Risk communication and community engagement readiness and response toolkit **dengue fever**

World Health Organization

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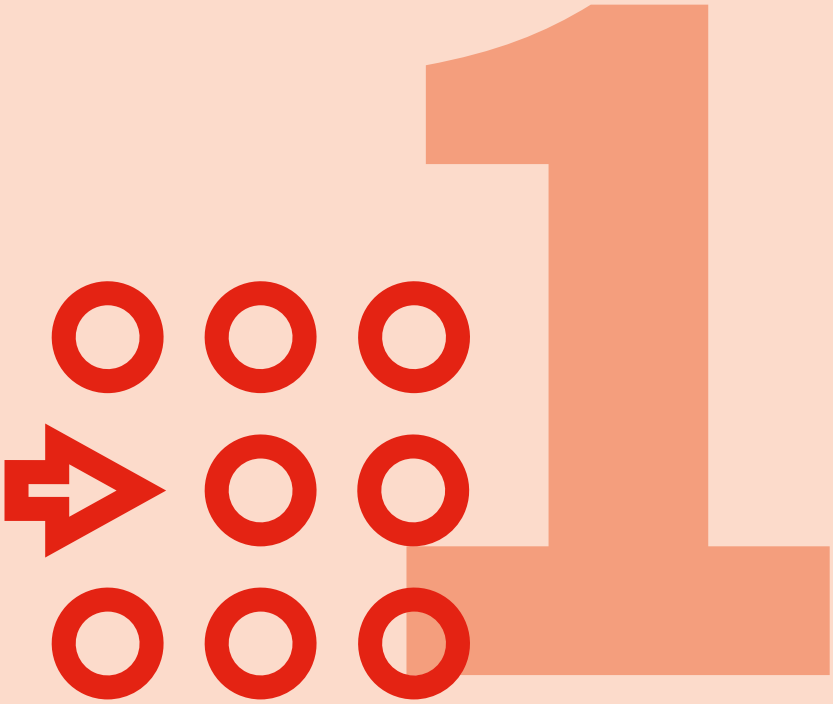
Abbreviations

AEFI	Adverse event following immunization
BI	Behavioural insights
COMBI	Communication for behavioural impact
CSO	Civil society organization
DENV	Dengue virus
DHF	Dengue haemorrhagic fever
GOARN	Global Outbreak Alert and Response Network
IFRC	International Federation of Red Cross and Red Crescent Societies
IHR	International Health Regulations
IMST	Incident Management Support Team
M&E	Monitoring and evaluation
MEL	Measurement, evaluation, and learning
NGO	Nongovernmental organization
PESTEL	Political, economic, sociological, technological, environmental and legal
PRSEAH	Prevention and reporting of sexual exploitation, abuse and harassment
SEAH	Sexual exploitation, abuse and harassment
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Glossary

Behavioural insights	Information about variables that influence behaviours at the individual, community, and population level and can improve the design of policies and programmes, communications, and products and services to achieve better health for all.
Behavioural science	Behavioural science is a multidisciplinary scientific approach that deals with human action, its psychological, social and environmental drivers, determinants and influencing factors. It is applied in protecting and improving people's health by informing the development of public health policies, programmes, and interventions.
Community	Refers to a group of people connected by common characteristics, such as geographic location, age, gender, profession, ethnicity, faith, shared vulnerability or risk, or shared interests and values.
Community engagement	The collaborative process that involves people in understanding the risks they face and includes communities in developing health and response practices that are acceptable and workable for them. The goal of community engagement is to empower communities and to develop shared leadership throughout the emergency response cycle.
Collective Service for RCCE	A partnership between the International Federation of Red Cross and Red Crescent Societies (IFRC), United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and the Global Outbreak Alert and Response Network (GOARN), and as well as key stakeholders from the public health and humanitarian sectors.
Emergency	A situation impacting the lives and well-being of a large group of people or a significant percentage of a population requiring substantial multi-sectoral assistance. For a WHO response, there must be clear public health consequences.
Health emergency management cycle	Spans the prevention, preparedness, readiness, response and recovery phases of health emergencies that all organizations and governments should follow to reduce the impact of disease outbreaks, health emergencies and disasters. Countries and communities may be engaged in different phases for multiple outbreaks and emergencies simultaneously.
Infodemic	An infodemic is overabundance of information, accurate or not, in digital and physical environments, accompanying an acute health event such as an outbreak or epidemic.
Outbreak	Occurrence of cases of a disease in excess of what would normally be expected in a defined community, geographical area, or season.
Partners	International, non-governmental, or community organizations that work in a geographic area or health field.
Readiness	Refers to the ability of countries, communities and organizations to be able to respond quickly and effectively to health emergencies from any hazard. Operational readiness is a critical enabler of resilience in communities and health systems, helping them to withstand crisis. Fast-tracking, activating, testing or preposition specific functional capabilities are all important functions for enhanced readiness.
Response	Phase of a health emergency or outbreak activated once the hazard, risk or threat hits, with the implementation of life-saving public health and health interventions to save lives and protect the most vulnerable.
Risk communication	Real-time exchange of information, advice, and opinions between experts and people who are facing a risk or threat to their health, social or economic wellbeing. The purpose of risk communication is to provide people with accurate and timely information and to support them in making informed decisions to mitigate the effects of a threat or hazard.
Stakeholders	Governments and community leaders that have a vested interest in protecting the health of their own country, region, or community.
Viremia	The presence of viruses in the blood.

Overview of the risk communication and community engagement readiness and response toolkit: dengue fever



About the toolkit

This toolkit is a comprehensive set of practical tools and resources designed to support country-level risk communication and community engagement (RCCE) practitioners, decision-makers, and partners to plan and implement readiness and response activities for dengue fever outbreaks.

The toolkit contains:

- information about dengue fever;
- RCCE considerations for how to approach key issues during dengue fever outbreaks;
- tools for understanding the context in which dengue fever outbreaks occur;
- methods for collecting data to inform strategy development and bring evidence into planning and implementation of activities;
- guidance to support vector control and prevention activities;
- case studies; and
- links to existing RCCE tools and training.

It is one of a suite of toolkits on RCCE readiness and response to a range of disease and response areas.

The toolkit has been developed through an iterative and consultative process that has followed several specific steps to identify, collate and refine the information, tools and best practices it contains. These steps include:

Literature review

- An extensive review of existing literature, research papers, published documents and gray literature related to dengue fever, immunization, risk communication, community engagement, health emergencies and disease outbreak response was conducted.
- A structured search of online databases (PubMed, Institutional Repository for Information Sharing [IRIS], ReliefWeb, and Google Scholar) was conducted to identify publications related to dengue fever, immunization, and risk communication and community engagement, specifically within the context of dengue fever outbreaks.
- Keywords supplied by the technical teams were used as the foundation of the search to identify relevant documents, from which other specific terms and keywords were extracted. Over 43 published documents were systematically reviewed for content on key thematic areas, methodologies and definitions relevant to the development of RCCE plans and strategies, including immunization campaigns. This included but was not limited to clinical information on dengue fever; behavioural science methodologies related to public health and outbreak response; understanding, preventing and addressing stigma and discrimination; stakeholder engagement and situational analysis; measurement, evaluation and learning frameworks and methodologies; and preventing and responding to sexual exploitation, abuse, and harassment (PRSEAH). Retrieved publications were assessed for relevance, uploaded to a database and logged into a tracking sheet, highlighting them for further consideration.

Iterative consultation

- The toolkit was reviewed and revised by technical and RCCE subject matter experts at country, regional and global levels through an iterative consultation process between March 2023 and December 2023.

Pilot testing

- Draft versions of the toolkits were tested during disease outbreaks and feedback collected on the toolkit's clarity, relevance, and usability.

Peer review

- The toolkit was peer-reviewed by independent experts from a range of disciplines including RCCE, epidemiology, and behavioural science.

Readiness and response within the health emergency cycle

In recent years, WHO, Member States and partners have engaged in significant efforts to strengthen the architecture for health emergency prevention, preparedness, readiness, response and recovery. Readiness and response are closely connected. Readiness builds on the preparedness phase and is the interface between preparedness and immediate response to an emergency. For example, the approach of a high-risk season, an outbreak of a contagious disease in a neighbouring country, the hosting of a large international event or the declaration of a public health emergency of international concern (PHEIC) can all trigger operational readiness activities. Experience has shown us that countries that systematically ready their health and emergency systems can respond more quickly, cohesively and equitably to a threat or emergency, shortening their duration, curbing their impact and ultimately saving lives.

The role of RCCE for health emergencies and disease outbreaks

Risk communication is the real-time exchange of information between decision-makers, experts and populations exposed to a hazard or imminent threat to their survival, health, or economic or social well-being.

Community engagement is the process of developing trusted relationships and structures that engage communities as important partners in the creation of emergency response solutions that are acceptable and applicable for those they impact.

Informed, engaged and empowered communities are the bedrock of successful readiness and response for outbreaks and emergencies. The principles of RCCE are outlined in the 10 steps to community readiness package *(1)*. The desired outcome of effective RCCE is to mitigate the potential negative impact of health hazards before, during and after public health emergencies or unusual events *(2)*. The ultimate goal of RCCE during health emergencies and outbreaks is to reduce morbidity and mortality by empowering communities to confidently participate in leadership, planning, and implementation of activities throughout the health emergency response cycle. This is the reason why risk communication is one of the core technical capacities under the International Health Regulations (IHR) (2005) *(3, 4)* and should be an integral part of all Incident Management Support Teams (IMST) in WHO headquarters and regional offices, as well as Incident Management Teams responding to a graded health emergency at the national or local level.

During infectious disease outbreaks, it is imperative to understand why people behave the way they do and what influences the behavioural drivers of disease transmission and risk. Effective RCCE should result in affected communities knowing how to protect themselves and others against the disease, seek care, testing, treatment; and how to prevent, manage and avoid stigma and discrimination. To achieve this, communities at risk need to be included and consulted in developing strategies and plans and in the implementation of readiness and response activities to outbreaks *(5)*.

WHO response to dengue fever

Dengue is a mosquito-borne viral infection common in warm, tropical climates. Infection is caused by any one of four closely related dengue viruses (DENV), serotypes DENV1 DENV2, DENV3 & DENV4, and these can lead to a wide spectrum of symptoms, including some which are extremely mild to those that may require medical intervention and hospitalization. In severe cases, fatalities can occur. There is no treatment for the infection itself, but the symptoms that a patient experience can be managed. Some countries may use vaccines and immunization as part of prevention and control measures, however WHO has published a position paper *(6)* regarding the use of available dengue vaccines.

The incidence of dengue has grown dramatically around the world in recent decades. WHO responds to dengue in various ways. It supports countries in confirming outbreaks by leveraging its network of collaborating laboratories. Furthermore, WHO provides technical support and guidance to assist

countries in effectively managing dengue outbreaks and, it aids nations in enhancing their reporting systems to accurately assess the disease's actual burden.

Moreover, WHO offers clinical management, diagnosis, and vector control training at the country and regional levels, often in collaboration with its partnering centres. The organization also supports countries in developing prevention and control strategies for dengue while encouraging the adoption of the Global Vector Control Response (2017–2030) *(7)*.

WHO conducts reviews and recommends developing new tools, including insecticide products and application technologies, to enhance dengue control efforts. WHO diligently gathers official records of dengue and severe dengue cases from over 100 Member States. WHO is instrumental in disseminating guidelines and handbooks on surveillance, case management, diagnosis, and dengue prevention and control, benefiting its Member States *(8)*.

Purpose of the toolkit

The purpose of this toolkit is to guide RCCE practitioners, decision-makers, and partners on how to place affected communities at the centre of coordinated efforts to reduce the impact of the disease and end outbreaks of dengue fever. It provides strategies, best practices, and practical resources to: collect and analyse social and behavioural data; use collected insights to inform strategy and implementation; coordinate activities with partners and stakeholders, support the development and dissemination of accurate information to those at risk; address public concerns; and support the participation of communities as essential partners in dengue fever readiness and response efforts. These principles are vital for more tailored, equitable and inclusive health emergency programmes.

Intended audience

This RCCE readiness toolkit has been designed for use by:

- decision and policy makers
- national and local health authorities
- emergency management authorities
- UN agencies and other international nongovernmental organizations [INGOs]
- nongovernmental organizations (NGOs) and civil society organizations (CSOs)
- community leaders.

How to use the toolkit

The toolkit supports coordinated, inclusive and tailored RCCE, highlighting approaches that are essential for the successful management of dengue fever outbreaks. All tools require contextualization based on local epidemiology, social-behavioural data, available partners, capacity, community-specific needs, and the status of outbreak readiness and response activities. The resources in this toolkit should be used at the appropriate emergency management phase, reflecting current conditions.

All those interested in using these tools should coordinate to adapt them to their context using the following three steps.

1. **Review all tools**
   This toolkit contains a range of tools with different aims and objectives. It can be used like a library of resources to meet existing country-level needs – not all tools will always be relevant or necessary for all settings. All provided tools should be reviewed and selected for use based on needs and the priorities outlined in the national dengue fever elimination and control plans.

2. **Adapt the relevant tools**
   This toolkit has been developed at a global level. All provided resources should be adapted to local contexts. This can be done by national decision-makers, RCCE practitioners or partners and in line with communities engaged in the response. Adaptations that may be needed include the following:

   - **Language and audience:** Translate the tools into local languages and dialects. Considerations should be made to address literacy and accessibility needs.
   - **User:** Adapt and refine the tools according to the needs of those who will be using them. Different stakeholders have different needs and capacities.
   - **Dengue fever outbreak context:** Adapt the tools based on the current epidemiological situation and what is known about the context and behaviours of affected populations. Future adaptations may be needed as the situation evolves. RCCE activities are crosscutting and should be conducted in coordination with other outbreak response pillars such as surveillance, vaccination, clinical management for treatment and case management, infection prevention and control, and others.
   - **Phase of the emergency:** How the tools in the toolkit are adapted and implemented will depend on the current phase of the health emergency cycle in the local context. Tool 5 (the RCCE readiness and response checklist for dengue fever outbreaks) can be used to identify different priorities within the different phases.
   - **Existing national activities:** Selection and adaptation of tools should be guided by national action plans, strategies and ongoing activities to complement and enhance existing efforts.

3. **Use and monitor**
   Once the tools are tailored to your local context, they can be used to inform strategy, planning and guide the implementation of RCCE activities. The resources within the toolkit provided should guide the work of WHO but are also valuable to other engaged partners and stakeholders, including community leaders, local NGOs, CSOs and other local actors to support their activities. The use of tools should be monitored and evaluated continuously to inform improvements.

Background information on dengue fever

This background information is up to date as of December 2023. It is intended to provide RCCE decision-makers, practitioners and partners with the knowledge and understanding needed to effectively respond to dengue fever outbreaks. Up-to-date information about the local dengue fever situation should be sought from local dengue fever outbreak response leads to fully understand the local setting.

Overview

Dengue is a mosquito-borne viral disease rapidly spreading in all regions of the World Health Organization (WHO). The virus is transmitted by female mosquitoes, of the species *Aedes aegypti* and, to a lesser extent, *Aedes albopictus*. The actual numbers of dengue cases globally are underreported but one recent estimate indicates 390 million dengue infections per year, of which 96 million infections result in illness. The majority of dengue cases are asymptomatic and are not reported.

Dengue is widespread throughout the tropics, with local variations in risk influenced by rainfall, temperature, and unplanned rapid urbanization. Dengue infection is caused by dengue virus. There are four distinct but closely related serotypes of the virus and each has different interactions with the antibodies in human blood serum.

In severe cases, dengue can be fatal. People infected previously with DENV are at greater risk of severe dengue. Severe dengue symptoms often come after the fever has gone away.

The risk of dengue can be lowered by avoiding mosquito bites, especially during the day (from morning to evening). There is no specific treatment for dengue, and symptoms are managed with pain medicine. Timely detection of cases, early confirmation and access to proper medical care significantly lower fatality rates from severe dengue *(8, 9, 10)*.

Transmission

The virus is transmitted to humans through the bites of infected female mosquitoes, primarily the *Aedes aegypti* mosquito. After virus incubation for 4–10 days, an infected mosquito can transmit it for the rest of its life. Infected, symptomatic, or asymptomatic humans are the main carriers and multipliers of the virus, serving as a source of the virus for uninfected mosquitoes. Patients already infected with the dengue virus can transmit the infection (for 4 –5 days; maximum 12) via *Aedes* mosquitoes after their first symptoms appear *(8)*.

The *Aedes aegypti* mosquito lives in urban habitats and breeds mostly in man-made containers. Unlike other mosquitoes, Ae. aegypti is a day-time feeder with peak biting periods early in the morning and in the evening before dusk and it bites multiple people during each feeding period. *Aedes albopictus*, a secondary dengue vector in Asia is highly adaptive and, therefore, can survive in cooler temperate regions of Europe. Its spread is due to its tolerance to temperatures below freezing, hibernation, and ability to shelter in microhabitats *(8, 10)*.

Maternal transmission

The primary mode of transmission of DENV between humans involves mosquito vectors. There is evidence of the possibility of maternal transmission, from a pregnant mother to her baby. However, these vertical transmission rates appear low, with the risk seemingly linked to the timing of the dengue infection during the pregnancy. When a mother does have a DENV infection when she is pregnant, babies may suffer from pre-term birth, low birthweight, and fetal distress *(8)*.

Other transmission modes

Rare cases of transmission via blood products, organ donation and transfusions have been recorded. Similarly, transovarial transmission of the virus within mosquitoes has also been recorded *(8)*.

Symptoms

Dengue is a self-limiting illness marked by fever and with symptoms ranging from asymptomatic to severe. Symptoms of dengue may be observed around 4–10 days after the bite of an infected mosquito. Common symptoms are like that of the flu, with patients experiencing:

- high fever (40°C/104°F)
- severe headache
- pain behind the eyes
- muscle and joint pains
- nausea
- vomiting
- swollen glands
- rash.

As the disease progresses, patients can also suffer from respiratory distress, bleeding from the nose and gums and have a rapid drop in blood pressure leading to shock. If left unmanaged, this can lead to death *(8, 9, 10)*.

Symptoms of severe dengue

Individuals infected for the second time are at greater risk of severe dengue. Severe dengue symptoms often come after the fever has gone away, including severe abdominal pain, persistent vomiting, rapid breathing, bleeding gums or nose, and fatigue. Similarly, other symptoms include restlessness, blood in vomit or stool, being very thirsty, pale and cold skin, and feeling weak. People with these severe symptoms should get care right away. After recovery, people who have had dengue may feel tired for several weeks *(8, 9, 10)*.

Who is at risk

Previous infection with DENV increases the risk of the individual developing severe dengue. Urbanization, especially unplanned, is associated with dengue transmission through multiple social and environmental factors: population density, human mobility, access to reliable water sources, water storage practice, etc. Populations displaced by humanitarian crises and armed conflicts are also at higher risk of dengue due to inadequate living conditions, naive immunity, and restricted access to healthcare services *(8)*.

A community's risk of dengue also depends on the population's knowledge, attitude and practice towards the disease, as well as the implementation of routine sustainable vector control activities in the community. Consequently, disease risks may change and shift with climate change in tropical and subtropical areas, and vectors might adapt to new environment and climate.

Protective behaviours

The key messages to the population at risk should speak to individual and community action and changes in behaviour to eliminate and control mosquitos inside and around the household. *Aedes* mosquitoes often live in and around the home and in the garden, so these may include cleaning flower vases to remove mosquito eggs and larvae, covering large containers, removing or recycling used tyres, cleaning water-holding containers at least once a week and actively practicing strategies to avoid mosquito bites.

Reducing mosquito populations, eliminating breeding sites, and avoiding bites are the most important ways of preventing and controlling dengue virus infection. Among actions to eliminate the vector, strategies should include inter-sectoral activities to eliminate containers with standing water and to provide and conserve water safely *(8, 9, 10)*.

Other individual protective measures include wearing of long-sleeved clothing and trousers to minimize skin exposure and the use of insect repellents (preferably

containing diethyltoluamide, or "DEET") to avoid mosquito bites. The use of insecticide-treated bed nets is limited by the fact that *Aedes* mosquitos bite during the daytime. Additionally, it is advised to stay indoors during peak hours of activity for mosquitos- early morning and afternoon hours.

Prevention

The best way to prevent infection is effective vector control measures and personal protective behaviours, which include reducing possible mosquito breeding sites, applying insecticides or using insecticide treated materials, proper waste disposal as well as space spraying insecticide during outbreaks as an emergency vector-control method.

A safe and affordable vaccine for dengue is an important part of future prevention efforts. In countries where national regulatory authorities have decided to use vaccines available on the market as a prevention method, it is important to consider the local context of the outbreak. There are currently 2 licensed dengue vaccines: CYD-TDV (Dengvaxia, Sanofi) and TAK-003 (Qdenga, Takeda). In May 2024, WHO issued an updated position paper on dengue vaccines *(6)* based on recommendations issued by the WHO Strategic Advisory Group of Experts (SAGE) on immunization. The previous position paper, published in 2018, presented the WHO position on using CYD-TDV. Because of the need for pre-screening before vaccination, the use of CYD-TDV in national immunization programmes has been very limited.

The position paper published in May 2024 focuses on the second licensed dengue vaccine, TAK-003, and WHO's position for its use, providing an update on the first licensed dengue vaccine, CYD-TDV. WHO recommends the use of TAK-003 in children aged 6–16 years in settings with high dengue transmission intensity.

In countries where national health authorities are considering using a dengue vaccine as part of prevention efforts, vaccination should be viewed as part of an integrated strategy to control the disease, including comprehensive vector control, proper case management, community education, and community engagement.

Treatment

There is no treatment for dengue infection itself, but the symptoms that a patient experiences can be managed. It is recommended to:

- Get plenty of rest.
- Drink fluids to prevent dehydration and maintain blood volume.
- Do not take aspirin or other non-steroidal anti-inflammatory drugs, as they can increase the risk of bleeding.
- If taking medicine for another medical condition, it is important to speak to a healthcare provider before taking additional medication.
- For people with severe dengue, hospitalization is often needed. People who are experiencing symptoms of severe dengue should immediately seek medical attention.
- To help prevent others from getting sick, strictly follow steps to avoid mosquito bites during the first week of illness *(8, 9, 10)*.

Tools for dengue fever outbreaks

3.1: Gathering information and data

The tools in Section 3.1: Gathering information and data are designed to support the collection, analysis and use of social-behavioural data and community insights to inform the development of evidence-based RCCE strategies and plans. The data and insights collected using these tools promotes better decision making and can allow for stronger risk assessments by bringing a community lens to the understanding of risk during an outbreak. By prioritising the collection, analysis, and use of social-behavioural data and community insights within and beyond RCCE, it is possible to bring broader response strategies and plans in line with community expectations, needs and priorities.

Tool 1: Conducting a situational analysis: The PESTEL tool

A situational analysis can be conducted in either the readiness or response phase to inform activities during an outbreak, and to strengthen prevention and preparedness efforts. In any of these scenarios, the situational analysis should be regularly updated.

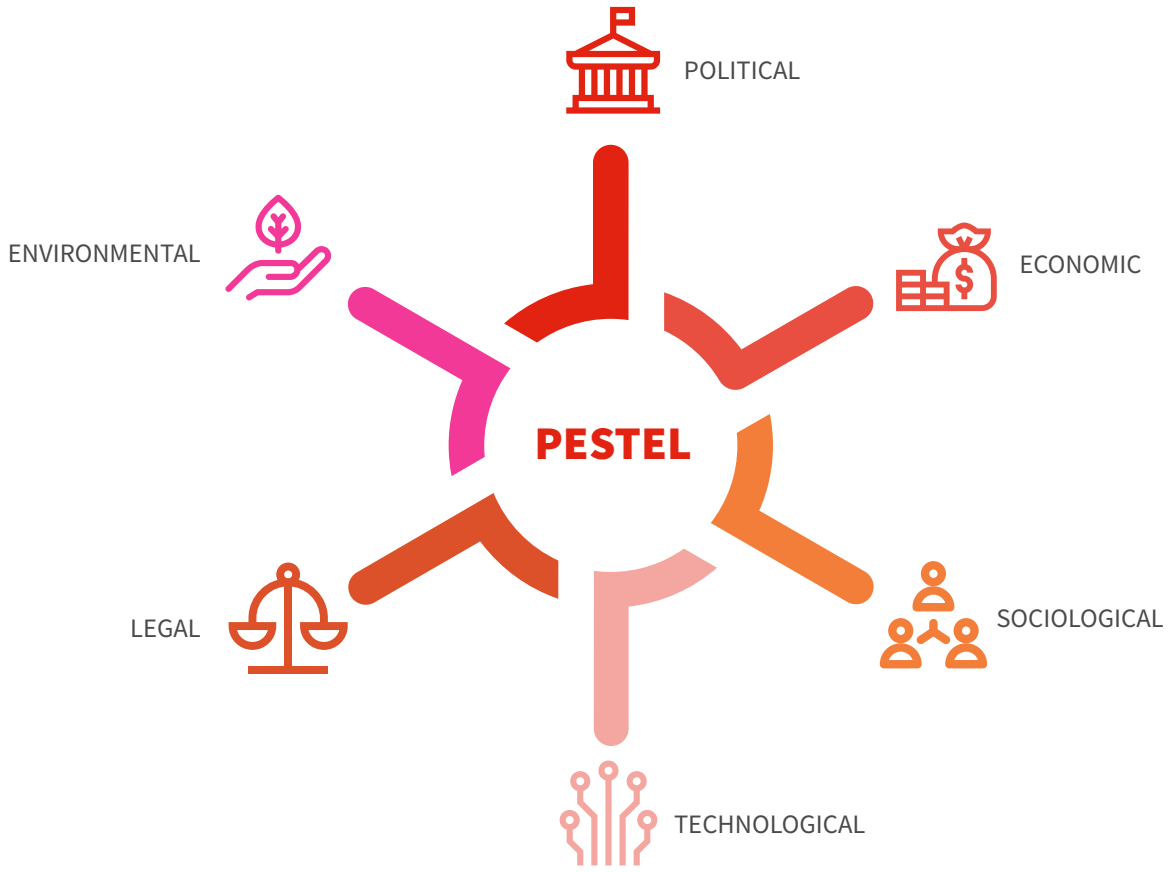
The PESTEL tool is a framework for conducting a situational analysis that helps understand political, economic, sociological, technological, environmental, and legal factors that can influence public health efforts during an emergency, as well as other preventative activities for dengue fever.

Data collected either directly or from existing sources can be used to gather insights into the six categories of the PESTEL analysis. Information can be collected through these and other sources:

- community surveys, qualitative interviews and focus group discussions, including behavioural science research;
- tools used under the International Health Regulations *(3)* to evaluate country capacity, including intra-action reviews, after-action reviews, the Health Resources and Services Availability Monitoring System (HeRAMS), joint external evaluation (JEE) reports *(2)*, etc.;
- lessons learned from previous outbreak responses;
- WHO IMST updates, situation reports, Disease Outbreak News *(11)*, and daily reports;
- peer reviewed journals;
- WHO country profiles;
- news reports from trustworthy sources; and
- government websites and official publications.

The information obtained from a PESTEL analysis should be used with detailed behavioural data from Tool 2 and local epidemiological data on the drivers of transmission.

Figure 1. PESTEL analysis framework



Political considerations:

- government and local policies;
- budgets for dengue fever readiness and response;
- previous governmental experiences with dengue fever outbreaks;
- levels of trust in government, partners and other influential voices;
- government and partner public communication activities and style; and
- upcoming elections or potential changes in leadership.

Economic considerations:

- capacity of citizens and communities to participate in economic life;
- access to and supply of health services, including dengue fever testing, treatment of dengue and severe dengue; and
- income of citizens.

Sociological considerations:

- cultural dynamics and demographics;
- behaviours, beliefs and habits;
- religions and traditions;
- literacy, languages and dialects; and
- discriminatory behaviours, especially towards high-risk groups (such as people living in slum areas, internally displaced persons and people living in refugee camps).

Technological considerations:

- level of access to information (print, broadcast or online media);
- mobile phone usage and level of penetration;
- social media usage;
- availability of internet access;
- digital literacy; and
- key online communication channels.

- **Environmental considerations:**
- potential dangers and impacts of climate crisis, such as deforestation and human encroachment into animal habitats;
- natural disasters (floods, earthquakes, droughts, etc.); and
- environmental risk level.

Legal considerations:

- laws, rules and plans — including those related to ethics, such as the prevention of sexual exploitation, abuse and harassment (PSEAH);
- existence of treaties or binding legal instruments;
- multiple levels of governance;
- regulations that impact RCCE in emergency situations; and
- coordination and engagement of CSOs, NGOs and non-State actors.

Tool 2: Behavioural analyses

This tool can be used to identify and understand behaviours relevant to dengue fever outbreaks that inform and shape RCCE strategies, tools and tactics. Behaviours do not stay static through an outbreak or health emergency. High-risk behaviours are influenced by barriers and enablers that can be identified through social and behavioural data collection. These should be identified as early as the prevention phase and throughout the readiness and response phases, and regularly monitored to understand norms, trends and changes (12).

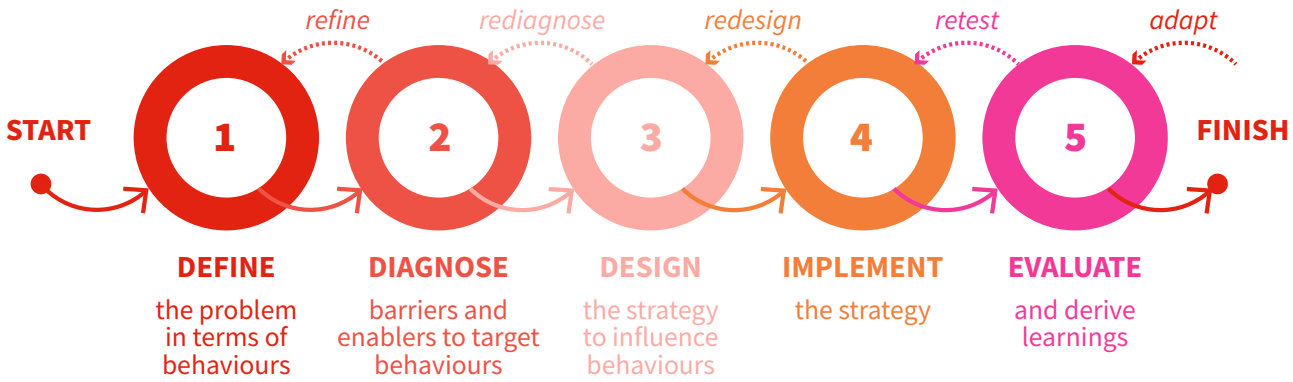
Used together, the findings from the situational and behavioural analyses can help assess how to engage with communities effectively and co-develop plans and strategies that support people to make well-informed decisions to protect themselves. The importance of including behavioural and social sciences in public health interventions was globally recognized by Member States at the seventy sixth World Health Assembly in 2023 *(13)*, where WHO acknowledged the contribution of these disciplines in achieving improved health outcomes and called on the increased use of behavioural science to empower communities in understanding public health problems and designing and evaluating interventions to address them.

Behaviours are one factor that can influence transmission, uptake of protective actions and care-seeking practices in outbreaks and health emergencies. It is important to identify and understand risky and protective behaviours in the current context and to use these to shape RCCE strategy, plans and activities. It is crucial to note that changing behaviour is not the only answer to ending transmission; people need information and opportunities for engagement as well as access to prevention and care to help them make informed decisions that are applicable within the context of their daily lives, and which are practical and accessible.

The behaviours that are relevant to the risk and prevention of dengue fever transmission will vary depending on the local context (e.g. presence of disease vector, availability of safe and affordable vaccines, treatment for symptoms, etc.). This information should be obtained from a multidisciplinary team including behaviour change experts and epidemiologists working on the response and from your PESTEL analysis.

The Behavioural Insights (BI) checklist included below is designed to guide what data to review to inform RCCE strategy and which include inputs from the communities at risk. It is adapted from the Technical note from the WHO Technical Advisory Group on behavioural insights and science for health *(14)*. This technical note includes additional guidance on behavioural insights including advice on the principles and application of behavioural science. Please refer to the note for additional guidance. The BI checklist is based on the define, diagnose, design, implement and evaluate (DDDIE) steps (Figure 2).

Figure 2. DDDIE steps guide



Step 1: Defining the problem in terms of behaviour: Is the dengue fever outbreak a problem of behaviours?

Use the data sources available to answer the following questions and complete the table below (e.g. epidemiological data, knowledge from previous outbreaks or other countries, existing social-behavioural data).

1. Does the problem have a behavioural component? Consider factors such as:
    - What is driving transmission?
    - Are people seeking/accessing testing, treatment, if they are available?
    - Are people practicing protective behaviours?
    - Are people practicing risky behaviours?
2. Which behaviour(s) must be changed to contribute to improving or attaining the desired health outcome(s)?
3. What is the target behaviour you are aiming for? Specify who needs to do what, when, where and how. Try to be as specific as possible about behaviours, whilst recognising that behaviours are interconnected and are likely to be part of a combination or sequence of behaviours from multiple key players, happening in different times and places and all contributing to transmission.

Table 1. Problem and behaviour diagnosis

Step 1: Defining the problem in terms of behaviour	
Does the problem have a behavioural component? If yes, what?	E.g. Yes; People living in or traveling to areas where dengue is endemic or where outbreaks are occurring can drive the transmission of dengue fever.
Which behaviour(s) must be changed to improve the desired health outcome?	E.g. Not taking steps to avoid mosquito bites.
What is the target behaviour(s) you are aiming for?	E.g. people take personal protective measures to avoid mosquito bites, or people regularly check their surroundings to drain any standing water, scrub water buckets and remove discarded containers
Who needs to change their behaviour?	E.g. People living in or traveling to dengue endemic areas.
What do they need to do differently?	E.g. eliminating mosquito breeding sites from their surroundings, wearing protective clothing, and using mosquito nets (if sleeping during the day), using mosquito repellents especially during peak mosquito activity times.
When does this behaviour occur?	E.g. until the affected population is ready to take proactive measures to reduce transmission, seek prompt medical care, and contribute to vector control efforts.
Where does this behaviour occur?	E.g. Indoor, and outdoor, communities, places of work and schools, and events

Step 2: Diagnose the barriers to and enablers of target behaviours

A barrier is an obstacle or challenge that impedes the uptake or adherence to dengue fever interventions. Enablers are factors that facilitate or support the successful implementation of dengue fever preventive measures and RCCE interventions. Barriers and enablers of behaviours can be cognitive, psychological, social, cultural, environmental, religious, and linked to perceptions of self-efficacy, risk, and efficacy of interventions, as well as other factors.

Identifying and understanding the barriers and enablers of your desired target behaviour is essential to design interventions that are effective, practical, and culturally acceptable. Use social-behavioural science evidence to prioritize and determine what barriers and enablers will be explored further to inform the design of interventions.

It can also be useful to consider whether barriers and enablers are: 1) cognitive/psychological; 2) social/ cultural; 3) environmental/ structural.

Examples of barriers include:

- Lack of awareness or knowledge about dengue fever symptoms, transmission and/or preventive measures (cognitive/psychological).
- Cultural beliefs and practices that contradict guidance or discourage people from adopting the desired behaviours (social/cultural).
- Limited access to health care resources, information or services required to follow the desired behaviours (environmental/structural).
- Delay in seeking medical care for suspected severe cases (cognitive/psychological).

Examples of enablers include:

- Strong community inclusion, support, and engagement in promoting interventions (social/ cultural).
- Accurate RCCE interventions that provide information about dengue fever and the importance of immunization (environmental/ structural).
- Positive social norms that encourage and support people to adopt desired and avoid risky behaviours (social/cultural).
- Engaging positive role models, such as community leaders and influencers, to advocate for and model the desired behaviours (social/ cultural).
- Involvement of the private sector to ensure that the at-risk workforce is protected (environmental/ structural).
- Accessible and reliable health services to support the adoption of the desired behaviours (environmental/ structural).

Table 2. Behaviour barriers and enablers

Step 2: Behaviour barriers and enablers		
Risky behaviour	**Enablers**	**Barriers**
E.g. Households do not pay attention or recognize the warning signs of dengue after recovering from fever	E.g. population awareness of the warning signs of severe dengue and importance of seeking prompt medical care.	E.g. lack of public awareness, limited resources including healthcare services

Steps 3, 4 and 5: Design, implement and evaluate interventions to address barriers and encourage enablers of behaviours

Steps 1 and 2 provide insights and data that can then be used in steps 3 (design of evidence based RCCE approaches and interventions aimed at addressing the barriers identified), 4 (implementation of interventions aimed at addressing the barriers identified) and 5 (evaluation) to support dengue fever readiness and response efforts.

Design and implementation of interventions should be done in collaboration with behavioural scientists, health experts, communication specialists and, crucially, with affected communities and stakeholders, ensuring the design of effective and culturally sensitive interventions. Tools to support implementation are included in this toolkit.

Evaluation of interventions and of behaviour change is important to drive future learnings about the effectiveness of RCCE strategies. It is possible to measure the impact of interventions on behavioural outcomes using epidemiological data or direct observations of behaviours. If these data are not available, use self-reported information, such as adherence to preventive measures.

Tool 3: Mapping and understanding communities

This tool can be used to identify and record key information about communities affected by dengue fever and who should be included in outbreak response activities. This information should be used to inform RCCE strategy and action plans for the priority communities at risk of dengue fever infection.

In order to have inclusive RCCE plans and strategies, it is imperative to involve communities in co-designing solutions and interventions aimed at protecting their health and wellbeing from an imminent threat. Individuals and communities experience outbreaks of dengue fever differently. Anything from where they live and work, to their varying levels of knowledge, awareness, perceptions of risk, or specific local contexts in which dengue fever outbreaks occur, can significantly impact their likelihood of falling sick.

Understanding these differences helps identify who is most at risk of the disease and who in the community is best placed to support engagement efforts.

The tool below helps to collect and organize information about key communities at risk and in combination with tools 1 and 2, provides a broader context to help tailor RCCE activities to the needs of the specific population

Table 3. Community assessment matrix

	Priority community 1: e.g. people at risk of dengue virus infection	**Priority community 2:** e.g. students and teachers	**Priority community 3:** e.g. health workers
Demographic information – age range, gender, languages spoken, literacy levels, education, occupations			
Risk level – based on epidemiology and findings from situational and behavioural research			
Perceived risk level – based on level of knowledge about dengue fever, perception of personal and community risk, self and intervention efficacy			
Trusted information channels – note that this may differ from frequently accessed channels			
Community leaders – advocacy groups, schools, women's groups, religious leaders, etc.			
Influential voices – celebrities, thought leaders, health workers, social media accounts, etc.			
Access to key interventions – treatment, etc.			
Rumours and misinformation			
Other			

Tool 4: Stakeholder analysis

This tool looks at the various people and groups identified as important in dengue fever readiness and response activities or impacted by the outbreak. It helps to bracket and group their potential roles, capacities, and anticipated engagement to support collective efforts to prevent or respond to dengue fever outbreaks including immunization campaigns.

A stakeholder analysis goes into more detail and builds on the findings of the PESTEL, behavioural analysis and community mapping. It should be adapted to the local context to provide a precise overview of different stakeholder roles, motivations, anticipated involvement, and key milestones to maximize the impact of RCCE activities. There are four main categories into which stakeholders fall and an associated strategy for interacting with them.

Table 4. Stakeholder categories

	Stakeholder category	Strategy
Champion	Champions support your activities and do so actively and visibly. These groups/ people agree with the proposed actions and goals and are already taking action on their own to support them – i.e.: other UN agencies.	With Champions, continue engaging them in planning and implementation of activities, provide them with updates and information to ensure they are up to date, appreciate and acknowledge their contributions and support, and let them champion the cause.
Silent booster	Silent boosters support the planned or proposed activities and goals but do so privately, with little to no public support. These stakeholders need additional motivation to become more active and supportive of the proposed actions.	With this group, the strategy is to educate, enable, inform and motivate. Energize these stakeholders by involving partners and champions they respect and normally engage with to help advocate for the planned activities and goals.
Avoider	Avoiders don't necessarily support your cause but aren't vocal or visible about their lack of support. They silently oppose aspects of planned activities and passively disagree.	Inform or ignore. With Avoiders, it is helpful to engage groups from the Champions category to help influence them to support activities.
Blocker	Blockers are groups who are visibly, publicly opposed to the planned activities and take action to encourage others to disagree as well. They pose an obstacle to the implementation of activities, depending on their influence.	Blockers pose a greater challenge if they are influential. If they are, the best approach is to counteract their action by continuing to enlist Champions to advocate for your cause and provide facts. If they are not influential, the best strategy is to ignore this group. Regardless, keep track of who they are and who they are influencing.

Table 5. Stakeholder matrix

Responsible officer: **Date:** **Version:**											
Name of organization or individual	**Area of work**	**Stakeholder type**	**Anticipated involvement or support**	**Anticipated challenges**	**Motivation, drivers**	**Expectations of exchange**	**Milestones**	**Activities**	**Responsible party**	**Date due**	**Status**
		(Champion, blocker, silent booster, avoider)	*What level of involvement is expected and what type of support can this stakeholder contribute?*	*Known or potential issues, lack of capacities, etc.*	*Why is the stakeholder invested in the proposed activities?*	*What is the stakeholder's predicted input?*	*At what point of the response or planned activities is this stakeholder's involvement required?*	*What activities directly involve or impact the stakeholder?*	*Team member(s) responsible for engagement with the stakeholder*	*Task/ involvement needs to be met by:*	*Have all the agreed activities been implemented in the foreseen time frame?*

3.2: Strategy and planning

The tools in Section 3.2: Strategy and planning are designed to support the development of evidence- based RCCE strategies and plans drawing on social-behavioural data, community insights, epidemiological data and priorities identified by other areas of the outbreak response. Strong strategies and plans promote more effective implementation of activities in the long run and provide an opportunity to consider how to work with communities as core partners in all RCCE activities.

Tool 5: Readiness and response checklist

This tool is designed to assist RCCE professionals and responders to update or develop dengue fever readiness and response plans. Drawing on the tools provided here it provides a comprehensive list of activities that should be considered during the readiness and response phases of an outbreak. Links to additional tools are found in section 3. If action planning and implementation begins during the response phase, items listed under readiness should also be referred to.

This checklist is adapted from the following documents: International Health Regulations (2005) – Third edition (who.int) *(3)*, COVID-19 Global Risk Communication and Community Engagement Strategy – interim guidance (who.int) *(15)* , Readiness and initial response for nCoV. Interim guidance *(16)*, RCCE 10 steps to community readiness (1), HEPR (Health Emergency Preparedness Response) framework *(17)* and Joint External Evaluation tool, Third Edition *(2)*, and Communicating risk in public health emergencies *(18)*

Table 6. RCCE readiness and response checklist[1]

Area of work	Steps	Activities
Systems and coordination	**Readiness**	❒ Establish or strengthen RCCE coordination mechanisms, including establishing an inter-agency task force or crisis communication centre, technical working groups for key areas of work, and ensure content clearance and information sharing protocols are approved. ❒ Review and update existing RCCE strategies and plans using intelligence from local surveillance, epidemiological and social-behavioural data (see tools 1 and 2). Ensure these are linked to broader emergency preparedness and response plans (EPRP) and national dengue fever elimination and control plans. ❒ Set up or strengthen an RCCE team, define members' roles and responsibilities and how the team will link to other response pillars. ❒ Map RCCE expertise at all levels, with specific focal points within the Ministries of Health and local health authorities, including topics such as PRSEAH (Preventing & Responding to Sexual Exploitation, Abuse & Harassment). ❒ Conduct or update PESTEL situational analysis and stakeholder analysis ❒ Develop a budget, with funding options and a human resource plan, including plans for surge support if needed.
	Response	❒ Convene and coordinate the RCCE response with government, stakeholders, partners and across technical areas/pillars. ❒ Activate the inter-agency task force or crisis communication centre and ensure content clearance and information sharing protocols are followed. ❒ Revise and update RCCE strategies and plan according to need and current surveillance, epidemiological and social-behavioural data (see tools and 2), new evidence or learnings and community insights. ❒ Implement approved operational budget and human resource plan, including deployment of surge staff.
Community data for action	**Readiness**	❒ Conduct a review of social-behavioural data (see tools 1 and 2) and identify vulnerable populations (see tool 3), risk factors, priority behaviours and potential barriers and enablers for an effective response (see tool 2). Use this knowledge to inform decision-making at all levels. ❒ Ensure mechanisms for community listening are established (both online and offline) and respond to rumours and misinformation proactively (see tool 6 to support tracking of rumours and misinformation). ❒ Analyse gaps in available social data. A mix of quantitative and qualitative data is best - including community feedback, social listening, polling, situational and behavioural analyses, PRSEAH and survey data to understand community knowledge gaps, perceptions, and behaviours. Commission appropriate research to fill in the identified gaps. ❒ Set up a framework for measurement, evaluation and learning to track the efficacy of RCCE activities and impact made. Use findings to tailor and adjust the RCCE strategy and plans accordingly.
	Response	❒ Continuously conduct data collection among at-risk and affected populations to track changes in knowledge, attitudes, perceptions, behaviours, and other social-behavioural variables. ❒ Regularly conduct community listening (see tool 7). Use the findings to develop, adjust and implement RCCE interventions that address concerns, misconceptions, rumours, and barriers to uptake of protective behaviours. Address any unacceptable behaviours, including sexual misconduct. Include affected communities throughout this process. ❒ Continue to monitor the impact of response activities on communities (see tool 7). Ensure plans are in place to manage potential or unexpected impacts (changes to health seeking behaviours, impact on job and food security, other economic or social impacts) and update accordingly. ❒ Share data back to communities and update local response activities as new social, behavioural, and anthropological data becomes available

[1] RCCE: risk communication and community engagement; EPRP: emergency preparedness and response plans; PRSEAH: preventing sexual abuse and harassment; PESTEL: political, economic, sociological, technological, environmental, and legal factors; MEL: measurement, evaluation, and learning; CSO: civil society organization.

Area of work	Steps	Activities
Risk communication	**Readiness**	❒ Ensure that the highest levels of government are ready to release information to protect the public's health in a rapid, transparent, and accessible manner. ❒ Create or review a repository of existing RCCE materials such as message banks, tools, products, and templates. ❒ Map and prioritize trusted and commonly used communication channels and platforms. Assess these for accessibility to people in remote areas, without digital skills or access, those with low literacy skills or who may not speak the dominant language, etc. ❒ Identify alternative communication channels to reach all pockets of society, such as street radio, mobile announcers, voice messages for health centres, etc, and partners who can potentially support dissemination of key messages through these methods. ❒ Identify focal points and media spokespeople for all key partners at all levels; list their areas of expertise in relation to the disease or health emergency threat; if necessary, train them. ❒ Coordinate communication activities and use standard operating procedures (SOPs) for clearance and sharing. ❒ Ensure that a crisis communication template is developed and there are clear protocols for reporting.
	Response	❒ In collaboration with affected communities, continuously develop, adapt, and test messages based on the perception of risk and as the situation evolves. ❒ Update interventions and messaging, based on a measurement, evaluation, and learning (MEL) framework, feedback from communities, and the effectiveness of the RCCE campaign. ❒ Continue to build and deliver high-quality information to raise knowledge and manage risk perceptions related to the specific topic of interest, using trusted and commonly used channels. ❒ Engage regularly with and provide risk communication content to government, media and other partners to ensure public information is adapted and consistent with the latest science and current context. ❒ Activate spokesperson and influential individuals, including those from other agencies and stakeholders, to align messaging and to broaden the reach of RCCE activities. ❒ Provide guidance to media outlets on how to access reliable information and manage rumours and mis- and disinformation.
Community engagement	**Readiness**	❒ Hold discussions with communities to understand sociocultural contexts and power dynamics of key audiences. ❒ Identify what type of engagement is safe, feasible and acceptable for different communities. ❒ Identify existing platforms (community leaders, CSOs, and key influencers, particularly those accessed by people at risk) and engage communities in decision-making processes. ❒ Establish or strengthen community feedback systems to ensure community beliefs, questions, concerns and suggestions are heard. ❒ Co-develop priority actions with affected groups to strengthen readiness and build trust and encourage uptake of protective behaviours and vaccines if available (risk and needs assessments, strategies, plans, guidance, messaging, etc.). ❒ Design and co-implement interventions and strategies with communities. ❒ Train community engagement teams including volunteers and establish surge capacity mechanisms. ❒ Ensure translation capacities are available to tailor all RCCE materials into local languages and dialects. ❒ Anticipate special information and engagement needs for people who are disabled, illiterate or marginalised.
	Response	❒ Update and co-implement RCCE interventions and strategies with communities. ❒ Ensure continuity of community feedback systems and close information gaps. ❒ Launch or strengthen an "alliance" of influencers and stakeholders who can listen, advocate, inform, address rumours and misinformation and promote health literacy using evidence and data. ❒ Ensure representation of civil society and vulnerable groups. Work closely with other committees and advisory groups. ❒ Engage relevant sectors (government, social and private sector) to manage service and supply needs, assess barriers and strengthen referral systems such as PRSEAH. Ensure affected communities are linked to referral systems.

Area of work	Steps	Activities
Capacity building	**Readiness**	❒ Conduct a rapid needs assessment, which includes mapping of existing RCCE human resource capacities and capabilities. ❒ Develop a capacity plan with stakeholders based on the result of the needs assessment. ❒ Build the capacity of RCCE teams and other key stakeholders based on the plan developed. ❒ Create SOPs to drive consistency and quality across RCCE interventions and collaboration with partners. ❒ Initiate a continuous peer-to-peer support system for community mobilizers, responders, and networks.
	Response	❒ Adapt capacity building tools as needed. ❒ Identify and train emergency RCCE staff and potential surge staff on plans and procedures. ❒ Provide refresher or on-the-job training for RCCE responders and spokespersons as interventions and strategies change. ❒ Continue to provide orientation to media professionals and communication networks as the response evolves.
Measurement, evaluation and learning (MEL)	**Readiness**	❒ Develop/review the MEL framework including M&E indicators based on the developed RCCE strategy, planned activities, and expected outcomes (see tool 8). ❒ Develop/strengthen a real-time monitoring system using existing/adapted tools such as mobile and manual data collection methods, interactive dashboards, and automated data analysis. ❒ Train the RCCE team on the use of relevant tools. ❒ Promote community participation in developing the measurement, evaluation, and learning process. ❒ Develop a system to effectively store, manage and share information and key data sets.
	Response	❒ Continuously revise the MEL framework to ensure it is capturing the data needed to measure results and impact (see tool 9). ❒ Use established real-time and participatory monitoring and evaluations systems where possible such as mobile or application-based reporting. ❒ Generate evidence and data that allows regular assessment of strategy implementation and impact. ❒ Include CSOs in monitoring, reporting and joint accountability efforts to increase the likelihood of broad community uptake and responsibility for new interventions. ❒ Maintain and strengthen systems to effectively manage and share information, document lessons learned and gather best practices. Disseminate lessons and best practices widely.

Tool 6: Activities tracker

This tool is designed to assist RCCE decision-makers, practitioners, and partners to track activities once identified using the readiness and response checklist (tool 5).

Table 7. Activities tracker

Area of work	Task/ activity	Responsible individual	Budget	Links	Deadline	Status
E.g. Community engagement	Review the suitability of the existing community feedback system for dengue fever	E.g. Ministry of Health; name, email, phone number	-	E.g. to any working documents	-	E.g. complete, in progress, incomplete

3.3: Implementation

The tools in Section 3.3: Implementation are designed to support activities conducted as part of evidence- based RCCE strategies and plans. While the projects and activities that need to be implemented will vary in each context based on needs and strategy, these tools offer ways to approach some key components of most RCCE plans. Communities should be considered key implementing partners for RCCE activities during dengue fever outbreaks.

Tool 7: Community listening and feedback systems for dengue outbreaks

This tool is designed to provide support for collecting and using community listening data including social listening and community feedback for dengue fever outbreaks.

Community listening encompasses various approaches to collecting data to identify current narratives, questions, rumours, misinformation, levels of trust and other relevant factors from at-risk populations. It can help to track and monitor trends, changing attitudes towards health authorities and interventions, and identify newly emerging concerns.

On- and offline sources should be used for community listening. Offline sources of data can include community feedback systems, qualitative interviews, focus group discussions, findings from social-behavioural research, television and radio. Online sources can include social media, websites, chatrooms, etc. All community listening sources have advantages, biases and limitations which should be documented when reporting data.

To collect community feedback for dengue fever, identify community representatives that are closely involved with readiness and response activities or who are from or represent affected communities. CSOs that are already involved in related health advocacy or service provision (i.e. those catering to affected communities, students, teachers; and the development and distribution of information, education, and communication [IEC] materials) are good sources of community feedback as these groups can provide targeted input and help reach specific demographics more effectively.

To effectively use community listening in managing a dengue fever outbreak, health authorities and all involved partners should use the full range of on and offline tools to collect, monitor and analyse public narrative and conversations related to response measures. These tools may vary significantly from context to context and based on specific community needs, access and norms.

Setting up a dedicated online social listening system involves defining objectives, selecting relevant social media platforms, identifying dengue fever-related keywords and hashtags, setting up a taxonomy, monitoring these keywords using tools like Google Trends, conducting data analysis, and reporting the findings to stakeholders. The system should be regularly reviewed and adjusted based on the findings, such as adding new keywords, hashtags or identifying new platforms of concern.

The data sourced through both social listening and community feedback systems can be triangulated with epidemiological data, research and programme data to gain additional insights to inform strategy and planning.

The development of community listening and community feedback systems for dengue fever readiness and response will depend on existing platforms and resources but should be considered an essential part of any RCCE planning. The following resources can be used to inform these activities, as can the matrix below.

- Community Engagement in Humanitarian Action Toolkit (CHAT) *(19)*
- IFRC Community Feedback Kit *(20)*
- WHO/UNICEF How to build an infodemic insights report in 6 steps *(21)*
- WHO Infodemic management training 101 (OpenWHO) *(22)*
- Infodemic Management: Defining a taxonomy for social listening (OpenWHO) *(23)*

Table 8. Rumours, misinformation, and event tracker

Issue / event / Date	**Country of origin**	**Platform** (print, web, social media, official statement, etc)	**Level of risk** (low or high)	**Facts** (what really happened, scientific explanations, etc)	**Respond YES/NO**	**Initial response (IF YES) of WHO** (key messages)	**Cleared by:**
							Date:
							Date:
							Date:

Negative messages and can include distorted, false, or misleading opinions, mis- and disinformation about response activities and about vaccination. If you are responding to a dengue fever outbreak in a country where local health authorities are recommending vaccination, remain mindful and vigilant about the appearance of rumours and misinformation regarding dengue vaccines. This will be an important topic to include in your community listening and feedback systems, including customized taxonomy for social media listening, in-depth interviews with key community leaders to raise awareness of the key questions and concerns related to vaccination, media briefs, etc.

Not all messages warrant a response, but it is important to set clear protocols to determine the relevance and impact as well as appropriate response of the Ministry of Health, WHO, or other partners if needed. You may wish to refer to the matrix above to standardize protocol of reporting rumours and misinformation and respond accordingly.

Tool 8: Developing key messages and content

This tool is designed to guide the development of key messages based on data collected, social-behavioural insights, epidemiological surveillance, and best practices. Key messages are the main points of information you want to convey to the audience so that they will understand and remember the risk of contracting dengue fever or severe dengue fever.

These should be clear and concise statements that explain key concepts and factual information in lay language. Key messages should also support your desired communication outcomes- the change we want to see in the behaviour of the affected population.

Key messages for dengue fever outbreaks, depending on where they occur (urban versus rural settings) should focus on behaviours related to reducing risk of infection and transmission, vector control, and more including:

- signs and symptoms;
- how it is spreading in the area/community;
- who is at risk (both of catching it and of more serious symptoms);
- how to protect yourself and others;
- individual and community measures to support vector control efforts;
- prevention and treatment, including key messages on vaccines if available in country; and
- what to do if you get ill;

Key messages need to be adapted based on the local context (see Tool 1: Situational analyses: PESTEL), epidemiological surveillance, what is known about key audiences (see Tool 3: Mapping and understanding communities), enablers and barriers of key behaviours (see Tool 2: Behavioural analyses) and what is being learnt through community listening (see Tool 7: Community listening and feedback systems). Below, you will find a checklist with key considerations when developing messages for your audience. Additional information on how to test your messages can be found here *(24)*.

Table 9. Dengue fever key messages template

Process for developing key messages
❒ Identify and target key behaviours and influences. ✓ Identify specific behaviours to target so there is a clear call-to-action for the public. ✓ Draw on situational analysis (PESTEL), social-behavioural insights and other research to determine the key influences (cognitive, social, and environmental) on those target behaviours. ✓ The messages should aim to utilize or address these key influences ❒ Test messages (key and supporting) with the public before releasing. ✓ If possible, conduct quantitative testing of messages to identify best performers before mass roll-out. ✓ If time is limited, undertake rapid qualitative testing to optimize content and presentation and minimize risk of backfire.
Language and content of key messages
❒ Include a clear action that directly conveys what people should or should not do. ✓ This action should be prominent, so the reader knows what to do after a quick glance. ✓ Use a “rule of thumb” or do’s and don’ts. ❒ Make content easy for the public to understand. ✓ Use clear and simple words. ✓ It is best to use as few words as possible, while still conveying the importance of the matter. ❒ Draw on positive social framing, where appropriate. ✓ Use framing that encourages people to undertake a behaviour for the benefit of others. For example, framing the benefit of getting the vaccine as a way to ‘protect our livelihoods’. ❒ Include a reason why people should do the desired behaviour. ✓ Provide a brief explanation or reason why a behaviour should be performed. ❒ Translate materials into multiple languages, where appropriate. ✓ Provide multiple versions of messages in different languages that are spoken in the target population.

The section below provides an additional template to support development of messages that stick with your audience by preparing the main message and three supporting messages/evidence to back up the point you are making.

Table 10. Dengue fever key messages and supporting messages template

Key message	No mosquitos, no dengue!
Target behaviour	Personal protective behaviours
Supporting message 1	Reducing mosquito populations, eliminating breeding sites, and avoiding bites are the most important ways of preventing and controlling dengue virus infection.
Supporting message 2	Ways to protect your household and community against dengue are reducing possible mosquito breeding sites, applying repellents, or using insecticide treated materials.
Supporting message 3	Do your part by cleaning or removing mosquito breeding sites, such as drains and gutters, flower vases and pots., and other containers or object that hold water

Tool 9: Measurement, evaluation, and learning (MEL)

This tool will help enhance the accountability and effectiveness of RCCE through measuring, evaluating activities and constantly learning from your audiences how to improve or adapt interventions to achieve expected health outcomes.

An MEL framework recognizes the importance of (1) measurement to collect evidence, (2) evaluation and systematic analysis of results and (3) learning to gain insights and new knowledge that can be applied in future planning and strategy. MEL should be used throughout all phases of the emergency management cycle and should include community participation to support sustainability, joint-accountability and ultimately increase the effectiveness of RCCE strategies, plans and interventions *(25)*.

Once you have determined if the problem you are tacking is of a behavioural nature or if it is another type of barrier, such as environmental or structural, it is possible to design interventions. There are many different models that can help design and structure MEL framework, based on priorities or targeted behaviours. Within the MEL manual, WHO proposes the "Theory of Change" and "Program Logic Models." For more detailed information on these tools, and others, access "The MEL Manual" here *(25)*.

The Theory of Change and Program Logic Models help logically explain how the intervention is expected to lead to the desired behaviour change and how to measure it along the way. The theory of change involves two key steps:

- identification of all the possible interventions and/or stimuli that can lead to a change in a particular context; and
- examination of the evidence and assumptions that support such beliefs.

The program logic model helps demonstrate the theory of change by linking activities with outputs, short-term and longer-term outcomes (See Table 11). The next step is to develop specific, measurable, achievable, realistic, and time-bound objectives and indicators to measure the progress and impact of the intervention. Indicators should be identified and collected at each stage of RCCE activities and aligned with national dengue fever elimination and control plans to reflect priority actions and desired outcomes. The tools and examples provided below can be used to inform the identification of such indicators that are fit for the local context.

Below is a helpful template for structuring and planning your MEL framework.

Table 11. MEL framework template

The theory of change (programme logic model)						
e.g. People are unaware of ways to protect themselves against dengue	e.g. People are informed about key measures for personal and community protection	e.g. People form an opinion about these measures and are empowered to act on them	e.g. People acknowledge the value of preventative and protective behaviours	e.g. People are consistently engaged in community efforts to prevent mosquito breeding sites	e.g. People support proposed vector control measures	e.g. People are applying protective behaviours and supporting community vector control measures

What do you need to complete MEL (ex.)	**When and how should you report on findings**
1. Situational analysis (PESTEL) 2. Stakeholder analysis 3. Qualitative or quantitative research, including behavioural analysis 4. Community feedback mechanisms 5. Social listening reports 6. Access to Google analytics or other analytic tools related to social media	Here you should briefly outline your reporting plan, including reporting intervals, format, general content and more.

What will you track		
Inputs	**Metrics and indicators**	**Methods**
Data and insights collected through various proposed research can qualify as inputs		
Activities	**Metrics and indicators**	**Methods**
Producing and distributing RCCE products based on the collected data and insights		
Outputs	**Metrics and indicators**	**Methods**
Reaching and engaging audiences		
(e.g.) A campaign to spray insecticides is launched	# of IEC materials developed	Log of materials in circulation (quantitative)
	# of announcements released	Log of radio and tv announcements (quantitative)
	# of posts on social media	Content analysis and social media reports (qualitative)
Short-term outcomes	**Metrics and indicators**	**Methods**
Assessing audiences' initial reactions, response to RCCE activities		
People form an opinion about spraying and other community protective measures		
Long-term outcomes	**Metrics and indicators**	**Methods**
Evaluating what sustainable effects RCCE activities had on audiences		
People acknowledge the value of insecticide, both sprayed and in treated fabrics, as a protective measure		
People support the wide-spread use of insecticides		
Impact	**Metrics and indicators**	**Methods**
Evaluating the results achieved, in full or in part, by RCCE activities		
Spraying with insecticide has been successfully completed within the affected communities		

The Collective Service has developed the Risk Communication and Community Engagement Indicator Guidance for COVID-19 *(26)* which provides useful support that can be applied to other disease areas, including dengue fever.

Tool 10: Checklist for preventing and responding to sexual exploitation, abuse and harassment

This tool is designed to assist RCCE decision-makers, practitioners and partners identify and include key activities for preventing and responding to sexual exploitation, abuse and harassment (PRSEAH) into planning and implementation. This tool should be used together with the principles for managing PRSEAH in Annex 1.

Sexual misconduct such as sexual exploitation, abuse and harassment (SEAH) and sexual violence violate the rights and well-being of the people we serve and the people with whom we serve. Such behaviours are directly in opposition to WHO's values and our abiding responsibility to do no harm. To the WHO workforce and collaborators, these acts are prohibited, and therefore lead to disciplinary action.

WHO has zero tolerance for any form of sexual misconduct, for inaction and for retaliation against those who raise complaints or bear witness. Our work prioritizes the rights and needs of victims and survivors.

Sexual misconduct can occur in all communities. In the context of an outbreak of dengue fever, victims of sexual misconduct can face the additional threat of exposure to HIV or any other infectious disease or condition.

Please note that it is your obligation to report any wrongdoing you become aware of or witness directly through established complaints mechanisms. Do not conduct the investigation yourself; only investigators are mandated and trained to do so..

If you work for WHO, please write directly to investigation@who.int or access the integrity hotline.

Table 12. PRSEAH checklist

For best results, RCCE practitioners should identify and coordinate with the PRSEAH focal point on the following activities:
1. Contribute proactively to the SEAH risk assessment and implementation of the risk mitigation plan.
2. Identify trusted networks within communities to engage them in becoming more aware of and addressing sexual misconduct concerns.
3. Contribute to the development and dissemination of clear and consistent PRSEAH messages adapted to local contexts and preferences. These must include: i) aid, including medical interventions and services is free and must not be exchanged for anything; ii) what to expect from development and aid workers, including health providers; iii) how to safely report any wrongdoing; and iv) how victims can access services.
4. Support the dissemination of PRSEAH materials during RCCE interventions with and through CBOs, CSOs and public information stakeholders.
5. Ensure sure prevention and response to sexual misconduct components are included in training curricula and other key materials.

Principles and considerations for dengue fever outbreaks

This section contains additional considerations for RCCE strategy, planning and implementation during dengue fever outbreaks. More on RCCE principles can be found in the 10 steps to community readiness package (1) from the Collective Service.

Addressing uncertainty and maintaining trust

Managing uncertainty is an important function of RCCE during outbreaks and health emergencies. The readiness phase of a dengue fever outbreak is an opportunity to gather data to understand how people who may be at risk of dengue fever, understand the various modes of transmission, personal and community protective behaviours, receptiveness to vector control measures or immunization. Settings or communities who have not previously experienced dengue fever outbreaks may experience higher levels of uncertainty. Approaches for managing and addressing uncertainty should be included in RCCE strategies and plans to maintain trust throughout the outbreak. Key steps for managing uncertainty include:

- assessing the situation to understand what is known and unknown;
- identifying key uncertainties that may impact community understanding and response;
- listening and responding to community concerns;
- identifying key behaviours that should be encouraged for personal protection as well as to support mosquito control and management of mosquito breeding sites;
- understanding what healthcare workers and the affected community thinks and expects regarding the efficacy of the control measures proposed or applied so far;
- providing relevant and up to date information to health workers and other involved partners in the response, who are trusted by the affected community;
- being transparent and honest;
- setting realistic expectations;
- acknowledging that what is known may change;
- explaining what has been done so far and what are the anticipated next steps; and
- being prepared to adapt *(27)*.

In countries where national health authorities are using or have previously used a dengue vaccine, there are important factors to consider supporting high confidence and uptake of vaccination. These factors include contextual insights deriving from the PESTEL analysis or from community mapping and can include previous experience (good or bad) with dengue vaccines, religious, social, political, and cultural norms; structural considerations related to access to and quality of care, including confidence and capacity of health workers; informational needs, including gaps in knowledge about vaccines, managing rumours and mis/disinformation; and motivational, deriving from the behavioural analysis that looks at behavioural enablers and barriers for vaccine uptake at both individual and community levels. Specifically for vaccination, the globally validated tools on behavioural and social drivers (28) may be adapted to generate insights to inform the design and evaluation of corresponding interventions.

In addition to ongoing efforts to understand and address the drivers of uptake, a comprehensive approach must be in place to support an effective and timely response to any vaccine-related events. These can include adverse event following immunization (AEFIs), a programme change, negative media reports, misinformation or rumours. The response should depend on the context, the scale of the event, and its potential impact on trust and confidence, as well as uptake. Events that meet at least one of the following criteria will require a response:

- **The AEFI is genuine and attracting public attention.** However, if an AEFI is genuine but not attracting any public attention, it can be managed locally and monitored closely to determine if/when any response is needed.
- **The event or story is gaining attention.** Based on evidence from community feedback or social listening, it is clear that the event is gaining attention and exposure, particularly in the population groups prioritized for dengue fever vaccination.
- **The alleged adverse event is unsubstantiated** but publicised by a group of individuals drawn together by a shared belief, for example, that the vaccine has negatively affected or impacted their life or the life of their loved ones in some way.
- **A respected opinion leader who is trusted in the community is advancing a view.** A major concern in vaccine safety is when a medically trained person publicly advances a theory. They may influence healthcare workers and their confidence in recommending vaccination, and thus have an impact on the wider community.
- **The confidence of healthcare workers is likely to be affected**. Vaccine safety concerns that amplify existing hesitancy in healthcare workers or trigger new concerns require a rapid response. Confident, committed doctors and nurses are vital for the success of vaccination programmes. In the case of dengue fever vaccines, they are both recipients, providers and champions of the vaccine.
- **The issue or event touches on moral foundations that highly influence vaccine acceptance.** For example, claims based on the religious beliefs are strongly correlated with vaccine rejection. This can include claims about the vaccine ingredients (purity/degradation) or where there is some level of coercion in vaccine programmes, either real or perceived (liberty).

The suggested approach to resolving possible public outrage driven by any of the above claims or issues is to apply the below principles and timetable.

Table 13. Timeline for RCCE activities following AEFI report

Timing	Action
Before AEFI	• Conduct situational analysis (PESTEL), behavioural research, community listening, stakeholder analysis • Develop "Rumours, misinformation and event tracker" • Assemble background information about AEFIs • Prepare materials (Q&As, facts sheets, talking points, etc.) • Build relationships with media, partners and local health authorities • Provide ongoing information to media about immunization plans and deliver training on responsible media reporting of vaccine-related events including AEFIs • Train relevant staff and spokespersons, including trusted community leaders and health workers on AEFI response.

Timing	Action
During AEFI	Immediately: • Identify what has happened and verify the report • Gather information and analyse data • Alert other pillar leads from the IMST and relevant partner focal points. • Decide level of risk whether to communicate forward. • Coordinate with Ministry of Health (MOH) and local officials on reaching out to the affected family and community for their concerns and needs. Within 24 hours: • Prepare response with inputs from technical officers and Regional or headquarters colleagues • Prepare talking points and background data • Coordinate response with MOH, local health authorities, and partners as relevant • Coordinate the response with local leaders of the affected community. • Convene health workers of the affected community to update them on the event, listen and address their concerns and prepare them for the response. • Select the potential communication channel based on local context (radio, TV, print, etc.) Within 72 hours: • Consider a press release*** • Consider a joint-press conference (WHO, MOH, other involved partners)*** Ongoing: • Provide information to health care workers, partners, media and public • Update with interim information until definitive results available • Monitor public perceptions and opinions through social listening
After AEFI	• Evaluate communication approach and efficacy of applied protocols, adjust as needed • Provide ongoing information to media*** and the public about the immunization programme

*** Only for AEFIs requiring widescale public response (e.g. a serious AEFI which triggered widespread public outrage).

Other tools and products for dengue outbreaks

Guidance	
Comprehensive Guideline for Prevention and Control of Dengue and Dengue Haemorrhagic Fever *(29)*	This revised and expanded edition of the Comprehensive Guidelines is intended to provide guidance to national and local-level programme managers and public health officials of Member States on strategic planning, implementation, monitoring and evaluation, and strengthening the response to dengue prevention and control in their countries.
Guidelines for the Clinical Diagnosis and Treatment of Dengue, Chikungunya, and Zika *(30)*	By responding to twelve key questions about the clinical diagnosis and treatment of dengue, chikungunya, and Zika, evidence-based recommendations were formulated for pediatric, youth, adult, older adult, and pregnant patients who are exposed to these diseases or have a suspected or confirmed diagnosis of infection. The purpose of the guidelines is to prevent progression to severe forms of these diseases and the fatal events they may cause. The recommendations are intended for health professionals, including general, resident, and specialist physicians, nursing professionals, and medical and nursing students, who participate in caring for patients with suspected dengue, chikungunya, or Zika. They are also intended for health unit managers and the executive teams of national arboviral disease prevention and control programs, who are responsible for facilitating the process of implementing these guidelines.
Managing epidemics: key facts about major deadly diseases (including Zika, & other Arboviral diseases) *(31)*	Key insights into infectious disease epidemics, response tips and checklists, community engagement during epidemics, risk communication and treating patients and protecting the health workforce
Framework and toolkit for infection prevention and control in outbreak preparedness, readiness and response at the national level *(32)*	Frameworks & toolkits for disease outbreak preparedness, readiness and response
Communicating risk in public health emergencies *(18)*	Building trust and engaging with affected populations, integrating emergency risk communication into health and emergency response systems, emergency risk communication practice
Dengue vaccines: WHO position paper (2024) *(6)*	This position paper replaces the second WHO position paper from 2018, concerning the first licensed dengue vaccine, CYD-TDV, and focuses on the second licensed dengue vaccine, TAK-003 (Qdenga, Takeda), along with WHO's position for its use, and provides an update on the first licensed dengue vaccine, CYD-TDV.

Planning social mobilization and communication for dengue fever prevention and control. A step-by-step guide *(33)*	
Q&As, key messages and factsheets	
Dengue and severe dengue fever Q&A *(10)*	Answers to the most frequently asked questions from the general public on dengue and severe dengue. Available in Arabic, Chinese, English, French, Russian, Spanish.
Dengue fever factsheet *(9)*	Key information about dengue fever transmission, signs and symptoms, diagnosis, treatment, self-care and prevention, outbreaks and WHO response. Available in Arabic, Chinese, English, French, Russian, Spanish.
Dengue and Severe Dengue – key facts *(8)*	Key information about dengue fever transmission, signs and symptoms, diagnosis, treatment, self-care and prevention
Additional resources	
Prevention and control of dengue and dengue haemorrhagic fever *(34)*	The Comprehensive Guidelines for Prevention and Control of Dengue/DHF focus on the South-East Asia Region. While the key roles of Ministries of Health as well as the non-health sectors have been highlighted, emphasis has also been placed on community involvement particularly of students, welfare and civic organizations and NGOs.
Towards Sustaining Behavioural Impact in Dengue Prevention and Control *(35)*	This paper provides a brief overview of the guide's purpose and content, and the progress made so far in responding to the international call for the preparation of a package of tools, approaches and guidelines.
Guidelines for treatment of dengue fever/dengue haemorrhagic fever in small hospitals *(36)*	A tool for physicians working in small hospitals to conduct appropriate treatment of patients with DF/DHF, and would help in achieving the common target to reduce case fatality rate of DHF to less than one per cent in all endemic countries.
Manual for monitoring insecticide resistance in mosquito vectors and selecting appropriate interventions *(37)*	This document provides guidance on how to assess insecticide resistance in mosquito vectors and is aimed at field entomologists and biologists within ministries of health or partner institutions. It is also directed at programme managers and others in charge of designing and implementing vector control strategies who need to draw on resistance data to inform their decisions.

Vector surveillance and control at ports, airports, and ground crossings *(38)*	A handbook to guide public health authorities on the practical aspects of maintaining sanitary standards in relation to vector surveillance and control at international borders and points of entry (ports, airports, and ground crossings) as prescribed under International Health Regulations (2005).
Managing regional public goods for health : community-based dengue vector control *(39)*	This report describes a promising, low-cost, year-round vector control measure that is feasible to implement, is acceptable and safe to the public, and, once established, has minimal recurring costs. Cambodia and the Lao People's Democratic Republic (Lao PDR) participated in an intervention research project using integrated vector management (IVM)

Infographics and social media content	Infographics and social media content
Dengue fever and severe dengue infographics *(40)*	
Facts in pictures *(41)*	
Dengue Multimedia and Infographics, WPRO *(42)*	

Case studies

Community ovitraps and communication for behavioural impact (COMBI) reduced Dengue cases in Malaysia

Almost everyone in the world has experienced mosquito bites. Some mosquitoes spread pathogens, like viruses or parasites, that cause infectious diseases, and dengue is one of them. No vaccines or specific medicines are available for most mosquito-borne diseases.

Dengue virus causes outbreaks that affect many people's health and lives. With support from WHO, the Ministry of Health (MOH) in Malaysia implemented a communication for behavioural impact (COMBI) programme in Felda Pemanis, Segamat and Johor of Malaysia in 2010, to prevent and control dengue. COMBI is a social mobilization programme that aims to change people's behaviour and awareness about dengue through effective communication.

One of COMBI's activities was to introduce community ovitraps in the dengue outbreak area. An ovitrap is a device that lures and traps female mosquitoes that lay eggs in water. It consists of a black container with water, a mesh cover, and a cardboard paddle where the eggs are deposited. They can help to monitor and reduce the mosquito population. Five hundred forty ovitraps were placed indoors and outdoors at selected houses in the outbreak area for nine weeks. The ovitraps were collected and checked every 5 to 7 days by COMBI team members from the community.

The results showed that the ovitrap index (OI), which measures the percentage of ovitraps with mosquito eggs, decreased from 48% to 0% in the last two weeks. At the same time, the number of dengue cases also dropped, and no new cases were reported from week ten onwards. The community ovitraps were influential in the surveillance and control of dengue outbreaks, along with other standard methods such as source reduction, fogging, and larviciding.

The community ovitraps also had other benefits, such as reducing the need for health staff involvement, as the COMBI team members from the community could manage and handle the ovitraps themselves. The community ovitraps also increased the participation and empowerment of the community in fighting against dengue.

This case study shows how community ovitraps and COMBI can successfully control dengue outbreaks in rural areas in Malaysia. It also demonstrates how communication and social mobilization can change people's behaviour and awareness about dengue prevention and control.

Source: (PDF) Community Ovitrap. Expanding the Role of COMBI in Combating Dengue Infection in Segamat, Johor, Malaysia *(43)*.

The Importance of leadership in dengue control

Dengue fever is a severe disease that is transmitted by infected mosquitoes. It can cause outbreaks that affect many people's health and lives. The MOH in Malaysia has implemented a COMBI programme to prevent and control dengue. COMBI is a social mobilization programme that aims to change people's behaviour and awareness about dengue through effective communication.

COMBI is a community-based intervention that uses communication to change people's behaviour and awareness about dengue, a mosquito-borne disease that can cause outbreaks. With support from WHO, the MOH in Malaysia started the implementation of COMBI in different sites in 2010, formulating a COMBI committee at village level.

COMBI needs strong leadership that understands and implements the concept well. It also needs to train new members, especially the younger generation, to take over the leadership and continue the program.

The MOH conducted a study in 2016 to understand the characteristics of the communities that actively applied COMBI approaches compared to other areas where activity levels have waned. The study involved interviewing COMBI chairmen, community leaders, and COMBI coordinators, health staff from different sites across Peninsular and East Malaysia. The study found that COMBI chairmen were influential and respected individuals in their sites, and COMBI coordinators were mostly Assistant Environmental Health Officers from Vector Unit. The study concluded that COMBI is a valuable strategy for controlling dengue outbreaks in the community.

Another recommendation from the study was that COMBI is a useful strategy for controlling dengue outbreaks in the community, but it needs more stakeholder recognition and support. The study also suggested that COMBI should be incorporated under existing community committees and that COMBI chairmen and coordinators should have good leadership and communication skills to empower the community.

Source: (PDF) COMBI Approach as Community-Based Intervention in Dengue Control through Leadership *(44)*.

Dengue fever training resources

Training	Overview
OpenWHO Pandemic and epidemic-prone diseases *(45)*	This introductory level online course aims to equip frontline responders with the latest know-how to manage outbreaks of known and emerging epidemic-prone diseases in the 21st century. It offers the most relevant scientific, technical and operational knowledge through video presentations and self-tests. The course is available in English and French
Training curriculum on invasive mosquitoes and (re) emerging vector-borne diseases in the WHO European Region *(46)*	This curriculum aims to provide non-specialists with an understanding of the critical issues related to invasive mosquitoes and (re-)emerging vector-borne diseases and with the analytical skills to improve strategic planning and implementation of activities in their country context. Its target audience includes policymakers and decision-makers as well as programme managers who are or will be, involved in the planning, implementing and evaluating strategies to prevent the introduction of and/or control invasive mosquito vectors and vector-borne diseases.
SocialNet: Empowering communities before, during and after an infectious disease outbreak *(47)*	This comprehensive online training includes modules on community engagement, data collection and analysis, considerations for interventions, risk communication and interpersonal skills. This course aims to equip all frontline responders with the knowledge they need to better contain disease outbreaks and manage health emergencies.
Communication for behavioural impact (COMBI) *(48)*	This toolkit will be helpful for people designing more effective outbreak response measures. It can be scaled up or down, depending on the situation. It can be applied at sub-national and national levels. It was designed to develop mental communication and health promotion personnel working in multidisciplinary teams to investigate and respond to disease outbreaks.

References

1. RCCE 10 steps to community readiness - A toolbox for community engagement to support COVID-19 response. Collective Service; 2020. (https://www.rcce-collective.net/rcce-10-steps/, accessed 13 March 2024).

2. Joint external evaluation tool: International Health Regulations (2005), third edition. Geneva: World Health Organization; 2022. (https://www.who.int/publications/i/item/9789240051980, accessed 5 September 2023).

3. International Health Regulations (2005) Third Edition. Geneva: World Health Organization. 2016. (https://www.who.int/publications/i/item/9789241580496, accessed 4 August 2023).

4. World Health Organization. Regional Office for the Eastern Mediterranean. IHR and Country Emergency Preparedness, 2023 [website]. (https://www.emro.who.int/international-health-regulations/overview/overview.html, accessed 5 September 2023).

5. Community engagement: a health promotion guide for universal health coverage in the hands of the people. Geneva: World Health Organization; 2020. (https://iris.who.int/handle/10665/334379, accessed 5 September 2023).

6. Dengue vaccines: WHO position paper, May 2024. Geneva: World Health Organization. (https://iris.who.int/bitstream/handle/10665/376641/WER9918-eng-fre.pdf, accessed 10 May 2024).

7. Global vector control response 2017–2030. Geneva: World Health Organization; 2017. (https://www.who.int/publications/i/item/9789241512978, accessed 24 March 2024).

8. World Health Organization. Dengue and Severe Dengue – key facts. 17 March 2023. (https://www.who.int/health-topics/dengue-and-severe-dengue#tab=tab_1, accessed 20 March 2024).

9. World Health Organization. Dengue and Severe Dengue. https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue, accessed 20 March 2024).

10. World Health Organization. Dengue and severe dengue – questions and answers. 2019. (https://www.who.int/news-room/questions-and-answers/item/dengue-and-severe-dengue, accessed 20 March 2024).

11. World Health Organization. Disease outbreak news. (https://www.who.int/emergencies/disease-outbreak-news, accessed 14 March 2024).

12. Community engagement: a health promotion guide for universal health coverage in the hands of the people. Geneva: World Health Organization; 2020. (https://www.who.int/publications/i/item/9789240010529, accessed 5 September 2023).

13. Behavioural sciences for better health. Geneva: World Health Organization; 30 May 2023 (https://apps.who.int/gb/ebwha/pdf_files/WHA76/A76_R7-en.pdf, accessed 14 March 2024).

14. Technical note from the WHO Technical Advisory Group on behavioural insights and science for health. Geneva: World Health Organization; 11 November 2021. (https://www.who.int/publications/m/item/technical-note-from-the-who-technical-advisory-group-on-behavioural-insights-and-science-for-health, accessed 14 March 2024).

15. COVID-19 Global Risk Communication and Community Engagement Strategy – interim guidance, December 2020 — May 2021. Geneva: World Health Organization; 2020. (https://www.who.int/publications/i/item/covid-19-global-risk-communication-and-community-engagement-strategy, accessed 13 March 2024).

16. Risk communication and community engagement readiness and initial response for novel coronaviruses (nCoV): interim guidance, 10 January 2020. Geneva: World Health Organization; 2020. (https://iris.who.int/handle/10665/332301, accessed 13 March 2024).

17. Strengthening WHO preparedness for and response to health emergencies Strengthening the global architecture for health emergency preparedness, response and resilience. Geneva: World Health Organization; 2023. (https://apps.who.int/gb/ebwha/pdf_files/WHA76/A76_10-en.pdf, accessed 13 March 2024).

18. Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice. Geneva: World Health Organization; 2018. (https://www.who.int/publications/i/item/9789241550208, accessed 20 March 2024).

19. Community Engagement in Humanitarian Action Toolkit. UNICEF, The Collective Service, CDAC-Network, US-CDC, IFRC, WHO; 2023. (https://www.sbcguidance.org/sites/default/files/2023-06/UNICEF%20CHAT%20Report.pdf, accessed 13 March 2024).

20. IFRC Community Feedback Kit. IFRC. (https://communityengagementhub.org/resource/ifrc-feedback-kit/, accessed 13 March 2024).

21. How to build an infodemic insights report in 6 steps. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2021. (https://www.who.int/publications/i/item/9789240075658, accessed 13 March 2024).

22. Infodemic management 101. Geneva: World Health Organization; 2021. (https://openwho.org/courses/infodemic-management-101, accessed 13 March 2024).

23. Infodemic Management: Defining a taxonomy for social listening. Geneva: World Health Organization. (https://openwho.org/courses/im-taxonomy, accessed 13 March 2024).

24. World Health Organization. Message testing during an epidemic or pandemic. (https://www.who.int/teams/epi-win/the-collective-service/message-testing, accessed 14 March 2024).

25. The MEL Manual: Measurement, Evaluation and Learning for communication campaigns and activities, August 2021. Geneva: World Health Organization; 2021. (https://cdn.who.int/media/docs/default-source/dco/who-mel-manual-2021.pdf?sfvrsn=74307e9f_1, accessed 10 November 2023).

26. Risk Communication and Community Engagement Indicator Guidance for COVID-19. The Collective Service, 2022. (https://www.rcce-collective.net/resource/risk-communication-and-community-engagement-indicator-guidance-for-covid-19/, accessed 13 March 2024).

27. Porat T, Nyrup R, Calvo RA, Paudyal P, Ford E. Public health and risk communication during COVID-19-enhancing psychological needs to promote sustainable behavior change. Front Public Health. 2020 Oct 27;8:573397. https://doi.org/10.3389/fpubh.2020.573397.

28. Behavioural and social drivers of vaccination: tools and practical guidance for achieving high uptake. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/354459 , accessed 15 March 2024)

29. Comprehensive Guideline for Prevention and Control of Dengue and Dengue Haemorrhagic Fever. Revised and expanded edition. WHO Regional Office for South-East Asia; 2011 (https://iris.who.int/handle/10665/204894, accessed 15 March 2024).

30. Guidelines for the Clinical Diagnosis and Treatment of Dengue, Chikungunya, and Zika. Washington, D.C.: Pan American Health Organization; 2022. (https://iris.paho.org/handle/10665.2/55867, accessed 25 March 2024).

31. Managing epidemics: key facts about major deadly diseases. Geneva: World Health Organization; 2018 (https://iris.who.int/handle/10665/272442, accessed 25 March 2024)

32. Framework and toolkit for infection prevention and control in outbreak preparedness, readiness and response at the national level. Geneva: World Health Organization; 2021 (accessed 25 March 2024).

33. Planning social mobilization and communication for dengue fever prevention and control. A step-by-step guide. Geneva: World Health Organization; 2004. (https://iris.who.int/bitstream/handle/10665/42832/9241591072.pdf?sequence=1, accessed 25 March 2024).

34. Prevention and control of dengue and dengue haemorrhagic fever. WHO Regional Office for South-East Asia; 1999 (https://iris.who.int/handle/10665/205653, accessed 25 March 2024).

35. Renganathan E, Parks W, Lloyd L, Nathan MB, Hosein E, Odugleh A, Clark GG, Gubler DJ, Prasittisuk C, Palmer K and San Martín J-L. Towards Sustaining Behavioural Impact in Dengue Prevention and Control. Dengue Bulletin – 2003, Vol 27. https://iris.who.int/bitstream/handle/10665/163880/dbv27p6.pdf?sequence=1.

36. Guidelines for treatment of dengue fever/dengue haemorrhagic fever in small hospitals. WHO Regional Office for South-East Asia; 1999 (https://iris.who.int/handle/10665/205177, accessed 25 March 2024).

37. Manual for monitoring insecticide resistance in mosquito vectors and selecting appropriate interventions. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/9789240051089, accessed 25 March 2024).

38. Vector surveillance and control at ports, airports, and ground crossings. Geneva: World Health Organization; 2016 (https://www.who.int/publications/i/item/9789241549592, accessed 25 March 2024).

39. Managing regional public goods for health : community-based dengue vector control. WHO Regional Office for the Western Pacific; 2013 (https://iris.who.int/handle/10665/207528, accessed 25 March 2024).

40. Infographics- Dengue fever and severe dengue. World Health Organization. https://www.who.int/images/default-source/departments/ntd-library/dengue/infographics-and-illustrations/dengue-infographic.png?sfvrsn=ae8ce604_8.

41. World Health Organization. Dengue and severe dengue – facts in pictures. 2019. https://www.who.int/news-room/facts-in-pictures/detail/dengue-and-severe-dengue, accessed 20 March 2024).

42. Multimedia and infographics- Dengue. World Health Organization. https://www.who.int/westernpacific/news-room/multimedia/overview?healthtopics=0ad91f47-5460-48bc-9d9d-57b9c1a8e257.

43. Ghazali M, Nizal A. Community Ovitrap. Expanding the Role of COMBI in Combating Dengue Infection in Segamat, Johor, Malaysia, 2019. https://www.researchgate.net/publication/337064352_Community_Ovitrap_Expanding_the_Role_of_COMBI_in_Combating_Dengue_Infection_in_Segamat_Johor_Malaysia.

44. Zaman S, Shahnaz M, Bakhtiar F, Muhamad N. COMBI Approach as Community-Based Intervention in Dengue Control through Leadership. British Journal of Education, Society & Behavioural Science 2016 Jan, 10.9734/BJESBS/2016/21581. https://www.researchgate.net/publication/284764870_COMBI_Approach_as_Community-Based_Intervention_in_Dengue_Control_through_Leadership.

45. Pandemic and epidemic-prone diseases. Geneva: World Health Organization; 2017. (https://openwho.org/courses/pandemic-epidemic-diseases, accessed 20 March 2024).

46. Training curriculum on invasive mosquitoes and (re) emerging vector-borne diseases in the WHO European Region. Copenhagen: World Health Organization. https://www.euro.who.int/__data/assets/pdf_file/0005/329495/Training-curriculum-invasive-mosquitoes.pdf.

47. SocialNet: Empowering communities before, during, and after an infectious disease. Geneva: World Health Organization; 2022. (https://openwho.org/courses/empowering-communities, accessed 14 March 2024).

48. Communication for behavioural impact (COMBI): a toolkit for behavioural and social communication in outbreak response. Geneva: World Health Organization; 2012. (https://iris.who.int/bitstream/handle/10665/75170/WHO_HSE_GCR_2012.13_eng.pdf, accessed 20 March 2024).

Annexes

Annex 1: Guidance for practitioners on the prevention and response to sexual exploitation, abuse and harassment

This guidance is a rapid reference point for RCCE practitioners working before and during health emergencies. For more in-depth resources, please refer to the WHO PRSEAH webpage. Please work closely with the country focal point for PRSEAH for context-specific guidance.

- Refresh your knowledge and understanding of PRSEAH prior to your engagement with communities.
- Engage with communities based on need and without any discrimination based on gender, sexual orientation, nationality, ethnicity, religion, age, or political affiliations.
- Ensure clear communication with community members on the reporting mechanisms at their disposal. Make it clear that reporting will not prevent them from receiving the support they are entitled to and that victims/survivors of sexual misconduct have a right to services regardless of their willingness to cooperate with an investigation.
- Be aware that victims and survivors of SEAH are afraid and often ashamed of reporting and may be at risk of further harm or stigmatization. Therefore, whenever possible make sure RCCE work includes the identification of trusted community networks, organizations or leaders, especially women's networks that can provide safety and support to those at risk or those who have already experienced SEAH.
- In your RCCE work gather intelligence on trusted channels of communication, the languages and literacy levels and preferences of those most at risk and integrate such intelligence in designing awareness campaigns and other PRSEAH actions.
- Your actions as an RCCE practitioner must be guided by the principles of do no harm, confidentiality, transparency, accountability and duty to report, prevention, non-discrimination and equality. Treat the populations you serve with respect and protect them from sexual exploitation, abuse and harassment by development and aid workers both during and outside working hours.
- Responders cannot demand or accept any sexual favours from community members or as a condition for employment, or in exchange for assistance due to communities. If you are working for or on behalf of WHO, comply with WHO's policy on preventing and addressing sexual misconduct at all times.

Country focal points for PRSEAH will, in many cases, also have information about local contexts including dedicated hotline numbers for reporting sexual misconduct established by the United Nations Country Team.

Annex 2: Draft outbreak announcement

Outbreak announcements are released to inform the public of a public health concern or threat. It aims to engage, reassure and provide early guidance to health care workers, and the public, particularly to most affected communities. It is important to communicate early, transparently and with empathy in the event of a possible or confirmed dengue fever outbreak to maintain public trust, acknowledging unknowns and communicating with empathy.

This is a template that will need to be adapted to your local context:

On ***[date]***, a ***[country]*** resident/s tested positive for dengue fever after developing ***[describe symptoms: e.g. a rash, fever, severe muscle pain.] [number of days]*** prior. Efforts has been undertaken to identify the impacts of outbreak and to control the spread of dengue with priority.

The risk of onward transmission related to this dengue fever outbreak is currently ***[low as the mosquito control effort was immediately undertaken]***. ***[Provide context - what you know about the source of the infection – consider importance of avoiding stigmatizing language]***.

[Country-specific response – describe what you are doing]

Example: We have initiated public health investigations to better understand the situation. We are also implementing control measures, such as case finding and providing supportive care for patients. We have intensified our mosquito control efforts and encourage all residents to check for and eliminate the water in all containers in and around the home, schools, and workplaces, when possible. If eliminating the water in the container is not possible, make sure the containers are tightly covered or turned over so mosquitoes cannot lay their eggs inside.

[Country-specific response – define where the public can find information]

Example: Over the coming days and weeks and as we find out more, we will regularly share information regarding risks associated with dengue fever and, advice on how to avoid infection and protect your health. Please check ***[a variety of places where members of your community access news and health information, e.g., the health authority website, social media accounts, national public service broadcaster, etc]***. Members of the public can also call [specific health service number if one exists] if they have any questions regarding the disease.

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