
Country experiences of subnational verification of malaria elimination

Roundtable meeting report, 14 March 2024

1. Introduction

Since 2000, 17 countries have received certification of malaria elimination from the World Health Organization (WHO) while nine more have achieved three or more years without an indigenous case of malaria. In 2015, the WHO *Global technical strategy for malaria 2016–2030* was published and urged all countries with malaria, no matter where they were located on the transmission continuum, to accelerate progress towards elimination (1). Many countries with heterogeneous levels of malaria transmission took up this challenge by working towards subnational elimination in lower transmission areas. WHO encourages this approach and promotes subnational verification of elimination to incentivize the achievement and maintenance of malaria-free zones as part of a country's malaria elimination strategy.

Subnational verification is led by national authorities although the criteria that are established are similar to WHO's requirements for country-wide certification, including proof that transmission of malaria has been interrupted and of a programme to prevent re-establishment of transmission. Countries establish committees to review subnational dossiers and determine whether criteria for elimination have been met. Verification committees may be comprised of only national experts or they may also include international experts to introduce objectivity to the process. The amount of detail provided by subnational elimination dossiers differs by country, with some requiring minimal documentation and others requesting a more rigorous evaluation that could form part of the eventual national elimination dossier.

As more countries progress towards elimination, interest in subnational verification is growing. Subnational verification can play a critical role in adding to the motivation for elimination, while also helping prepare countries for the national certification process. Opportunities to share lessons learned and discuss challenges related to subnational verification are increasingly important as more countries approach elimination.

A virtual roundtable hosted by PATH and co-sponsored by the WHO Global Malaria Programme (GMP) and the Pan American Health Organization's (PAHO) malaria

programmes titled “Country experiences of subnational verification of malaria elimination” was held on 14 March 2024. The event provided a forum for key stakeholders – including representatives from Brazil’s Amapá State Health Surveillance Agency, China’s National Committee for Malaria Elimination, Indonesia’s Independent Committee on Malaria Elimination Assessment, South Africa’s National Malaria Programme, WHO and PAHO – to discuss important topics related to subnational verification of malaria elimination.

The objectives of this roundtable were to:

1. provide countries with extensive experience with subnational verification the opportunity to share their approaches, findings and lessons learned with their counterparts in countries planning for or considering subnational verification;
2. provide countries planning for subnational verification the opportunity to discuss their questions, concerns, and anticipated challenges and opportunities with their counterparts in experienced countries as well as WHO and PAHO;
3. provide a venue for the WHO and PAHO malaria programmes to highlight the role that subnational verification could play in helping to provide motivation for elimination and in preparing documentation relevant for the national certification process.

Following a discussion with Dr Li Xiaohong from WHO GMP on the role that subnational verification may play in the elimination certification process, three panel discussions were held, each centered on a key topic related to subnational verification of malaria elimination: building political will for malaria elimination through subnational verification; incentivizing and maintaining malaria-free status; and challenges, concerns, and special considerations for the implementation of subnational verification.

This report provides a summary of the roundtable and key points highlighted during the discussion.

2. WHO intervention: Subnational verification and the role it may play in helping countries prepare for certification

Dr Li Xiaohong, Technical Officer, WHO GMP Elimination Unit, Switzerland

Subnational verification is the process used to validate and recognize elimination of malaria in one or more subnational areas of a country. The criteria for subnational verification are recommended to be similar to those WHO uses for certification of elimination at the national level – interruption of local transmission of malaria resulting in zero indigenous cases for the past three consecutive years and a functioning programme to prevent re-establishment of transmission. Unlike certification of malaria elimination at the national level, which is granted by WHO, subnational verification is a process owned and overseen by the country’s ministry of health (2,3).

Undergoing subnational verification can help countries prepare for certification of malaria elimination. Certification of malaria elimination requires countries to submit a dossier of high-quality data and evidence of not just a country’s malaria status, but also overall performance of the health system, competence and knowledge of malaria staff and health workers, and supporting functions including financial and human resources, sustainability, and multisectoral collaboration. Subnational verification can facilitate the consolidation of necessary information for certification, region by region.

Interruption of transmission nationwide often requires efforts of several generations and takes decades to achieve. Subnational verification can provide measurable and achievable milestones for tracking progress and will help maintain the momentum towards national elimination. In addition, the process of subnational verification necessitates organization, preservation and verification of documents and surveillance data. In addition to preparing evidence for subnational verification, this will also contribute to eventual national certification.

3. Building political will for elimination through subnational verification

Key takeaways

- Subnational verification is a useful tool for building political will for elimination in places with significant political decentralization and heterogeneity in transmission.
- Subnational verification helps incorporate malaria elimination into existing development plans of both national and subnational governments.
- Engaging subnational political leadership in developing plans to achieve subnational elimination and recognizing successes can help build ownership of elimination efforts at the subnational level.
- Support to the ministries of health throughout the subnational verification process is necessary to mitigate any systemic and structural bottlenecks that are slowing progress in the malaria elimination agenda.

3.1 Status of subnational verification in Brazil, China, Indonesia and South Africa

Before the panel discussions, panellists described the status of subnational verification of malaria elimination in their countries and of their current level of experience with the process to provide context for the discussion.

Dr Cassio Roberto Leonel Peterka, Managing Director of the Health Surveillance Agency of Amapá State (Diretor Presidente da Superintendencia de Vigilancia em Saude), Brazil

The intensity of malaria transmission varies considerably throughout Brazil. Currently, transmission occurs only in the Amazon basin, which encompasses nine states and 880 municipalities. Out of these municipalities, only 300 experience local transmission. Brazil's Ministry of Health is planning to implement subnational verification as a strategy to accelerate progress towards elimination in areas with local transmission. Additionally, Brazil is planning to use subnational verification in areas where malaria transmission has been eliminated as a strategy to generate additional political will to strengthen surveillance and prevent re-establishment of malaria.

Given the sheer size, diversity and complexity of Brazil's malaria problem, the Ministry of Health has established a technical advisory group within the scope of the National Malaria Programme that represents not only the scientific community but also the malaria-affected states and municipalities. The advisory group has a specific role in supervising the elimination of malaria. The new head of Brazil's malaria programme is considering creating a subcommittee tasked with managing subnational verification activities.

Professor Gao Qi, Chair of the National Committee for Malaria, China

China underwent two rounds of subnational verification, after which it received WHO certification of malaria elimination in 2021. National preparation for certification started when the Ministry of Health launched the National Malaria Elimination Action Plan in 2010.

Overall, the subnational verification process in China helped to improve the strength of evidence to support claims of malaria elimination and the adequacy of the programme to prevent re-establishment. The process helped to mobilize subnational authorities and staff to organize the dossier and the necessary documents for certification. The subnational verification process improved the quality of surveillance data in the malaria database, the quality of other data and information in the dossiers and the quality of implementation of malaria interventions. Professor Gao noted that the subnational verification process should have started earlier in China because some provinces had already achieved elimination prior to the launch of the National Malaria Elimination Action Plan in 2010, and preparing the documentation in these provinces was challenging due to difficulties in collecting the necessary information.

Dr Ferdinand Laihad, Head of the Independent Committee on Malaria Elimination Assessment, Indonesia

In Indonesia, subnational verification is an ongoing effort at the district and provincial level. Since the verification of the first malaria-free district in 2013, more than 75% of districts in Indonesia have been verified malaria-free. Indonesia follows the WHO criteria of malaria elimination and has additional criteria that districts and provinces must meet before being certified malaria-free. Indonesia is targeting national elimination of malaria by 2030.

Dr Ednah Baloyi, National Malaria Programme Manager, South Africa

South Africa is targeting elimination of malaria by 2025; however, local transmission remains in three provinces of the country. To address the remaining areas of local transmission, the South Africa National Malaria Programme decided in 2022 to pilot the WHO Malaria Elimination Audit Tool (MEAT) to function as a checklist for malaria-affected provinces, specifically Mpumalanga, Limpopo and KwaZulu Natal, as part of a subnational verification effort. The National Malaria Programme found that the checklist provided a process to strengthen data collection and surveillance mechanisms in preparation for elimination. Following lessons learned from piloting the WHO tool, the MOH has decided to emphasize subnational verification in the new national strategic plan.

3.2 Subnational verification as a strategy to build political will in countries to achieve elimination

Dr Roberto Montoya, PAHO Regional Malaria Advisor, provided insights on how subnational verification could help build political will in the region to achieve malaria elimination. As an example, he highlighted the countries in the Amazon basin, which bears the largest burden of malaria in the Americas.

Most countries in this region are politically decentralized, with financial, strategic and technical decision-making occurring at the subnational level. Subnational verification empowers subnational authorities to take responsibility for malaria elimination in their area and to maintain those achievements by establishing systems to prevent re-establishment. In countries with important heterogeneity of malaria transmission, achievement of subnational verification in one area can have a catalytic effect on other regions, motivating them to achieve a similar status.

3.3 Subnational verification as a means to engaging political leaders at the subnational administrative level: Insights from China and Indonesia

Professor Gao indicated that subnational verification was well received by both politicians and technical malaria staff in China. Thirteen ministers at the national level first signed the National Malaria Elimination Action Plan. All provinces, prefectures, and counties were also required to launch their own elimination plans, and each subnational authority was required to sign a subnational elimination action plan to ensure political accountability of governmental authorities across all levels.

Subnational verification in China was designed to include two parts: the first considered specific technical issues related to malaria elimination in China and engaged only technical malaria staff; the second addressed administrative issues related to elimination and engaged administrative authorities and programme managers providing expertise on areas including building and maintaining political support for elimination, human and financial resources, and multisectoral collaboration.

Engagement of multiple governmental departments ensured a multisectoral approach to elimination, while inclusion of administrative authorities across government levels helped ensure that subnational elimination efforts leveraged political support and human and financial resources across the spectrum of China's society.

3.4 Building and sustaining political will for subnational verification and elimination of malaria

Panellists shared their experiences building political will for subnational verification of malaria, including challenges faced and strategies employed to sustain high levels of enthusiasm among political leadership at national and subnational levels.

In Indonesia, malaria elimination was incorporated into the National Medium Term Development Plan, which included several indicators to measure the health performance of the country. The number of districts that achieved malaria elimination was included as one of these indicators, raising the profile of the malaria elimination efforts, improving transparency and accountability, and tracking progress.

Dr Laihad explained that by linking the success of subnational malaria elimination efforts to Indonesia's overall health performance, government representatives and stakeholders at the national, provincial, and district level were motivated to pursue malaria elimination as part of the success of the overall country's development.

Once elimination was achieved and verified at the subnational levels, certificates were presented to the mayor, head of district, or governor by the Minister of Health during World Malaria Day celebrations, reinforcing accountability by providing public recognition of success across all levels.

Political will for elimination has historically been robust in South Africa, with approximately 85% of the National Strategic Plan funded by the Government of South Africa rather than external funding. According to Dr Baloyi, such strong political will for malaria elimination activities in South Africa has largely been enabled by continuous engagement between the National Malaria Programme, the Minister of Health, the Deputy Minister of Health, and political leaders at the provincial level.

Additionally, South Africa has established a ministerial-level Malaria Elimination Committee, which meets with the National Malaria Programme on a biannual basis to discuss progress towards key impact indicators and challenges faced during implementation of activities. The committee conveys points discussed in these meetings with the ministers and deputy ministers, ensuring a regular channel for engaging political leaders.

One issue raised during the discussion was how to maintain political will for elimination – particularly once low transmission and malaria burden have been achieved – in the face of many competing health priorities. Dr Peterka shared how competing health problems in Brazil, such as increases in the incidence of dengue, are a challenge to generating and maintaining political will for malaria elimination. To address this challenge, the Health Surveillance Agency of Amapá State is collaborating with the Ministry of Health and authorities in the states and municipalities to break down vertical siloes and support an integrated vector control strategy to combat both arboviral diseases and malaria together.

4. Incentivizing and maintaining malaria-free status at subnational levels

Key takeaways

- In addition to creating political incentives for achieving subnational verification of malaria elimination, other economic factors could serve as powerful incentives, such as the value of malaria-free status for promoting tourism.
- It is important to avoid inadvertently disincentivizing subnational malaria elimination efforts by reducing funding upon verification and withdrawing important malaria elimination activities. Activation and funding of a plan to prevent re-establishment that includes strengthened surveillance and tailored activities to reduce the threat from importation of malaria could help maintain incentives for subnational verification and prevent loss of malaria-free status.

4.1 Incentivizing malaria elimination at the subnational level

Dr Laihad shared that a significant incentive for districts in Indonesia to push for verification of elimination was the value of a malaria-free status for promoting tourism and development, both of which are of great economic importance to Indonesia. After a team of experts travelled to districts to investigate and verify their malaria-free status, local leadership could publicize their malaria-free status in the media, strengthening efforts to market their area as tourist destination.

One concern raised during the roundtable was that subnational leadership may be disincentivized to achieve subnational verification of malaria elimination if it means a reduction in funding when malaria elimination activities ended. Dr Laihad shared that this was not his experience in Indonesia, as the Ministry of Home Affairs issued a decision regarding malaria nomenclature in regional development and financial planning, meaning districts that are verified malaria-free continue to receive funding for surveillance to prevent re-establishment of malaria.

Similarly, Professor Gao noted that the subnational malaria programmes in China did not experience drastic reductions in funding after subnational elimination was achieved, as the Ministry of Health and Ministry of Finance are open to support the activities proposed by the malaria programmes so long as they can provide reasonable justifications. Activities shifted from reducing indigenous cases during elimination to prevention of re-establishment of malaria after elimination. To ensure the programme to prevent re-establishment is adequate and effective, two official documents were developed: the Administrative Measures for Prevention of Re-establishment, signed by the national government was to ensure political buy-in and logistic support for the malaria activities post-elimination; and the Technical Scheme for Prevention of Re-establishment, signed by the Chinese Center for Diseases Control and Prevention, to provide technical strategies and guidance.

Dr Peterka noted that municipalities with high malaria burdens in Brazil receive funding for malaria control and prevention activities, but malaria-free municipalities at risk of re-establishment may not have resources to fund activities. As a result, the parasite might be re-introduced in these municipalities and set back national malaria elimination efforts.

Dr Peterka suggested that epidemiological, entomological and political criteria could be established to optimize a municipality's ability to respond to outbreaks that threaten to develop into sustained transmission. Municipality budgets could then be tied to those criteria such that malaria funding for a municipality would depend on meeting a certain percentage of the predetermined criteria. This would incentivize and properly resource municipalities to prevent loss of their malaria-free status.

4.2 Preventing re-establishment of malaria in areas verified to be malaria-free

After subnational verification was established in China, the plan to prevent reestablishment, including identification of specific resources for surveillance, especially of malaria vectors and ensuring the proper response capacity, was viewed as critical to maintaining a malaria-free status. Following subnational verification of malaria elimination in Jiangsu Province, large numbers of imported cases – up to one thousand cases reported annually – posed a risk of reintroduction of malaria to the province. To prevent imported cases from sparking local transmission, Jiangsu Province invested in strengthening surveillance and response capacity.

5. Challenges, concerns and special considerations for subnational verification

Key takeaways

- Cross-border collaboration and coordination – both internationally and subnationally – are important for preventing the re-establishment of malaria.
- Tailored strategies are necessary to detect malaria cases among hard-to-reach and mobile communities to prevent the flow of malaria into areas with few or zero malaria cases.

5.1 Special considerations for subnational verification in areas with potential for cross-border or regional transmission

Brazil and South Africa shared lessons learned regarding the importance of coordination across borders, both between and within countries, to advance and maintain subnational elimination of malaria.

Given its high-level of regional and cross-border malaria transmission, South Africa is focused on harnessing the relationship built with neighbouring countries under the Southern Africa Development Community Malaria Elimination Initiative and the Mozambique, South Africa and Eswatini (MOSASWA) initiative to facilitate better country and grassroots collaboration and coordination for subnational verification. Each country provides funds for these activities.

In Brazil, controlling malaria in mobile populations who cross subnational borders – particularly in indigenous areas and gold mining sites – is critical to preventing the spread of malaria spread between Brazil's municipalities and across borders to neighbouring countries. These areas have bottlenecked Brazil's progress in implementing subnational verification over the last two to three years given the unique challenges associated with accessing these populations to deliver malaria interventions and the flow of these populations into and out of areas of low or zero malaria transmission.

5.2 Engaging private sector health providers in subnational verification efforts

In both China and Indonesia, public sector health providers are integral to malaria case detection and treatment, as patients visit both private and public health facilities for their healthcare needs. To get a full picture of the malaria burden within communities, it is critical to gather data from all health facilities – public and private alike.

Dr Laihad shared that Indonesia implemented public-private partnerships to support malaria elimination verification from the national to local levels. Professor Gao indicated that China engages the private sector for support with malaria case detection, diagnosis and treatment with the country's malaria elimination teams.

Conclusion

While the death and disability caused by malaria is the main consideration that continues to motivate the global community to work towards eradication of the disease, each time a country is certified malaria-free by WHO, the achievement is globally celebrated, political leaders are congratulated, healthcare workers feel an enormous sense of accomplishment and the world is reminded that this disease can be defeated. Subnational verification of malaria elimination provides the same sense of satisfaction, achievement and progress to a country that continues to battle malaria on a daily basis. The roundtable participants from Brazil, China, Indonesia and South Africa shared how subnational verification builds up local political will, thereby strengthening a country's commitment to achieving elimination, while also effectively mobilizing the resources of local administrations – including human, financial, political and technical – to add to the country's elimination efforts. The process of subnational verification may also aid the development of the country's elimination dossier, strengthening the evidence base and shortening the time required to prepare for WHO certification.

A future roundtable will explore the tools used by countries to verify that the criteria for subnational verification have been met. Additionally, information on the composition and role of national elimination committees will be explored and the practicalities of running a subnational verification process will be discussed. PATH joins WHO and PAHO in encouraging countries with one or more areas approaching elimination to begin exploring subnational verification as a strategy in their national goal to eliminate malaria.

References

1. Global technical strategy for malaria 2016–2030, 2021 update. Geneva: World Health Organization; 2021 (<https://iris.who.int/handle/10665/342995>).
2. A framework for malaria elimination. Geneva: World Health Organization; 2017 (<https://iris.who.int/handle/10665/254761>).
3. Preparing for certification of malaria elimination, second edition. Geneva: World Health Organization; 2022 (<https://iris.who.int/handle/10665/364535>).

Annex 1. Agenda

Roundtable: Country experiences of subnational verification of malaria elimination		
Time (CET)	Topic	Speakers
13:00	Welcome and roundtable objectives	Tarryn Haslam
13:10	WHO's perspective on subnational verification and the role it may play in helping countries prepare for certification	Li Xiaohong
13:35	Building political will for elimination through subnational verification – how to incorporate decision makers and political leadership	Tara Bracken Davis Roberto Montoya Gao Qi Ferdinand Laihad Ednah Baloyi Cassio Peterka
14:05	Discussion: Incentivizing and maintaining malaria-free status	Kim Lindblade Ferdinand Laihad Gao Qi Cassio Peterka
14:25	Discussion: Challenges, concerns, and special considerations	Tara Bracken Davis Ednah Baloyi Cassio Peterka
14:45	Audience Q&A	Kim Lindblade
14:55	Conclusions and next steps	Kim Lindblade

Annex 2. List of participants

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