



Vitality Insights
in partnership with
Goodbye Malaria

DEC
2024

Uncovering Trends:
The Evolution of Malaria
in Mozambique

Evolution of Malaria in Mozambique



Mozambique stands at the forefront of the global malaria battle, sharing the heaviest burden of cases in 2023 alongside countries like Nigeria, the Democratic Republic of the Congo, Uganda, and Ethiopia (World Health Organisation, 2024). Together, these nations account for more than half of all cases globally, with Nigeria accounting for 25.9%, the Democratic Republic of the Congo 12.6%, Uganda 4.8%, Ethiopia 3.6%, and Mozambique 3.5%. Healthcare visits in Mozambique are significantly influenced by malaria, which places substantial strain on the country's medical infrastructure. The impact is particularly severe among children aged 6 months to 5 years. Despite some reductions in prevalence, rates remain alarmingly high at 32% nationally (Mozambique Ministry of Health, 2024).

In 2023, an estimated 263 million malaria cases were reported globally, with an incidence rate of 60.4 cases per 1,000 individuals at risk. The disease resulted in approximately 597,000 deaths, translating to a mortality rate of 13.7 per 100,000. The WHO African Region remained the most affected, accounting for 94% of global malaria cases that year (World Health Organisation, 2024).

In a significant advancement, the WHO has recently endorsed the new R21 malaria vaccine, which holds the potential to dramatically decrease malaria incidence. This vaccine, in conjunction with a multi-vector interventions strategy, has the potential to eliminate the disease in malaria-endemic countries across the world (World Health Organisation, 2024).

On the ground, Goodbye Malaria is an exemplary Social Benefit Organisation carrying out instrumental malaria work in collaboration with Mozambique's National Malaria Control Programme. Their initiatives focus on malaria prevention through effective multi-vector interventions, including Indoor Residual Spraying, Surveillance, Entomology, and Health Promotions through Information, Education and Communication (IEC) and Social Behavioral Change (SBC), reinforcing the fight against this persistent public health challenge.

100%

(33,635,160 people, UN Mozambique population statistic)

% of the population at high risk

MOZAMBIQUE MALARIA PROFILE 2023

17,875

Estimated deaths

275

Case incidence per 1,000 of the population

9,256,000

Estimated cases per year

3.5%

% of global cases

32.3%

% of children aged <5 years with a positive RDT

Table 1: Mozambique country malaria profile 2023 - latest WHO World Malaria Report December 2024 (World Health Organisation, 2024)

Trends in Malaria Data

ESTIMATED A) MALARIA CASES AND B) DEATHS IN MOZAMBIQUE, 2005 - 2023

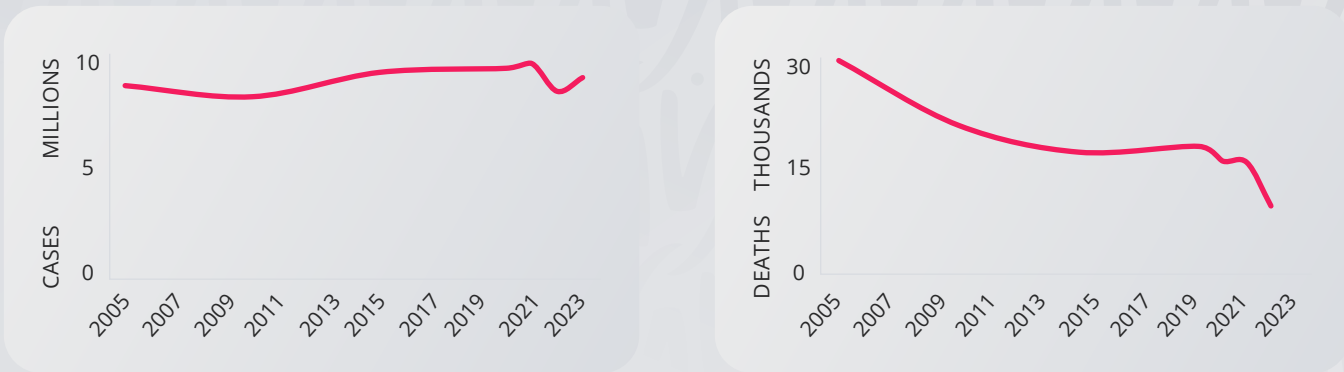


Figure 1: Mozambique estimated malaria cases and deaths (2005 - 2023) (World Health Organisation, 2024)

Since 2005, estimated malaria case incidence in Mozambique has declined from 446 to 275 cases per 1,000 people, marking a 38.27% reduction. Despite this progress, the total number of cases increased from 9,052,556 to 9,256,415, primarily due to population growth. Over the same period, malaria mortality rates improved significantly, decreasing from 158 to 99 deaths per 100,000 – a 37.65% decline. These trends reflect the success of malaria control measures in reducing incidence and mortality rates relative to population growth but emphasise the need for continued efforts to further reduce the disease’s impact. These figures suggest that while interventions have been effective, demographic changes will continue to influence absolute case numbers.

The 2023 data on malaria cases and death incidence in Mozambique underscores the critical importance of sustained interventions to combat this disease. This positive trend highlights the effectiveness of current malaria control measures. Without these interventions, Mozambique was projected to experience a 68% increase in malaria-related deaths over the past two decades (2005 - 2022). Instead, mortality rates have decreased by over 38% since 2005, saving more than 318,886 lives (see Figure 2).

Supporting initiatives and organizations that provide life-saving measures in Mozambique is crucial. These efforts not only reduce the number of malaria cases and deaths but also improve overall public health and economic stability. Continued support and funding for malaria control programs are essential to sustain and build on these achievements, ensuring a healthier future for the people of Mozambique.

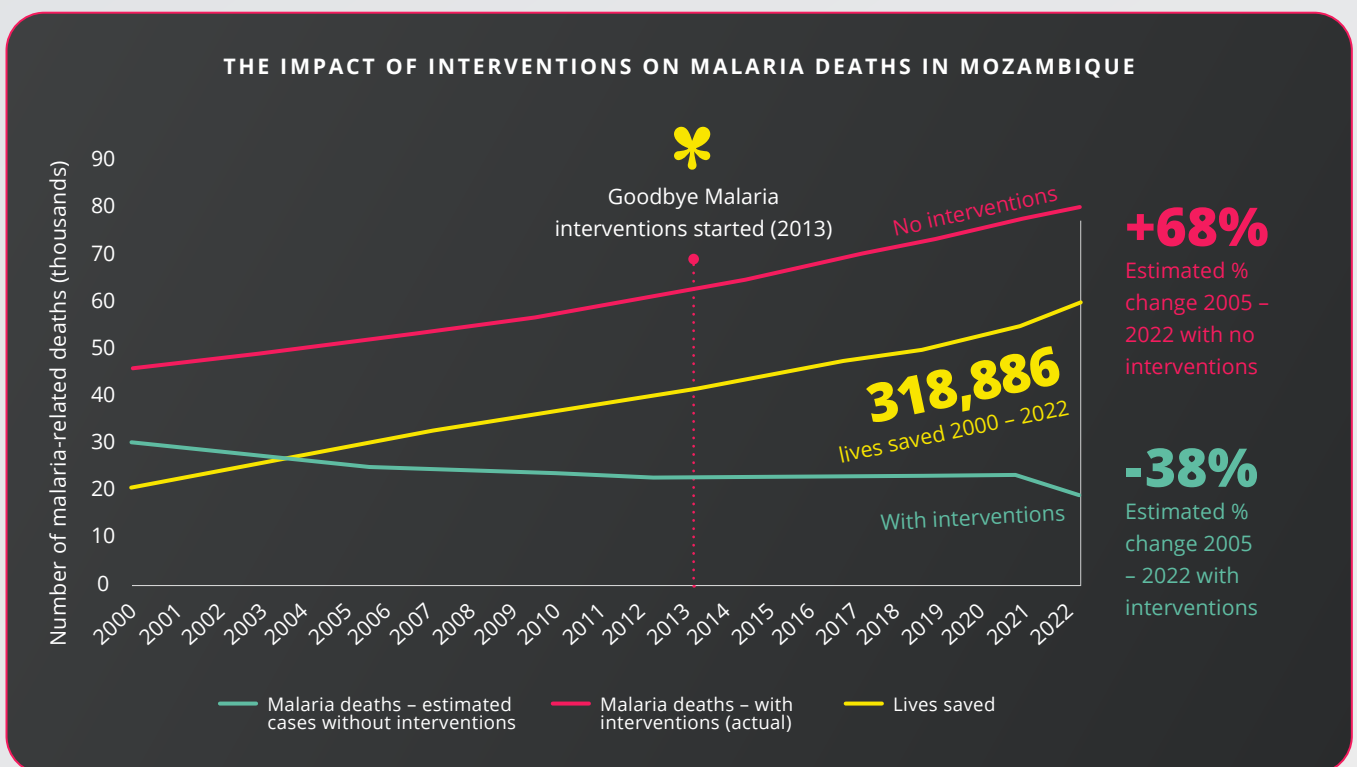


Figure 2: The impact of malaria interventions in the management of malaria cases and deaths in Mozambique (2005 - 2023). Malaria death estimations extracted from WHO 2024 Malaria Release, estimations of lives based on projected assumed deaths without interventions extrapolated from estimations published in the WHO 2023 Malaria Release data (World Health Organisation (WHO), 2023) (World Health Organisation, 2024)

Provincial trends in malaria cases

Analysis of provincial confirmed and reported malaria cases in 2023 indicates an increase in malaria cases across several of Mozambique's provinces.

Notable increases are observed between 2022 and 2023 figures including the provinces of Zambezia (3,748,374 2023 cases, a 16% increase), Sofala (1,467,980 cases 2023, a 2% increase), Niassa (963,887 2023 cases, a 32% increase), Tete (847,111 2023 cases, a 49% increase), and Manica (1,101,546 2023 cases, a 58% increase) (SISMA, District Health Information System 2, 2024).

These increases can be attributed to several factors, including enhanced surveillance systems, climate change, shifting weather patterns, limited access to vector control measures, and population movements. The ongoing conflict in the northern regions has led to population displacement into areas with less malaria control mechanisms, further complicating efforts by organizations to distribute vector control interventions effectively.

Conversely, some provinces have seen significant decreases in malaria incidence. Gaza reported 445,462 cases in 2023, an 11% increase, while Inhambane saw a decrease to 925,877 cases, a 1% reduction (SISMA, District Health Information System 2, 2024). Maputo Province achieved a remarkable decrease to 42,082 cases, a 10% reduction. Nampula reported 2,415,131 cases in 2023, a 21% decrease, and Cabo Delgado saw a decrease to 1,270,188 cases, a 2% reduction. These decreases highlight the effectiveness of comprehensive malaria control strategies, including high coverage of insecticide-treated nets (ITNs) and indoor residual spraying (IRS), particularly in the Southern Region.

PERCENTAGE CHANGE IN PROVINCIAL MALARIA CASES (2022 - 2023)

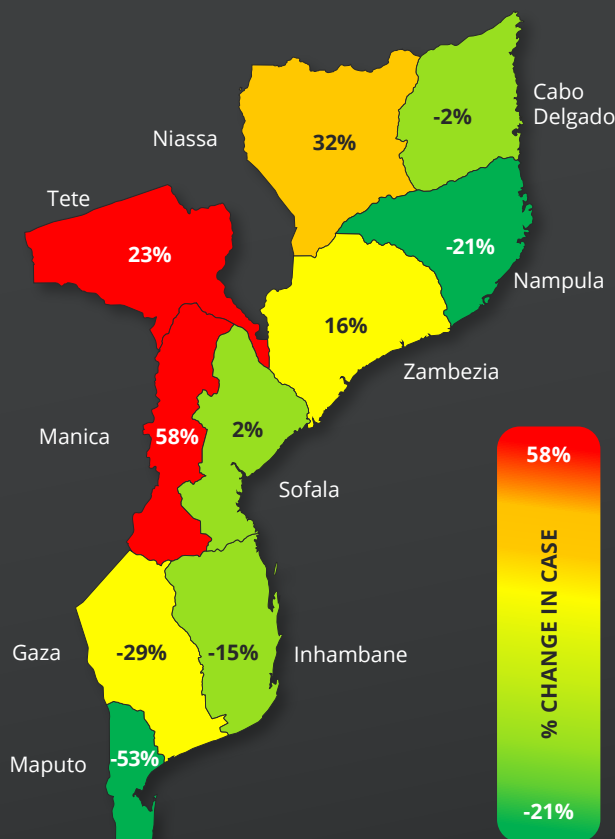


Figure 3: The percentage change in malaria cases, Mozambique (2022 - 2023) (SISMA, District Health Information System 2, 2024) (Mozambique Ministry of Health, 2024)

Effective Management Interventions

Mozambique's National Malaria Control Program emphasizes the timely implementation of at least one recommended vector control intervention per district, with additional measures like chemoprevention or vaccination advised based on transmission levels (Mozambique Ministry of Health, 2024). The program aims to expand access to diverse malaria prevention strategies nationwide, focusing on mosquito bite prevention through effective vector control.

Key interventions include insecticide-treated nets (ITNs), including new nets that tackle pyrethroid resistance, indoor residual spraying (IRS), chemoprevention, larval source management, surveillance, monitoring efforts, and the introduction of the malaria vaccine in eligible provinces. These strategies are crucial for protecting vulnerable populations in malaria-endemic regions and have significantly reduced case numbers across different provinces.

The analysis of provincial malaria data for 2023 and intervention coverage provides important insights into the effectiveness of multi-vector strategies for malaria prevention. Visualizing case numbers by region shows different patterns across Mozambique. In the Northern Region, case numbers have remained relatively stable, with mixed results across provinces. Nampula stands out with a 21% reduction in cases, benefiting from strong ITN coverage (97%) and IRS activities (102%) (Mozambique Ministry of Health, 2024). Conversely, the Central Region has seen an increase in malaria cases, driven by Zambezia's 16% rise despite high intervention coverage.

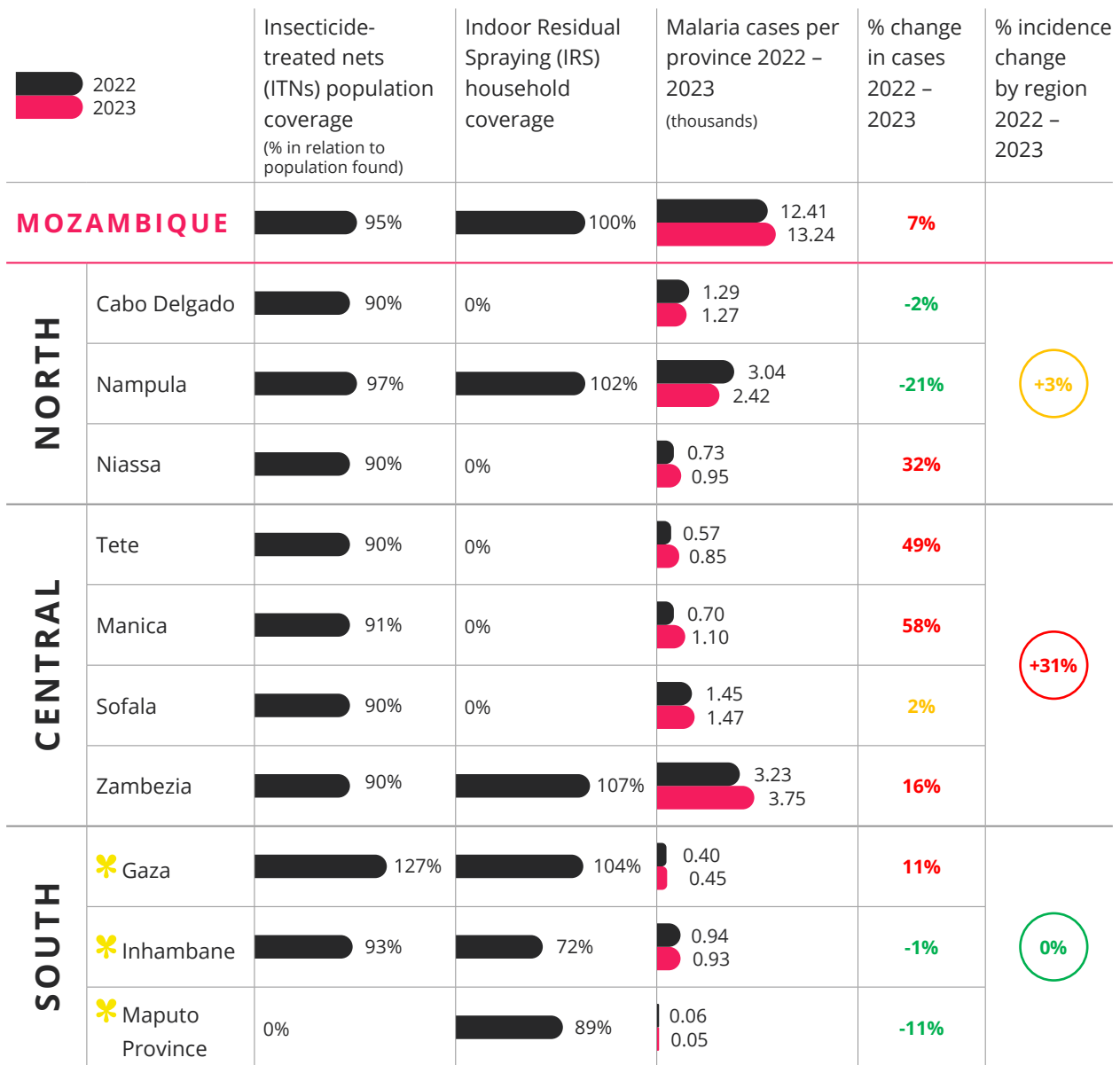
This highlights the limitations of relying solely on insecticide-treated nets (ITNs) and the need for comprehensive strategies. The Southern Region presents a more optimistic scenario, with Gaza, Inhambane, and Maputo Province all reporting decreases in malaria cases. Maputo Province (Maputo City included), with its higher Living Standards Measure (LSM) and high rate of privately funded malaria nets, achieved a remarkable 10.6% reduction. The success seen in the southern region is further bolstered by Goodbye Malaria's extensive IRS campaign in 2022/23, which blanket sprayed sixteen districts and conducted foci spraying in six, effectively reducing the malaria burden in the south.



These insights highlight the complexity of malaria control and the need for tailored, multi-pronged approaches that account for regional differences in population behavior, mosquito resistance, and logistical challenges. Efforts to address widespread insecticide resistance, improve implementation through digitization, and strengthen social and behavior change communication (SBCC) are crucial. Additionally, shortening the distribution interval for insecticide-treated nets (ITNs) from 36 to 30 months aims to address durability issues.

Provincial Profiles: Malaria Interventions and Cases

Figure 4 provides insightful data on malaria interventions and their impact on case numbers across various provinces in Mozambique from 2018 to 2023. The interventions include the distribution of Insecticide-Treated Nets (ITNs) and indoor residual spraying. The data shows the number of malaria cases in 2018 and 2023, along with the percentage change over this period.



* Goodbye Malaria provides IRS in the province

* Maputo City is included in the Maputo Province figures shown

Figure 4: Provincial malaria profiles, Mozambique (Mozambique Ministry of Health, 2024) (SISMA, District Health Information System 2, 2024)

Elimination of Malaria



Many countries have made significant progress in the fight against malaria, with 12 out of 25 endemic countries declared malaria-free by the World Health Organization (WHO) since 2015 (World Health Organisation (WHO), 2023). WHO has certified 13 countries as malaria-free and aims to eliminate malaria in at least 30 countries by 2030 through its "Global Technical Strategy for Malaria 2016-2030." Countries that have eliminated indigenous transmission of malaria for three consecutive years can request official certification from WHO. However, African nations like Mozambique face challenges, including rising malaria incidence and mortality rates due to drug resistance and strained healthcare services.

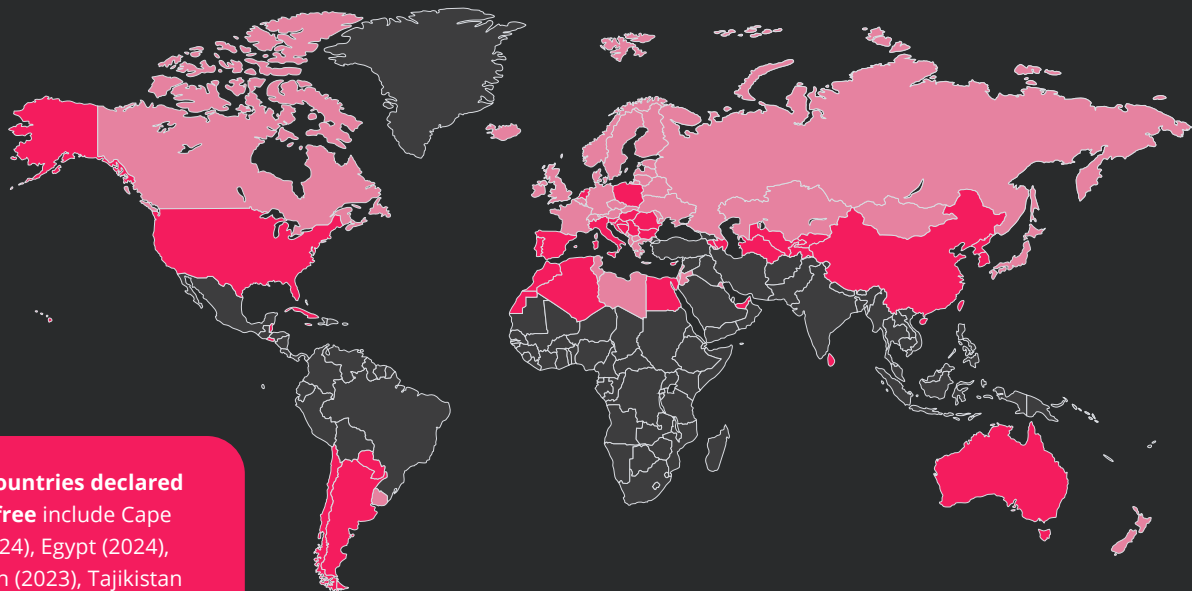
COUNTRIES CERTIFIED MALARIA FREE

(excluding countries where malaria never existed or disappeared without measures)

1962

REGENCY OF ELIMINATION OF MALARIA

2024



Recent countries declared malaria-free include Cape Verde (2024), Egypt (2024), Azerbaijan (2023), Tajikistan (2023), and Belize (2023). These achievements highlight the ongoing global efforts and successes in the fight against malaria (World Health Organisation (WHO), 2024).

Figure 5: Countries with a zero malaria certification, 2024 (World Health Organisation (WHO), 2024)

WHAT IS NEEDED TO ENSURE PROGRESS IN MALARIA ERADICATION

Malaria-endemic countries require support from a robust ecosystem of international partners. The 'Big Push' framework aims to revitalize global malaria control by aligning international support with the specific needs of affected countries. The following priority actions and key actions have been outlined in the 2024 World Malaria Report (World Health Organisation, 2024):

Priority Actions for the Next Five Years

- 01** | Enhance coordination among global, regional, and national partners.
- 02** | Promote national leadership and accountability while fostering an inclusive, whole-of-society approach.
- 03** | Strengthen data systems to support data-driven decision-making.
- 04** | Improve the accessibility, acceptability, and quality of existing interventions.
- 05** | Develop and prepare for the swift introduction of new, transformational tools.
- 06** | Increase funding for malaria initiatives, building on a new narrative.
- 07** | Focus on equity to ensure that all populations benefit from malaria control efforts.

Seven Key Actions

Earlier this year, health ministers from 11 high burden African countries pledged that 'no one should die from malaria' given the available tools and resources. By signing the March 2024 Yaoundé Declaration, they committed to seven key actions to accelerate malaria progress. Political leaders must now turn these commitments into concrete actions and resources to save lives.

- 01** | Strengthen political will.
- 02** | Ensure the strategic use of information for action.
- 03** | Provide better technical guidance.
- 04** | Enhance coordination and multisectoral action.
- 05** | Strengthen national health systems.
- 06** | Build collaborative partnerships for resource mobilisation, research, and innovation.
- 07** | Ensure a functional malaria accountability mechanism.



A key malaria elimination challenge

The impact of climate events on malaria

As climate change intensifies, it is becoming an increasingly significant threat to global health by creating conditions that favor the spread of diseases like malaria (World Health Organisation (WHO), 2023). This is particularly apparent through the increase in frequency and severity of weather events such as cyclones, floods, and storms.

In 2023, Mozambique was hit by tropical cyclone Freddy, affecting over 1.25 million people in the southern and central regions, including Inhambane, Zambézia, Sofala, Manica, and Tete. Additionally, unrelated flooding in the southern regions further compounded the impact on malaria transmission (Mozambique Ministry of Health, 2024).

The cyclone's aftermath, combined with the flooding, led to a 63% increase in malaria cases, rising from 196,885 in 2022 to 319,982 in 2023 in the 11 epidemiological weeks post-cyclone, as highlighted in Figure 6 (Mozambique Ministry of Health, 2024). Extreme weather events, such as cyclones and floods, disrupt health services, creating conditions that increase the transmission of diseases like malaria. The impact of climate change on malaria is influenced by factors such as precipitation, temperature, and socioeconomic conditions, with women and children being especially vulnerable to health care disruptions. Mozambique's experience with Cyclone Idai and now Freddy, along with the additional flooding, provides clear insight as to how climate change accelerates the spread of malaria, posing a continuous challenge for health systems in low- and middle-income countries.

Impact of Extreme Climate Events on Malaria

Number of Malaria cases recorded during Cyclone Freddy and flooding 2023 compared to 2022

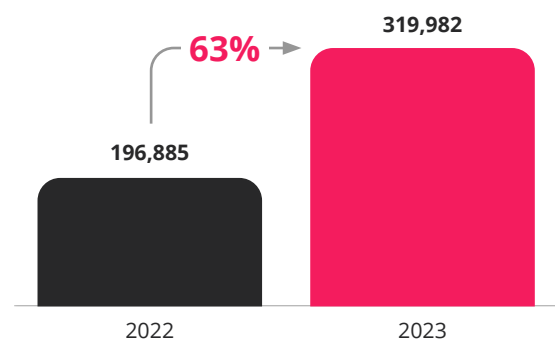


Figure 6: The impact of climate events on malaria cases in southern and central Mozambique (Mozambique Ministry of Health, 2024)

In the wake of Cyclone Freddy, which struck Mozambique from February 15 to March 2, 2023, Goodbye Malaria responded to a call for assistance from the National Malaria Control Programme to address the compounded threat of flooding and increased malaria risk in the affected provinces of Maputo, Gaza, and Inhambane. With significant flooding disrupting communities and displacing populations, Goodbye Malaria provided vital flood relief logistical support, assisting with the transportation of affected communities and the distribution of equipment, consumables, and insecticide-treated nets (ITNs) to multiple displacement centers to protect vulnerable families.

Recognizing the urgent need for vector control, the organization deployed teams to apply larvicides in stagnant water bodies and conducted Indoor Residual Spraying (IRS) in displacement centers and flooded houses to mitigate malaria transmission. This critical intervention continued from May to July 2023, addressing the heightened risk posed by stagnant water bodies that fostered mosquito breeding. Despite challenges such as the loss of insecticide effectiveness in homes sprayed before the cyclone, Goodbye Malaria resprayed flooded houses and treated various water bodies across the districts, ensuring effective vector control.

Through these comprehensive efforts, Goodbye Malaria demonstrated a steadfast commitment to safeguarding communities against malaria during a time of crisis, reinforcing the importance of preparedness and rapid response in public health emergencies.



Vaccine launch and rollout in Zambezia



Mozambique launched the R21 malaria vaccine in Zambézia province in August 2024, targeting immunizations across 22 districts. This initiative aims to protect approximately 300,000 children with an initial supply of 800,000 doses. Funded by Gavi and the Mozambican government, the rollout is part of the Expanded Programme on Immunization and involves a four-dose schedule for children aged 6 to 11 months.



Vaccines Prequalified by WHO

R21: December 2023

RTS,S: July 2022

The R21 vaccine shows promising improvements, delivering essential protection in a country where malaria remains endemic, especially among children under five (World Health Organisation (WHO), 2024). With this rollout, Mozambique joins ten other African nations administering malaria vaccines, three of which - including Mozambique - are using the R21 vaccine, while eight rely on RTS,S. This vaccine expansion is supported by WHO, UNICEF, and Gavi as part of a broader malaria prevention initiative in Africa, a region with the highest global malaria burden (World Health Organisation (WHO), 2023).

The two malaria vaccines, RTS,S (Mosquirix) and R21, both aim to trigger immunity against the *Plasmodium falciparum* parasite using the circumsporozoite protein. RTS,S, first trialed in 1998, showed modest efficacy, with a 34% reduction in malaria cases in initial trials and around 36% efficacy after a fourth booster dose. It was introduced in routine immunization programs in Kenya, Ghana, and Malawi, showing a 20% reduction in severe malaria incidence and a 13% reduction in all-cause mortality among children.

R21, recommended by WHO in 2023, uses a different ratio of ingredients to present more malaria protein and less hepatitis B antigen. Phase 3 trials showed a 73% improvement in time to the first malaria episode, although this may be influenced by the timing of administration. Despite similar efficacy to RTS,S in real-world settings, R21 is significantly cheaper at \$16 for the 4-dose series compared to RTS,S's \$40. Additionally, R21 has a higher production capacity, with the Serum Institute able to manufacture 100 million doses per year, compared to RTS,S's 15 million doses.

While the R21 vaccine represents progress in vaccine development, it alone cannot eradicate malaria. The country still requires a comprehensive, multi-pronged approach, including insecticide-treated nets (ITNs), indoor residual spraying (IRS), and targeted measures in high-burden districts.

Progress, challenges, and the path forward in malaria elimination

The aftermath of the COVID-19 pandemic, malaria-endemic countries are still battling significant challenges. Inefficient health systems, insufficient surveillance, and significant funding shortages continue to slow progress. Many individuals at risk of malaria do not have access to essential prevention, detection, and treatment services. Additionally, the rise of drug and insecticide resistance is reducing the effectiveness of key malaria control tools. The impacts of conflict, climate change, and population displacement further exacerbate malaria transmission, creating a complicated public health crisis that demands urgent attention.

In 2023, global funding for malaria control amounted to an estimated US\$ 4 billion, which is significantly below the US\$ 8.3 billion target set by the WHO global malaria strategy. The funding gap has widened over the past five years (2019 - 2023), increasing from US\$ 2.6 billion to US\$ 4.3 billion. Adequate funding is crucial to keep progress on track and ensure the continued effectiveness of malaria control efforts.

Despite progress, malaria control in Mozambique has plateaued, necessitating intensified support from national and international partners. The rollout of the R21 malaria vaccine in Zambézia province in 2024 aims to immunize approximately 300,000 children. However, the vaccine alone will not be a cure-all. Significant efforts will still be needed in the form of multifaceted strategies to manage and eliminate malaria. Strengthening data collection and surveillance across all regions is essential for enabling targeted strategies.

Effective interventions have significantly reduced malaria-related deaths and cases in some provinces. However, logistical challenges, natural disasters, and the absence of comprehensive vector control measures in certain areas highlight the need for tailored, multi-faceted strategies. Prioritizing next-gen ITNs in Inhambane and Gaza, continuing aggressive measures in coastal Inhambane, and maintaining targeted efforts in Gaza/Maputo Province are critical. Strengthening case management practices and routine surveillance will also enhance malaria control efforts.

Supporting organizations like Goodbye Malaria is imperative. Their initiatives facilitate unique public-private partnerships, bringing together the private sector (including Nando's and Vodacom), the governments of Mozambique, South Africa, and eSwatini (MOSASWA), as well as The Global Fund and The Gates Foundation. Their flagship programme, Tchau Tchau Malaria, is implemented via LSDI2 as the Principal Recipient of the MOSASWA regional grant. This sub-regional, trilateral initiative aims to achieve zero local transmission in Eswatini, South Africa, and Maputo Province, and pre-elimination status in southern Mozambique (Gaza and Inhambane Provinces).

By addressing these challenges with a comprehensive and adaptive approach, and by supporting organizations like Goodbye Malaria, Mozambique can continue to make significant strides in reducing the malaria burden. This will not only move the country towards sub-national elimination in Maputo Province by 2030 but also save countless lives and transform public health outcomes for future generations.

Global Malaria Funding Gap, 2023

A deficit of US\$ 4.3 billion in funding threatens malaria progress globally

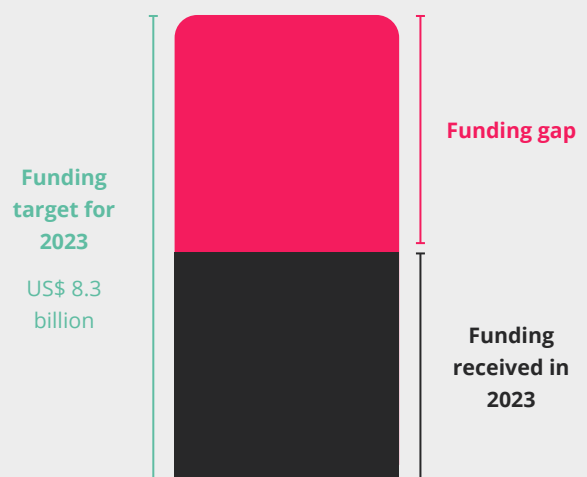


Figure 7: The gap in global malaria funding in 2023 (World Health Organisation, 2024)

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