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DESK REVIEW

Input Into Malaria Communication Strategy to Accelerate Malaria Elimination

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INTRODUCTION

This desk review is prepared by Empatika as an initial phase to contribute to updating the existing Government of Indonesia malaria communication strategy. The review is intended to gather insights on a) human behaviours that are key in eliminating malaria; b) prerequisites to develop an enabling environment for malaria communication strategy; c) review the existing communication strategy to encourage behaviour change contributing to malaria elimination; and lastly d) examples of tested community-led approaches. Literature reviewed includes Empatika's initial desk review and formative study carried out in 2021, reports, recent journal publications, communication materials from the Ministry of Health, and documents provided by UNICEF.

1. SOCIAL BEHAVIOUR-RELATED FACTORS

1.1 Summary of earlier desk review

As part of Empatika's formative study, a desk review was delivered in January 2021 (Empatika 2021) to identify existing information around social determinants that influence people's behaviour in relation to malaria services. The review looked at how people respond to malaria services as well as challenges they encounter, to understand hindering and enabling factors in malaria elimination.

Empatika's 2021 Desk Review highlighted that there is currently little evidence to explain people's behaviours related to their management of malaria and access to malaria services. Studies have broadly defined social determinants as non-environmental factors that are related to malaria risk. These determinants can refer to socio-demographic factors such as age, gender, education, level of income, access to health services, as well as behaviours related to treatment seeking and protection measures. Many of the studies were quantitative which identified associations between social factors and people's behaviours, but provided limited understanding of factors that shape these behaviours. Without this understanding it is challenging to identify and prioritise behaviours to achieve malaria elimination.

The 2021 Desk Review used knowledge, attitudes and practice (KAP) lens to explore people's behaviours related to malaria services. It mainly covered journals and reports covering the period of 2011 - 2021. The following is a summary of the 2021 Desk Review.

Knowledge

Studies around people's knowledge typically examine what people know about causes, symptoms and transmission of malaria. Studies related to knowledge have identified what people know about malaria; gaps in knowledge e.g. concerning transmission, asymptomatic malaria; awareness about healthcare services; knowledge about protective measures (Finda et al. 2019, Sutanto et al. 2018, Hasyim et al. 2019, Marina et al. 2020). Knowledge about malaria is commonly associated with socio-economic factors such as education, occupation, socioeconomic background. Some findings related

to people's knowledge are listed below. However, the studies are yet to explain how knowledge can influence people's behaviours in relation to malaria elimination.

- A study in Central Java found that the majority of its respondents have heard about malaria and its symptoms, but 30% were not aware of malaria and its symptoms (Sanjana et al. 2006).
- There is little understanding of asymptomatic malaria, such as found in Aceh and Nusa Tenggara Timur provinces, which poses a challenge for malaria control because infected individuals do not feel sick and therefore do not realise that they are capable of passing the infection on through mosquito bites (Herdiana et al. 2013, Kosasih 2020).
- In Tanzania, there is a gap in understanding malaria transmission e.g., when or where people think mosquito bites happen compared with when or where they actually happen (Finda et al. 2019).
- Knowledge about malaria is associated with socio-economic factors such as education, occupation, and poverty.
    - An analysis of 2013 Riskesdas data investigating Maluku, Papua and West Papua provinces (N = 41,079 individuals) found adults who had primary or secondary education in Papua were more likely to report malaria compared to those who had not gone to school. The study, however, noted those with better education were potentially more likely to over-report (Dhewantara, Ipa & Widawati 2019).
    - Certain occupations have higher risk of malaria, especially those involving outdoor activities such as forest workers, farmers, fishermen, miners in Aceh (Ekawati et al. 2020) and in Maluku, North Maluku, East Nusa Tenggara, West Papua, and Papua provinces (Ipa et al. 2020).
    - A study on malaria risks across districts in Papua found communities living in poor, densely forested, lowland districts are at a higher risk of infection than those living in better off districts (Hanandita & Tampubolon 2016).
- Little information about malaria messaging and effectiveness of different media. The Desk Review only found a survey in Jayapura, which found that the majority of those who have been targeted for a campaign about LLINs said the message was about using the bed net (64%), followed by those saying the message was about taking care of LLINs (18%), using them during sleep (9%) and that bednets can prevent malaria (7%). The study did not explore how these messages were acted upon. The small percentage of answers about using nets for sleep and preventing malaria however may indicate a gap in the campaign message for beneficiaries (Badan Penelitian Kesehatan Kementerian Kesehatan Republik Indonesia 2020).

Attitude

People's attitudes determine how people respond and perceive malaria infection including risk perception, preference for treatment or service providers, and views about prevention. The 2021 Desk Review summarised people's attitude in three categories:

a) Health-seeking behaviour

- Malaria is an ordinary part of life that people cannot do much to prevent or eliminate although this is different for migrants. For instance, migrants from Java and Sulawesi living in Keerom, Papua were afraid even at the mention of malaria, and had more awareness about malaria prevention compared to local people (Rustam n.d.).
- People often delayed treatment when they started experiencing symptoms, e,g. in Mimika Districts, Papua (Kenangalem et al. 2019). Some statistical analyses have associated this delay with economic background and treatment preference (found in Mimika, Papua (Karyana et al. 2016)), and people's origin (such as found in Keerom, Papua and Lembata, Nusa Tenggara Timur (Rustam n.d.)).
- People in North Maluku often perceived the combination of malaria symptoms, such as cough, poor appetite, shivering, headache, nausea, and vomiting as mild illnesses (Island & Maluku 2000). In East Nusa Tenggara, Papua and West Papua, people consider the above symptoms caused by seasonal changes and did not require help from health centres (Reality Check Approach Plus & UNICEF Indonesia 2016).
- Some people in Papua preferred shaman and self-medication rather than getting health service from formal healthcare. Trust in shamans was stronger in areas where people believed illness is caused by an evil spell or bad spirit (Jupp 2018).
- Attitudes can be shaped by local wisdom rooted in people's surrounding environment such as not eating certain foods for some people in Yogyakarta (Murhandarwati et al. 2014) or using local herbs for people in Teluk Bintuni, West Papua (Triratnawati 2017).

b) Attitude to service providers

- Some people in Mimika preferred paid private facilities to public facilities providing free treatment. The study, however, did not elaborate what shaped this preference (Karyana et al. 2016).
- A qualitative study in Aceh explained people's preference of health service: people preferred private clinics because they were seen as more convenient (open in the evening after work, for example), conducted quick examination, were perceived to deliver effective treatment, and were run by well-respected people (a nurse or midwife). However, if people thought that the malaria was caused by an evil spirit, they would visit traditional healers because they were affordable and were felt to give effective treatment—some private clinic staff were also found to recommend patients to them (Ekawati et al. 2020).
- Majority of respondents in Jayapura and Sumba Barat Daya thought medicines from Puskesmas can treat malaria and that all malaria medicines work in the same way to treat malaria. The study however did not explore different types of treatment, so it is not known if people have different perspectives towards different healthcare services (Marina et al. 2020).

c) Prevention

- Accessing healthcare facilities or using bed nets may be shaped by livelihood considerations. For instance, a study in Malawi found that fishermen used bed nets for fishing because they needed to feed their family. In another example, they found that a mother used a bednet for herself, but not her children. The mother thought she needed to protect herself and stay healthy to take care of the whole family; if she got sick, no one could take care of her children (Ingstad et al. 2012).

Practice

Practice focuses on what people do to prevent and to treat malaria. Practice is therefore intertwined with people's knowledge and attitude about malaria services discussed above.

a) Treatment seeking

- When people started experiencing malaria symptoms, many self-medicate with home treatment or medicines they bought from kiosks or pharmacies such as those found in East Kupang, Nusa Tenggara Timur (Ngambut & Sila 2013). People in Bengkulu, Maluku, North Maluku, East Nusa Tenggara, Papua and West Papua only visit health providers if they did not get better (delay in treatment) (Ipa & Dhewantara 2015)

b) Protection

- Low usage of bednets was evident across high endemic provinces. Studies have explained this due to inconvenience (North Ghana), affordability, not fitting with the house (West Manokwari, West Papua) and causing irritation to eyes and skin (Aceh) (ITAD, Ghana Millenium Villages Evaluation: Midterm Summary Report 2016; Astin, Alim & Zainuddin 2020; Ekawati et al. 2020)
- People do not protect themselves from mosquito bites e.g. when staying outside the house at night (North Maluku), working in the forest (Aceh) or mining sites (Papua and Maluku) without protection (mosquito repellent, protective clothes, etc) (Island & Maluku 2000, Ekawati et al. 2020, Murhandarwati et al. 2014).
- Most respondents in East Kupang subdistrict, Nusa Tenggara Timur have bed nets but only 25% said they always used bed nets when sleeping. More mothers were reported to sleep using bed nets (45%) compared to fathers (17%), but the study did not explore factors influencing this different practice (Astin, Alim & Zainuddin 2020).

1.2 Empatika research and insights

In 2021, UNICEF Indonesia contracted Empatika to undertake a formative study to understand people's experiences in accessing malaria services in East Nusa Tenggara, Papua, and West Papua provinces (Ayuandini et al. 2021). Building on findings from the above desk review, Empatika further explored some key behaviours that are crucial to malaria elimination. Summary of the research findings are presented below.

1. People's behaviour in relation to malaria.

- People across study areas were not highly concerned about contracting malaria especially since the introduction of effective malaria treatments. They considered malaria an inseparable part of their lives and most people did not think malaria could be eliminated from their area.
- People describe a range of causes of malaria with mosquito transmission rarely the first explanation. The most frequently cited cause is a weak immune system due to tiredness or stress, lacking sleep and not eating well; and also change of weather.
- People have little knowledge about malaria transmission i.e. transmitted between people through mosquitos. On the other hand, they find mosquitoes a nuisance such as when they are working and sleeping. However, they did not link mosquitoes to malaria.

2. Detecting malaria

- Across all study locations, people either self-diagnose or wait and observe their fever for a few days before deciding to visit health providers. While waiting, people take paracetamol and/or use local remedies to treat their fever and headaches. If the symptoms remain or worsen, they will visit health providers to test for malaria.
- When people do decide to test for malaria, they prefer trusted providers such as malaria cadres or a favourite doctor. Preferences for health providers vary across places including considerations of distance, cost, short queue and quick process.
- People sometimes receive unexpected malaria test results; they are tested negative for malaria but continue to have the symptoms resulting in distrust of the test and retesting where possible in a different facility.

3. Malaria treatment

- Most people taking malaria treatment said they would only take them until they felt better, assuming their malaria was gone. This could be as early as one day or just one round of medication. People also stopped taking malaria pills due to side effects. As people start to feel better, they notice side effects (buzzing ears, loss of hearing, nausea, headache) more and decide to discontinue the treatment.
- Generally, men tend not to finish medicines compared with women, while children and teenagers will finish their medications if their mothers monitor them.
- Some people said that they do not receive specific instructions to complete the medicines while some others said they did receive advice to finish the medicines from the health providers. Health providers sometimes ask people to come back to retest for malaria after completing the medication, but they could not follow this up.
- For most people, puskesmas is their first point of contact when seeking malaria test and care. However, people are often dissatisfied with puskesmas' service including due to its slow service, long queues, puskesmas' staff were unfriendly, limited operating hours (especially for diagnostic test services) which sometimes result in delayed testing and treatment particularly when patients have to travel far to the puskesmas.
- People generally trust and feel able to communicate well with malaria cadres, although they were only found in three of the eight study locations.

4. Bednets: usage and preferences

- All families have bednets, but do not use them consistently especially when mosquitoes are prevalent. Women, children, and toddlers used bednets more often while teenagers (especially boys) and men tend to use less or not at all.
- People's primary reason for using bed nets is relief from bothersome mosquitoes and not concern about malaria. Those who do not use bed nets note that bed nets are too hot or feel restricted or uncomfortable.

5. Prevention practices

- People in the study locations do not often use any particular prevention against mosquitoes. People only took precautions when mosquitoes were prevalent because of annoyance rather than to prevent malaria.
- The only preventative measure practised at home is using bed nets.
- People adopted preventive measures only when working in the forest or the farm where mosquito numbers were high. They use topical repellents, wear long sleeves or create smoke to keep mosquitoes away.

1.3 Recent research

This section intends to update the 2021 Desk Review through examination of more recent literature and research findings.

Among others, Monroe et al. (2021) note the importance of better understanding of human behaviour to improve malaria elimination programmes. They point out that malaria interventions will only be effective if people engage with them and use them appropriately. For instance, wide distribution of bednets is not sufficient if people do not use them when sleeping; and caregivers need to seek care promptly if their children experience malaria symptoms. Understanding determinants of people's behaviour is therefore important to encourage behaviour change through malaria programmes.

Naserrudin et al. 2022 also concluded that further study on human behaviours in designing malaria interventions is needed. While their study focuses on zoonotic malaria (malaria transmitted from animal to human), the idea is applicable to human malaria (transmitted between humans) as well. They highlight that different age groups and settings have different lifestyles, social norms, and activities that may put them at different risk of malaria infection.

As found in the 2021 Desk Review, there remains very little published work which focuses on behaviour change. Most of the recent studies identified for this current update desk review are mostly quantitative approaches. While these studies do not provide in-depth explanations about people's behaviour, they are useful in mapping people's behaviour, perspective and knowledge related to malaria programmes. Some other studies examined the effectiveness of SBCC interventions to encourage behaviour change. However, these are limited to assessing one type of intervention while behaviour change is usually influenced by multiple factors.

Summary of the study	Identified behaviour / Intervention	Influencing factors / Recommended interventions / Results of intervention
Research in Indonesia		
A quantitative study (n=1,503) was done in Nusa Tenggara Timur by Guntur et al. (2022). They examined factors influencing appropriate malaria treatment-seeking behaviour which is defined as seeking treatment at professional health facilities within 24 hours of the onset of malaria symptoms.	60% of the respondents had a poor level of understanding of appropriate malaria treatment	Poor level of understanding is associated with ■ No/low level of education ■ Low economic background ■ Occupations (e.g. farmers) ■ Living further from health providers.
A cluster-randomised trial in Papua to assess the efficacy of supervised and unsupervised malaria treatment (Poespoprodjo et al., 2022)	Not completing malaria medication as prescribed Intervention: supervision to complete malaria treatment	People who were supervised to take treatment as prescribed resulted in effective treatment, shown by lower recurrence rate. The study acknowledged that supervision might not be feasible in areas with high case numbers, so combined strategies can be explored such as combining patient education and early clinical review to promote adherence
Research in other countries		
Malaria behaviour survey in Benin (n=3,534 households) (The John Hopkins Center for Communication Programs, 2022)	While the majority (72%) knew that ACT is effective, many women (41%) would give any malaria medicine available at their home if their children had fever.	Not described. The study recommended reinforcement of knowledge about artemisinin combination therapy (ACTs) as the proper treatment for malaria.
	Majority (63%) of mothers thought they can stop giving medicine once their children no longer appear sick	Not described. The study recommended reinforcement of completing medication.
	Community Health Workers (48%), health service providers (40%), and radio (36%) were the most frequently cited sources of malaria messages.	Exposure to malaria messages can be expanded through interpersonal communication and radio broadcasts. Radio broadcasts particularly can be done at late morning and late evening when it is the best time to reach men and women of any age.

Summary of the study	Identified behaviour / Intervention	Influencing factors / Recommended interventions / Results of intervention
A mixed-method study in Papua New Guinea to understand the role of human behaviours in malaria control efforts (Rodriguez et al., 2021)	People spend a substantial amount of time outdoors or in open structures and have little protection against mosquito bites.	Outdoor activities that vary based on demographics and behavioural patterns. For instance, school-aged girls typically did chores around the house while boys did activities outside house e.g. chopping wood, spending time with their peers
The study examined the effects of malaria education intervention on preventive practices and pregnancy outcomes in Nigeria (Balami et al., 2021)	People spend a substantial amount of time outdoors or in open structures and have little protection against mosquito bites.	Outdoor activities that vary based on demographics and behavioural patterns. For instance, school-aged girls typically did chores around the house while boys did activities outside house e.g. chopping wood, spending time with their peers
The study examined the effects of malaria education intervention on preventive practices and pregnancy outcomes in Nigeria (Balami et al., 2021)	To improve malaria prevention among pregnant women SBCC intervention: malaria education session for pregnant women	The intervention resulted in increased uptake of preventive malaria treatment and improved ITN use. However, there was no significant effect on malaria incidence rate when the intervention group was compared to the control group.

1.4 Increased emphasis on behaviour change in malaria programmes

There is increasing acknowledgement of the importance of human behaviours in malaria elimination efforts in Indonesia. This section highlights how behaviour change is reflected in current malaria programmes.

The attention to people's behaviour became evident at least since the **Joint Malaria Programme Review in 2019,** facilitated by WHO Indonesia in support of the Ministry of Health. The review examined the progress made in malaria elimination and highlighted several points under the theme of Behaviour Change Communication (BCC) and advocacy[1] and concluded:

- ***"There is a need to conduct research to better understand behavioural issues associated with malaria"*** especially in high endemic areas. The communication strategy should be developed based on evidence from research, with a special focus on Papua, West Papua and special populations including indigenous communities, pregnant women, and migrants. Further, there need to be monitoring and evaluation systems to track progress and measure effectiveness of BCC initiatives.

[1] National Malaria Programme Review, Republic of Indonesia 2019 (WHO Indonesia. 2020).

- There is a need to increase malaria cadres' involvement in the villages. Their roles are considered critical especially in high-risk areas *"to ensure repeated engagement with families and communities around key malaria prevention, treatment and drug compliance behaviours."*
- Mission to eliminate malaria is seen primarily as the work of the Ministry of Health. There is a need *"to bring together stakeholders concerned across various governmental ministries and sectors, NGOs, professional organisations, private sector, media, army, police and civil society to address it as an issue of importance."*

The review provided input for designing the currently implemented **National Action Plan 2020 - 2024** in which one of the strategies incorporates behaviour change: Strategy 3 notes the need for "Creating policy that supports malaria elimination through BCC and community engagement". This strategy is detailed in the following key interventions[2]:

- *"Strengthen the commitment and leadership of central and regional governments to accelerate malaria prevention, elimination and prevention of re-introduction* (relapse)". For the central government, this is done through research to support policy development on malaria elimination including policy that will support collaboration with other relevant ministries e.g. Ministry of Home Affairs on regulating village fund to support malaria elimination, Ministry of Education to include malaria as a topic in school. For the local government, this means local regulation to implement malaria elimination programmes following the national plan.
- *"Strengthen support from cross program and cross sectoral including private sector."* This focuses on creating multi-stakeholder forums including private sector, to support acceleration in malaria elimination programmes e.g. formulating advocacy strategy, producing advocacy materials tailored to community context, support in malaria elimination.
- *"Behaviour Change Communication"* (BCC). This includes facilitator training to design and implement BCC; capacity building on BCC for health providers, cadres, and community volunteers; produce and test IEC materials; and evaluation of effectiveness of IEC materials. Indicators for this strategy include:
    1) Formative research on behaviour change communication for malaria elimination
    2) (Number of) training of trainers to design malaria BCC at city/district level
    3) (Number of) malaria BCC planning designed at city/district level
    4) Increasing capacity of health providers, cadres, and community volunteers on malaria BCC
    5) Develop and produce malaria IEC materials
    6) Test malaria BCC IEC materials across several platforms
    7) Implement malaria IEC campaign through various communication channels
    8) Review and evaluation of malaria communication strategy
    9) KAP survey on bed nets usage and maintenance

This shift to BCC and more attention to people's behaviour in malaria elimination programmes is reflected in some practices. **The Guideline for Malaria Cadres (2020)**[3] mainly provides technical

[2] Ministry of Health, 2020. National Action Plan for Acceleration of Malaria Elimination 2020 - 2024.

[3] Kementerian Kesehatan. (2020). Panduan Lapangan bagi Kader Malaria di Daerah Situati Khusus.

instruction on identifying and treating malaria cases at household level such as detecting symptoms, tracing infection, and monitoring bednet usage. One of the sections in the guideline is about BCC which briefly describes some interpersonal approach for the community members. For instance, how to introduce themselves, how to communicate with empathy, how to discuss prevention messages.

Another behaviour change approach is also reflected in programmes implemented by PERDHAKI (a Catholic church-based NGO) as one of Global Fund's implementer in Indonesia, working in high endemicity areas in Nusa Tenggara Timur (NTT) and Papua. PERDHAKI uses ***Advocacy, Behaviour Change Communication, Community Mobilization (ABC strategy),*** a participatory based approach that has two main objectives: to increase people's knowledge and therefore encourage behaviour change, and to gather support from community influencers to support malaria programmes. The ABC strategy is mainly implemented through *Diskusi Kampung*, a discussion forum where community members learn about malaria (symptoms, cause, transmission, prevention) through interactive activities and make community action plans to eliminate malaria. While the approach emphasises community participation, it assumes that improved knowledge and social commitment will encourage individual behaviour change which is also shaped by other factors such as perception of risk, access to health services, and livelihood activities.

A recent **midterm review** (mid 2022), which was led by WHO Indonesia to support MoH, sought to understand the progress and challenges in implementing malaria programmes. The review **covered several themes** of Program Management, Case Management, Surveillance, monitoring and evaluation, Vector Control, and Behaviour Change Communication (BCC). The reviewer conducted field **visits to NTT:** Kupang City (malaria free) and Kupang District (mostly no malaria cases with some low and moderate endemicity); **Papua:** Mimika (high endemicity); Manokwari City (high endemicity); and **North Sumatera:** Labuhan Batu District (low endemicity).

While the review did not systematically assess all nine indicators above, the review of BCC across these sites indicates there has been a focus on the supply side.[4] Such a focus limits measurement of BCC interventions to inputs e.g. activities, materials, and planning that (are assumed to) encourage behaviour change rather than results and outcomes. For instance, the BCC review examined the availability of BCC planning, availability of IEC materials, funding for BCC activities and IEC materials production, delivery of BCC activities e.g. cadre training, and involvement of influencers e.g. village officials, religious leaders in interpersonal communication.

On the other hand, the field visits identified some key behaviours under other themes in the midterm review. For instance, the review of the Case Management unit in Mimika and Manokwari found that people do not complete medication and there is a lack of compliance monitoring, but the reasons for this were not explored. They also found that people in Manokwari visit government health providers for malaria tests, but many will then switch to private clinics because service at government providers is not available outside laboratory hours. Under Vector Control, the review found low usage of treated bednets in Manokwari but did not explore the reasons from the users' perspective. This identification of behaviours in other themes outside BCC may indicate BCC should be cross cutting over the entire malaria programme rather than BCC as a separate strategy.

[4] Results from the field visits were presented in the midterm review meeting in Jakarta in September 2022.

Drawing on this section, there are some gaps identified that can be explored in the next steps of the project:

- What are the key behaviours that need to be addressed in the high endemic areas, taking into account the different context of each community, different groups?
- Are the existing BCC strategies/approaches in the project locations, targeting any behaviour? What is the demonstrated effectiveness of these strategies/approaches?
- Who has a strategic role to implement the communication strategy sustainably in the community?
- How BCC strategy can support other strategies in the National Action Plan such as early malaria test (case management), cleaning breeding sites (vector control), using bednet and protections when spending time outside (prevention).

2. REVIEW OF THE ENABLING ENVIRONMENT

For an effective implementation of malaria communication strategy, there is a need for an enabling environment across all levels from policy to communities. This includes prioritisation of the issue and mobilisation of sufficient resources e.g. human resources and funding over a period long enough for behaviour change to be achieved. This section aims to document how the malaria programme is currently supported in order to assess future resource mobilisation implications. It also examines some pilot approaches in order to assess their potential for replication.

This section provides an overview of resource allocation for the malaria programme in Indonesia, including three main sources of funding (i.e. the Government of Indonesia, the Global Fund and private sector) and human resource allocations. The resource allocation mapping will be used to understand what are potential resources to achieve meaningful behavioural change in communities.

Overview of resource allocation for malaria programme

Indonesian National Malaria Control Programme has five key programmes include diagnostic, treatment, surveillance, vector control and health promotion. These programmes are funded by multiple sources through different stakeholders. Funding for the malaria programmes has changed over the years with high contributions coming from the central government budget and the Global Fund (GF), while smaller contributions are sourced from local governments and private sector. In some districts, Malaria Centres have been established to coordinate these different sources of funding. Current funding for the malaria programme is dominated by the Global Fund grant but the Indonesian government aims for a gradual decrease of single-source grant and increase of government funding and other private partnerships[5]. The graph below depicts the proportion of funding sources for the malaria elimination programmes, while the following table maps out the key malaria programmes and source of funding for each.

[5] National Malaria Programme Review, Republic of Indonesia 2019 (WHO Indonesia. 2020). p.83

Graphic 1. Sources of malaria programme funding in Indonesia (2018 - 2021)[6]

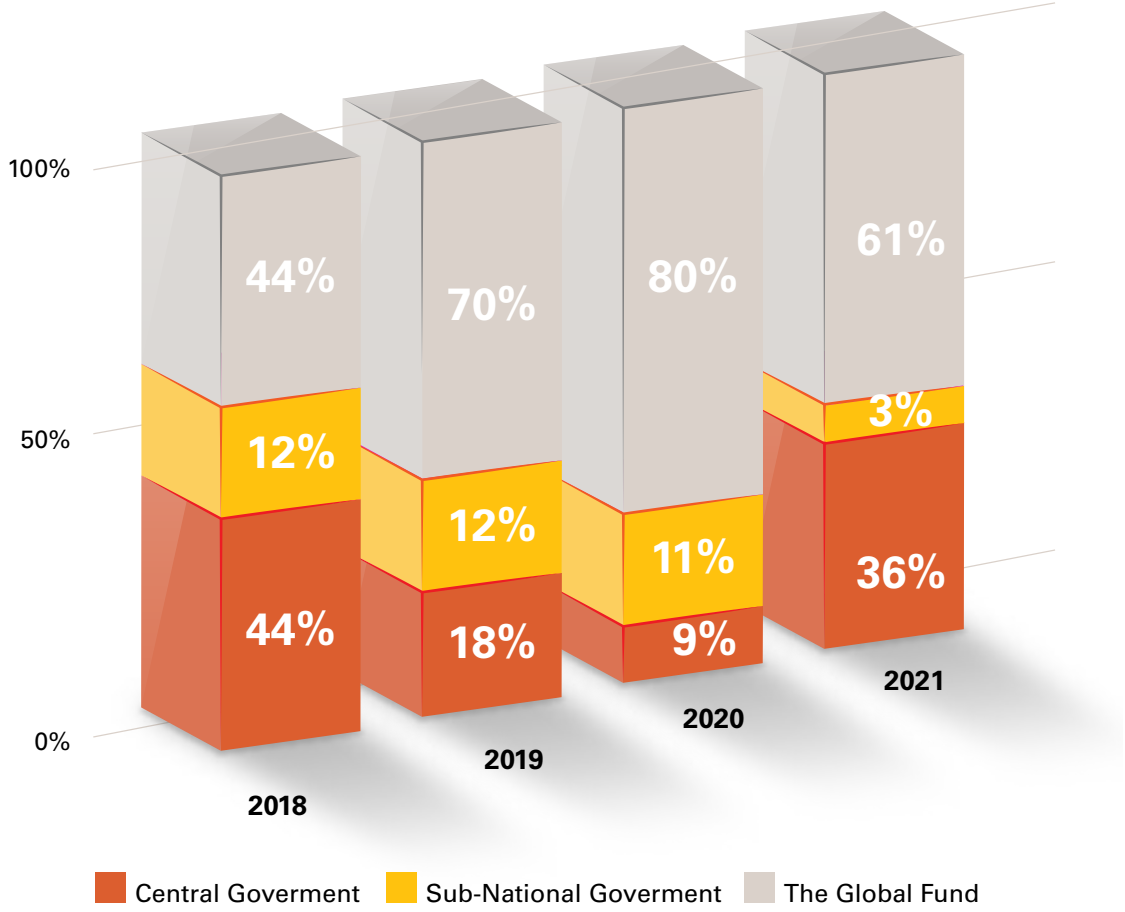


Table 1. Malaria funding by programmes[7]

Programmes and goals	Activities	Provision and source of fundings
Diagnostic - to provide accessible and quality diagnostic test	▪ Rapid Diagnostic Test (RDT) ▪ Microscopic test ▪ PCR	RDT from central government budget, the GF, and Malaria Centre Microscopic test and RDT from sub-national government budget (for buffer stock)
Treatment - ensure availability of standardised treatment	▪ ACT and primaquine (without complication) ▪ Artesunate Intramuscular (for severe malaria) ▪ Health workers monitor patients to finish treatment	From central government

[6] Malaria Programme Funding Synchronisation. Presentation by Ministry of Health, Republic of Indonesia at Malaria retreat, 20 June 2022. There is no data for private sector contribution nationally because their contribution, especially of mining companies, is typically dedicated to specific districts.

[7] National Malaria Programme Review, Republic of Indonesia 2019 (WHO Indonesia. 2020).

Programmes and goals	Activities	Provision and source of fundings
Surveillance - effective surveillance in high, low and zero endemic areas	**Screening:** ■ Screening in high endemic areas ■ Cadres do regular home visit ■ Mass blood survey ■ Tracing of family members of positive case patient ■ Early screening of targeted group (pregnant women, school children) **Information system:** ■ SISMAL (malaria surveillance information system) training ■ Using SISMAL data for programme planning ■ Using SISMAL data to monitor target per-village **Vector surveillance:** ■ Malaria entomology training ■ Mosquito breeding mapping ■ Monitoring LLINs used at home **Others:** ■ Monitoring in low endemic and malaria-free areas ■ Monitoring malaria migration from high to low endemic areas	Activities for/by malaria cadres (cadre training, early screening, home visit, and blood testing) are funded by the GF fund through PERDHAKI. Case reporting, monitoring and evaluation are funded by sub-national government budgets.

National and sub-national government

In 2019, Government of Indonesia allocated an annual budget of USD 15 million (~IDR 199 billion) for the National Malaria Control Programme which includes a package of prevention and treatment services for malaria (USD 7,5 million) and special budget for priority districts in Papua and West Papua (USD 1 million).[8] In 2020, the annual government budget for malaria has decreased to USD 6 million. This budget was divided into five sub-categories that include national malaria team operational cost (USD 2 million); provision for malaria drugs treatment (USD 0.8 million); provincial malaria team operational cost (USD 1.8 million); special budget for priority districts (USD 0.5 million); and special

[8] Programmes' Report of the Directorate General of Diseases Control and Prevention. (Ministry of Health, 2019). https://e-renggar.kemkes.go.id/file_performance/1-465827-3tahunan-910.pdf

budget for health infrastructure (USD 0.8 million).[9] BCC programmes fall under the special budget for priority districts, which decreased by half compared to the allocated budget in 2019.[10]

Since 2020, the national and sub-national governments have allocated budgets for BCC programmes including capacity building budget for health workers and malaria cadres to facilitate behavioural change in the communities.

Table 2 below shows an example of the funding that is managed by health workers and malaria cadres to implement BCC activities in a sub-district (high endemic) in Papua. In this example, malaria cadres collaborate with the malaria team in each puskesmas to deliver their work. Each village has one or two malaria cadres, and each cadre receives a cadre kit (including gloves, hand sanitiser, torch, and RDT) and an incentive of IDR 500,000 (~USD 35) every six months. This BCC funding provided by district government is disbursed biannually in advance to the malaria team in puskesmas and they have to report implementation activities to the district health office.

Table 2. Example of malaria BCC programme funding in a sub-district in Papua[11]

No	Activities	Yearly budget (in USD)	Sources of funding
1	Malaria socialisation to community	320	*Bantuan operasional kesehatan* (BOK)
2	Malaria cadre operational cost	370	BOK
3	ABATE distribution	750	BOK
4	Mass blood survey (in one village)	260	BOK
5	Drug compliance monitoring	400	BOK
6	Bed nets use monitoring	200	BOK
7	Meeting with head of villages	0	None
8	Cadre evaluation meeting (per six months)	50	BOK
Total annual budget		**2,350**	

If the puskesmas need more resources, the malaria team and cadres are encouraged to approach village officials to get support from Dana Desa. Currently, these BCC activities are directed from dinas kesehatan and malaria cadres are only responsible to collect monthly malaria case data.[12]

[9] Malaria Programme Funding Synchronisation. Presentation by Ministry of Health, Republic of Indonesia at Malaria retreat, 20 June 2022.

[10] BCC programme allocated under Bantuan Operasional Kesehatan (BOK), Dana Alokasi Khusus Non Fisik Bidang Kesehatan (special budget for non-infrastructure programme in priority districts).

[11] BCC Malaria Programme Activities, 2022. Shared by a nurse coordinating the malaria programme in a sub-district in Mimika, Papua, through an online consultation.

[12] Based on the Health's Ministerial Decree No 41/2018 (see annexes in the decree), the malaria cadres have to fill six forms in their report that include 1) family members data form; 2) home visit form (including LLINs use monitoring); 3) RDT test form; 4) drug and LLINs stock form; 5) vector control form; and 6) drug compliance form.

To mitigate the resource gap for malaria elimination, the MoH and the Ministry of Internal Affairs (MoIA) have provided technical guidance for sub-national governments to increase their local budget for malaria control programmes although leaving the decisions at the discretion of the district head (*bupati*) or provincial governor (*gubernur*).[13] In 2020, the sub-national governments contributed 11% towards the total budget for malaria control programmes, while the central government and the Global Fund contributed 9% and 80% respectively to the budget.[14] In 2021, sub-national government's contribution decreased to 3%.[15] As of 2021, only 15 provinces (of 34 provinces) and 59 districts (of 514 total districts in Indonesia) have budget allocation for their local malaria elimination programme that include all districts of Papua, West Papua and Maluku.

In order to encourage the sub-national government involvement in the malaria elimination programme, the MoH has issued Malaria Free Certificates to districts without malaria cases in the last three years. Since 2019, 300 of 514 districts have been granted this certificate although the MoIA found that these districts were likely not to prioritise and even stop sub-national government budget for malaria programmes, which might hamper prevention of potential malaria outbreak in these areas.[16]

Box 1. Malaria cadres

There is an increasing emphasis on the role of malaria cadres as reflected in the MoH's Ministerial Decree No. 41/2018 stipulating deployment of malaria cadres in areas with special conditions.[17] The malaria cadres are an extension of the local health services who conduct early testing using RDT, provide malaria drugs to people tested positive, and monitor drug compliance. The cadres report malaria case data to puskesmas and district health department, while district governments provide funds and technical assistance to the cadres. The Global Fund has also provided technical assistance for malaria cadres and health workers in some endemic areas through training on facilitating behaviour change using the Participatory Learning and Action (PLA) approach, as well as how to manage BCC budget to support community facilitation.

An example of the malaria cadres' role is found in Purworejo, Central Java, where the cadres succeeded in decreasing malaria cases in the area from 1,400 cases in 2015 to 0 cases in 2019. Purworejo district government gave IDR 1 million monthly incentive to each malaria cadre.[18]

[13] Technical Guidance to Integrate AIDS, TB and Malaria programmes on the Sub-national Development Programme Planning (the Ministry of Internal Affairs, Republic of Indonesia 2022). Internal document that presented at ADINKES national webinar, 23 August 2022.

[14] While local governments' budgets for AIDS and tuberculosis programmes have been recorded and monitored, there is no segregated data (by province and district) yet for malaria programmes because malaria nomenclature was just set up in 2022.

[15] Malaria Programme Funding Synchronisation. Presentation by Ministry of Health, Republic of Indonesia at Malaria retreat, 20 June 2022.

[16] Technical Guidance to Integrate AIDS, TB and Malaria programmes on the Sub-national Development Programme Planning (the Ministry of Internal Affairs, Republic of Indonesia 2022). Internal document that presented at ADINKES national webinar, 23 August 2022.

[17] The decree defines areas with special conditions as communities that have high malaria cases (API>5) and very high cases (API >20) and have no public health services available nearby. In Article 4, the special condition is defined as "a village or a sub-village that has limited access to health facilities, health workers and health equipment". Further, the areas can be categorised as "Category A: an area that have no health facilities, health workers and health equipment at all (4.2.a)" and "Category B: an area that is intensifying malaria elimination efforts but has limited access to health facilities, health workers and health equipment (4.2.b)". Areas with special conditions should be identified by the Mayor or Governor (Article 4.3).

[18] Malaria Cadres as the frontline for malaria elimination in Purworejo (WHO, 2120) https://www.who.int/indonesia/juru-malaria-desa

As noted above, the Global Fund will likely decrease their contribution[19] and this deficit will need to be filled through sub-national governments' budgets, *Dana Desa* and private sector partnership. The MoH plans to shift the GoI position from "grant recipient to a donor".[20]

Global Fund

The Global Fund has allocated USD 53 million (IDR 747 billion) for the National Malaria Control Programme in Indonesia for 2018 to 2020, through MoH (USD 44 million) and PERDHAKI (USD 9 million).[21] This three year funding includes funding for AIDS, tuberculosis, and malaria programmes.

In 2022, the Global Fund in Indonesia allocated resources for the following: i. technical assistance for malaria elimination (40% of total budget); ii. partnership engagement (16%); iii. monitoring and evaluation programme (6%); iv. bednets and drugs provision; v. support Behaviour Change Communication (2% or USD 110,000/IDR 1.6 billion); vi. creating malaria IEC materials; vii. training for health workers and malaria cadres (35% or IDR 28 billion or USD 2 million).[22] More than half of the Global Fund budget for malaria in Indonesia (57%) was allocated to Papua and West Papua provinces in 2018 to 2022.

The Global Fund support is also disbursed through PERDHAKI which works with local organisations, mainly church-based, local civil society organisations and puskesmas malaria team in targeted districts using the Participatory Learning and Action (PLA) approach.[23] PERDHAKI has trained local organisations in PLA so they are able to facilitate behavioural change programmes in the communities, such as outreach for prompt malaria testing, ensured drug compliance, improved LLINs use in households, and clearing malaria breeding sites in the village. Since 2020, PERDHAKI has trained 370 malaria cadres in five districts with high API in Papua province including Keerom, Mimika, Boven Digoel, Sarmi, and Jayapura. In 2022, training for malaria cadres have been extended to districts of Biak Numfor, Yapen Waropen and Asmat (Papua) as well as Manokwari district (West Papua).[24] [25]

Public private partnership

To increase private sector contributions to health programmes, the MoH has ratified Health Ministerial Decree No 27/2022 supporting Public and Private Partnership (PPP) for Non-infrastructure Health Programme.[26] In 2022, overall health funding has been dispersed from government funding (60%), followed by out of pocket expenses by citizens for services that should be covered through public funding (28%) and private funds/donors (12%). The PPP aims to increase private sector/donors'

[19] National Malaria Programme Review, Republic of Indonesia 2019 (WHO Indonesia. 2020). p.83

[20] Indonesia first contribution to the Global Fund (Public release from the MoH, 2022) https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20220923/1241119/kontribusi-pertama-pemerintah-indonesia-dalam-pendanaan-global-fund/

[21] Audit Report Global Fund Grants in the Republic of Indonesia (the Global Fund, 2020) https://www.theglobalfund.org/media/9237/oig_gf-oig-20-001_report_en.pdf

[22] Malaria Programme Funding Synchronisation. Presentation by Ministry of Health, Republic of Indonesia at Malaria retreat, 20 June 2022.

[23] Perdhaki's Malaria Programme, funded by the Global Fund 2018-2020. (Public presentation, Perdhaki 2020) https://www.scribd.com/document/367715677/Program-Malaria-PERDHAKI-2018-2020#from_embed

[24] Training for Malaria Cadre (Public release, Department of Health of Manokwari District 8th September 2022) https://dinkes.manokwarikab.go.id/berantas-malaria-dinkes-papua-barat-latih-92-masyarakat-manokwari/

[25] District of Biak Numfor has Prepared Malaria Cadres (Press release, Antara Papua 7th November 2022) https://papua.antaranews.com/berita/693981/pemkab-biak-numfor-siapkan-50-kader-malaria-di-kampung

[26] Socialization for the Health Ministerial Decree No 27/2022 about Public Private Partnership for Non-infrastructure Health Programme. (Presentation by the MoH at the Immunization retreat, 24 November 2022 in Bogor).

contribution in the health sector, not only to improve service delivery but also to decrease people's out of pocket spending.[27] In exchange, the private sector can have easier access to government business permits and tax reduction.

The MOH has encouraged other private sector donors to contribute towards achieving elimination targets for AIDS, tuberculosis and malaria. MoH intends to establish a public private partnership committee to oversee funding proposals brought by both public and private sectors. Companies will be responsible to co-fund and co-implement the programme, as well as determine key performance indicators.

To date some private sector companies have pledged funds for replenishment for 2023-2025, namely Sinarmas (USD 2 million), Kalbe (USD 1 million), Paloma Foundation (USD 1 million) and Tanoto Foundation (USD 1 million) for AIDS, tuberculosis, and malaria programme in Indonesia.[28] A few extractive companies have community social responsibility projects that focus on malaria elimination, such as Newmont Mining in West Sumba (NTT), British Petroleum in Teluk Bintuni and Freeport Indonesia in Mimika (Papua). Some non-profit organisations, such as Sumba Foundation in Sumba (NTT) and Yayasan Pemberdayaan Masyarakat Amungme dan Komoro (YPMAK) in Mimika (Papua) have also committed their resources for malaria elimination in their respective areas.

In addition, Malaria Centres have a role to strengthen partnership between government, the Global Fund, and private sector at the provincial and district level for the malaria control programme. The first Malaria Center was established in Halmahera Selatan in 2010. The district government there collaborated with UN Pulse Lab to develop a text-based self-reporting system for people to get prompt testing and treatment, which was later developed into an android-based application (LaCak).[29] The Malaria Centre also trained malaria cadres in the district to monitor bed nets use, to conduct RDT testing, and to report malaria cases using LaCak app. This initiative has been recognised by the Ministry of Health as a best practice and has attracted interest for replication to other districts.

In Papua, the provincial government, in collaboration with UNICEF, YPMAK funded by Freeport Indonesia, and Yayasan Gapai Papua have established Malaria Centres in Mimika, Jayawijaya, Keerom, Yapen Waropen and Boven Digoel since 2017.[30] In Mimika, YPMAK has added USD 160,000 (IDR 2,3 billion) each year to support malaria services through the Malaria Center.[31] Although this model has been recognised as a hub for collaboration and innovation, each district has a different resources commitment to support their Malaria Centre. There is no information about programme sustainability from the Malaria Centre in other districts besides Halmahera Selatan, Mimika and Keerom that have strong support from their respective district governments.

[27] Government has acknowledged that people spend their money for health services that should be covered by the public healthcare system.

[28] Global Fund Private Sector Partners Pledge Record Levels of Support to End AIDS, TB, Malaria and Strengthen Systems for Health (News release, the Global Fund 21 September 2021)

https://www.theglobalfund.org/en/news/2022/2022-09-21-global-fund-private-sector-partners-pledge-record-levels-of-support-to-end-aids-tb-malaria-and-strengthen-systems-for-health/

[29] LaCak Malaria (the Ministry of Development Planning, Republic of Indonesia 2018) https://developmentchannel.id/vi/lacak/#secondPage

[30] Malaria Centres for Papua (Press release, Bakti News July 2019) https://baktinews.bakti.or.id/artikel/malaria-center-untuk-papua

[31] YPMAK funding for Malaria Elimination in Mimika (Public release, YPMAK 14th December 2021) https://www.ypmak.or.id/2022/01/24/setiap-tahun-ypmak-gelontorkan-rp23-miliar-tangani-malaria-di-mimika/

To sum up the enabling environment for malaria BCC strategy, Table 3 below shows recommendation actions for behavioural change, the progress to date, the planning and source of fundings.

Table 3. Recommendation actions for Behaviour Change Communication strategy [32,33]

Thematic area	Progress (until 2020)	Strategic planning for 2020-2014	Sources of funding
Developing and testing IEC materials that are culturally appropriate, comprehensive and effective.	Malaria communication strategy has been drafted. Posters and leaflets have been distributed to the communities along with bed nets distribution.	Piloting draft of communication strategy in priority districts.	Central government and the Global Fund for socialisation and to develop nation-wide IEC materials. Potentially *Dana Desa* and private sector to develop localised IEC materials.
Developing and scaling up of BCC prototypes, such as "*Keluarga Bebas (Kebas) Malaria"* community mobilisation campaign, puppet shows, school-based initiatives (*see box below*).	Some PLA initiatives have been recognised by MoH as best practice in national jamboree.	BCC campaign on acceleration of malaria elimination including treatment seeking behaviour, utilising LLINs, community-driven vector control in 22 districts (API > 5).	Potentially *Dana Desa* and private sector (unclear).
Strengthening partnership in provincial and district level for malaria control programme.	Malaria Centres implemented in Keerom, Jayawijaya, Mimika, Yapen-Waropen and Boven Digoel.	Malaria Centres will be established in Nabire district, Sarmi, Biak and Jayapura.	Co-funded by central government, sub-national government, the Global Fund and private sector.
Strengthening capacity of malaria cadres.	Malaria cadres training at five highly endemic districts in Papua: Keerom (44 cadres), Jayapura (66 cadres), Sarmi (105 cadres), Mimika (72 cadres) and Boven Digoel (100 cadres).	Training for malaria cadres at Keerom, Jayapura district, Mimika, Sarmi, Boven Digoel, Yapen, Waropen and Asmat (areas with API >50). Community based vector control through PLA training in 22 Districts (API > 5).	The Global Fund and sub-national government.

[32] National Malaria Programme Review, Republic of Indonesia 2019 (WHO Indonesia. 2020) p.123-125.

[33] Ministry of Health, 2020. National Action Plan for Acceleration of Malaria Elimination 2020 - 2024.

Box 2. Recognised PLA initiatives

Visualisation of a malaria free family (above). The theme song can be listened to here Nusantara sehat Kebas Malaria

Keluarga Bebas Malaria (Malaria Free Families)[34] is an initiative from the Australian Award alumni in 2017 to increase malaria prevention awareness in West Papua through creating IEC materials and a malaria theme song. The Malaria IEC was shared with 26,200 beneficiaries' families of Program Indonesia Sehat. The theme song was used by Nusantara Sehat health volunteers to educate children.

A puppet show to educate children about health issues, BRIN.

The Puppet Show[35] is an initiative from the National Research and Innovation Agency to educate children about science through a puppet show. Currently, the puppet show is about the influenza pandemic but the content can be customised into other health issues, such as malaria.

[34] Banding Together to Eradicate Malaria in Papua and West Papua (Public release, the Australian Global Alumni 1st April 2019) https://www.globalalumni.gov.au/alumni-stories/banding-together-to-eradicate-malaria-in-papua-and-west-papua

[35] The Puppet Show (BRIN) https://ppiptek.brin.go.id/program/Mjc1Y2E4YzktNTgyNC00ODFmLTkzZjItYjYyYjRjNTgzYTlh

Children learned about malaria prevention using a board game in Burkina Faso.

First Malaria School-based Initiative was piloted in Burkina Faso in 2013.[36] Malaria prevention was part of school curricula. Teachers educated students about malaria prevention and treatment using a board game. At home, the students passed this information to their families and neighbours so everyone could change their behaviours. This initiative has been replicated in Indonesia, in places such as Bengkulu, although the implementation has not been optimal[37].

[36] Malaria Prevention through Games for Children (Press release, DW 26th April 2014) https://www.dw.com/id/cegah-malaria-dengan-mainan-anak-sekolah/a-17591279

[37] Novrinda et.al, "Partnership between Puskesmas and School for Malaria Elimination in Bengkulu". Jurnal Promosi Kesehatan Indonesia, vol. 15, no. 1, pp. 9-15, Mar. 2022. https://doi.org/10.14710/jpki.15.1.9-15

Empatika will develop and test malaria communication strategy in pilot districts. To ensure successful piloting, there are some gaps in understanding the enabling environment and how this can operate to support behaviour change:

- Who supports communities to develop and share their own contextual IEC materials?
- Existing PLA and BCC training for health workers and malaria cadres might provide information about the approaches. Are there sufficient practical facilitation skills? BCC training should not only be about improving interpersonal skills and creating IEC materials, but also how to facilitate ideation and iteration. Should PLA or BCC training be strengthened through field mentoring to track progress and evaluation?
- There is no existing funds for malaria cadres to innovate beyond the drop-down activities menu that is directed by *dinas kesehatan*.The only option appears to be to prepare funding proposals and to connect with local resources such as *Dana Desa* and private sector funds. Can this be simplified to enable local initiatives to be supported more easily?
- Support from the sub-national government and private sector for the malaria elimination programme is voluntary and not constant. For example, Mimika district government made no contribution to the malaria control programme in 2021[38] amid support from the Global Fund and the central government. Malaria Centres have to be able to bring together stakeholders to ensure constant and adequate resources to achieve behavioural change for malaria elimination in their districts.
- Can there be a forum to exchange lessons learned and reflection between malaria cadres?
- Support for tracking progress, measuring effectiveness and scaling up BCC initiatives is unclear. How can this be improved?

3. REVIEW OF EXISTING IEC MATERIALS

3.1 Review of materials for public

This section provides a review of existing IEC materials produced by the Ministry of Health since 2017. The review includes identifying the intended target behaviour, assessing the clarity of the message, and evaluating how the design choices influence the material's presentation and readability. The IEC materials reviewed were provided to Empatika by UNICEF but are also available on the internet (including YouTube for videos) as well as found on the Ministry of Health's official website. All reviewed materials are targeted at the general audience.

[36] Malaria Prevention through Games for Children (Press release, DW 26th April 2014) https://www.dw.com/id/cegah-malaria-dengan-mainan-anak-sekolah/a-17591279

[37] Novrinda et.al, "Partnership between Puskesmas and School for Malaria Elimination in Bengkulu". Jurnal Promosi Kesehatan Indonesia, vol. 15, no. 1, pp. 9-15, Mar. 2022. https://doi.org/10.14710/jpki.15.1.9-15

[38] High Endemic Area with Zero Sub-national Funding (Press release, Timika Bisnis 20th April 2022) ttps://www.timikabisnis.com/kasus-malaria-tinggi-di-mimika-dukungan-anggaran-rp0/

Leaflet

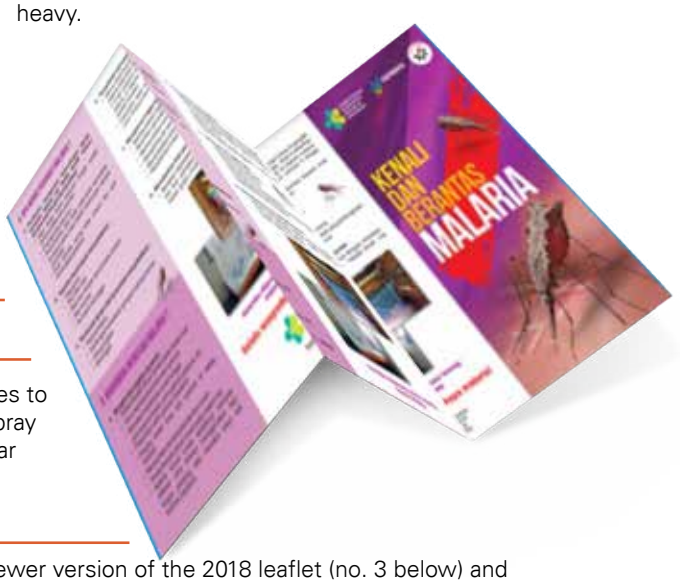
Title:
Kelambu Anti Nyamuk (Anti-mosquito Bed Net)

Year & Source:
2020 (Internal Document)

Targeted Behaviour:
To use insecticide treated bed nets correctly

Observations:
Content: The leaflet provides information about bed nets. The content is easy to follow and complemented with relevant visuals. While the content prescribes practical actions, it is unlikely to motivate people to adopt the targeted behaviours.

Design: The text in the first part of the leaflet is easy to read. However, the design used in parts of the second half of the leaflet make it difficult to read, e.g. dark background and use of purple font on purple background. The leaflet is also text heavy.



Title:
Kenali dan Berantas Malaria (Identify and Eradicate Malaria)

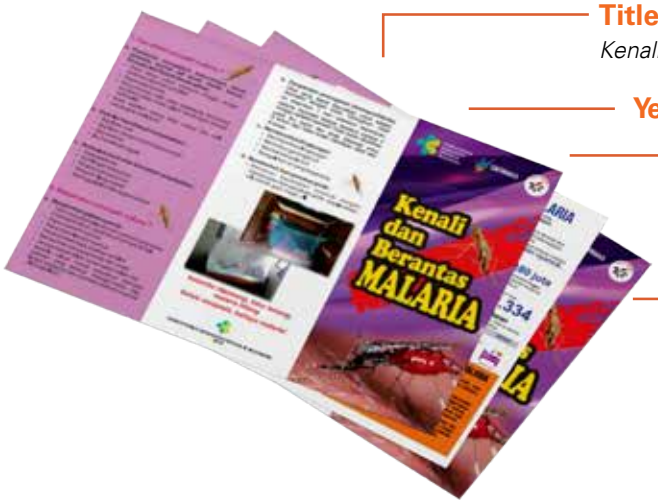
Year & Source: 2020 (Internal Document)

Targeted Behaviour:
Identify malaria symptoms, get timely treatment, and take measures to prevent malaria e.g. avoid going outdoors at night, use bed nets, spray insecticide indoors, apply repellent creams, install net screens, wear long sleeves, and keep cattle pen away from the house

Observations:
Content: The leaflet provides information about malaria. This is a newer version of the 2018 leaflet (no. 3 below) and comparatively easier to read.

It is packed with information. The use of bullet points make it easier to read but the length might demotivate some readers and make the information challenging to remember.

Design: The second half of the leaflet provides practical infographics but too closely packed together which does not make it easy to follow.



Title:
Kenali dan Berantas Malaria (Identify and Eradicate Malaria)

Year & Source: 2018 (Internal Document)

Targeted Behaviour:
Awareness of malaria symptoms, get timely treatment, take measures to prevent malaria e.g. sleep under a bed net that can last 2-5 years (can be washed up to 20 times), use repellent, etc.

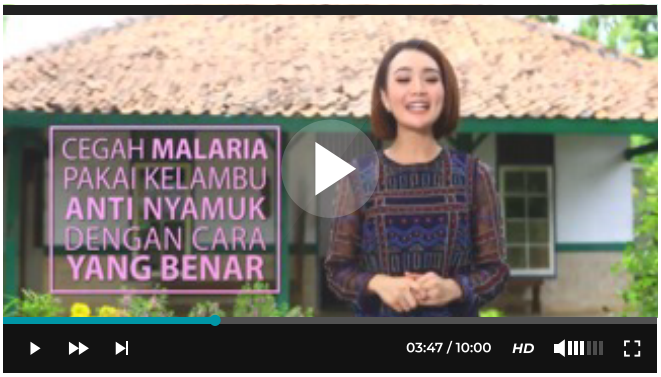
Observations:
Content: The leaflet provides information about malaria. While the information includes practical steps for malaria control, it is too packed and readers might not retain the information provided in the long term. The leaflet also includes technical terms such as 'plasmodium'.

Design: In some pages, the colour composition made it challenging to read. For instance, the use of dark purple font on a light purple background.

Video

Title:

Iklan Layanan Masyarakat untuk Penyakit Malaria (Public Service Announcement for Malaria)
Duration: 30 seconds



Year & Source: 2017 (Internal)

Targeted Behaviour:

To use insecticide treated bed nets correctly

Observations:

Content: The video has a simple and direct objective. Given its single message, it is easy to remember. It has an entertainment element at the beginning of the video with the portrayal of a badly installed bed net.

Design: Some of the texts included in the video were not easy to read due to the font colour chosen and since they alternate quickly. The song at the end of the video might possibly distract from the message.

Year & Source: n/a (Internal)

Targeted Behaviour:

Take measures to prevent malaria e.g. use bed nets when sleeping, install net screens,ensure that water flows freely, spread larvae-eating fishes, grow mosquito repellent plants, use long sleeves and mosquito repellent cream when leaving the house at nighttime and visit the Puskesmas in case of fever during or after visiting malaria-prone areas

Observations:

Content: The video shares ways to prevent the spread of malaria. It presents information clearly and briefly, which makes it easier to remember. However, there are too many messages related to malaria prevention squeezed into a 30 sec video which could possibly distract viewers.

Design: The video has both audio and text, the latter providing a synopsis of the audio playing. It is not easy to follow the text as it appears very briefly on screen.

Title:

Iklan Layanan Masyarakat untuk Penyakit Malaria
(Public Service Announcement for Malaria)
Duration: 30 seconds

Banner and Backdrop

Title:
Hari Malaria Sedunia (Commemoration of World Malaria Day)

Year & Source: 2022 (Internal)

Targeted Behaviour:
To remember about the goal to eliminate malaria

Observations:
Content: The banner and backdrop are for the Commemoration of World Malaria Day and include a slogan - Ciptakan Inovasi, Capai Eliminasi, Wujudkan Indonesia Bebas Malaria (Develop Innovations, Reach Elimination, Realise a malaria-free Indonesia)

It serves to remind people about World Malaria Day and the goal to eliminate malaria. It does not provide information beyond this.

Design: The banner and backdrop have an eye-catching colour composition. However, both are packed with graphics which do not have relevance to the message of malaria elimination.

Title:
Fakta Malaria (Malaria Facts)

Year & Source: 2022 (Internal)

Targeted Behaviour:
Awareness of malaria, malaria symptoms and steps to prevent malaria when staying in an endemic area e.g. use a bed net, avoid going out at night and if not possible, use long bright-colour sleeves, and mosquito repellent cream.

Observations:
Content: The roll banner provides a combination of facts, malaria symptoms, and ways to prevent malaria. While there is plenty of information, there is no clear takeaway message and might be challenging to remember all the information provided. The content mentions targeted behaviours, but does not particularly motivate the adoption of targeted behaviours. The content also includes technical terms such as 'plasmodium' and 'endemis', that ordinary people might not necessarily understand.

Design: The multiple bright colours and use of visuals can be useful to gain attention.

3.2 Review of guidelines for healthcare professionals

Empatika reviewed two guidelines for malaria case management intended for healthcare professionals, with particular focus on communication with patients.

1. **Handbook of Malaria Case Management for Healthcare Professionals** (*Buku Saku Tatalaksana Kasus Malaria*), published jointly by the Ministry of Health, Indonesian Medical Association and WHO Indonesia in 2020. The handbook provides information on the diagnosis of malaria, malaria treatment and case monitoring for healthcare professionals. The handbook does not have any information related to communication about malaria or guidelines on communicating with patients.
2. **Guidelines for Malaria Cadres for Fieldwork in Special Situation Areas, 2020** (*Panduan Lapangan Bagi Kader Malaria Di Daerah Situasi Khusus)*, published by Ministry of Health under the Public Health Communication Campaign (GERMAS, *Gerakan Masyarakat Hidup Sehat*). The document includes a section on behaviour change communication which includes simple guidelines for cadres on how to introduce themselves, have considerate and polite interactions with patients and members of the household, and how to deliver malaria messages (mainly reminders about using bed nets, repellents and completing malaria medications).

3.3 Review of current draft Communications Strategy

In 2021, MoH drafted a communication strategy "Draft Behaviour Change Communications Strategy to Accelerate Elimination of Malaria by 2030". Building on the previous sections in this review, particularly Empatika's research findings, we reflected on some gaps in the current draft strategy as presented below.

There is a need to clearly define the intended audience. This will help the communication strategy to be more specific in addressing people's behaviour, especially where challenges continue to persist in high endemic areas.

The current draft strategy seems to encourage **a top-down approach with an emphasis on regulation and provision of information and resources, rather than community-based approach.** The strategy is based on the 3Es model comprising three interconnected elements of education, enforcement and engineering, which was typically used as a model for injury prevention (especially in relation to road safety).[39] The 3Es model typically provides a framework for external intervention only and does not consider determinants that influence people's behaviour (motivation, capability, opportunity, hindering factors such as local values, beliefs and social norms).

The draft strategy highlights **some key behaviours that hinder progress in malaria elimination, but has yet to propose new ways of addressing these issues.** For example, the document identifies that people normalise malaria thereby diminishing perceived risk, do not see malaria as a community problem, have limited knowledge of transmission, prevention measures, timely treatment

[39] As far as our research is concerned this model has not been used for malaria prevention and does not seem to be appropriate.

and the need to complete courses of treatment. However, the approaches recommended are limited to campaigns, socialisation events and local regulations.

The main focus of the strategy is on provision of information to encourage positive behaviours through what is referred to as providing *'sosialisasi informasi melalui berbagai saluran komunikasi'* (information dissemination through various channels). This is to be achieved by formulating messages which emphasise on generating emotions to affect behaviour change especially using fear and worry e.g. saying that people who do not complete their treatment will harm pregnant women, unborn foetuses and young children. However, these recommended messages are not supported by evidence of their effectiveness. Suggested channels for these messages are also limited to mass media (mostly emphasising TV) and use of information education communication (IEC) materials such as posters, banners, factsheets, powerpoints, videos, flash cards at socialisation events (existing or specially organised group events).

Although the phrase **'interpersonal communication' (IPC)** is advised as an important approach, the interpretation **is limited to group events where dialogue may be facilitated.** IPC has a wider interpretation and should also include other activities to reinforce the messages such as through one-on-one counselling, formation of support groups and peer exchanges.

There is a need to adapt a multi-pronged iterative approach. The current strategy focuses on IPC through contextualising and disseminating messages. However, systematic review of malaria behaviour changes programmes indicates that while IPC works best among all other communication approaches, it needs to be through multiple approaches and iterative.[40] It is well known that increasing knowledge does not automatically lead to enhanced behaviour change. Behaviour change is a process which requires development of small do-able steps for change which are introduced step by step and which are context-relevant.

Monitoring and Evaluation of the communication strategy needs to be strengthened. This may include a) clarifying the indicators of change and appropriateness of these; b) differentiating and defining the indicators at activity, output (results) and outcome (how behaviour has been changed); c) adding a guidance on who is responsible for collecting the data and how the data will be analysed and used for improving programming; and d) adding a guidance for performance monitoring.

3.4 Key insights from the International SBCC Summit 2022

The International SBCC Summit, held between 5-9 December 2022 in Marrakech, Morocco, was attended by nearly 1,800 practitioners, researchers, donors and communicators from around the world. The Summit covered the following themes:

- Catalyzing transformational change on agendas of urgency (climate crisis, gender equity, health and wealth disparities, global inequality) exploring interconnected areas of:
  - Expanding the boundaries of SBCC through multisectoral engagement and a focus on structural determinants
  - Harnessing SBCC for social justice
  - Nurturing new voices for change and social movements

- Future forward, which explored:
  - How digital media is transforming SBC
  - Issues around misinformation and disinformation
  - The future of the field

- Connecting the dots, covering interdisciplinary dialogue and collaboration, skills sharing and capacity strengthening for SBCC, creative collective action across different sectors, geographies, disciplines, stakeholder groups and generations (adults and youth), engaging non-traditional players/sectors.

Cross cutting across the different themes of the Summit was the need for people-centred SBCC approaches that are informed by evidence and voice and participation of communities when developing and implementing programmes. Presenters and panellists noted the necessity of direct collaboration with communities in order for interventions to be meaningful and relevant for them. Recognising that disease prevention interventions were largely incomplete without SBCC approaches, Dr. L. Arlette Saavedra Romero of the Ministry of Health in Mexico noted that ***'We have to do action by knowing and listening to the community and from the community, and not at your desk'.*** Likewise, Dr. Speciose Hakizimana, UNICEF's representative in Morocco noted that ***'acceleration toward the Sustainable Development Goals will only be possible when people-centered approaches are informed by evidence, voice and participation of the communities we serve'.***

4. EXAMPLES OF TESTED COMMUNITY-LED APPROACHES

Research by The Health Communication Capacity Collaborative (2017)[41] noted that focusing on specific key behaviours and providing communities with specific actionable steps is more effective than focusing on risk perception through messages and campaigns. Supported by UNICEF Indonesia, Empatika facilitated action research in early 2021 in four different communities with the intention to demonstrate that community-led approaches to social and behaviour change concerning malaria prevention and treatment have potential for wider application.

Importantly, insights from Empatika's formative research indicated that people no longer perceive risk from malaria, partly because it is accepted as a normal part of life, symptoms are played down, recent experience with newer medications have led people to see it as treatable and there has been less personal experience of fatal outcomes. This finding further endorses the need for community-led approaches which focus on specific behaviours such as completing medication and early testing. Community-led efforts have been shown to resonate better with the target audience and influence attitudes and practices within the community as a whole.

The Empatika people-driven design (PDD) process focused on **four key behaviours** which were thought to be amenable to change and which were likely to make a significant difference to malaria elimination if addressed. Two of the challenges resulted in new **communication products** (i.e. malaria medication packaging and locally designed and produced posters with 'call to action'). Two of the challenges resulted in **process approaches**; teen-led drama-based awareness programme and

[41] The Health Communication Capacity Collaborative(HC3). (2017). Malaria SBCC Evidence Literature Review. Baltimore, Maryland: Johns Hopkins Center for Communication Programs.

community/*puskesmas* collaboration. The community/*puskesmas* collaboration process approach was the most difficult to facilitate and will be challenging to maintain but lessons learned may make application of a similar approach elsewhere more effective.

Communication products

Challenge #1: The first challenge was how to create a community-based system to support and ensure those diagnosed with malaria **complete their prescribed medication.**[42]

Working with malaria cadres, a visual demonstration was developed of what it means to take a complete course of medication using a 'magic disappearing colour experiment' and design of patient specific point of service packaging was also developed and trialled. The colour experiment helped patients to understand that even if they feel better, they may still have enough malaria plasmodium to infect others. The easily customized low-cost packaging sheath enabled personalization of the treatment which enhanced motivation to complete the full course of medication. Cadres also developed pictorial materials which answered specific questions they knew their patients frequently have.

Challenge #2 led the community to recognise themselves that they **do not pay attention to most messages transmitted through traditional media such as posters and leaflets.** They developed a hard hitting simple message which works for their cultural context. Importantly, the action research community participants noted key elements of effective graphic-based communications materials were that they needed to (i) 'speak directly to them' (requiring localisation and inserting real photographs rather than drawings/ cartoons), (ii) be clear and forceful, (iii) be a resource which was primarily household-focused and providing a means for the household/family's identification with good practice (i.e. households display the poster and be part of the movement). Importantly, the strident message also needed to (iv) be associated with information which enabled immediate action i.e. the full details of the nearest/most efficient testing services

Process approach

Challenge #3 demonstrates the appropriateness of **involving teens directly in knowledge awareness activities.** They demonstrated motivation without extrinsic rewards as well as the capacity to design and implement their own programme, in this case drama-based communication. The success of this trial suggests that a teachers/youth leaders' guide to supporting youth action of this kind could be produced to enable teens in other areas to undertake their own local research and devise the most appropriate form for communicating messages within their context.

Challenge #4: This challenge was **to build community collaboration and engagement** in line with the recognition by WHO that community engagement is crucial to elimination of malaria. The intention was to build collaboration between sub-villages and between the puskesmas and the community. This approach was extremely challenging and needed local leadership and supportive mentorship from outside the community (but within the health service structure) to maintain enthusiasm to continue preventive measures. Although lessons were learned and these can be shared, the whole community approach proved less do-able than other approaches.

[42] Up to 60% of people do not finish the full course of malaria drugs (Banek et al. 2014).

These community-led initiatives have demonstrated what is possible to achieve and what kind of support is needed to initiate, maintain and spread these as well as how communities can monitor resultant SBC. Case studies describing these and the lessons learned for wider application of similar approaches will be included in the new Communications.

This desk review has identified several themes that will feed into the next phase of updating the malaria communication strategy. The first section reviews key behaviours that are crucial to malaria elimination both from existing literature and findings from Empatika's formative research. It also looks at the increasing attention to human behaviours in malaria elimination efforts in Indonesia. The following section focuses on enabling environment related to resources allocation for the National Malaria Control Programme. This provides a basis to assess the implications on resource mobilisation needed to support behaviour change. The last section then reviews existing IEC materials and the draft communication strategy developed by MoH. Drawing on the previous sections, some gaps have been identified from the draft strategy.

Based on this desk review, updating the malaria communication strategy will likely include the following:

- Improved clarity on the purpose of the strategy, intended audience, and use.
- Basing the strategy on more contemporary and appropriate SBC model(s) of behaviour change (e.g., COM-B model and socio-ecological model).
- Acknowledgement that behaviour change is complex and requires recognition of multiple factors beyond awareness/knowledge or information provision.
- Recognition that communication for behaviour change is a process rather than one-off activities supported by communication products. The strategy, therefore, needs to make it clear that the process needs to be contextually-specific, relevant to communities in different locations with different livelihoods, and cognisant of local social norms and beliefs. Specifically, it needs to provide a framework for implementers of the strategy to identify local priorities and co-design communication strategies focusing on small do-able behaviours.
- Emphasis on the importance of empowering communities, households and individuals to take ownership of the challenges and developing their own ideas for affecting behaviour change.
- Importance of providing an enabling environment with supportive policies and practices, resources, and needed supply-side assets (testing kits, bednets, well-staffed health centres etc). This should also include the need for performance monitoring and incentives for frontline health staff and others involved as 'secondary audience'.
- Inclusion of short illustrative case studies from pilots of communication approaches undertaken in Indonesia (together with photos/pictures) to inspire alternative ways to interpret the strategy.

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