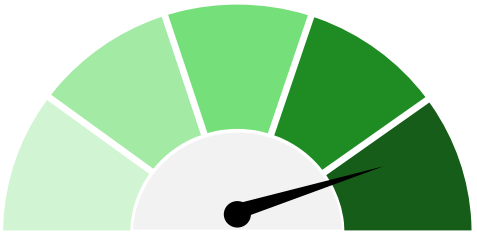
Entomological surveillance (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		• The national Dengue Vector Surveillance programme is a joint partnership between the Department of Science and Technology (DOST), Department of Education (DepEd), DoH, Department of Interior and Local Government (DILG). The programme involves the installation of DOST Ovicidal/Larvicidal traps nationwide to all public elementary and secondary schools. However, entomological surveillance programmes lack continuity due to funding and logistical challenges.
Indicators used for surveillance		✓ Ovicidal/Larvicidal mosquito index is used as an indicator • Mosquito index is a measurement of mosquito eggs in specified geographic locations which, in turn, reflects the distribution of *Aedes* mosquitoes. These are then classified into 4 different categories with actions to be taken. The DoH will then issue a public advisory where areas are at high risk of a dengue outbreak. × Container Index (CI) × Premises Index (PI) × Breteau Index (BI) × House Index (HI) *No available information that indicates the use of these as indicators in the Philippines' existing Dengue Vector Surveillance system*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The Philippines should strengthen its entomological surveillance system by enhancing its data collection and reporting capabilities. DoH should consider scaling up the coverage to include private schools and tertiary institutions and consider the data collection of other indicators such as container index, house index, pupae index, and breteau index. Regular training for personnel involved in the monitoring and analysis of data should be conducted to improve accuracy and efficiency of data collection and monitoring. Transparent reporting on resource allocation and funding for surveillance activities is critical to ensure sustainability and scalability of initiatives.

Abbreviations – DepEd: Department of Education; DILG: Department of Interior and Local Government; DoH: Department of Health; DOST: Department of Science and Technology

Philippines

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of entomological surveillance data		Ovicidal/Larvicidal mosquito indices are uploaded weekly per school and results can be seen in the Dengue Vector Surveillance platform.
Utilisation of data for outbreak prevention / forecasting		Upon reporting of data into the Dengue Vector Surveillance platform, the DoH will then issue a public advisory of high-risk dengue outbreak areas.
Resource allocation for entomological surveillance	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

The Philippines should strengthen its entomological surveillance system by enhancing its data collection and reporting capabilities. DoH should consider scaling up the coverage to include private schools and tertiary institutions and consider the data collection of other indicators such as container index, house index, pupae index, and breteau index. Regular training for personnel involved in the monitoring and analysis of data should be conducted to improve accuracy and efficiency of data collection and monitoring. Transparent reporting on resource allocation and funding for surveillance activities is critical to ensure sustainability and scalability of initiatives.

Abbreviations – DepEd: Department of Education; DILG: Department of Interior and Local Government; DoH: Department of Health; DOST: Department of Science and Technology

Philippines

ASIA DENGUE Policy Working Group

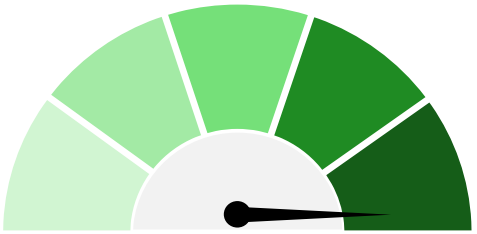
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		• Under the Dengue Prevention and Control Programme, dengue case surveillance is conducted through the Philippine Integrated Disease Surveillance and Response (PIDSR) system. • 2014: There is the "Technical Guidelines, Standards, and other Instructions for Reference in the Implementation of Sentinel-based Active Dengue Surveillance". • The guideline states that active sentinel-based dengue surveillance is to be implemented together with syndromic reporting of dengue through PIDSR with the supervision of the National Epidemiology Centre (NEC). • However, dengue cases are often underreported due to asymptomatic cases (70-80%) and limited diagnostic tools, especially in remote areas.
Indicators used for surveillance		✓ Suspected cases ✓ Confirmed cases ✓ Dengue-related deaths × Circulating serotypes All suspected and confirmed cases of dengue are reported to the NEC. The number of deaths from dengue are also reported immediately.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen dengue surveillance, the Philippines should expand the PIDSR system to include a national digital death registry. Furthermore, sentinel-based active surveillance should be scaled up by increasing the number of participating hospitals. Regular training for healthcare workers on surveillance processes and increased public engagement on reporting requirements will further improve data quality. Transparent allocation of resources for surveillance activities should be prioritised to ensure sustainability and effectiveness.

Abbreviations – DoH: Department of Health; DOST: Department of Science and Technology; NEC: National Epidemiology Centre; PIDSR: Philippine Integrated Disease Surveillance and Response

Philippines

ASIA DENGUE Policy Working Group

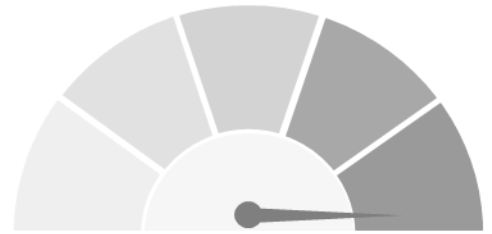
Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of patient surveillance data		• All suspected cases are reported to the NEC weekly. • The designated sentinel hospitals report all dengue suspected cases and collect specimens from a percentage of suspected cases for laboratory confirmation and serotype to the Research Institute for Tropical Medicine (RITM) *(Note: The list of sentinel hospitals are provided in the Technical Guidelines, Standards, and other Instructions for Reference in the Implementation of Sentinel-based Active Dengue Surveillance).*
Utilisation of data for outbreak prevention / forecasting		The sentinel-based active surveillance system is used to determine the dengue serotype incidence in a specific area and predict impending outbreaks.
Resource allocation for case reporting	NA	*No available information found.*

Overall pillar assessment outcome



Basic — Optimised

Recommendations

To strengthen dengue surveillance, the Philippines should expand the PIDSR system to include a national digital death registry. Furthermore, sentinel-based active surveillance should be scaled up by increasing the number of participating hospitals. Regular training for healthcare workers on surveillance processes and increased public engagement on reporting requirements will further improve data quality. Transparent allocation of resources for surveillance activities should be prioritised to ensure sustainability and effectiveness.

Abbreviations – NEC: National Epidemiology Centre; RITM: Research Institute for Tropical Medicine

Philippines

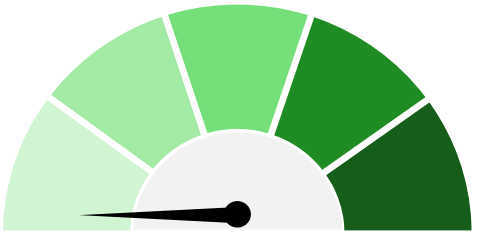
Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		No physical access to dengue vaccines in the country
Physical access to vaccines		• Use of Dengvaxia was suspended after Nov 2017 with the Philippine Food and Drug Administration (FDA) withdrawing the vaccine's license. Sale, distribution, and marketing of Dengvaxia has been suspended. • Takeda's Qdenga is still undergoing regulatory approval
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)	NA	No access to dengue vaccines in the country; Dengue vaccination is not included in the NIP
Financial access to vaccines		No physical access to dengue vaccines in the country
Knowledge and awareness of dengue vaccination		• There is some awareness of dengue vaccines and dengue vaccination in the country • Health authorities are now focusing on educating the public about the safety of vaccination. There are increased focus on social media campaigns to rebuild trust in vaccines and raise dengue awareness.
Willingness to be vaccinated		Following the Dengvaxia controversy in the country, there is very low confidence and willingness among the public to get vaccinated for dengue. Vaccine confidence decreased from 93% in 2015 to 32% in 2018.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Tackling misinformation and public hesitancy of dengue vaccination, and vaccination in general, is key to enhancing national dengue control and management programmes in the Philippines. Therefore, the government should ensure sufficient resources are allocated to support initiatives focusing on raising awareness and educating the public on dengue and dengue vaccination. Policymakers should leverage on international relations and existing global evidence to showcase the impact of dengue vaccination.

Abbreviations – FDA: Food and Drug Administration

Philippines

ASIA DENGUE Policy Working Group

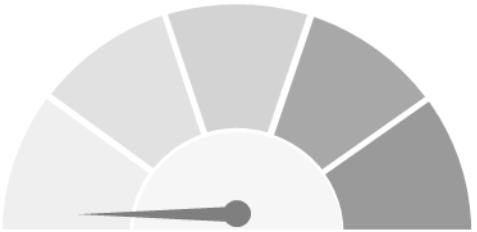
Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for new vaccines and other prophylaxis methods / R&D	NA	*No available information found.*
Resource allocation for dengue vaccination		There are no budget allocations for dengue vaccination.

Overall pillar assessment outcome



Basic — Optimised

Recommendations

Tackling misinformation and public hesitancy of dengue vaccination, and vaccination in general, is key to enhancing national dengue control and management programmes in the Philippines. Therefore, the government should ensure sufficient resources are allocated to support initiatives focusing on raising awareness and educating the public on dengue and dengue vaccination. Policymakers should leverage on international relations and existing global evidence to showcase the impact of dengue vaccination.

Philippines

Dengue diagnosis (1/3)

Legend

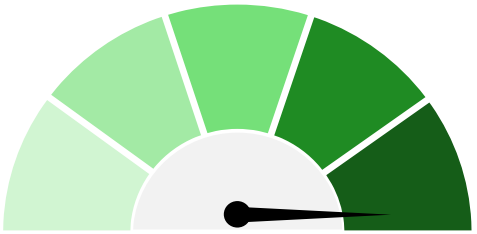
Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians		DoH Regional Office provide orientation to health workers involved in taking care of dengue patients about Nucleic Acid Amplification Assay – Loop Mediated Isothermal Assay (NAAT-LAMP). • Based on the Guidelines for Initial Implementation of Nucleic Acid Amplification Assay – Loop Mediated Isothermal Assay (NAAT-LAMP), medical technologists or allied health professionals who perform NAAT-LAMP shall undergo proficiency training and shall receive assistance on setting up the NAAT-LAMP laboratory *(Note: Frequency of training is unknown).*

Existence and adoption of dengue clinical guidelines		• Local guidelines for dengue diagnosis are available:
		  • Guidelines on the Nationwide Implementation of Dengue NS1 Rapid Diagnostic Test (RDT)
		  • Implementation Guidelines for Initial Implementation of Nucleic Acid Amplification Assay – Loop Mediated Isothermal Assay (NAAT-LAMP) as One of Dengue Confirmatory Tests to Support Dengue NS1 RDT
		  • Revised guideline for the clinical management of dengue
		• However, the lack of standardisation of guidelines and measurable impact on reducing case fatality rates is a concern.
		• Quarterly monitoring of adherence to guidelines at government hospitals is performed.

Abbreviations – NAAT-LAMP: Nucleic Acid Amplification Assay – Loop Mediated Isothermal Assay; R&D: Research and development; RDT: Rapid diagnostic test

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance dengue diagnostic capacity, the Philippines should consider allocating sufficient resources to further investigate the efficacy and cost-effectiveness of innovative tools, such as NAAT-LAMP and the Biotek-M Dengue Aqua Kit. Standardisation of guidelines should be prioritised. Increased investment in R&D for cost-effective diagnostics and leveraging partnerships with local innovators will drive sustainable improvements. The Philippines should also ensure that proficiency training for medical technologists and healthcare providers is routinely performed.

Philippines

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology rapid tests (IgM/IgG antibody test) × Antigen detection ELISA × Serology ELISA • Total white blood cell count, platelet, and haematocrit are routinely used in hospitals as standard diagnostic tests. • PCR tests and plaque reduction neutralisation tests (PRNT) are available only in dengue sub-national and national reference laboratories. • NAAT-LAMP is in the pipeline and will be introduced under the National Dengue Prevention and Control Programme in district and provincial hospitals. • Dengue IgM/IgG tests are limited to selected government hospitals only.
Financial access to diagnostic services		Many patients have to pay OOP. However, the government, through PhilHealth, provides partial coverage for certain diagnostic services related to dengue. • Dengue NS1 RDT tests are free in all health centres and selected public hospitals nationwide • Dengue IgM/IgG tests are limited to selected government hospitals only

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To enhance dengue diagnostic capacity, the Philippines should consider allocating sufficient resources to further investigate the efficacy and cost-effectiveness of innovative tools, such as NAAT-LAMP and the Biotek-M Dengue Aqua Kit. Standardisation of guidelines should be prioritised. Increased investment in R&D for cost-effective diagnostics and leveraging partnerships with local innovators will drive sustainable improvements. The Philippines should also ensure that proficiency training for medical technologists and healthcare providers is routinely performed.

Abbreviations – OOP: Out of pocket; PCR: Polymerase chain reaction; PRNT: Plaque reduction neutralisation test

Philippines

ASIA DENGUE Policy Working Group

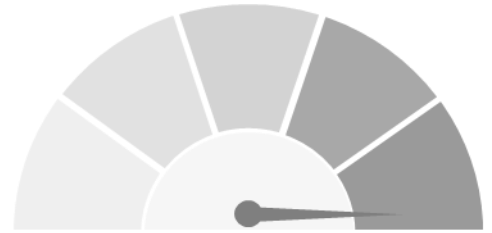
Dengue diagnosis (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for innovative diagnostics / R&D		• In 2010, Dr Raul Destura and seven other co-inventors composed of infectious diseases specialists, molecular biologists, and biotechnologists received a grant under the Lab-in-a-Mug project funded by the Department of Science and Technology's Technology Innovation for Commercialization and Technology Application and Promotion Institute, Philippine Council for Health Research and Development, Philippine Genome Center, and the University of the Philippines System. • This resulted to the development of the Biotek-M Dengue Aqua Kit, with support of the DoH. The kit which is efficient and less costly than PCR tests, is currently being sold by a spin-off company called Manila Health Tek Inc.
Resource allocation for dengue diagnosis	NA	*No available information found.*

Overall pillar assessment outcome



Basic — Optimised

Recommendations

To enhance dengue diagnostic capacity, the Philippines should consider allocating sufficient resources to further investigate the efficacy and cost-effectiveness of innovative tools, such as NAAT-LAMP and the Biotek-M Dengue Aqua Kit. Standardisation of guidelines should be prioritised. Increased investment in R&D for cost-effective diagnostics and leveraging partnerships with local innovators will drive sustainable improvements. The Philippines should also ensure that proficiency training for medical technologists and healthcare providers is routinely performed.

Abbreviations – DoH: Department of Health; PCR: Polymerase chain reaction

Philippines

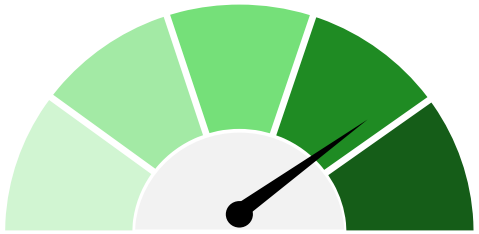
Dengue patient care management (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Local guidelines for the management of dengue patients are available and published by the DoH. Guidelines recommend patients to be managed according to patient type: • Group A: Patients who may be sent home • Group B: Patients who should be referred for in-hospital management • Group C: Patient with severe dengue requiring emergency treatment and urgent referral However, the lack of standardisation of guidelines make them confusing and difficult to follow.
Physical access to treatment / symptom management services		Treatment guidelines for dengue are used in both public and private healthcare facilities. *Information on the types of services available is unknown*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Efforts should focus on improving physical access to treatment facilities, particularly in underserved or rural areas. Standardisation of guidelines should be prioritised. Monitoring adherence to guidelines in hospitals and other health facilities should also be considered to ensure quality of care. Furthermore, expanding financial coverage is essential to reduce the burden of OOP expenses, particularly for severe cases. Clear resource allocation should be prioritised for patient care management, with transparent reporting to support the implementation of services.

Abbreviations – DoH: Department of Health

Philippines

Dengue patient care management (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to treatment / symptom management services		PhilHealth partially covers dengue-related treatment and hospitalisation costs, with or without warning signs • Dengue patients with or without warning signs (Level 1-3 hospitals): PHP 10,000 (~USD 170) • Non-severe dengue patients (primary care facilities): PHP 7,000 (~USD 120) • Severe dengue patients (Level 1-3 hospitals): PHP 16,000 (~USD 273)
Resource allocation for dengue patient care management	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Efforts should focus on improving physical access to treatment facilities, particularly in underserved or rural areas. Standardisation of guidelines should be prioritised. Monitoring adherence to guidelines in hospitals and other health facilities should also be considered to ensure quality of care. Furthermore, expanding financial coverage is essential to reduce the burden of OOP expenses, particularly for severe cases. Clear resource allocation should be prioritised for patient care management, with transparent reporting to support the implementation of services.

Abbreviations – DoH: Department of Health

Vietnam

Vietnam

Prioritisation of Dengue

- Vietnam has invested considerably in the prioritisation of dengue nationwide; however, burden of other diseases, such as COVID-19, has overshadowed investment in dengue particularly in South Vietnam.
- Since the completion of the stipulated implementation period of the *National Health Target Programme* in 2020, local communities have been carrying out prevention activities without investment from the central government.

Key stakeholders

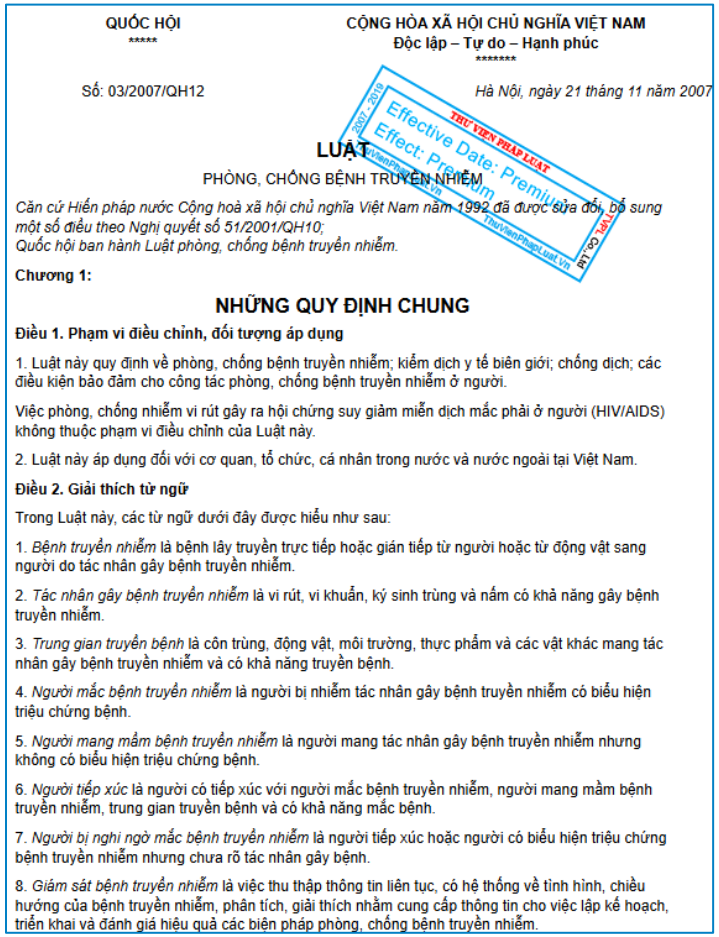
National Assembly	• The National Assembly of the Socialist Republic of Vietnam XII passed the *Law on the Prevention and Control of Infectious Diseases* in 2007. The Law has been enforced since 2008. • In a state of emergency in case of epidemics, the National Assembly Standing Committee has to issue a resolution to declare a state of emergency at the request of the Prime Minister. The Prime Minister will declare epidemics at the request of the Ministry of Health (MoH).
Ministry of Health	• The Ministry of Health (MoH) is responsible for declaring epidemics upon the request of provincial-level People's Committee chairpersons. The MoH then seeks approval from the Prime Minister for the official declaration. • Additionally, the MoH plays a key role in developing the Law on the Prevention and Control of Infectious Diseases.

Abbreviations – MoH: Ministry of Health

Vietnam

ASIA DENGUE Policy Working Group

Dengue strategies (1/2)



QUỐC HỘI
*****

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập – Tự do – Hạnh phúc
****

Số: 03/2007/QH12

Hà Nội, ngày 21 tháng 11 năm 2007

LUẬT

PHÒNG, CHỐNG BỆNH TRUYỀN NHIỄM

Căn cứ Hiến pháp nước Cộng hoà xã hội chủ nghĩa Việt Nam năm 1992 đã được sửa đổi, bổ sung một số điều theo Nghị quyết số 51/2001/QH10;
Quốc hội ban hành Luật phòng, chống bệnh truyền nhiễm.

Chương 1:

NHỮNG QUY ĐỊNH CHUNG

Điều 1. Phạm vi điều chỉnh, đối tượng áp dụng

1. Luật này quy định về phòng, chống bệnh truyền nhiễm; kiểm dịch y tế biên giới; chống dịch; các điều kiện bảo đảm cho công tác phòng, chống bệnh truyền nhiễm ở người.

Việc phòng, chống nhiễm vi rút gây ra hội chứng suy giảm miễn dịch mắc phải ở người (HIV/AIDS) không thuộc phạm vi điều chỉnh của Luật này.

2. Luật này áp dụng đối với cơ quan, tổ chức, cá nhân trong nước và nước ngoài tại Việt Nam.

Điều 2. Giải thích từ ngữ

Trong Luật này, các từ ngữ dưới đây được hiểu như sau:

1. *Bệnh truyền nhiễm* là bệnh lây truyền trực tiếp hoặc gián tiếp từ người hoặc từ động vật sang người do tác nhân gây bệnh truyền nhiễm.

2. *Tác nhân gây bệnh truyền nhiễm* là vi rút, vi khuẩn, ký sinh trùng và nấm có khả năng gây bệnh truyền nhiễm.

3. *Trung gian truyền bệnh* là côn trùng, động vật, môi trường, thực phẩm và các vật khác mang tác nhân gây bệnh truyền nhiễm và có khả năng truyền bệnh.

4. *Người mắc bệnh truyền nhiễm* là người bị nhiễm tác nhân gây bệnh truyền nhiễm có biểu hiện triệu chứng bệnh.

5. *Người mang mầm bệnh truyền nhiễm* là người mang tác nhân gây bệnh truyền nhiễm nhưng không có biểu hiện triệu chứng bệnh.

6. *Người tiếp xúc* là người có tiếp xúc với người mắc bệnh truyền nhiễm, người mang mầm bệnh truyền nhiễm, trung gian truyền bệnh và có khả năng mắc bệnh.

7. *Người bị nghi ngờ mắc bệnh truyền nhiễm* là người tiếp xúc hoặc người có biểu hiện triệu chứng bệnh truyền nhiễm nhưng chưa rõ tác nhân gây bệnh.

8. *Giám sát bệnh truyền nhiễm* là việc thu thập thông tin liên tục, có hệ thống về tình hình, chiều hướng của bệnh truyền nhiễm, phân tích, giải thích nhằm cung cấp thông tin cho việc lập kế hoạch, triển khai và đánh giá hiệu quả các biện pháp phòng, chống bệnh truyền nhiễm.

Law on Prevention and Control of Infectious Diseases

The Law, enforced since 2008, governs the prevention and control of infectious diseases, border quarantine, and epidemic combat.

The Law provides policies to facilitate the prevention and control of diseases, such as:

i. prioritising investment in building the capacity of disease surveillance personnel and systems to detect infectious diseases and in researching and producing vaccines and medical biologicals,

ii. Promoting scientific research, exchange and training of specialists and technology transfer

iii. Supporting medical attendance for persons suffering infectious diseases due to occupational risks and other necessary cases

iv. Mobilising financial, technical, and human resources from the entire society

v. Expanding cooperation with international organisations and other countries in the region and the world in epidemic control activities

In Article 3, dengue is classified as a Class B infectious disease in the Law. Class B infectious diseases consist of dangerous infectious diseases that can rapidly transmit and be fatal.

The central government provides for details and guidance on the implementation of the Law.

Vietnam

ASIA DENGUE Policy Working Group

Dengue strategies (2/2)

THỦ TƯỚNG CHÍNH PHỦ

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Số: 1125/QĐ-TTg

Hà Nội, ngày 31 tháng 07 năm 2017

QUYẾT ĐỊNH

PHÊ DUYỆT CHƯƠNG TRÌNH MỤC TIÊU Y TẾ - DÂN SỐ GIAI ĐOẠN 2016 - 2020

THỦ TƯỚNG CHÍNH PHỦ

Căn cứ Luật Tổ chức Chính phủ ngày 19 tháng 6 năm 2015;

Căn cứ Luật Đầu tư công ngày 18 tháng 6 năm 2014;

Căn cứ Luật Ngân sách nhà nước ngày 25 tháng 6 năm 2015;

Căn cứ Nghị quyết số 1023/NQ-UBTVQH13 ngày 28 tháng 8 năm 2015 của Ủy ban thường vụ Quốc hội về ban hành các nguyên tắc, tiêu chí và định mức phân bổ vốn đầu tư phát triển nguồn ngân sách nhà nước giai đoạn 2016 - 2020;

Căn cứ Nghị quyết số 60/NQ-CP ngày 08 tháng 7 năm 2016 của Chính phủ về những nhiệm vụ, giải pháp chủ yếu đẩy nhanh tiến độ thực hiện và giải ngân kế hoạch vốn đầu tư công năm 2016;

Căn cứ Nghị quyết số 73/NQ-CP ngày 26 tháng 8 năm 2016 của Chính phủ phê duyệt chủ trương đầu tư các Chương trình mục tiêu giai đoạn 2016 - 2020;

Căn cứ Quyết định số 40/2015/QĐ-TTg ngày 14 tháng 9 năm 2015 của Thủ tướng Chính phủ về việc ban hành các nguyên tắc, tiêu chí và định mức phân bổ vốn đầu tư phát triển nguồn ngân sách nhà nước giai đoạn 2016 - 2020;

Xét đề nghị của Bộ trưởng Bộ Kế hoạch và Đầu tư,

QUYẾT ĐỊNH:

Điều 1. Phê duyệt Chương trình mục tiêu Y tế - Dân số giai đoạn 2016 - 2020 (sau đây viết tắt là Chương trình), bao gồm các nội dung chính sau:

1. Tên và cơ quan quản lý Chương trình, cơ quan phối hợp

a) Tên Chương trình: Chương trình mục tiêu Y tế - Dân số giai đoạn 2016 - 2020.

b) Cơ quan quản lý Chương trình: Bộ Y tế.

c) Cơ quan phối hợp: Các bộ, ngành và các địa phương liên quan.

2. Mục tiêu của Chương trình

a) Mục tiêu tổng quát

Chủ động phòng, chống dịch bệnh, phát hiện sớm, kịp thời khống chế không để dịch lớn xảy ra.

National Health Target Programme (2016-2020)

One of the projects of the programme includes the prevention and control of a number of dangerous infectious diseases and non-communicable diseases, including dengue.

The plan outlined specific goals to strive for by 2020:

i. 8% reduction in dengue incidence average per 100,000 population in the2016-2020 period compared to the average in the period of 2011-2015.

ii. Maintaining an annual incidence rate of dengue fever of <0.09%

Key activities targeted towards dengue prevention, control, and management included:

i. Epidemiological surveillance

ii. Professional training and training in prevention and control of dengue fever

iii. Stockpiling and supporting supplies, chemicals, equipment for dengue prevention and control for localities

Note: The National Health Target Programme (2016-2020) is the latest national plan published on online sources.

Vietnam

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Vietnam conducts workshops and educational programmes to raise awareness and educate the public on dengue, adopting various mediums (e.g., TV broadcasts and podcasts).
Vector control		Environmentally sustainable vector control strategies are adopted in Vietnam nationwide. Innovative strategies, such as *Wolbachia* programmes are currently only implemented in select areas as pilot programmes.
Entomological surveillance		Vector surveillance systems are robust and comprehensive, utilising established indicators. However, little is known about the utilisation of surveillance data in outbreak prevention or forecasting as well as the departments or organisations involved in the operation and monitoring of vector surveillance.
Case reporting		Case reporting systems in Vietnam are robust and comprehensive, requiring historical dengue case data and immediate reporting of clinically confirmed/diagnosed dengue cases.
Dengue vaccination		Vietnam launched a vaccination campaign in Sept 2024 at 200 centres nationwide. Currently, dengue vaccines are paid fully OOP in Vietnam.
Dengue diagnosis		Dengue diagnosis in Vietnam follows international guidelines. Various diagnostic services are available in Vietnam but little is known on the uptake of these services and the proportion of public insurance coverage.
Dengue patient care management		Patient care management in Vietnam follows international guidelines. Patients treated at provincial or local public hospitals have their fees covered by public insurance. However, treatment at private hospitals requires out-of-pocket payment.
Others		• **Resource allocation**: Local communities carry out prevention activities without central government investment, integrating dengue control with other diseases • **Government prioritisation:** The central government is focused on surveillance and outbreak response. Investment in other aspects of dengue control, prevention, and management is lacking.

Abbreviations – OOP: Out of pocket

Vietnam

ASIA DENGUE Policy Working Group

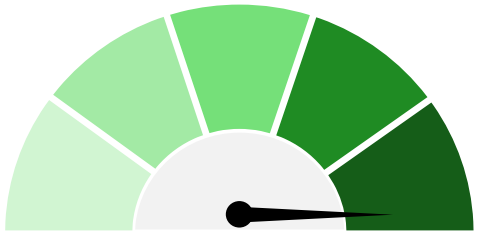
Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		The Vietnamese government consistently organises workshops and other educational campaigns to inform citizens about dengue Local governments are allocating resources for community awareness and education and adopting various forms of information, education, and communication (IEC) materials and medium (e.g., TV broadcasts, podcasts and talks by healthcare professionals). A dedicated health team (consisting of healthworkers) regularly visit households to communicate dengue risks in the community as well as eliminate *Aedes* larval habitats.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		Indicators are not always used to assess the impact and effectiveness of community awareness and education programmes. Cross-sectional data studies are conducted to investigate and understand the Knowledge, Attitudes, and Practices (KAP) of dengue. Meetings to evaluate initiatives are only done occasionally.
Educational programs targeted to healthcare providers		Healthcare professionals are trained annually.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The Vietnamese government should continue its efforts in public education by expanding workshops and campaigns to reach both rural and urban communities, leveraging digital platforms for broader dissemination. To ensure effectiveness, robust evaluation mechanisms should be established.

Abbreviations – IEC: Information, Education, and Communication; KAP: Knowledge, Attitude, and Practices

Vietnam

ASIA DENGUE Policy Working Group

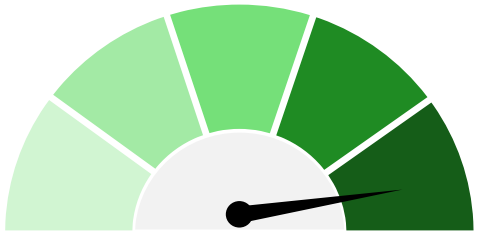
Vector control (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		**Nationally-adopted:** Environmentally sustainable vector control strategies are adopted nationally. Local communities have been carrying out prevention activities without investment from the central government. Vector control initiatives are conducted monthly by district
Vector control education		Educating the public and delivering accurate health information, including targeted communication on dengue fever are key activities within the national dengue control programme. Local governments have been putting in resources (including TV broadcasts) for community awareness and education. Healthworkers visit households to educate and eliminate *Aedes* larval habitats.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To ensure the effectiveness of vector control initiatives, the government should establish robust monitoring and evaluation frameworks for all vector control initiatives to assess impact and refine strategies. Sufficient resource allocation is essential to support widespread implementation and community engagement.

Vietnam

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Personal protection measures** • Commercial household pest control *(e.g., Applying appropriate insecticides to water storage outdoor containers, use of coils, repellent creams, and electric mosquito rackets, use of mosquito nets and wearing full-coverage clothing, mosquito sprays / insecticides)* ✓ **Community-based measures** • Source reduction *(e.g., covering, emptying, and cleaning of domestic water storage containers on a weekly basis, removing waste materials and artificial man-made habitats (e.g., old tires, bottles, jars)* • *Wolbachia* or genetically modified mosquitoes: • *Wolbachia* programmes are conducted by the World Mosquito Programme (WMP) in collaboration with the Pasteur Institute of Vietnam • 2013: *Wolbachia* release programmes were initiated on Tri Nguyen Island under the supervision of the MoH • 2018: The programme was expanded to include 8 villages in Vinh Luong commune • There are currently no plans to further expand the programme in South Vietnam • Biological methods *(e.g., predatory copepods or fish)* × Autodissemination or lethal ovitraps *(No available information)*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To ensure the effectiveness of vector control initiatives, the government should establish robust monitoring and evaluation frameworks for all vector control initiatives to assess impact and refine strategies. Sufficient resource allocation is essential to support widespread implementation and community engagement.

Abbreviations – MoH: Ministry of Health; WMP: World Mosquito Programme

Vietnam

Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		• WMP closely monitors the *Wolbachia* mosquito populations released in select areas in Vietnam • A study in 2023 also investigated the economic impact and cost-effectiveness of *Wolbachia* deployments in Vietnam. The study found that targeting high-burden cities with *Wolbachia* releases presents a viable, cost-effective dengue control strategy with significant health and economic benefits. • There is no information available on monitoring and evaluation efforts of other vector control strategies in Vietnam
Resource allocation for vector control	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To ensure the effectiveness of vector control initiatives, the government should establish robust monitoring and evaluation frameworks for all vector control initiatives to assess impact and refine strategies. Sufficient resource allocation is essential to support widespread implementation and community engagement.

Abbreviations – WMP: World Mosquito Programme

Vietnam

ASIA DENGUE Policy Working Group

Entomological surveillance

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		A national entomological surveillance system is in place. There are three components to vector surveillance: i. Vector control ii. Dengue serotypes *(3-5% of cases are tested at regional level)* iii. Testing for insecticide resistance
Indicators used for surveillance		✓ **House index (HI):** Percentage of houses with female mosquitoes ✓ **Container Index (CI):** Index of water containers with larvae/wigglers ✓ **Breteau index (BI):** Number of domestic and communal containers with larvae/wigglers in 100 investigators ✓ **Larvae index / Pupae Index (PI):** Percentage of homes with larvae ✓ **Mosquito density index:** Number of female mosquitoes average in a family surveyed ✓ **Larvae density index:** Average number of larvae per investigator
Frequent and timely collection of entomological surveillance data		• Vector surveillance is conducted monthly in each province • 2-3 investigations are conducted annually to detect *Aedes* larval habitats
Utilisation of data for outbreak prevention / forecasting		Vector surveillance data is currently mostly used for outbreak response and does not include outbreak prediction. The early warning system does not include entomological surveillance.
Resource allocation for entomological surveillance	NA	*No available information found*

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

The data collected using established indicators should be systematically utilised for outbreak forecasting and targeted prevention measures. To support entomological surveillance efforts, adequate resource allocation for initiatives, including equipment and operation costs, is critical to sustain and improve the effectiveness of the surveillance programme. Furthermore, policymakers should consider expanding the existing outbreak prediction model to integrate entomological surveillance data.

Vietnam

ASIA DENGUE Policy Working Group

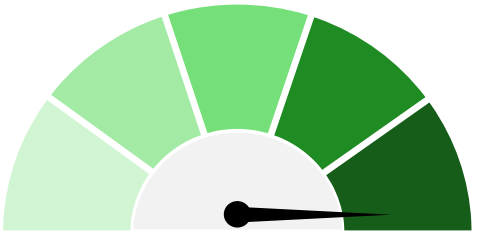
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		A national dengue surveillance system is in place
Indicators used for surveillance		✓ Suspected cases ✓ Clinically diagnosed and laboratory-confirmed cases ✓ Dengue-related deaths ✓ Circulating serotypes • 3-5% of dengue cases are tested for serotype at regional level ✓ Historical dengue case data *(also used for outbreak forecasting)* Dengue case reporting flow: *Community* > *District* > *Province* > *Pasteur Institute* > *MoH* • The national dengue surveillance system tracks dengue infections through various methods, including serology, virus isolation, and RT-PCR tests

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The Vietnamese government should consider establishing a national digital death registry to accurately record dengue-related deaths. Adequate resource allocation is necessary to sustain and modernise case reporting mechanisms, enabling more robust outbreak prevention and forecasting.

Vietnam

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of patient surveillance data		• The law on prevention and control of infectious diseases states that infectious disease surveillance reports (including dengue) shall be sent to state health agencies. Reports may be transmitted by fax, email, telegraph, telephone or verbally and a written version must be sent within 24 hours afterwards. • Agencies, organisations, and individuals shall, upon detecting an infectious disease or its signs, notify the nearest People's Committees, specialised health agencies or health establishments.
Utilisation of data for outbreak prevention / forecasting		The Vietnamese government uses historical dengue case data as an indicator for surveillance and prediction of future outbreaks The surveillance system in Vietnam incorporates past dengue incidence data to assess and predict the risk of future dengue transmissions.
Resource allocation for case reporting	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

The Vietnamese government should consider establishing a national digital death registry to accurately record dengue-related deaths. Adequate resource allocation is necessary to sustain and modernise case reporting mechanisms, enabling more robust outbreak prevention and forecasting.

Vietnam

ASIA DENGUE Policy Working Group

Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		• International guidelines for dengue vaccination is adopted in Vietnam • Dengue vaccines are given in 2 doses in between a 3-month interval
Physical access to vaccines		In Sept 2024, Vietnam launched a vaccination campaign using Takeda's Qdenga vaccine • Has been initiated at 200 modern inoculation centres nationwide
Inclusion of dengue vaccination in the National Immunisation Programme		Dengue vaccination is not included in the NIP
Financial access to vaccines		• Dengue vaccination is currently paid fully OOP • Qdenga vaccine is priced at VND 1.39 Mn (~USD 57) per dose
Knowledge and awareness of dengue vaccination		There is high awareness of dengue vaccination in Vietnam given high demand for dengue vaccines. *Information on extent of awareness unknown (e.g., comprehensive vs basic)*
Willingness to be vaccinated		There is high demand for dengue vaccine in Vietnam, which is likely attributed to the high awareness of dengue severity and the willingness of people to protect themselves and their families. *Information on the proportion of population willing to be vaccinated unknown*

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

With increased acceptance and high demand of the dengue vaccine, Vietnam should consider including dengue vaccination in its NIP. Incorporating dengue vaccination into the NIP would enhance coverage and reduce financial barriers. Additionally, allocating resources for research and development of new vaccines could enhance long-term prevention efforts.

Abbreviations – NIP: National Immunisation Programme; OOP: Out of pocket; USD: United States Dollar; VND: Vietnamese Dong

Vietnam

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for new vaccines and prophylaxis methods / R&D		A trial on a new dengue vaccine by MSD might be initiated in 2026.
Resource allocation for dengue vaccination and prophylaxis		Resources primarily come from national funding, while pilot projects and research are supported by industry funding.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

With increased acceptance and high demand of the dengue vaccine, Vietnam should consider including dengue vaccination in its NIP. Incorporating dengue vaccination into the NIP would enhance coverage and reduce financial barriers. Additionally, allocating resources for research and development of new vaccines could enhance long-term prevention efforts.

Abbreviations – NIP: National Immunisation Programme; OOP: Out of pocket

Vietnam

ASIA DENGUE Policy Working Group

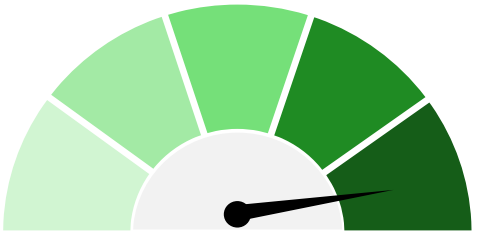
Dengue diagnosis (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found*
Frequency of training of specialists / lab technicians		Healthcare professionals and specialists undergo annual training, with each province managing the training programs for their respective district and local staff.
Existence and adoption of dengue clinical guidelines		WHO guidelines for the diagnosis of dengue have been adopted in Vietnam *No other information found*
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) • Real-time-PCR is considered the “gold standard” for early diagnosis of dengue virus infection and for determining the serotypes of the virus • NS1 antigen testing is conducted from the 1st to the 5th day of disease

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Financial accessibility to diagnostic services should be assessed and addressed to ensure equitable access for all populations. Additionally, allocating resources for research and development of innovative diagnostic methods could improve early detection and support more effective disease management.

Abbreviations – PCR: Polymerase chain reaction

Vietnam

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		The most common diagnostic tools (e.g., RDTs) are covered by public insurance. *Information on proportion of coverage not available*
Research and advocacy for innovative diagnostics / R&D	NA	*No available information found*
Resource allocation for dengue diagnosis	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Financial accessibility to diagnostic services should be assessed and addressed to ensure equitable access for all populations. Additionally, allocating resources for research and development of innovative diagnostic methods could improve early detection and support more effective disease management.

Abbreviations – RDT: Rapid diagnostic test

Vietnam

ASIA DENGUE Policy Working Group

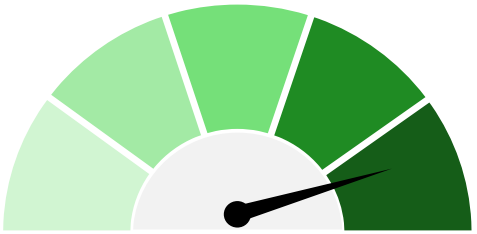
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		WHO guidelines for clinical management of dengue is adopted in Vietnam, separating dengue fever into 3 levels: • Dengue haemorrhagic fever • Dengue haemorrhagic fever with warning signs • Severe dengue haemorrhagic fever *No other information found*
Physical access to treatment / symptom management services	NA	*No available information found*
Financial access to treatment / symptom management services		Patients treated at provincial or local public hospitals have their fees covered by public insurance. However, treatment at private hospitals requires out-of-pocket payment. *Information on proportion of coverage not available*
Resource allocation for dengue patient care management	NA	*No available information found*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen dengue care management, Vietnam should prioritise ensuring physical and financial access to patient care management services nationwide, particularly in rural areas. Vietnam should consider collecting and analysing data on physical and financial access to care management services to better inform policies and decision-making activities. Additionally, allocating resources for patient care management and infrastructure, such as adequately equipped health facilities and trained personnel, is critical.

Abbreviations – WHO: World Health Organisation

India

Click the buttons to navigate through this section

National

Karnataka

India

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- Dengue remains a major public health concern in India, with a rising trend in cases, particularly in urban areas, alongside other arboviral diseases like Chikungunya, prompting national and state-level interventions for effective management and control.
- The surge of dengue fever cases in India is attributed to rapid development and economic expansion which led to both urbanization and increased movement of people between cities and states.
- India's malaria control efforts evolved from the 1953 National Malaria Control Programme to the *2002 National Vector Borne Disease Control Programme (NVBDCP)*, incorporating new tools and global support to combat resurgence and resistance of malaria and other vector borne diseases, including dengue.
- Collaboration between the private and public healthcare sector have improved over the years
    - Over the past five years, there has been significant progress in case reporting, making reporting compulsory, and acceptance of diagnostic tests, such as ELISA, in both the public and private sector.

Key stakeholders

Government of India (GoI)	• Provides cash assistance for engaging Multi-Purpose Health Workers (MPW) on contractual basis in high endemic districts for strengthening surveillance, treatment, prevention and control of malaria and other vector borne diseases
Directorate of National Vector Borne Disease Control Programme	• Central nodal agency for prevention and control of 6 vector borne diseases, including dengue. It is part of the Technical Division of the Directorate General of Health Services, Government of India. The Directorate is responsible for framing technical guidelines and policies to guide the states for implementation of the NVBDCP strategies. It is also responsible for budgeting and planning the logistics pertaining to GoI supply. • The Directorate carries out evaluation of programme implementation activities from time to time.

Abbreviations – GoI: Government of India; NVBDCP: National Vector Borne Disease Control Programme

India

Dengue strategies

National Vector Borne Disease Control Programme (NVBDCP)

The National Vector Borne Disease Programme focuses on the prevention and control of major vector borne diseases in India, such as Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis, and Chikungunya. The programme is an integral part of the National Rural Health Mission (NRHM) in India.

The programme's aim is to prevent, control, and eliminate vector-borne diseases such as Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis, and Chikungunya through integrated disease management, surveillance, vector control, early diagnosis, prompt treatment, and community participation, ensuring a reduction in disease burden and mortality across the country.

The Directorate of NVBDCP is responsible for framing technical guidelines and policies to guide the states for implementation of the NVBDCP strategies. It is also responsible for budgeting and planning the logistics pertaining to GoI supply, as well as carrying out evaluations of the programme activities occasionally.

- Every state has a state vector borne disease control unit under the Directorate of Health Services with stipulated technical components.
- There are State Programme Officers and a system of coordination between the state and centre for effective implementation and monitoring of NVBDCP.
- District-level planning and implementation is managed by District VBD Officers (DVBDOs).

Note: The National Vector Borne Disease Control Programme (NVBDCP) is the latest national plan published on online sources.

Abbreviations – NVBDCP: National Vector Borne Disease Control Programme

India

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in India is comprehensive and robust, communicating dengue information through various means including prints and audiovisuals. However, there are opportunities in expanding strategies to include healthcare providers.
Vector control		Vector control strategies are implemented by States and monitored by the National Centre for Vector Borne Diseases Control (NCVBDC), and Regional Offices of the Health and Family Welfare (RoHFW).
Entomological surveillance		As part of the National Vector Borne Disease Control Programme, vector surveillance in India surveys larval and adult *Aedes* mosquitoes.
Case reporting		The NCVBDC publishes state and nationwide data on dengue cases and dengue-related deaths annually.
Dengue vaccination		India is mainly focused on generating local evidence that showcases the efficacy and effectiveness of dengue vaccines with ongoing research investigating an Indigenous dengue vaccine.
Dengue diagnosis		Dengue diagnosis processes in India are robust and comprehensive, detailing workflows and funding allocated for diagnostic facilities as well as the adoption of updated local clinical management guidelines.
Dengue patient care management		India has local clinical management guidelines for dengue management with detailed guidance on patient management according to the patient's classification and/or severity of dengue fever.

Abbreviations – NCVBDC: National Centre for Vector Borne Diseases Control; RoHFW: Regional Offices of the Health and Family Welfare

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

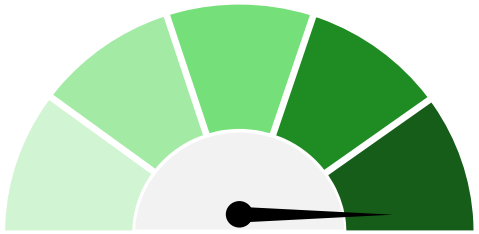
Community awareness and education (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		• Information, education, and communication (IEC) materials, such as prints and audiovisuals (e.g., TV and radio) have been developed to raise awareness and knowledge on dengue • IEC materials are adapted and translated where deemed appropriate to accommodate the information needs of the programmes' target audience
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		• Monitoring activities are conducted by the 19 RoHFWs in their states jurisdiction. State Programme Officers (SPO) and National Programme Officers will monitor community-based programmes during field visits • Monthly reports are submitted by all states to the Directorate of NVBDCP and RoHFW. Monthly reports include details on e.g., number of schools visited, number of district/state level advocacy meetings and workshops, and types of IEC activities carried out for generating awareness on dengue • SPOs carry out evaluations on existing implemented IEC activities and make necessary changes • States can request any research institutes to conduct an Impact Assessment *(Note: Metrics for Impact Assessment are unknown)* • After 3 years, an independent evaluation of the component of community participation will be conducted by an external evaluation agency *(Note: Unclear if this is after 3 years of implementation of IEC activities)*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance community awareness and education initiatives in India, assessment metrics such as audience reach, behavioural changes, and engagement with other dengue control and management initiatives should be assessed. Additionally, targeted education programmes for healthcare providers should be developed to ensure the capacity of these individuals to manage dengue.

Abbreviations – IEC: Information, education, and communication; NCVBDC: National Centre for Vector Borne Diseases Control; RoHFW: Regional Offices of the Health and Family Welfare; SPO: State programme officers

India

ASIA DENGUE Policy Working Group

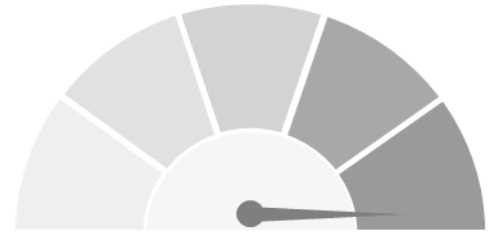
Community awareness and education (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Educational programs targeted to healthcare providers	NA	*No available information found*

Overall pillar assessment outcome



Basic — Optimised

Recommendations

To enhance community awareness and education initiatives in India, assessment metrics such as audience reach, behavioural changes, and engagement with other dengue control and management initiatives should be assessed. Additionally, targeted education programmes for healthcare providers should be developed to ensure the capacity of these individuals to manage dengue.

India

ASIA DENGUE Policy Working Group

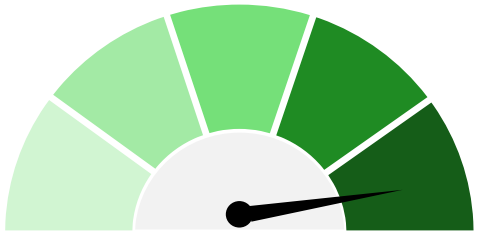
Vector control (1/5)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		Environmentally sustainable vector control strategies are in place nationally and primarily implemented by States following a decentralised approach.
Vector control education		As part of India's national vector control measures, dengue and vector education is shared with the public through various media (e.g., TV and radio).

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To further strengthen vector control efforts, India should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. India should leverage regional and/or international relationships to absorb and adapt best practices from such innovative initiatives. Additionally, transparent resource allocation processes is essential to identify underprioritised areas.

India

ASIA DENGUE Policy Working Group

Vector control (2/5)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Personal protection measures** • Commercial household pest control products *(e.g., spatial repellents)* • Home-based source reduction *(e.g., detection and elimination of breeding sources, proper covering of stored water)* ✓ **Community-based measures** • Programme-based source reduction, promotion of topical repellents and commercial household pest control *(e.g., mosquito repellent; Neem oil is being distributed to households reporting dengue cases)* • Space spraying *(e.g., Indoor Residual Spray (IRS) Insecticide fogging is not recommended as a routine measure for Aedes mosquito control, as it is costly and limited effectiveness. However, states continue to adopt this method as part of their dengue control strategy)* • Chemical methods *(e.g., larviciding)* • Biological methods *(e.g., use of biocides and larvivorous fishes)* *Continued...*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, India should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. India should leverage regional and/or international relationships to absorb and adapt best practices from such innovative initiatives. Additionally, transparent resource allocation processes is essential to identify underprioritised areas.

Abbreviations – IRS: Indoor Residual Spray; ITS: Insecticide treated bed nets; LLIN: Long lasting insecticide nets

India

ASIA DENGUE Policy Working Group

Vector control (3/5)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Screening and insecticide-treated materials:** *e.g., Insecticide Treated bed Nets (ITN) / Long Lasting Insecticidal Nets (LLIN)* × **Residual spray for adult mosquitoes and around dwellings** × ***Wolbachia* or genetically-treated materials:** *There are talks of implementation but no widespread implementation yet* **Pilot programmes:** ○ **Autodissemination or lethal ovitraps:** *Pilot Ovitrap programmes in Karnataka started in Aug 2024 to attract and monitor mosquitoes* The insecticide policy in different areas is revised based on results of vector susceptibility studies and epidemiological impact of IRS.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, India should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. India should leverage regional and/or international relationships to absorb and adapt best practices from such innovative initiatives. Additionally, transparent resource allocation processes is essential to identify underprioritised areas.

Abbreviations – IRS: Indoor Residual Spray; ITS: Insecticide treated bed nets; LLIN: Long lasting insecticide nets

India

ASIA DENGUE Policy Working Group

Vector control (4/5)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Monitoring and evaluation of vector control initiatives / programs		• Vector control strategies are monitored and evaluated using the following indicators:
		  • Reduction in the number of dengue cases
		  • Reduction in the number of deaths due to dengue (i.e., decrease in case fatality rate)
		• Monitoring activities are conducted by the 19 RoHFWs in their states' jurisdiction. SPOs and National Programme Officers will monitor community-based programmes during field visits
		  • Monthly reports are submitted by all states to the Directorate of NVBDCP (or the NCVBDC) and RoHFW. Monthly reports include details on e.g., number of houses visited and demonstration of breeding places, and providers engaged in dengue prevention and control activities
		• Review of the progress of vector control methods is undertaken periodically by different stakeholders at different levels:
		  • District collector and CMO at the district level
		  • Municipal Commissioner at the municipality level
		  • Director Health Services and Health Secretary/Mission Director at the state level biannually
		  • At the national level, a review of strategies will be done at the Annual Action Planning Meeting and at the Dengue Task Force Meeting chaired by the Directorate General of Health Services

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, India should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. India should leverage regional and/or international relationships to absorb and adapt best practices from such innovative initiatives. Additionally, transparent resource allocation processes is essential to identify underprioritised areas.

Abbreviations – CMO: Chief Management Officer; NCVBDC: National Centre for Vector Borne Diseases Control; NVBDCP: National Vector Borne Disease Control Programme; RoHFW: Regional Offices of the Health and Family Welfare; SPO: State programme officers

India

ASIA DENGUE Policy Working Group

Vector control (5/5)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Resource allocation for vector control	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, India should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. India should leverage regional and/or international relationships to absorb and adapt best practices from such innovative initiatives. Additionally, transparent resource allocation processes is essential to identify underprioritised areas.

India

ASIA DENGUE Policy Working Group

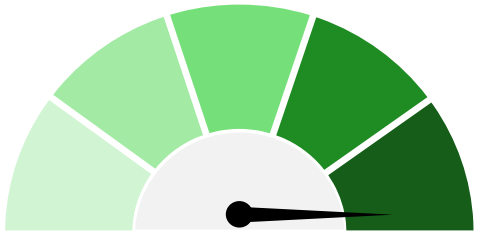
Entomological surveillance

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		A vector surveillance system is in place to survey larvae and adult *Aedes* mosquitoes *(Note: Name of surveillance system not available).*
Indicators used for surveillance		The following indicators are used for larval surveillance: ✓ House Index (HI) ✓ Container Index (CI) ✓ Breteau Index (BI) ✓ Pupae Index (PI) Adult *Aedes* mosquito surveillance are conducted through: • Landing/biting collection of humans expressed as counts per man hour. • Resting collection which involves systematic searching of mosquito resting sites and recorded as the number of adults per house or number of adults per man hour of human efforts. • Use of ovitraps.
Frequent and timely collection of entomological surveillance data	NA	*No available information found*
Utilisation of data for outbreak prevention / forecasting	NA	*No available information found*
Resource allocation for entomological surveillance	NA	*No available information found*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen entomological surveillance in India, frequent and timely collection of data is essential to gain accurate and updated data on the serologic distribution of *Aedes* mosquitoes in India. India should also consider integrating surveillance data with predictive systems to forecast outbreaks and guide decision-making activities to enhance dengue control measures. Transparent resource allocation and increased funding are necessary to support regular surveillance activities and capacity-building.

India

ASIA DENGUE Policy Working Group

Case reporting (1/2)

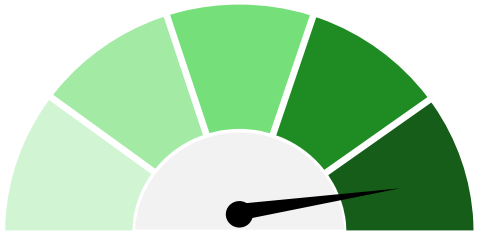
Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Existence of a national notifiable disease surveillance system		• India's National Centre for Vector Borne Diseases Control (NCVBDC) has been publishing data on dengue cases and dengue-related deaths per state and nationally since 2019.
		• Integrated Disease Surveillance Programme (IDSP)
		  • The Government of India (GoI) established the Integrated Disease Surveillance Programme (IDSP) in 2004, aiming for early detection and continuous monitoring of diseases, including dengue.
		  • Facilitates data collection and analysis across all states and union territories, enabling timely responses to outbreaks.
		• Integrated Health Information Platform (IHIP)
		  • Launched in November 2019
		  • Aimed to enhanced digital surveillance capabilities, further strengthening India's ability to track and respond to disease patterns.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Transparent reporting of laboratory-confirmed dengue cases and suspected dengue cases as well as budget and resource allocations would enhance case reporting initiatives.

Abbreviations – GoI: Government of India; IDSP: Integrated Disease Surveillance Programme; IHIP: Integrated Health Information Platform; NCVBDC: National Centre for Vector Borne Diseases Control

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Indicators used for surveillance		○ Suspected cases ○ Confirmed cases ✓ Dengue-related deaths × Circulating serotypes Dengue cases and dengue-related deaths are recorded in NCVBDC's reports *(Note: No information on if the "cases" include suspected cases of dengue).*
Frequent and timely collection of patient surveillance data		Data is captured in a timely and efficient manner for management decision-making.
Utilisation of data for outbreak prevention / forecasting		Apex Referral Laboratories regularly send reports of sample and diagnosis results to district/municipal health authorities to implement preventive measures to interrupt transmission *(Note: No information on frequency).* • Apex Referral Laboratories are a list of NCVBDC identified laboratories which have advanced diagnostic facilities for back-up support.
Resource allocation for case reporting	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Transparent reporting of laboratory-confirmed dengue cases and suspected dengue cases as well as budget and resource allocations would enhance case reporting initiatives.

Abbreviations – NCVBDC: National Centre for Vector Borne Diseases Control

India

ASIA DENGUE Policy Working Group

Dengue vaccination

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		There are no guidelines in the adoption of dengue vaccination.
Physical access to vaccines		No access to dengue vaccines in the country.
Inclusion of dengue vaccination in the National Immunisation Programme	NA	No access to dengue vaccines in the country; Dengue vaccination is not included in NIP.
Financial access to vaccines		No access to dengue vaccines in the country.
Knowledge and awareness of dengue vaccination	NA	*No available information found*
Willingness to be vaccinated	NA	*No available information found*
Research and advocacy for new vaccines and other prophylaxis methods / R&D		• No dengue vaccines have been approved in India for use yet for desire of more locally generated data. • India may be prioritising indigenous dengue vaccines. Phase III clinical trial for a dengue vaccine developed by India's Panacea Biotec in collaboration with the Indian Council of Medical Research (ICMR) is currently ongoing across 18 states.
Resource allocation for dengue vaccination	NA	*No available information found*

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

India should continue prioritising dengue vaccination by continuing to support and accelerate initiatives aimed at generating local evidence showcasing the efficacy of dengue vaccines. Furthermore, local governments should ensure the physical and financial accessibility of dengue vaccines once available. Additionally, conducting research on public knowledge and willingness to receive dengue vaccines will help inform future vaccination programmes.

Abbreviations – ICMR: Indian Council of Medical Research; NIP: National Immunisation Programme

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

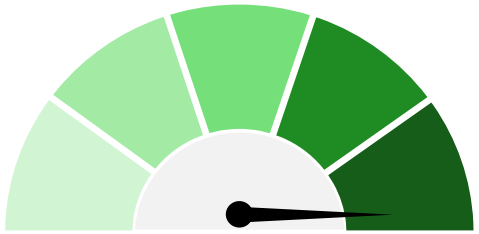
Dengue diagnosis (1/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found*
Frequency of training of specialists / lab technicians	NA	Trainings are conducted. However, the frequency and intensity of trainings are unknown.
Existence and adoption of dengue clinical guidelines		Local clinical guidelines for the diagnosis of dengue are adopted nationally, including the state of Karnataka: • 2023: National Guidelines for Clinical Management of Dengue Fever published by the Ministry of Health and Family Welfare (MoHFW) Guidelines are updated every 2 to 3 years, and are aligned with WHO guidelines.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To further enhance diagnostic capacity in India, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines. India should consider supporting planned and/or ongoing research aimed at enhancing the accuracy and reliability of existing tests or developing diagnostic tests with higher specificity and sensitivity.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

Dengue diagnosis (2/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) Various types of diagnostic services are widely available in India, including serology rapid and ELISA tests, nucleic acid detection, virus culture, and antigen detection rapid and ELISA tests. • Use of rapid diagnostic tests (RDT) is not recommended under India's dengue fever control and management programme due to variable sensitivity and specificity of RDTs. Positive tests on non-ELISA based NS1 antigen/IgM are considered probable dengue cases. NCVBDC identified 805 (as of 2023) Sentinel Surveillance Hospitals and 17 Apex Referral Laboratories • Sentinel Surveillance Hospitals: Provide laboratory support for augmentation of diagnostic facility for dengue. • Apex Referral Laboratories: Have advanced diagnostic facilities for back-up support. A network of 311 Sentinel surveillance hospitals and 14 Apex Referral Laboratories with advanced facilities located in 35 States for dengue diagnosis has been established.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further enhance diagnostic capacity in India, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines. India should consider supporting planned and/or ongoing research aimed at enhancing the accuracy and reliability of existing tests or developing diagnostic tests with higher specificity and sensitivity.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

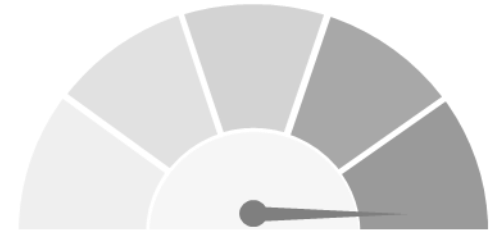
Dengue diagnosis (3/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		A large number of diagnostic facilities in endemic areas provide free diagnostic services. NCVBDC bears the cost for all testing. Caps on private sector costs of tests are imposed.
Research and advocacy for innovative diagnostics/ R&D	NA	*No available information found*

Overall pillar assessment outcome



Basic — Optimised

Recommendations

To further enhance diagnostic capacity in India, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines. India should consider supporting planned and/or ongoing research aimed at enhancing the accuracy and reliability of existing tests or developing diagnostic tests with higher specificity and sensitivity.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

Dengue diagnosis (4/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Resource allocation for dengue diagnosis		• The Government of India provides funding for the procurement of diagnostic tests. India states are responsible for the procurement of diagnostic tests using the funding provided. The SPOs are responsible for ensuring the functionality of diagnostic facilities and availability of test kits.
		• The Directorate of NCVBDC provides an annual contingency grant of
		  • Rs 3.00 Lakhs (USD 3.6k) to identified Apex Referral Laboratories for procurement of e.g., PCR reagents, RNA extraction kits
		  • Rs 1.00 Lakhs (USD 1.2k) to identified Sentinel Surveillance Hospital Laboratories for procurement of e.g., gloves and chemicals required for ELISA *(Note: Funds for procurement of ELISA reader/washer are provided by the state).*
		• However, these funds are not used to procure diagnostic tests as:
		  • IgM kits (1 kit = 96 tests) are supplied centrally through the National Institute of Virology (NIV) to maintain uniformity and standard of tests. Buffer stocks are also maintained at NIV to meet emergency needs.
		  • ELISA Dengue NS1 tests are procured by the state under decentralised procurement.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further enhance diagnostic capacity in India, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines. India should consider supporting planned and/or ongoing research aimed at enhancing the accuracy and reliability of existing tests or developing diagnostic tests with higher specificity and sensitivity.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

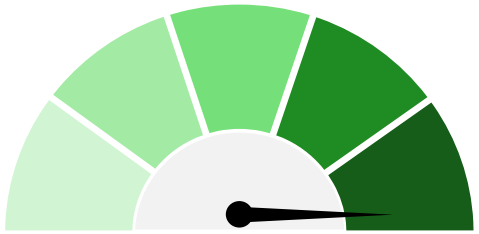
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Local clinical guidelines for the management of dengue is adopted nationally. • 2023: National Guidelines for Clinical Management of Dengue Fever • Detailed recommendations on the management of dengue fever according to the clinical case classification / severity of dengue (e.g., with/without warning signs, severe dengue).
Physical access to treatment / symptom management services		Individuals have access to healthcare centres/institutions across all of India. • 22,975 primary health centres • 1,37,271 sub-centres which are village-level health institutions for delivery of primary health care • 2,935 community health centres for referral services as the first formal contact in rural areas During monsoon season, there are hospital beds reserved for dengue patients in both public and private hospitals.
Financial access to treatment / symptom management services	NA	*No available information found*
Resource allocation for dengue patient care management	NA	*No available information found*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

India should ensure the widespread dissemination and regular updates of the National Guidelines for Clinical Management of Dengue Fever to enhance consistency in care across the healthcare system. Efforts should focus on strengthening the capacity of primary health centres, sub-centres, and community centres to manage dengue effectively. Financial access to services must be assessed and addressed to reduce out-of-pocket expenses borne by patients. Additionally, transparent reporting and allocation of resources for dengue patient care management should be prioritised to support equitable access and enhance the quality of care.

India

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- Karanataka has been proactive in addressing the burden of dengue.
- In July 2024, the state health department mandated the establishment of dengue fever clinics in areas with high dengue incidence.
  - The clinics focus on early diagnosis and treatment to prevent fatalities
  - Public awareness campaigns and community engagement were also intensified to educate residents about preventive measures
- In Sep 2024, the Karnataka government declared dengue fever an epidemic disease under the Karnataka Epidemic Diseases Act 2020. This declaration empowered authorities to enforce stricter measures against mosquito breeding and levy penalties for non-compliance. Responsibilities were placed on property owners to prevent mosquito breeding, with fines imposed for violations in both urban and rural areas.

Key stakeholders

Government of Karnataka	• Responsible for the development and implementation of dengue control, prevention and management strategies in the state. This includes the implementation of penalties for mosquito breeding and the establishment of “Dengue War Rooms” to coordinate efforts, monitor cases, and streamline response strategies.
Bruhat Bengaluru Mahanagara Palike (BBMP)	• Monitors and collects data on dengue cases
Health Research Center (of Indian Council for Medical Research) Bengalore	• Actively involved in the implementation of vector control strategies in the state

India

Dengue strategies

Karnataka State Integrated Health Policy

The Karnataka State Integrated Health Policy, approved and adopted in 2004, was developed by the Task Force on Health and Family Welfare of the Government of Karnataka.

The policy has the following objectives:

i) To provide integrated and comprehensive primary health care

ii) To establish a credible and sustainable referral system

iii) To establish equity in delivery of quality health care

iv) To encourage greater public private partnership in provision of quality health care in order to better serve the underserved areas

v) To address emerging issues in public health

vi) To strengthen health infrastructure

vii) To develop health human resources

viii) To improve the access to safe and quality drugs at affordable prices

ix) To increase access to systems of alternative medicine

Note: The most recent iteration of the policy available on online sources is the policy approved in 2004.

Abbreviations – IVM: Integrated vector management; LKR: Sri Lankan Rupee; MoH: Ministry of Health; NDCU: National Dengue Control Unit; USD: United States Dollar

India

ASIA DENGUE Policy Working Group

Summary

Basic *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in Karnataka is comprehensive and robust, communicating dengue information through various means including prints and audiovisuals. However, there are opportunities in expanding strategies to include healthcare providers.
Vector control		Vector control strategies are regularly implemented state-wide, increasing in frequency during monsoon season. Recent amendments to regulations impose penalties on mosquito breeding in both urban and rural areas.
Entomological surveillance		*The same as the National level (Refer to National slides)*
Case reporting		Dengue cases are captured and reported on an established disease surveillance platform which also provides predictive analysis of diseases at least 4 weeks in advance.
Dengue vaccination		*The same as the National level (Refer to National slides)*
Dengue diagnosis		Dengue diagnosis processes in Karnataka are robust and comprehensive, detailing workflows and funding allocated for diagnostic facilities as well as the adoption of updated national clinical management guidelines.
Dengue patient care management		Karnataka adopts national clinical management guidelines for dengue management with detailed guidance on patient management according to the patient's classification and/or severity of dengue fever. Treatment facilities are provided free of charge to all dengue patients.

Abbreviations – NCVBDC: National Centre for Vector Borne Diseases Control; RoHFW: Regional Offices of the Health and Family Welfare

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

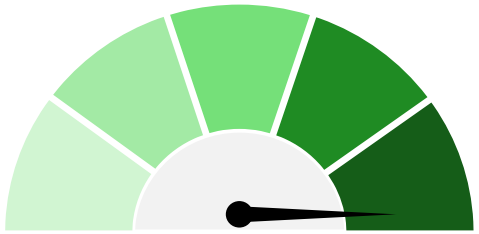
Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		• Information, education, and communication (IEC) materials, such as prints and audiovisuals (e.g., TV and radio) have been developed to raise awareness and knowledge on dengue. • IEC materials are adapted and translated where deemed appropriate to accommodate the information needs of the programmes' target audience. • In Karnataka, community awareness and education programmes are mainly conducted during monsoon season when risk of dengue transmission is high.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		*The same as the National level (Refer to National slides)*
Educational programs targeted to healthcare providers		*The same as the National level (Refer to National slides)*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance community awareness and education initiatives in Karnataka, assessment metrics such as audience reach, behavioural changes, and engagement with other dengue control and management initiatives should be assessed. Additionally, targeted education programmes for healthcare providers should be developed to ensure the capacity of these individuals to manage dengue.

Abbreviations – IEC: Information, education, and communication

India

ASIA DENGUE Policy Working Group

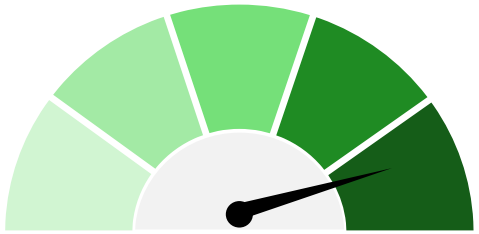
Vector control (1/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		According to the Karnataka State Integrated Health Policy, health promotion for households regarding domestic and peri-domestic measures to reduce vector breeding as well as the adoption and implementation of urban, and municipal laws to control vector breeding grounds are implemented.
Vector control education		*The same as the National level (Refer to National slides)*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To further strengthen vector control efforts, Karnataka should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. Additionally, transparent resource allocation processes is essential to identify underprioritised areas. Karnataka should also consider sharing best practices with other Indian states with implementation of vector control strategies.

India

ASIA DENGUE Policy Working Group

Vector control (2/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control products *(e.g., spatial repellents)*
		• Home-based source reduction *(e.g., detection and elimination of breeding sources, proper covering of stored water)*
		  • Under the Karnataka Epidemic Diseases (Amendment) Regulations 2024, property owners are responsible in preventing mosquito breeding. Fines are imposed for violations in both urban and rural areas with costs dependent on location of breeding site.
		  • According to a directive launched by the Karnataka government in 2024, source reduction activities are conducted every fortnight through the Accredited Social Health Activists (ASHAs) and health staff. A public campaign for source reduction are conducted every Friday involving elected representative, citizens, and other departments to promote cleanliness and proper water storage practices.
		
		Continued...

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, Karnataka should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. Additionally, transparent resource allocation processes is essential to identify underprioritised areas. Karnataka should also consider sharing best practices with other Indian states with implementation of vector control strategies.

Abbreviations – ASHA: Accredited Social Health Activist

India

ASIA DENGUE Policy Working Group

Vector control (3/4)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Community-based measures** • Source reduction: *Karnakata conducts intense source reduction activities every Friday (e.g., regular inspection of Aedes larval habitats, education of proper waster disposal practices)* • Chemical methods • Adulticiding: *Across Karnataka, and especially in urban areas (e.g., Bengaluru), civic authorities have intensified fogging and fumigation while implementing awareness campaigns* • Larviciding • Biological methods *(e.g., use of biocides and larvivorous fishes)* ✓ **Screening and insecticide-treated materials:** *e.g., Insecticide Treated bed Nets (ITN) / Long Lasting Insecticidal Nets (LLIN)* × **Residual spray for adult mosquitoes and around dwellings** × ***Wolbachia* or genetically-treated materials:** *There are talks of implementation but no widespread implementation yet* **Pilot programmes:** ○ **Autodissemination or lethal ovitraps:** *Pilot Ovitrap programmes in Karnataka started in Aug 2024 to attract and monitor mosquitoes*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, Karnataka should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. Additionally, transparent resource allocation processes is essential to identify underprioritised areas. Karnataka should also consider sharing best practices with other Indian states with implementation of vector control strategies.

Abbreviations – ITN: Insecticide treated bed net; LLIN: Long lasting insecticide net

India

ASIA DENGUE Policy Working Group

Vector control (4/4)

Legend Zero *(0%)* | Low *(0%<x≤33%)* | Medium *(33%<x≤66%)* | High *(66%<x≤100%)*

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		*The same as the National level (Refer to National slides)*
Resource allocation for vector control	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further strengthen vector control efforts, Karnataka should consider adopting innovative vector control strategies such as the *Wolbachia*-release programme. Additionally, transparent resource allocation processes is essential to identify underprioritised areas. Karnataka should also consider sharing best practices with other Indian states with implementation of vector control strategies.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

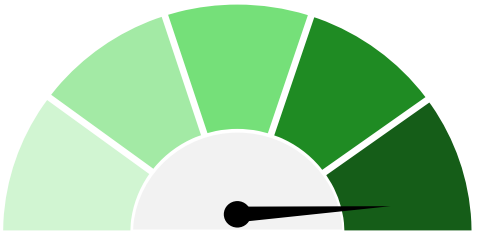
Entomological surveillance

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		*The same as the National level (Refer to National slides)*
Indicators used for surveillance		*The same as the National level (Refer to National slides)*
Frequent and timely collection of entomological surveillance data		*The same as the National level (Refer to National slides)*
Utilisation of data for outbreak prevention / forecasting		*The same as the National level (Refer to National slides)*
Resource allocation for entomological surveillance		*The same as the National level (Refer to National slides)*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

[National-level recommendations]

To strengthen entomological surveillance in India, frequent and timely collection of data is essential to gain accurate and updated data on the serologic distribution of *Aedes* mosquitoes in India. India should also consider integrating surveillance data with predictive systems to forecast outbreaks and guide decision-making activities to enhance dengue control measures. Transparent resource allocation and increased funding are necessary to support regular surveillance activities and capacity-building.

India

ASIA DENGUE Policy Working Group

Case reporting (1/2)

Legend

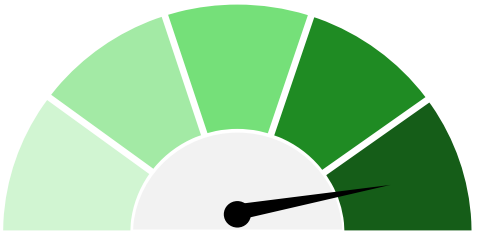
Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Existence of a national notifiable disease surveillance system		• Karnataka's Department of Health and Family Welfare launched a disease surveillance dashboard (PRISM-H: Platform for research, integrated surveillance and management of health) in Sep 2023 in partnership with BBMP (Greater Bangalore Municipal Corporation) and a mobile application for effective monitoring of dengue. The application:
		  • AI-based predictive model that provides predictive analysis of diseases at least 4 weeks in advance and will be able to monitor the health condition of health workers, spread of communicable diseases and track test reports.
		  • Provides a map of outbreaks across Karnataka at district and sub-district levels.
		  • With the application, the state health department is able to deploy ASHAs and community health workers in areas where cases are predicted to increase and manage source reduction activities there.

Indicators used for surveillance		*The same as the National level (Refer to National slides)*
Frequent and timely collection of patient surveillance data		Data is captured in a timely and efficient manner for management decision-making. Daily reports of dengue cases are published daily in Karnataka.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Transparent reporting of laboratory-confirmed dengue cases and suspected dengue cases as well as budget and resource allocations would enhance case reporting initiatives. Furthermore, Karnataka should ensure the disease surveillance platform is routinely monitored and the data evaluated to ensure sustainability and effectiveness of case reporting initiative. Karnataka should also consider sharing best practices of case reporting initiatives with other Indian states to further enhance national-level dengue control and management strategies.

Abbreviations – ASHA: Accredited Social Health Activist

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		*The same as the National level (Refer to National slides)*
Resource allocation for case reporting	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Transparent reporting of laboratory-confirmed dengue cases and suspected dengue cases as well as budget and resource allocations would enhance case reporting initiatives. Furthermore, Karnataka should ensure the disease surveillance platform is routinely monitored and the data evaluated to ensure sustainability and effectiveness of case reporting initiative. Karnataka should also consider sharing best practices of case reporting initiatives with other Indian states to further enhance national-level dengue control and management strategies.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

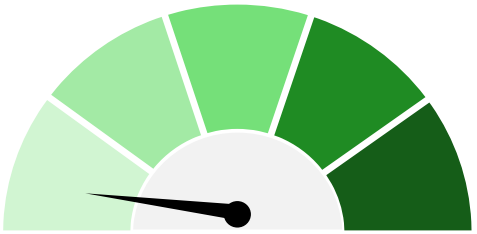
Dengue vaccination

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		*The same as the National level (Refer to National slides)*
Physical access to vaccines		*The same as the National level (Refer to National slides)*
Inclusion of dengue vaccination in the National Immunisation Programme		*The same as the National level (Refer to National slides)*
Financial access to vaccines		*The same as the National level (Refer to National slides)*
Knowledge and awareness of dengue vaccination		*The same as the National level (Refer to National slides)*
Willingness to be vaccinated		*The same as the National level (Refer to National slides)*
Research and advocacy for new vaccines and other prophylaxis methods / R&D		*The same as the National level (Refer to National slides)*
Resource allocation for dengue vaccination		*The same as the National level (Refer to National slides)*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

[National-level recommendations]

India should continue prioritising dengue vaccination by continuing to support and accelerate initiatives aimed at generating local evidence showcasing the efficacy of dengue vaccines. Furthermore, local governments should ensure the physical and financial accessibility of dengue vaccines once available. Additionally, conducting research on public knowledge and willingness to receive dengue vaccines will help inform future vaccination programmes.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

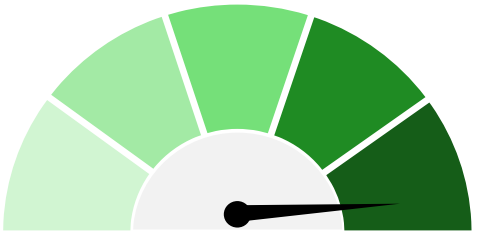
Dengue diagnosis (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue		*The same as the National level (Refer to National slides)*
Frequency of training of specialists / lab technicians		*The same as the National level (Refer to National slides)*
Existence and adoption of dengue clinical guidelines		*The same as the National level (Refer to National slides)*
Availability of / access to diagnostic services in the public sector		According to a directive launched by the Karnataka government in 2024, healthcare facilities are instructed to maintain a stock of testing kits, essential drugs, and IV fluids. Additionally, platelets, fresh frozen plasma, and other blood components must be available in both public and private blood banks, with stock levels regularly updated on e-Rakt Kosh (a centralised blood bank management system).

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To further enhance diagnostic capacity in Karnataka, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines.

India

ASIA DENGUE Policy Working Group

NATIONAL

KARNATAKA

Dengue diagnosis (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		A large number of diagnostic facilities in endemic areas provide free diagnostic services. NCVBDC bears the cost for all testing. According to a directive launched by the Karnataka government in 2024, all testing and treatment facilities, including ICU care if necessary, are provided free of cost to all dengue patients in all healthcare facilities that are under the Department of Health and Family Welfare. Caps on private sector costs of tests are imposed. In Karnataka, testing kits are capped at Rs 300 (USD 3.54) for dengue ELISA NS1 and IgM tests and Rs 250 (USD 2.95) for a rapid test.
Research and advocacy for innovative diagnostics/ R&D	NA	*No available information found*
Resource allocation for dengue diagnosis		*The same as the National level (Refer to National slides)*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To further enhance diagnostic capacity in Karnataka, regular training of healthcare providers and laboratory technicians is essential to ensure they stay updated on the latest diagnostic and clinical management guidelines.

Abbreviations – ICU: Intensive care unit; NCVBDC: National Centre for Vector Borne Diseases Control

India

ASIA DENGUE Policy Working Group

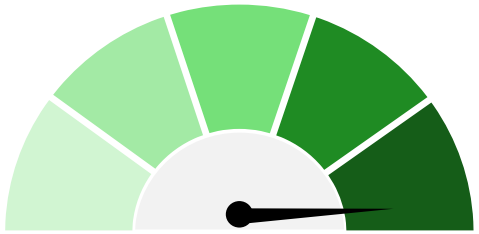
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		*The same as the National level (Refer to National slides)*
Physical access to treatment / symptom management services		According to a directive launched by the Karnataka government in 2024: • Health officials are required to monitor every dengue positive case for 14 days from the onset of symptoms and update the state war room (or control rooms) on their medical condition. Positive cases will be educated about the early warning signs of the disease progressing to moderate or severe stages. • 5 hospital beds should be reserved for dengue patients in Taluk Hospitals. • 8-10 hospitals beds should be reserved for dengue patients in District Hospitals.
Financial access to treatment / symptom management services		According to a directive launched by the Karnataka government in 2024, all testing and treatment facilities, including ICU care if necessary, are provided free of cost to all dengue patients in all healthcare facilities that are under the Department of Health and Family Welfare.
Resource allocation for dengue patient care management	NA	*No available information found*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Karnataka should ensure the widespread dissemination and regular updates of the National Guidelines for Clinical Management of Dengue Fever to enhance consistency in care across the state healthcare system. Efforts should focus on strengthening the capacity of primary health centres, sub-centres, and community centres to manage dengue effectively. Additionally, transparent reporting and allocation of resources for dengue patient care management should be prioritised to support equitable access and enhance the quality of care.

Abbreviations – ICU: Intensive care unit

Bangladesh

Bangladesh

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- Bangladesh has faced escalating dengue outbreaks over the past years and has intensified dengue management efforts, though it primarily focuses on case reporting and patient management
- There is allocation of resources and funding for dengue management initiatives; however, specific funding allocations for different pillars of dengue management are not publicly disclosed
- There are two main laws and legislations to cover the control of vector-borne diseases and their complications, which includes – International Health Regulations (IHR) 2005, as well as for local governments 'Local Government (City Corporation) Act, 2009'

Key stakeholders

Ministry of Health and Family Welfare	• Led the formulation and implementation of dengue prevention and control policies, particularly through its Directorate General of Health Services (DGHS)
Academic and Research Institutions	• Universities and research centers such as ICDDR,B and Jahangirnagar University and contribute to the national strategy by providing evidence-based insights and developing innovative control measures

Abbreviations – MoH: Ministry of Health

Bangladesh

ASIA DENGUE Policy Working Group

Dengue strategies

National Dengue Prevention and Control Strategy (2024-2030)

The national strategy has recently been updated, with the draft now finalised. It aims to drastically reduce the number of dengue infections and deaths in the country by 2030. Key objectives outlines in the strategy include:

i. Reducing dengue incidence and mortality rate,

ii. Improving early detection, treatment and mosquito control,

iii. Securing WHO-approved dengue vaccines (through global partnerships),

iv. Training of healthcare workers,

v. Enhancing disease surveillance, and

vi. Conducting more public awareness campaigns

The strategy was developed through a multisectoral approach led by the Ministry of Health and Family Welfare (MoHFW) and Directorate General of Health Services (DGHS), with input from local government bodies, WHO, UNICEF, academic institutions, and civil society organizations. A national workshop was initially conducted to explore the integration of a One Health approach into dengue surveillance. The strategy was then refined through multiple draft revisions before reaching its final stage and awaiting official approval.

However, with the upcoming election and prevailing political instability, the timeline for the nationwide launch of the plan remains uncertain.

Bangladesh

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education on dengue in Bangladesh have been advancing, though a formal community awareness program is still required to be established to further improve public awareness.
Vector control		The nation lacks an established vector control system, with fogging only done in emergency situations, despite its limited effectiveness.
Entomological surveillance		Bangladesh lacks a nationwide entomological surveillance system, but recent initiatives, such as the pre-monsoon mosquito density surveys, aim to strengthen efforts.
Case reporting		The Directorate General of Health Services manages the “Dengue Dynamic Dashboard”, which reports real-time dengue case and death data; however, details regarding the utilisation of data for outbreak forecasting are not publicly available.
Dengue vaccination		There are no approved dengue vaccines in Bangladesh and public awareness about dengue vaccination remains low. Dengue-in-Dhaka initiative is leading dengue vaccine research in Bangladesh.
Dengue diagnosis		Dengue diagnosis in the nation is guided by national clinical guidelines, with access to diagnostic services improving; public facilities offer free diagnostic services, and private facilities provide them at fixed/reduced rates.
Dengue patient care management		Dengue patient care management is guided by national clinical guidelines in Bangladesh, with treatment services available in both public and private hospitals.

Bangladesh

ASIA DENGUE Policy Working Group

Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Public education programs and support resources for dengue were previously not implemented at a national level in Bangladesh, leading to limited public awareness about the disease. • Health volunteers are also engaged in the community, educating residents on effective home reduction methods and increasing dengue awareness. Public awareness of dengue is improving, but a formal community awareness program still needs to be established.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		Some researchers have conducted studies to evaluate its effectiveness; however, official impact assessments have not yet been carried out.
Educational programs targeted to healthcare providers		The "National Dengue Prevention and Control Strategy (2024-2030)" plans to enhance training for healthcare workers. • A training program launched in 2023 provided dengue management training to over 3,000 medical professionals. • Building on this initiative, training programs for doctors and nurses will continue at least once a year.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

Bangladesh should expand community awareness and education initiatives, establishing a formal community awareness program which aligned with their national strategy. Establishing a national framework for dengue awareness programs would ensure consistent implementation and delivery across all regions. Additionally, greater transparency and structure is needed in establishing mechanisms to evaluate the effectiveness of these programs and introducing targeted training initiatives for healthcare providers to ensure effectiveness and sustainability of initiatives.

Bangladesh

ASIA DENGUE Policy Working Group

Vector control (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		Bangladesh lacked a targeted vector control program for *Aedes aegypti* until 2016, when periodic Aedes surveys and outbreak-specific measures such as regular fogging and larviciding were introduced. • There is no established national vector control system, and additional efforts are required to manage the environment, particularly to control breeding around hospitals treating dengue patients. However, the World Bank has drafted a "Urban health, nutrition and population" project. Under component 2 of the project, it will support a comprehensive strategy for management of infectious disease outbreaks in urban areas. • This includes physical control (such as draining breeding sites, clearing culverts, etc.) and strengthening capacity for integrated vector management in line with the local government division's guidelines for prevention of mosquito-borne diseases • Currently, project implementation guidelines are under development
Vector control education		Public awareness about vector control in Bangladesh is low, and doctors face challenges in educating patients due to their heavy workload.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

To strengthen its vector control efforts, Bangladesh should establish a national strategy, including defined timelines and milestones to track progress and supplement the World Bank's project. Additionally, there is a need to establish a transparent, centralised system for monitoring the implemented activities as well as reporting of resources allocation across cities, ensuring the sustainability and effectiveness of initiatives. If specific methods are yet to be determined, Bangladesh could consider collaborating with countries that have successful vector control programs, adapting and tailoring strategies to its own context.

Bangladesh

ASIA DENGUE Policy Working Group

Vector control (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control products *(e.g., spatial repellents, mosquito nets, mosquito traps)*
		✓ **Community-based measures**
		• Source reduction
		• Chemical methods
		  • Adulticiding *(e.g., fogging in emergency situations)*
		  • Larviciding
		• Biological methods *(e.g., larvivorous fish)*
		x ***Wolbachia* or genetically modified mosquitoes:** Refused by the government due to resource constraints

Monitoring and evaluation of vector control initiatives / programs	NA	*No available information found.*
Resource allocation for vector control	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To strengthen its vector control efforts, Bangladesh should establish a national strategy, including defined timelines and milestones to track progress and supplement the World Bank's project. Additionally, there is a need to establish a transparent, centralised system for monitoring the implemented activities as well as reporting of resources allocation across cities, ensuring the sustainability and effectiveness of initiatives. If specific methods are yet to be determined, Bangladesh could consider collaborating with countries that have successful vector control programs, adapting and tailoring strategies to its own context.

Bangladesh

ASIA DENGUE Policy Working Group

Entomological surveillance (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		The Directorate General of Health Services (DGHS) has acknowledged the need for enhanced surveillance and initiated pre-monsoon surveys annually to monitor mosquito densities. • This allows comprehensive tracking trends in serotypes. In 2023, a shift in dengue serotypes was observed, with dengue virus serotype 2 becoming dominant, which will likely exacerbate the dengue situation in the country.
Indicators used for surveillance		Entomological surveillance in the country mainly focuses on monitoring primarily *Aedes aegypti* and *Aedes albopictus* The following indicators have been used in studies: ✓ Container Index (CI) ✓ Pupal Index (PI) ✓ Breteau Index (BI) ✓ House Index (HI)
Frequent and timely collection of entomological surveillance data		Sampling and collection of entomological surveillance data are primarily conducted at a few larger sites for research purposes, but nationwide expansion has yet to be implemented.

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

It is important for Bangladesh to establish a comprehensive, nationwide system that regularly collects and analyses vector-related data. Indicators should be standardised to ensure consistent monitoring across cities and tracking of changes in *Aedes* mosquito populations. Furthermore, the data must be transparent and systematically utilised for predictive modeling, outbreak prevention, and resource allocation to enhance targeted vector control measures for dengue.

Bangladesh

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		No formal forecasting system is in place, but several indicators, such as the Breteau Index, can serve as early warning signals for dengue outbreaks.
Resource allocation for entomological surveillance		Funding is primarily provided by the government and international organisations such as the WHO; however, specific details or allocated amounts are not publicly disclosed.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

It is important for Bangladesh to establish a comprehensive, nationwide system that regularly collects and analyses vector-related data. Indicators should be standardised to ensure consistent monitoring across cities and tracking of changes in *Aedes* mosquito populations. Furthermore, the data must be transparent and systematically utilised for predictive modeling, outbreak prevention, and resource allocation to enhance targeted vector control measures for dengue.

Bangladesh

ASIA DENGUE Policy Working Group

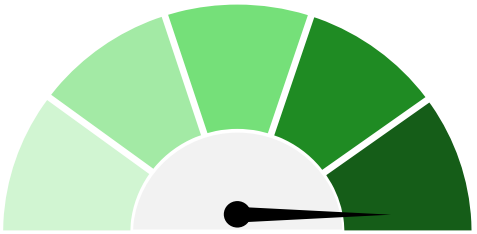
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		Dengue surveillance is conducted by the Directorate General of Health Services (DGHS) through the "Dengue Dynamic Dashboard" • It reports real-time data on dengue cases across cities as well as age group distribution, gender distribution, etc. • City corporations track cases of dengue patients; however, the national and city-level government infrastructures operate in silos, making patient follow-up challenging • Moreover, only 77 hospitals are mandated to report dengue cases to the government, leading to underreporting from many other hospitals and potential gaps in case tracking.
Indicators used for surveillance		✓ Suspected cases ✓ Confirmed cases through laboratory tests ✓ Circulating serotypes ✓ Dengue-related deaths • Dengue death cases are tracked in real-time through the "Dengue Dynamic Dashboard", including age group distribution across cities. The MIS dengue surveillance system primarily monitors hospitalised patients diagnosed with dengue virus in government hospitals.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

It is essential for Bangladesh to establish a centralised, publicly accessible dengue surveillance system that includes data across all healthcare facilities. The nation should also ensure transparency on details of the latest national dengue strategy, along with utilisation of the data for forecasting and resource allocation for case reporting. Leveraging such data for strategic planning can improve the country's ability to mitigate dengue outbreaks, ensuring an efficient approach to public health management.

Bangladesh

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of patient surveillance data		Up until 2019, dengue surveillance data was regularly updated and disseminated through a weekly newsletter, which provided essential insights into the incidence and distribution of dengue cases across the country.
Utilisation of data for outbreak prevention / forecasting	NA	*No available information found*
Resource allocation for case reporting	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

It is essential for Bangladesh to establish a centralised, publicly accessible dengue surveillance system that includes data across all healthcare facilities. The nation should also ensure transparency on details of the latest national dengue strategy, along with utilisation of the data for forecasting and resource allocation for case reporting. Leveraging such data for strategic planning can improve the country's ability to mitigate dengue outbreaks, ensuring an efficient approach to public health management.

Bangladesh

ASIA DENGUE Policy Working Group

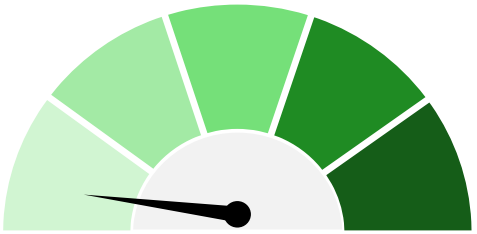
Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Although the "National Guideline for Clinical Management of Dengue Syndrome" is in place, it primarily emphasises on clinical management and diagnosis, without addressing dengue vaccination.
Physical access to vaccines		Bangladesh does not have an approved dengue vaccine available for public use.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)	NA	Since the nation currently does not have approved dengue vaccines, they are not included in the NIP.
Financial access to vaccines	NA	Bangladesh currently does not have approved dengue vaccines available for public use.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Greater efforts are needed to advance the adoption and implementation of dengue vaccination in Bangladesh. It is critical for the government to prioritise strategic planning in anticipation of future vaccine approvals and accelerate efforts to secure WHO-approved dengue vaccines. Transparent information regarding resource allocation for dengue vaccination should also be in place to ensure equitable access, accompanied by public awareness campaigns to educate communities on the importance of dengue vaccination and ensure vaccine uptake.

Bangladesh

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Knowledge and awareness of dengue vaccination		Despite the absence of an approved dengue vaccine in Bangladesh, public awareness and knowledge regarding dengue vaccination is moderate-high, even in rural areas.
Willingness to be vaccinated	NA	Willingness to be vaccinated is unknown. No study has been conducted on the willingness to vaccinate.
Research and advocacy for new vaccines and other prophylaxis methods / R&D		There is ongoing research evaluating dengue vaccines in Bangladesh as part of the Dengue-in-Dhaka Initiative launched in 2015 which aims to conduct further dengue vaccine trials. The initiative is led by researchers from the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) and the Larner College of Medicine at the University of Vermont, USA. In 2023, phase 2 trials of a tetravalent single-dose dengue vaccine (TV005) in Bangladesh was completed.
Resource allocation for dengue vaccination		Funding primarily comes from international organisations. However, specific resources/budget provided are not publicly available.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Greater efforts are needed to advance the adoption and implementation of dengue vaccination in Bangladesh. It is critical for the government to prioritise strategic planning in anticipation of future vaccine approvals and accelerate efforts to secure WHO-approved dengue vaccines. Transparent information regarding resource allocation for dengue vaccination should also be in place to ensure equitable access, accompanied by public awareness campaigns to educate communities on the importance of dengue vaccination and ensure vaccine uptake.

Bangladesh

ASIA DENGUE Policy Working Group

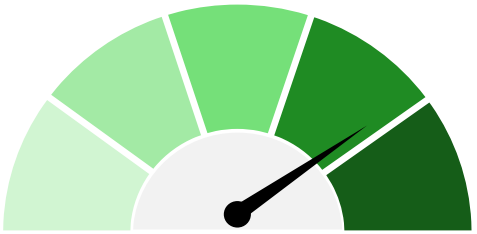
Dengue diagnosis (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians	NA	*No available information found.*
Existence and adoption of dengue clinical guidelines		Dengue diagnosis is guided by the "National Guideline for Clinical Management of Dengue Syndrome", which emphasises the importance of early and accurate diagnosis through clinical assessment and laboratory confirmation.
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) Access to dengue diagnosis services has improved in the country, especially in rural areas, with both public and private health facilities offering such services. • The government also ensures that stockpiling of dengue detection kits, saline solutions, and other essential medications are conducted to ensure a steady supply during emergencies.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Bangladesh can consider implementing a comprehensive capacity-building strategy for healthcare providers by introducing nationwide training programs, supported by a monitoring system to track effectiveness. The government should enhance transparency and allocate adequate resources for dengue diagnosis, including funding for research of innovative diagnostics. Efforts should also focus on ensuring equitable access to diagnostic services, particularly in rural areas, to reduce disparities and strengthen the overall healthcare response to dengue outbreaks.

Bangladesh

ASIA DENGUE Policy Working Group

Dengue diagnosis (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services		Public health facilities provide these services free of charge, while private sector facilities may offer them at fixed or reduced rates.
Research and advocacy for innovative diagnostics / R&D	NA	*No available information found.*
Resource allocation for dengue diagnosis	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Bangladesh can consider implementing a comprehensive capacity-building strategy for healthcare providers by introducing nationwide training programs, supported by a monitoring system to track effectiveness. The government should enhance transparency and allocate adequate resources for dengue diagnosis, including funding for research of innovative diagnostics. Efforts should also focus on ensuring equitable access to diagnostic services, particularly in rural areas, to reduce disparities and strengthen the overall healthcare response to dengue outbreaks.

Bangladesh

ASIA DENGUE Policy Working Group

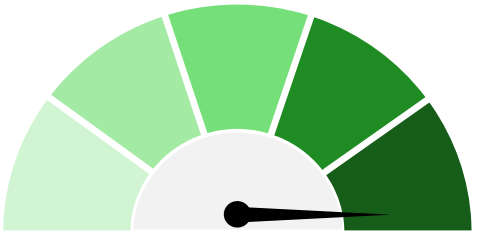
Dengue patient care management

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Published by the Directorate General of Health Services, the "National Guideline for Clinical Management of Dengue Syndrome" in Bangladesh is available nationally since 2018. • In 2023, a revised version of this guideline was introduced, incorporating areas such as pediatric management and dengue in pregnancy. • For quick reference, a "Pocket Guideline for Dengue Case Management" is also available, providing concise instructions for HCPs.
Physical access to treatment / symptom management services		Public hospitals play a significant role in delivering healthcare services to a substantial portion of the population, primarily due to their affordability compared to private for-profit hospitals. • However, people frequently seek care from both public and private hospitals in Bangladesh, irrespective of socio-economic class.
Financial access to treatment / symptom management services		The household cost of treating dengue patients is considerably higher per case when care is sought at a private hospital (US$ 567) compared to a public hospital (US$ 269) due to treatment/management services being highly subsidised in public hospitals.
Resource allocation for dengue patient care management	NA	*No available information found.*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance dengue patient care management in Bangladesh, it is recommended to allocate dedicated resources for dengue management in both public and private hospitals to ensure consistent quality of care. Additionally, the government can consider prioritising public awareness campaigns to highlight the affordability and quality of care in public hospitals, reducing the financial burden on households, especially those of lower income.

Cambodia

Cambodia

Prioritisation of Dengue

- Cambodia has demonstrated a consistent commitment to prioritising dengue control, adapting its strategies in response to evolving epidemiological data and collaborating with international organizations to enhance its public health response.
- While these collaborations have been instrumental in supporting Cambodia's dengue control efforts, specific details regarding the allocation of funds within the national dengue programme are not publicly disclosed
- Key policy documents guiding vector-borne disease control in Cambodia include the National Action Plan for Dengue and Other Arboviral Disease Prevention and Control (2018–2020), the Health Education and Risk Communication Strategy for Dengue 2020, and the National Climate Change Action Plan for Public Health (2020–2024).

Key stakeholders

Ministry of Health Cambodia	• Responsible for public health policies and initiatives, including dengue prevention and control. Operating under the MOH, the National Center for Parasitology, Entomology, and Malaria Control (CNM) directs and supervises vector-borne disease control programs, including for dengue
Communicable Disease Control Department (CDC)	• Monitors and reports dengue cases, facilitating timely public health interventions

Cambodia

Dengue strategies

National Strategic Plan on Sustainable Prevention and Control of Dengue and other Aedes-transmitted arboviral diseases 2021–2030

The plan aims to promote dengue case detection, reduce case fatality and disease incidence rates in Cambodia through six objectives:

i. Implementing integrated vector management,
ii. Improving environmental management,
iii. Strengthening early diagnosis,
iv. Enhancing clinical management,
v. Enhancing epidemic preparedness, and
vi. Reinforcing outbreak responses

The national strategy was developed through a collaborative process led by the National Dengue Control Program (NDCP) under the National Center for Parasitology, Entomology, and Malaria Control (CNM), which operates within the Ministry of Health (MOH). The NDCP ensured that the national action plan was first aligned in accordance with the '*WHO's Global Strategy for Dengue Prevention and Control*', as well as the '*Dengue Strategic Plan for the Asia Pacific Region 2008–2015 '.*

Consultations were next held with various stakeholders, including government agencies, international organisations such as WHO and community representatives. This collaborative approach ensured that the developed plan addressed the multifaceted challenges of dengue control, from clinical management to vector control and public education. The national plan seems to have been rolled out in 2021, however, specific details of the plan is not publicly available.

Abbreviations – IMR: Institute of Medical Research; MoH: Ministry of Health

Cambodia

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in Cambodia is comprehensive and robust, targeting students, teachers, and the public through curricula. Healthcare providers are trained on dengue epidemiology, surveillance, and case management.
Vector control		Vector control in Cambodia is comprehensive, implementing various environmentally sustainable vector control strategies under the National Dengue Control Programme.
Entomological surveillance		Centralised virologic surveillance is conducted in Cambodia in 15 provinces (as of 2021). Monthly serotype-specific RT-PCR testing are also being conducted.
Case reporting		Demographic and clinical data on hospitalised dengue cases are collected from government-supported healthcare facilities across all provinces in Cambodia. Health facilities submit case reports to the dengue control programme monthly.
Dengue vaccination		Dengue vaccination is a low priority in Cambodia with no current access to any dengue vaccines.
Dengue diagnosis		Clinical management guidelines of DF/DHF on diagnosis of DF/DHF and DSS were updated in 2018. Diagnostic services such as serology rapid and ELISA tests are available in Cambodia.
Dengue patient care management		The updated clinical management guidelines of DF/DHF on diagnosis and treatment of DF/DHF and DSS includes guidance on treatment and care management of dengue patients. Cost of treatment and management services are primarily paid OOP.

Abbreviations – DF: Dengue Fever; DHF: Dengue haemorrhagic fever; DSS: Dengue shock syndrome; OOP: Out-of-pocket

Cambodia

ASIA DENGUE Policy Working Group

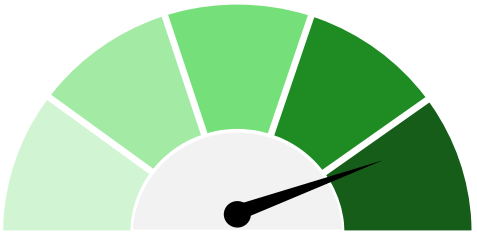
Community awareness and education

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Dengue public education initiatives have been implemented nationwide in Cambodia. • Dengue lessons are incorporated into the primary school curriculum, with students, teachers, and health workers receiving training to further promote awareness and practices for mosquito control. • The National Dengue Control Programme (NDCP) also delivers education through community outreach and school programs; however, these efforts have faced challenges such as limited funding and irregular delivery.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)	NA	*No available information found*
Educational programs targeted to healthcare providers		Healthcare practitioners in dengue centers are trained, with the NDCP organising training sessions for doctors and nurses, focusing on dengue epidemiology, surveillance, and case management. • In 2019, the NDCP conducted training on dengue epidemiology and surveillance with participants from 13 provinces.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To strengthen dengue community awareness and education in Cambodia, a sustainable funding model should be established to ensure the consistent delivery of educational programs across the nations. Incorporating mechanisms to assess the effectiveness of these programs, along with the transparency of the results, will be essential to measure impact and guide improvements. NDCP can also consider investing and scaling up training for healthcare workers to enhance capacity for prevention and case management.

Abbreviations – NPDC: National Dengue Control Programme

Cambodia

ASIA DENGUE Policy Working Group

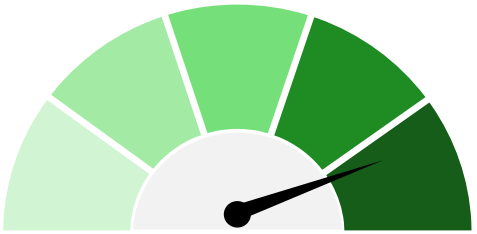
Vector control (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		The National Dengue Control Programme (NDCP) has implemented control and prevention measures nationwide. • In 2016, vector control and dengue education units were established to coordinate efforts and disseminate information on dengue recognition and management to both the public and healthcare providers. • Current initiatives include conducting dengue education campaigns, alongside larvicide application and mosquito spraying to reduce *Aedes* mosquito populations (especially in high-endemic areas). • For example, in Siem Reap, all hotels undergo fumigation/ insecticide treatments 2 – 3 times per week *NOTE: CDC will likely integrate CNM in the future to conduct vector control activities*
Vector control education		In Cambodia, biannual applications of larvicide occur in tandem with public education campaigns promoting environmental and mechanical dengue controls. • Since 2001, the NDCP has also coordinated vector control and education efforts, with dedicated vector control units and an epidemic forecasting system introduced in 2016.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Cambodia should continue driving efforts in implementing vector control initiatives and raising public awareness for nationwide dengue prevention, particularly in high-endemic areas. Developing robust monitoring systems will be essential for measuring the effectiveness of these initiatives, while ensuring transparent resource allocation and higher investment to ensure sustainability of the initiatives.

Abbreviations – CDC: Centre for Disease Control and Prevention; CNM: National Center for Parasitology, Entomology and Malaria Control; NPDC: National Dengue Control Programme

Cambodia

ASIA DENGUE Policy Working Group

Vector control (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of vector control methods		✓ **Personal protection measures** • Commercial household pest products *(e.g., spatial and topical repellents, screening and insecticide-treated materials, mosquito traps)* ✓ **Community-based measures** • Source reduction • Chemical methods • Adulticiding *(e.g., all hotels undergo fumigation / insecticide treatments 2-3 times per week, temephos)* • Larviciding • Biological methods *(e.g., larvivorous guppy fish)* x ***Wolbachia* or genetically modified mosquitoes:** Refused by the government due to resource constraints *NOTE: While oher vector control methods have been explored through scientific projects, they are too costly to sustain and implement nationwide*
Monitoring and evaluation of vector control initiatives / programs		A study published in 2024 investigated insecticide resistance in *Aedes agypti* in Cambodia. *Ae. aegypti* from Phnom Penh was recently found to show moderate resistance to temephos and spinosad. The results of other bioassay studies showed that *Ae. aegypti* larvae in the Phnom Penh, Battambang and Kampong Cham populations were resistant to temephos. *Information on monitoring of other strategies not available*
Resource allocation for vector control	NA	*No available information found*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Cambodia should continue driving efforts in implementing vector control initiatives and raising public awareness for nationwide dengue prevention, particularly in high-endemic areas. Developing robust monitoring systems will be essential for measuring the effectiveness of these initiatives, while ensuring transparent resource allocation and higher investment to ensure sustainability of the initiatives.

Cambodia

ASIA DENGUE Policy Working Group

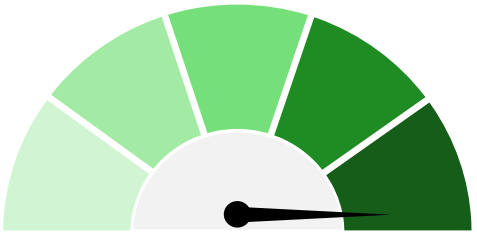
Entomological surveillance

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Adoption of entomological surveillance systems		The National Dengue Control Programme (NDCP) conducts centralised virologic surveillance at sentinel sites, starting with 4 provinces in 2001 and expanding to 15 provinces by 2021. • Regular assessments are conducted to determine the density and distribution of *Aedes* mosquitoes • In response to the global Zika epidemic in 2016 and a significant chikungunya outbreak in Cambodia in 2020, routine virologic testing was expanded to differentiate between chikungunya, dengue, and Zika viruses using PCR
Indicators used for surveillance	NA	*No available information found*
Frequent and timely collection of entomological surveillance data		NDCP conducts monthly dengue serotype-specific RT-PCR testing on a subset of samples collected from sentinel sites.
Utilisation of data for outbreak prevention / forecasting	NA	*No available information found*
Resource allocation for entomological surveillance	NA	*No available information found*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To enhance dengue entomological surveillance in Cambodia, it is essential to enhance transparency regarding the progress and efforts undertaken, particularly in areas such as surveillance indicators, data utilisation for forecasting, and resource allocation to ensure efficiency and sustainability of initiatives. The government can also consider conducting capacity-building programs for surveillance teams and develop centralised frameworks for data utilisation to further strengthen dengue control.

Abbreviations – NPDC: National Dengue Control Programme; PCR: Polymerase chain reaction

Cambodia

ASIA DENGUE Policy Working Group

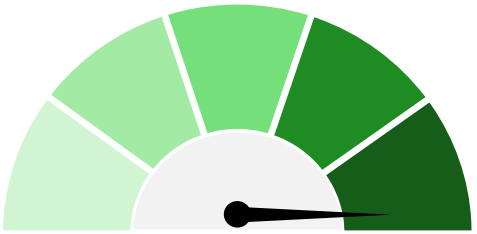
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		Under the National Dengue Control Programme, Cambodia has been collecting demographic and clinical data on hospitalised dengue cases (including both suspected and confirmed cases) at government-supported healthcare facilities across all provinces • Contributing facilities report clinically diagnosed dengue cases using a standardised case report form that collates anonymised patient data including patient age; sex; home province; hospital admission date; clinical diagnosis (dengue fever, dengue haemorrhagic fever or dengue shock syndrome); and disease outcome (death or survival to discharge)
Indicators used for surveillance		✓ Suspected cases ✓ Confirmed cases ✓ Dengue-related deaths × Circulating serotypes

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Policymakers should consider integrating the surveillance system by surveying hospitalised and non-hospitalised cases of dengue in all healthcare facilities in the public and private sector. Additionally, by establishing a national digital death registry to improve the monitoring of dengue-related fatalities. Furthermore, transparent allocation of resources for surveillance activities should be prioritised to ensure sustainability and effectiveness of case reporting initiatives.

Cambodia

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of patient surveillance data		• Health facilities submit case report forms to the dengue control programme monthly. • Data are then stored in a central electronic database which is not publicly accessible.
Utilisation of data for outbreak prevention / forecasting		In 2016, Cambodia introduced an epidemic forecasting algorithm under the National Dengue Control Programme • The prediction algorithm identifies early rises in case numbers to signal an impending pandemic with 2-3 months' lead time. • The integration of the algorithm with a response system has been crucial to help deploy timely vector control and targeted education in the country.
Resource allocation for case reporting	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Policymakers should consider integrating the surveillance system by surveying hospitalised and non-hospitalised cases of dengue in all healthcare facilities in the public and private sector. Additionally, by establishing a national digital death registry to improve the monitoring of dengue-related fatalities. Furthermore, transparent allocation of resources for surveillance activities should be prioritised to ensure sustainability and effectiveness of case reporting initiatives.

Cambodia

ASIA DENGUE Policy Working Group

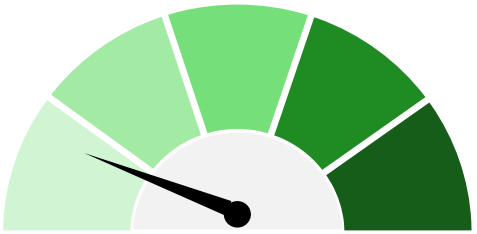
Dengue vaccination

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		No clinical guidelines for dengue vaccination.
Physical access to vaccines		No dengue vaccines are currently approved and available.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in the NIP.
Financial access to vaccines		No dengue vaccines are currently approved and available.
Knowledge and awareness of dengue vaccination	NA	*No available information found.*
Willingness to be vaccinated		The public generally holds a positive attitude towards vaccination, likely due to past events such as the COVID-19 vaccination campaign and other strong immunisation programmes.
Research and advocacy for new vaccines and other prophylaxis methods / R&D		Two research groups in Cambodia are currently working on dengue vaccines, with government funding supporting the projects. However, specific details about these initiatives are not publicly disclosed.
Resource allocation for dengue vaccination	NA	*No available information found.*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

The government and researchers in the country should accelerate efforts to secure dengue vaccines and actively collaborate with global organisations such as the WHO and IVI. Additionally, transparent information on resource allocation and supporting ongoing research on dengue vaccines can further strengthen national efforts to combat dengue. Policymakers should also consider supporting research evaluating community knowledge and willingness of dengue vaccination to understand sociocultural and behavioural factors that may influence future vaccination uptake.

Abbreviations – IVI: International Vaccine Institute; NIP: National Immunisation Programme; R&D: Research and development; WHO: World Health Organisation

Cambodia

ASIA DENGUE Policy Working Group

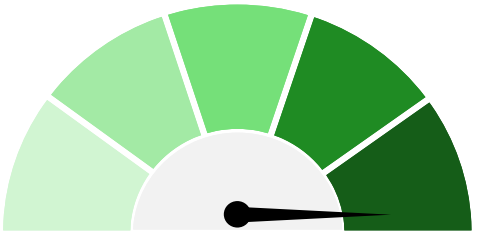
Dengue diagnosis (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found*
Frequency of training of specialists / lab technicians	NA	*No available information found*
Existence and adoption of dengue clinical guidelines		The "National Guideline for Clinical Management of Dengue" details comprehensive guidance for the clinical management of dengue fever, dengue haemorrhagic fever and dengue shock syndrome in Cambodia. The guideline was updated in 2018 to include guidance on the diagnosis and management the older population, and information on hospital outbreak preparedness planning and response strategies.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Policymakers should ensure that the 2018 updated clinical guidelines are widely disseminated and integrated into healthcare practices to standardise care and improve hospital outbreak preparedness and response strategies. Emphasis should be placed on the regular training of healthcare providers and lab technicians. Additionally, efforts should focus on ensuring availability and financial accessibility to diagnostic services.

Cambodia

Dengue diagnosis (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Antigen detection rapid tests (NS1 antigen test) ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) × Nucleic acid detection × Antigen detection ELISA × Virus culture Various types of diagnostic services are widely available in Cambodia, including serology rapid and ELISA tests, antigen detection rapid tests, and tourniquet test • Select facilities with the availability of test kits can perform serologic confirmatory testing at point-of-care for diagnosis. Testing is also dependent on patient ability to afford the test and availability of test kits. • MOH is also planning to establish a centralised laboratory in the future; however, specific details regarding the timeline have not been disclosed.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Policymakers should ensure that the 2018 updated clinical guidelines are widely disseminated and integrated into healthcare practices to standardise care and improve hospital outbreak preparedness and response strategies. Emphasis should be placed on the regular training of healthcare providers and lab technicians. Additionally, efforts should focus on ensuring availability and financial accessibility to diagnostic services.

Cambodia

ASIA DENGUE Policy Working Group

Dengue diagnosis (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to diagnostic services	NA	*No available information found.*
Research and advocacy for innovative diagnostics / R&D	NA	*No available information found.*
Resource allocation for dengue diagnosis	NA	*No available information found.*

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Policymakers should ensure that the 2018 updated clinical guidelines are widely disseminated and integrated into healthcare practices to standardise care and improve hospital outbreak preparedness and response strategies. Emphasis should be placed on the regular training of healthcare providers and lab technicians. Additionally, efforts should focus on ensuring availability and financial accessibility to diagnostic services.

Cambodia

ASIA DENGUE Policy Working Group

Dengue patient care management

Legend

Zero	Low	Medium	High
(0%)	*(0%<x≤33%)*	*(33%<x≤66%)*	*(66%<x≤100%)*

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		The "National Guideline for Clinical Management of Dengue" details comprehensive guidance for the clinical management of dengue fever, dengue haemorrhagic fever and dengue shock syndrome in Cambodia. • The guidelines emphasises early recognition of symptoms, appropriate use of diagnostic tests, and evidence-based therapeutic interventions for dengue control.
Physical access to treatment / symptom management services		There are disparities in physical access to dengue treatment in Cambodia, particularly in rural areas compared to urban centers. • In Phnom Penh (the capital of Cambodia), access to advanced organ support therapies, including renal replacement and mechanical ventilation, remains constrained to major hospitals, limiting their availability to patients in more remote areas.
Financial access to treatment / symptom management services		Cost of treatment / symptom management services is predominantly borne by patients through out-of-pocket expenses. • However, there are mechanisms in place to help subsidise dengue treatments costs, such as Cambodia's social safety net scheme (Health Equity Funds), which aims to alleviate healthcare costs for the lower-income populations.
Resource allocation for dengue patient care management	NA	*No available information found.*

Overall pillar assessment outcome

Basic **Optimised**

Recommendations

It is essential for Cambodia to address both physical and financial access barriers while optimising resource allocation to improve dengue management. This includes scaling up and streamlining financial support initiatives to ensure broader coverage and lower OOP for the public. The government should also be transparent in dedicating resources for dengue patient care, which can help improve equitable access and the overall quality of care in Cambodia.

Sri Lanka

Sri Lanka

ASIA DENGUE Policy Working Group

Prioritisation of Dengue

- Dengue prioritisation in Sri Lanka began in 2005 following a major outbreak in 2004 starting with the establishment of the National Dengue Control Unit (NDCU) of the Ministry of Health (MoH).
- When dengue illness increasingly expanded in high magnitude in 2011, the NDCU was upgraded to a directorate with a dedicated annual budget allocation.
- Regular meetings are held focused on the programmes and initiatives in Sri Lanka on dengue and other diseases:
  - National stakeholder meetings
  - Expert group meetings
  - Technical Meetings involving MoH
  - Quarterly / Biannual Review Meetings
  - District-level meetings
  - Sub-district level meetings

The frequency of divisional and district-level meetings among policymakers varies according to the district's risk classification

Key stakeholders

ජාතික ඩෙංගු මර්දන ඒකකය
தேசிய டெங்கு கட்டுபாட்டு பிரிவு
National Dengue Control Unit

- The NDCU developed Sri Lanka's *National Action Plan on Prevention and Control of Dengue (2019-2023)* and is the primary implementer of the plan under the direct guidance of the MoH.
- NDCU is also responsible for procurement of necessary insecticides (adulticides, larvicides), equipment for vector control and entomological activities, and capacity building/training for the field work force.
- A significant proportion of district-level dengue prevention activities are funded and guided by the National Dengue Control Unit.
- Meetings are held regularly at various levels, including national, district, and provincial levels.

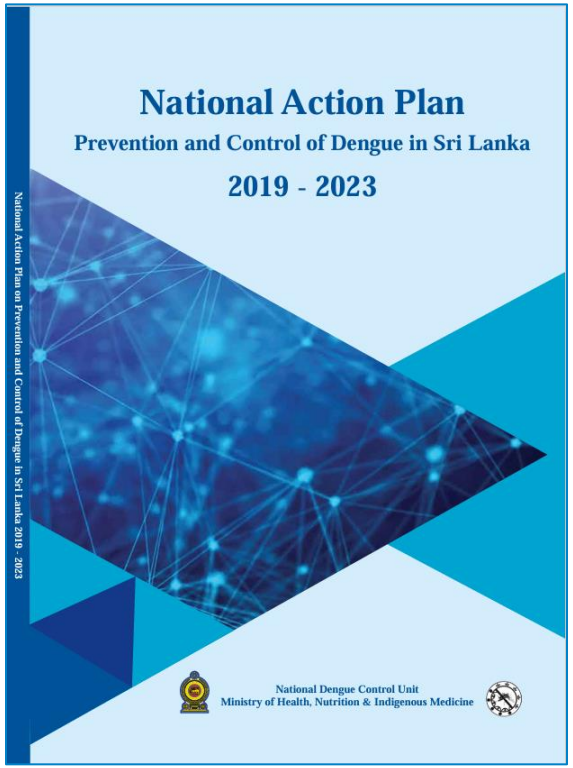
Presidential Task Force on Dengue Prevention and Control

- Appointed by the Sri Lankan President to strengthen multisectoral collaboration and implementation of strategies at national/provincial/district levels.
- The task force involves stakeholders, such as those from MoH, Ministry of Home Affairs, Ministry of Law and Order, and the Ministry of Disaster Management.
- Prepared the *National Action Plan on Prevention and Control of Dengue* in collaboration with the NDCU.

Abbreviations – MoH: Ministry of Health; NDCU: National Dengue Control Unit

Sri Lanka

Dengue strategies



National Action Plan on Prevention and Control of Dengue in Sri Lanka (2019-2023)

The main objectives of the plan are:

- To achieve case incidence below 100/100,000 population by 2023, and
- To reduce and maintain case fatality rate below 0.1% by 2023

To achieve these goals, the plan emphasises strengthening epidemiological and entomological surveillance for real-time case detection and vector density forecasting, implementing integrated vector management (IVM) strategies to disrupt transmission, and enhancing early diagnosis and case management. Additionally, it focuses on early epidemic detection and effective response, robust monitoring and evaluation for optimal programme implementation, management, and performance, as well as facilitating and conducting operational research to advance dengue prevention and management.

Resources, including funding, are allocated based on the initiatives outlined in the national action plan. For 2019-2023, a budget of LKR 1.9 Bn (USD 6.5 Mn) was allocated for the implementation of the plan.

Note: The National Action Plan on Prevention and Control of Dengue in Sri Lanka (2019-2023) is the latest national plan published on online sources.

Abbreviations – IVM: Integrated vector management; LKR: Sri Lankan Rupee; MoH: Ministry of Health; NDCU: National Dengue Control Unit; USD: United States Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

Summary

Basic — *Optimised*

Pillar of interest	Rating	Description
Community awareness and education		Community awareness and education in Sri Lanka is comprehensive and robust, targeting students, teachers, and the public through curricula and mass media. Effectiveness is measured by health activities, school inspections, and clean-up campaigns. Healthcare providers are trained on dengue case management in hospitals. However, experts suggest public education needs enhancement to address complacency and emphasise proactive prevention, especially with climate change impacts
Vector control		Primarily run by the National Dengue Control Unit (NDCU), vector control in Sri Lanka is comprehensive, adopting various environmentally sustainable vector control strategies and continuously monitored.
Entomological surveillance		Risk-based prioritisation wherein household surveillance is conducted based on area risk and climate conditions. Vector surveillance in Sri Lanka is managed by the NDCU with LKR 13.4 Mn (~USD 45.8k) allocated. The NDCU is responsible for the procurement of insecticides, equipment, and capacity-building efforts at the district-level.
Case reporting		Effective tracking of patient clusters, with even two cases flagged as significant in high-risk areas. The Epidemiology Unit of the MoH coordinates dengue surveillance with the NDCU, with weekly updates on cases and admissions. Dengue deaths are reported provincially.
Dengue vaccination		Dengue vaccination is a low priority in Sri Lanka with no current access to any dengue vaccines. However, field trials on vaccines among susceptible communities are currently ongoing.
Dengue diagnosis		Sri Lanka trains healthcare providers on dengue management guidelines and diagnostic services such as rapid tests and RT-PCR are available. Use of point-of-care diagnostics, including ultrasound, to monitor patients and detect critical phases has significantly improved patient management. Mortality decreased substantially over the past 10 years owing to standardised processes and early intervention.
Dengue patient care management		Strong level of attention given to patient care and management. Standardised and strict process of patient care adopted across the country which includes home-based care.
Others		• **Fully-subsidised care** – All clinical management services, including diagnostic tests, are available for patients free of charge in the public sector • **Impact of urban growth** – Rapid urban growth in Sri Lanka necessitates vigilant planning to reduce future risks of dengue outbreaks

Abbreviations – LKR: Sri Lankan Rupee; MoH: Ministry of Health; NDCU: National Dengue Control Unit; RT-PCR: Reverse transcription polymerase chain reaction; USD: United States Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

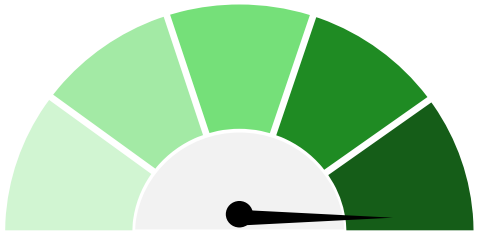
Community awareness and education (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Availability of public education programs and support resources		Educational programmes exist that are run by the government and are embedded in the national curricula • Dengue school booklet and intensive inter-sectoral programme involves students and teachers in the prevention and control of dengue • Use of mass media (including newspapers, and broadcasts) to educate the general public on dengue control methods For vector control education, activities under "Advocacy, Inter-sectoral Collaboration, Communication, and Empowerment of Communities" include educating schools, the public, construction sites, and residential areas on vector control, engaging schools through dengue booklets and intensive programmes on dengue prevention and control, and using mass media to promote dengue prevention.
Mechanisms to assess effectiveness (e.g., reaching the intended audience, increased vaccination rates etc)		The following indicators are used to assess effectiveness: ✓ Number of health promotion programmes conducted ✓ Percentage of schools/institutions implementing weekly mosquito breeding inspections ✓ Proportion of meetings conducted to raise awareness on prevention and control of dengue ✓ Number of clean-up campaigns conducted in schools in a district per month

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka can enhance its dengue education efforts by tailoring messages to level of local risks, using digital tools for outreach, engaging community leaders, and incorporating behavioural change strategies. Expanding healthcare training, partnering with the private sector, and strengthening feedback systems will ensure programmes remain impactful and sustainable.

Sri Lanka

ASIA DENGUE Policy Working Group

Community awareness and education (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Educational programs targeted to healthcare providers		Dengue education programs also focus on healthcare providers as part of the country's capacity-building plan. Key activities include: • Conducting training programs on dengue case management • Targeting secondary and tertiary care hospitals • Tracking the number of training sessions held

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka can enhance its dengue education efforts by tailoring messages to level of local risks, using digital tools for outreach, engaging community leaders, and incorporating behavioural change strategies. Expanding healthcare training, partnering with the private sector, and strengthening feedback systems will ensure programmes remain impactful and sustainable.

Sri Lanka

ASIA DENGUE Policy Working Group

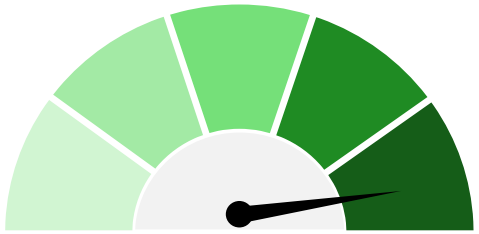
Vector control (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Environmental management initiatives implemented		• **Nationally Adopted:** Environmental management initiatives are implemented through the Guidelines for *Aedes* Vector Surveillance and Control in Sri Lanka 2016 and Integrated Vector Management (IVM) detailed in the National Plan. • The NDCU organises and facilitates environmental management through premise inspection and source reduction campaigns as a mainstay of IVM. Furthermore, the NDCU published the *SOP for Aedes vector surveillance in Sri Lanka* to standardise prevention via entomological surveillance. • Sri Lanka is working on developing a policy on rational use of insecticide based on international guidelines.
Vector control education		Activities under "Advocacy, Inter-sectoral Collaboration, Communication, and Empowerment of Communities" include: • Educating schools, the public, construction sites, and residential areas about vector control • Distributing a dengue school booklet and running an intensive program to engage students and teachers in dengue prevention and control • Using mass media (such as newspapers and broadcasts) to inform the public about dengue control methods

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka can strengthen vector control by scaling up *Wolbachia* and Ovitrap pilots, integrating community-based sustainable practices, and using data-driven approaches to target high-risk areas. Enhancing multi-sectoral collaboration, securing long-term funding, and refining strategies through regular evaluation will ensure more effective and sustainable vector control efforts.

Abbreviations – IVM: Integrated vector management; LKR: Sri Lankan Rupee; NDCU: National Dengue Control Unit; USD: United Stated Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

Vector control (2/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of vector control methods		✓ **Personal protection measures**
		• Commercial household pest control products *(e.g., plug-ins, aerosols, coils, mosquito repellents, screening doors)*
		✓ **Community-based measures**
		• Source reduction *(e.g., regular inspection of Aedes larval habitats, education of proper waster disposal practices)*
		• Chemical methods
		  • Adulticiding *(e.g., thermal fogging, ultra low volume spraying, insecticide treatments)*
		  • Larviciding *(e.g., Temephos)*
		• Biological methods *(e.g., Larvivorous fish, insect growth regulators)*
		
		Community-based methods currently in pilot programmes
		○ Autodissemination or lethal ovitraps
		○ *Wolbachia* or genetically modified mosquitoes
		Released in 2021 in Colombo Municipal Council-District 1 and Nugegoda; results are currently being monitored

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka can strengthen vector control by scaling up *Wolbachia* and Ovitrap pilots, integrating community-based sustainable practices, and using data-driven approaches to target high-risk areas. Enhancing multi-sectoral collaboration, securing long-term funding, and refining strategies through regular evaluation will ensure more effective and sustainable vector control efforts.

Abbreviations – IVM: Integrated vector management; LKR: Sri Lankan Rupee; NDCU: National Dengue Control Unit; USD: United Stated Dollar

Sri Lanka

Vector control (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Monitoring and evaluation of vector control initiatives / programs		These indicators are used to assess the effectiveness of initiatives: • Number of vector control programmes conducted • Number of IVM programmes carried out using environmental, chemical or biological methods per month • Number of inspection teams deployed to outbreak/outbreak prone areas per quarter Recently, Sri Lanka conducted a study which involved fine-scale monitoring of insecticide resistance in Sri Lanka and applied rational approximation modeling to predict phenotypic resistance patterns, optimising resource use for vector control.
Resource allocation for vector control		• LKR 1.2 Bn (~USD 4.1 Mn) is allocated for vector control for over 5 years (2019-2023).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka can strengthen vector control by scaling up *Wolbachia* and Ovitrap pilots, integrating community-based sustainable practices, and using data-driven approaches to target high-risk areas. Enhancing multi-sectoral collaboration, securing long-term funding, and refining strategies through regular evaluation will ensure more effective and sustainable vector control efforts.

Abbreviations – IVM: Integrated Vector Management; NDCU: National Dengue Control Unit

Sri Lanka

ASIA DENGUE Policy Working Group

Entomological surveillance (1/2)

Legend

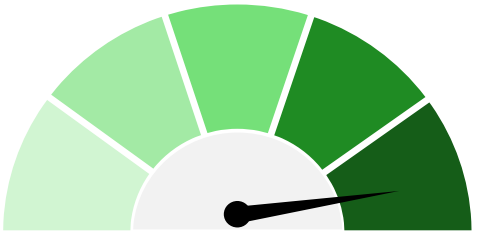
Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description

Adoption of entomological surveillance systems		Vector surveillance is carried out by the National Dengue Control Unit in collaboration with the Anti Malaria Campaign (AMC), Anti Filariasis Campaign (AFC) and Medical Research Institute (MRI)
		• District-level offices of these institutions are responsible for planning, implementation, monitoring, and evaluation of entomological surveillance at the district level
		• The NDCU is responsible for collection and interpreting data that is gathered by district teams.
		• Mo-Buzz, a mobile participatory dengue surveillance system, was launched in 2015 in Colombo, Sri Lanka.
		  • Tracks dengue outbreaks real-time
		  • Provides updated dengue infographics and educational materials
		  • Enables the public to report dengue symptoms and post pictures of *Aedes* larval habitats

Indicators used for surveillance		✓ Container Index (CI) ✓ Premises Index (PI) ✓ Breteau Index (BI) × House Index (HI) Ovitrap surveys, adult mosquito surveys, insecticide susceptibility tests, and cage bioassays are also used as indicators for entomological surveillance

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka can enhance entomological surveillance by expanding geographic information system (GIS) mapping for targeted interventions and incorporating advanced tools like drone surveillance. Strengthening community engagement in data collection and ensuring sustained funding for technological upgrades will further optimise monitoring efforts

Abbreviations – AFC: Anti Filariasis Campaign; AMC: Anti Malaria Campaign; LKR: Sri Lankan Rupee; MRI: Medical Research Institute; NDCU: National Dengue Control Unit; USD: United Stated Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

Entomological surveillance (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Frequent and timely collection of entomological surveillance data		Data is captured in a timely and efficient manner. *Information on frequency unknown*

Utilisation of data for outbreak prevention / forecasting		• Key objectives of the national plan
		  • To intensify entomological surveillance to forecast vector density
		  • To take appropriate control measures
		• Data on vector densities (immature stages – larval, pupae, and adult vector) overtime enables predicting early outbreaks/epidemics
		• Collaborations between ministries have also been noted to enhance outbreak prevention and forecasting. Collaborations with the environmental ministry and meteorological department aim to integrate data on rainfall, relative humidity, and temperature with epidemiological and entomological insights.

Resource allocation for entomological surveillance		• LKR 13.4 Mn (~USD 45.8k) is allocated for case reporting for over 5 years (2019-2023).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka can enhance entomological surveillance by expanding geographic information system (GIS) mapping for targeted interventions and incorporating advanced tools like drone surveillance. Strengthening community engagement in data collection and ensuring sustained funding for technological upgrades will further optimise monitoring efforts

Abbreviations – LKR: Sri Lankan Rupee; NDCU: National Dengue Control Unit; USD: United Stated Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

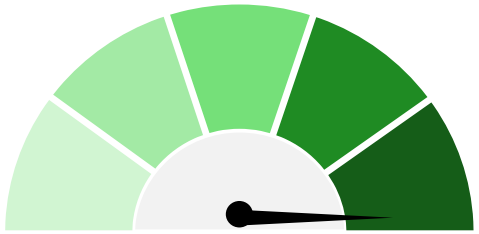
Case reporting (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence of a national notifiable disease surveillance system		• The Epidemiology Unit of the MoH carries out epidemiological surveillance and coordinates dengue-related disease activities with the NDCU. • Case reporting is organised by the geographic location of patients, with actions tailored to the number of cases in specific risk areas. Districts are categorised as “high-risk,” “medium-risk,” or “low-risk” based on the reported case count.
Indicators used for surveillance		✓ Suspected cases ✓ Confirmed cases ✓ Dengue-related deaths × Circulating serotypes Cases are reported based on provincial level
Frequent and timely collection of patient surveillance data		• Based on the *National Action Plan*, cases should be notified immediately at the time of first suspicion without waiting for laboratory confirmation. • Weekly updates on case reports are published.

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka can further enhance case reporting by tracking and reporting of circulating serotypes. Further strengthening integration between reporting systems and expanding real-time digital platforms for data sharing will improve surveillance efficiency. Sri Lanka should consider evaluating reports from existing case reporting systems and results to guide possible adjustments needed for case reporting initiatives.

Abbreviations – MoH: Ministry of Health; NDCU: National Dengue Control Unit

Sri Lanka

ASIA DENGUE Policy Working Group

Case reporting (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Utilisation of data for outbreak prevention / forecasting		• Weekly updates include districts reporting higher number of cases and midnight total number of dengue patient admissions, to inform highly endemic areas. • Collaborations between ministries have also been noted to enhance outbreak prevention and forecasting. Collaborations with the environmental ministry and meteorological department aim to integrate data on rainfall, relative humidity, and temperature with epidemiological and entomological insights.
Resource allocation for case reporting		• LKR 11.2 Mn (~USD 38.3k) is allocated for case reporting for over 5 years (2019-2023).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka can further enhance case reporting by tracking and reporting of circulating serotypes. Further strengthening integration between reporting systems and expanding real-time digital platforms for data sharing will improve surveillance efficiency. Sri Lanka should consider evaluating reports from existing case reporting systems and results to guide possible adjustments needed for case reporting initiatives.

Abbreviations – LKR: Sri Lankan Rupee; USD: United Stated Dollar

Sri Lanka

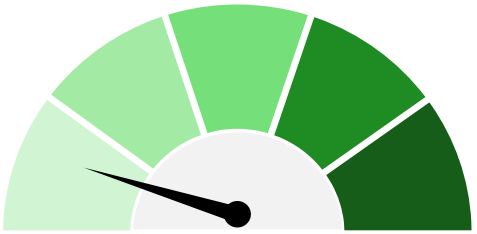
Dengue vaccination (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		Dengue vaccination is mentioned in the "Management of Dengue Fever and Dengue Haemorrhagic Fever in Children and Adolescents", but there are no guidelines on the adoption of dengue vaccination.
Physical access to vaccines		No access to dengue vaccines in the country.
Inclusion of dengue vaccination in the National Immunisation Programme (NIP)		Dengue vaccination is not included in NIP.
Financial access to vaccines		No access to dengue vaccines in the country.
Knowledge and awareness of dengue vaccination	NA	*No available information found.*
Willingness to be vaccinated	NA	*No available information found.*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka should conduct research on public knowledge and willingness to receive the vaccine to help inform future vaccination campaigns. Education and awareness campaigns should be designed to increase the population's knowledge on the importance of vaccinations. Subsequently, Sri Lanka should prioritise dengue vaccination in its national plan by fast-tracking the approval and introduction of vaccines once available. Supporting ongoing field trials and exploring funding options for vaccine access can further strengthen national efforts to combat dengue.

Abbreviations – NIP: National Immunisation Programme; R&D: Research and development

Sri Lanka

ASIA DENGUE Policy Working Group

Dengue vaccination (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for new vaccines and other prophylaxis methods / R&D		One of the objectives of the *National Action Plan on Prevention and Control of Dengue in Sri Lanka* was to conduct operational research in the prevention and management of dengue infection, including dengue vaccination. Field trials on vaccine among susceptible communities have been conducted since 2019. *Additional information on ongoing research not available*
Resource allocation for dengue vaccination		No budget allocations for dengue vaccination.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka should conduct research on public knowledge and willingness to receive the vaccine to help inform future vaccination campaigns. Education and awareness campaigns should be designed to increase the population's knowledge on the importance of vaccinations. Subsequently, Sri Lanka should prioritise dengue vaccination in its national plan by fast-tracking the approval and introduction of vaccines once available. Supporting ongoing field trials and exploring funding options for vaccine access can further strengthen national efforts to combat dengue.

Abbreviations – NIP: National Immunisation Programme; R&D: Research and development

Sri Lanka

ASIA DENGUE Policy Working Group

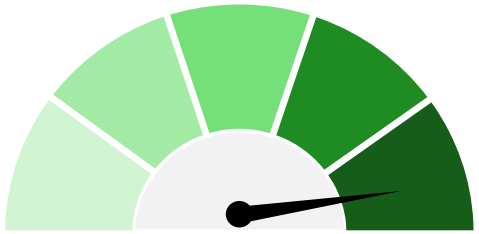
Dengue diagnosis (1/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Percentage of healthcare providers trained in the diagnosis of dengue	NA	*No available information found.*
Frequency of training of specialists / lab technicians		Healthcare providers are trained regularly on the current guidelines on clinical management of dengue fever and dengue haemorrhagic fever *(Note: frequency of training per year is not mentioned)*
Existence and adoption of dengue clinical guidelines		• Dengue diagnosis in Sri Lanka is guided by comprehensive national guidelines tailored to various population groups (children, adolescents, adults, and pregnant women). For primary care doctors, separate clinical practice guidelines are available to provide standardised approaches to diagnosing, treating, and monitoring dengue cases. Healthcare providers are trained regularly on guidelines. • The guidelines are developed and published by Sri Lanka's MoH. *NOTE: These also provide guidance on patient care management*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

Sri Lanka has a solid foundation for managing dengue, with regular training for healthcare providers on clinical guidelines and a comprehensive range of diagnostic services available. To further improve dengue control, it is recommended to increase the frequency of training for healthcare providers, ensuring they stay updated on the latest clinical management protocols, especially in response to emerging strains or treatment advancements.

Abbreviations – LKR: Sri Lankan Rupee; R&D: Research and development; RT-PCR: Reverse transcriptase polymerase chain reaction; USD: United Stated Dollar

Sri Lanka

Dengue diagnosis (2/3)

Legend

Zero	Low	Medium	High
(0%)	(0%<x≤33%)	(33%<x≤66%)	(66%<x≤100%)

Topic of interest	Rating	Description
Availability of / access to diagnostic services in the public sector		✓ Nucleic acid detection ✓ Antigen detection ELISA ✓ Antigen detection rapid tests (NS1 antigen test) ✓ Virus culture ✓ Serology ELISA ✓ Serology rapid tests (IgM/IgG antibody test) ✓ Ultrasound • In specialised laboratories with molecular biology facilities RT-PCR remains the gold standard of aetiological confirmation. • Use of ultrasound significantly improved management through early detection of complications.
Financial access to diagnostic services		• Sri Lanka provides free medical care through the country's public healthcare system. • The public healthcare system of Sri Lanka is state-funded and provides almost 50% of outpatient services, more than 90% of inpatient services and the entire preventative healthcare service. All services are provided by the government, free of charge to patients.

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka has a solid foundation for managing dengue, with regular training for healthcare providers on clinical guidelines and a comprehensive range of diagnostic services available. To further improve dengue control, it is recommended to increase the frequency of training for healthcare providers, ensuring they stay updated on the latest clinical management protocols, especially in response to emerging strains or treatment advancements.

Abbreviations – LKR: Sri Lankan Rupee; R&D: Research and development; RT-PCR: Reverse transcriptase polymerase chain reaction; USD: United Stated Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

Dengue diagnosis (3/3)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Research and advocacy for innovative diagnostics / R&D		One of the objectives of the *National Action Plan on Prevention and Control of Dengue in Sri Lanka* is to conduct operational research on laboratory diagnosis, clinical management, and vector control. *Information on ongoing research not available*
Resource allocation for dengue diagnosis		• LKR 600 Mn (~USD 2 Mn) is allocated for early diagnosis and case management for over 5 years (2019-2023).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

Sri Lanka has a solid foundation for managing dengue, with regular training for healthcare providers on clinical guidelines and a comprehensive range of diagnostic services available. To further improve dengue control, it is recommended to increase the frequency of training for healthcare providers, ensuring they stay updated on the latest clinical management protocols, especially in response to emerging strains or treatment advancements.

Abbreviations – LKR: Sri Lankan Rupee; R&D: Research and development; RT-PCR: Reverse transcriptase polymerase chain reaction; USD: United Stated Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

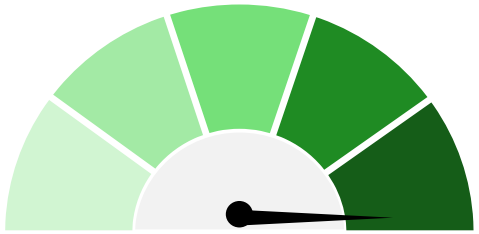
Dengue patient care management (1/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Existence and adoption of dengue clinical guidelines		• Dengue diagnosis in Sri Lanka is guided by comprehensive national guidelines tailored to various population groups (children, adolescents, adults, and pregnant women). For primary care doctors, separate clinical practice guidelines are available to provide standardised approaches to diagnosing, treating, and monitoring dengue cases. Healthcare providers are trained regularly on guidelines. • The guidelines are developed and published by Sri Lanka's MoH. *NOTE: These also provide guidance on dengue diagnosis*
Physical access to treatment / symptom management services		Management services are available in both public and private sectors. The following services are available: ✓ Home-based care ✓ Ultrasound • Use of ultrasound significantly improved management through early detection of complications *Information on other type of services is not available*

Overall pillar assessment outcome



Basic **Optimised**

Recommendations

To ensure continued standardised and strict dengue management, Sri Lanka should continue monitoring the adoption of the published clinical practice guidelines across all sectors. While physical and financial access to treatment is largely adequate through the public system, clearer communication of available services is needed.

Abbreviations – LKR: Sri Lankan Rupee; MoH: Ministry of Health; USD: United States Dollar

Sri Lanka

ASIA DENGUE Policy Working Group

Dengue patient care management (2/2)

Legend

Zero (0%)	Low (0%<x≤33%)	Medium (33%<x≤66%)	High (66%<x≤100%)

Topic of interest	Rating	Description
Financial access to treatment / symptom management services		• Sri Lanka provides free medical care through the country's public healthcare system • The public healthcare system of Sri Lanka is state-funded and provides almost 50% of outpatient services, more than 90% of inpatient services and the entire preventative healthcare service. All services are provided by the government, free of charge to patients.
Resource allocation for dengue patient care management		• LKR 600 Mn (~USD 2 Mn) is allocated for early diagnosis and case management for over 5 years (2019-2023).

Overall pillar assessment outcome

Basic — Optimised

Recommendations

To ensure continued standardised and strict dengue management, Sri Lanka should continue monitoring the adoption of the published clinical practice guidelines across all sectors. While physical and financial access to treatment is largely adequate through the public system, clearer communication of available services is needed.

Abbreviations – LKR: Sri Lankan Rupee; MoH: Ministry of Health; USD: United States Dollar

Thank You!

For any inquiries, contact us at:

policy.wg@denguetaskforce.com

Visit our website!

Follow us on LinkedIn!

ASIA DENGUE
Policy Working Group

ASIA DENGUE
Policy Working Group