EPIDEMIC CONTROL FOR RESPONSE MANAGERS

DISEASE: MALARIA - RP7

Role profile 7	Competencies	Gaps in competencies	Gaps in information they need
Primary /secondary health system strengthening (clinical profile)			

Disease Tool 9.7 Malaria		
Fact Sheet	Importance	In 2016, 91 countries and areas had ongoing malaria transmission. The WHO estimates there were 216 million cases of malaria in 2016 and 445 000 deaths. Countries in Africa reported 90% of cases and 92% of deaths of malaria globally. Malaria epidemics do not generally occur in high-transmission areas (other than when there is migration of non-immune persons into these areas). This is because the population has developed partial immunity to the disease. Continuous exposure to malaria infection provides immunity in people after a certain age but this immunity is transient. People who remain uninfected over a short period (less than one year) become newly susceptible to the disease. Therefore, those living in areas of seasonal or low transmission do not develop adequate immunity and can be vulnerable to the disease every season. Since epidemics occur in areas where populations have inadequate immunity, malaria cases can be high, with very high rates of morbidity and mortality.
	Case definition	Case definitions for malaria control (different case definitions are used for malaria elimination): **Suspected malaria case:** Patient illness is suspected by a health worker to be due to malaria. The criteria for suspected malaria usually include fever or a history of fever. These criteria vary according to local circumstances and are established by the national malaria control programme. All suspected cases of malaria are tested by either microscopy or a rapid diagnostic test (RDT). **Presumed (not tested) malaria case:** In a suspected malaria case, the patient did not receive a diagnostic test but was nevertheless treated for malaria. Such cases have also been referred to as "probable" cases. However, in most settings, the chance that a suspected case will be confirmed is \< 50%, so the use of the term "probable" is inappropriate. Such cases are also referred to as "unconfirmed" cases. In this guide, the term used is "presumed malaria case". **Confirmed malaria case:** A suspected case of malaria in which malaria parasites have been demonstrated, generally by microscopy or an RDT, becomes a confirmed case. The definition implies that the patient displayed symptoms of malaria and the presence of parasites was confirmed. In some suspected cases with a positive test, particularly in populations that have acquired immunity to malaria, febrile illness may be due to other causes. Nevertheless, a diagnosis of confirmed malaria is still given. If a concurrent disease is suspected, it should be further investigated and treated.
	Risk assessment	Event description: type of disaster, characteristics of displacement Host: community practices, cultural practices, chemoprophylaxis coverage Agent: endemicity, recent epidemics, ongoing prevention and control interventions, disease incidence, mortality, seasonality Environment: presence of vectors, shelter, availability and access to health and social care

Fact Sheet		
	Alert/epidemic threshold	Twice the average number of cases seen in the previous three weeks for a location
	Risk assessment	• Event description: type of disaster, characteristics of displacement • Host: community practices, cultural practices, chemoprophylaxis coverage • Agent: endemicity, recent epidemics, ongoing prevention and control interventions, disease incidence, mortality, seasonality • Environment: presence of vectors, shelter, availability and access to health and social care
	Attack rate	• It depends on the level of natural immunity of the population. Infections are often asymptomatic.
	Vulnerable people	• Infants, children under five years of age • Pregnant women • People living with HIV • Non-immune migrants, mobile populations and travellers
	Infectious agent	There are five *Plasmodium* (parasite) species that cause malaria in humans, and two of these species – *P. falciparum* and *P. vivax* – pose the greatest threat.
	Reservoir/Host	Humans (monkey for P. knowlesi, present in South-Eastern Asia, particularly on Borneo)
	How disease is spread (modes of transmission)	Vector-borne • *Anopheles* mosquito bite • The mosquitoes usually bite between sunset and sunrise during the night.
	Incubation period	Seven to forty days. Antimalarial drugs taken for prophylaxis by travellers can delay the appearance of malaria symptoms by weeks or months, long after the traveller has left the malaria-endemic area.
	Period of infectiousness	Not directly transmitted person to person. Humans may infect mosquitoes if infectious parasites are in the blood. This varies with parasite species and with response to treatment.
	Clinical signs and symptoms	• Starts with several days of fever, possibly accompanied by nausea, rigors, vomiting and headache, back pain, chills and muscle pain • In very severe cases, weakness, loss of consciousness, severe anaemia, acute respiratory and renal failure • Children with severe malaria frequently develop one or more of the following symptoms: severe anaemia, respiratory distress in relation to metabolic acidosis, or cerebral malaria. In adults, multi-organ involvement is also frequent.
	Other diseases with similar clinical signs and symptoms	Dengue fever, Zika virus, Chikungunya, Pneumonia, Influenza, Trypanosomiasis and other infections
	Diagnosis	• Microscopy • Rapid diagnostic tests • Nucleic acid amplification-based diagnostics
	Community case definition	A fever that goes up and down, with spells of extreme heat and shivering Any person with fever in a malaria-endemic area Any under-five child who has an illness with high fever and a danger sign Danger signs include lethargy, unconsciousness, vomiting everything, convulsions, and in children less than five years, inability to drink or breastfeed)

Fact Sheet		
	Clinical management (vaccine or treatment)	• *Artemisinin*-based combination therapies (ACTs) for the treatment of uncomplicated malaria caused by the P. *falciparum* parasite • *P. vivax* infections should be treated with an ACT or chloroquine in areas without *chloroquine*-resistant *P. vivax*. In areas where chloroquine-resistant *P. vivax* has been identified, infections should be treated with an ACT, preferably one in which the partner medicine has a long half-life. • To prevent relapses, *primaquine* should be added to the treatment. • Severe malaria should be treated with injectable *artesunate* (intramuscular or intravenous) for at least 24 hours and followed by a complete three-day course of an ACT once the patient can tolerate oral medicines. When injectable treatment cannot be given, children under six years of age with severe malaria should receive a pre-referral treatment with rectal *artesunate* before being referred immediately to a healthcare facility where the full level of care can be provided.
	Immunity	An immune response has occurred following natural infection. However, complete protective immunity does not develop because repeated infections occur in individuals living in endemic areas.
	Community-level disease tools	• CBHFA module • ECV disease tools (all relating to malaria)

Which interventions are most effective for prevention and control of malaria?

Activity	Evidence of effectiveness			
	High	Moderate	Low	No evidence
(Referral for) Early and effective treatment (aligned with national anti-malarial drug policy)	✔			
(Referral to) Intermittent prevention therapy (IPT) – infants and pregnant women	✔			

Indicators and targets

The indicators and targets below can be adapted to specific contexts and should be used for monitoring and evaluation of: i) progress of the epidemic and characteristics, and ii) measuring Red Cross/Crescent activities.

Indicator	Target
Epidemic characteristics and progression	
Malaria cases per week (population and children < 5 years)	#
Malaria deaths per week (population and children < 5 years)	#
Case-fatality rate in all malaria cases	%
Case-fatality rate in severe malaria cases	< 5%
Malaria parasite prevalence: children six months to five years with malaria infection	%
Districts above epidemic threshold	#
Red Cross/Crescent activities	
Number of volunteers trained	#
Suspected cases detected by volunteers and referred to health facility	#
Children < 5 years of age presenting with malaria receiving effective anti-malarial treatment within 24 hours of symptom onset	100%

Indicator	Target
Households visited by volunteers (door-to-door visits)	# or %
People who attended group session held by volunteers	#
Radio spots/SMS messages/television spots broadcast	#
Respondents who correctly recall messages on symptoms/transmission/prevention/case definition for referral	%

Impact on other sectors and programme areas			
Sector	**High Impact**	**Medium impact**	**Low impact**
WASH	✔		
Food security			✔
Nutrition			✔
Shelter and settlements (including household items)	✔		
Psychosocial support and mental health			✔
Restoring family links			✔
Education			✔
Livelihoods			✔