Humanitarian emergencies case study: Mozambique

Adding vector control to disaster response: 3 reasons why from Cyclone Idai

August 2022

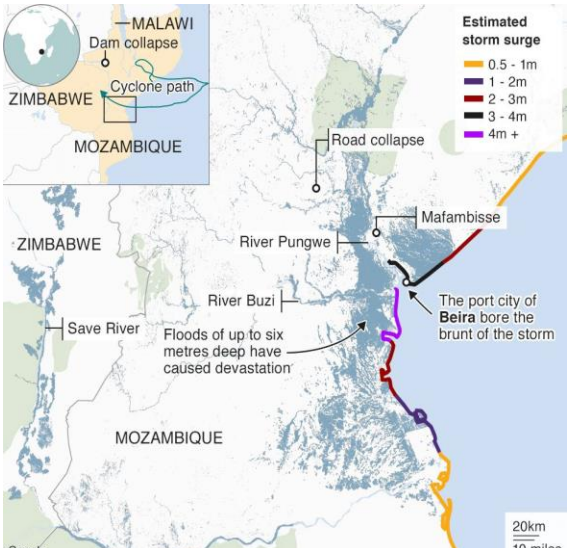
People await rescue on a rooftop. Photo: Rick Emenaket/AFP/Getty Images; Rick Emenaket/Mission Aviation Fellowship/AFP/Getty Images.

Climate change and global health are inextricably linked. As the likelihood of severe weather events increases, so does the risk for vector-borne disease outbreaks like malaria.

In March 2019, central Mozambique was caught in one of the worst cyclones recorded in the Southern Hemisphere. Cyclone Idai made landfall in the city of Beira, bringing severe rains and floods that swept away everything—homes, belongings, and of course, malaria commodities such as insecticide treated nets.

The majority of local health centers were damaged or destroyed, medical supplies were lost, and supply chains were cut off in areas with high malaria burden. In total, the Cyclone Idai affected nearly 2 million people.

Massive flooding from severe rains created an inland sea that stretched for 100 kilometers and was visible from space. Whole communities survived by climbing trees while houses were destroyed, and all belongings were swept away by flood waters—including malaria commodities and long-lasting insecticidal nets (LLINs). Critically, heavy flooding affected some of the highest malaria burden districts.



Landfall of Cyclone Idai in Mozambique occurred near the populated city of Beira, in the Sofala province of central Mozambique, and tracked directly over the heavily populated corridor between the Port of Beira and Zimbabwe. Photo: BBC/UNOSAT/UNITAR, European Join Research Centre

As climate emergencies like Idai grow more common, response protocols must account for the risk posed by malaria and other vector-borne diseases following natural disasters. It is essential that local governments and the nongovernmental organizations (NGOs) that support them are equipped with the resources and training to launch rapid responses that prevent malaria outbreaks. Here's why:

Reason 1: Malaria poses great risk

Malaria is endemic in Mozambique and according to the WHO, there are approximately 9 million confirmed cases each year. Cyclone Idai occurred at the end of the malaria transmission season in Mozambique, in a province with 38 percent malaria prevalence reported in 2018, leaving approximately 1.2 million people at increased risk for malaria. In the absence of standard malaria control interventions such as coverage with insecticide-treated nets and indoor residual spraying, the region would experience increased morbidity and mortality from malaria.

Immediate relief efforts focused on rescuing stranded individuals and providing them with shelter, food, and water. Recognizing the risk of a large outbreak, the National Malaria Control Program (NMCP) and its partners formed a Malaria Task Force, led by the Provincial Focal Point for Malaria, that grew to include more than 50 members from 20 different groups. The NMCP effectively coordinated the large number of these partners for malaria prevention and treatment activities. This included the creation of a malaria plan with detailed actions and needs.

Agencies involved in humanitarian emergencies do not include commodities for malaria prevention, in addition to malaria treatment and diagnostics, as priority life-saving interventions during the acute phase of the emergency. It was not until well after the NMCP activities were underway that international organizations began to prioritize malaria prevention and control. The African Leaders Malaria Alliance (ALMA) stepped in to ensure coordination of funding and procurement occurred jointly with the NMCP. Without the NMCP's rapid response, the result could have been much worse.

Without adequate preparation, even national and regional malaria elimination efforts will be derailed by post-disaster outbreaks.

Reason 2: If countries already prevent malaria, they can do it in an emergency

The NMCP's experience leading malaria control efforts allowed them to quickly establish a plan of action and mobilize resources to deliver interventions where they were needed most. The NMCP calculated how much additional medication and diagnostic tests would be needed to test and treat emerging malaria cases, and how many insecticide-treated nets would be necessary to prevent transmission among people displaced by the cyclone and began implementation of an emergency malaria treatment and prevention plan after establishing the Malaria Task Force. With advocacy support from ALMA, the Task Force successfully acquired the requested resources from various partners.

Left: **Planning the Response in Beira**. From left to right: Luís Ribeiro, Baltazar Candrinho, Nelson Cuamba, Silvia Pedro, Abraham Mnzava, Sonia Mudengue, and Dulcisaria Jotamo. Right: **Training IRS Spray Teams** with partners from PMI VectorLink, Brazilian National Defense Force, Cuban Humanitarian Response group, ALMA, MENTOR Initiative, and Goodbye Malaria, led by the NMCP and Provincial Health Department. Photos: PATH/Molly Robertson.

With supplies secured, the NMCP used best available data and coordinated partners to help distribute these interventions where they were needed most and advocated for the swift return to the routine surveillance systems in place of parallel and disjointed reporting. The NMCP oversaw the distribution of approximately 500,000 insecticide-treated nets through coordination with NGOs, and industry. The initial distribution of mosquito nets focused on the growing population in official and unofficial internally displaced people camps. Additionally, coordination with the cholera vaccine campaign maximized the reach of mosquito nets. This was highly effective, however, due to lack of prioritization of logistics, this plan was not able to be implemented in some of the more remote areas.

Indoor residual spraying was also implemented in the four most affected districts to protect people who had begun to rebuild their homes. This required re-positioning insecticides and equipment from other provinces as well as the rehabilitation of wash pits, and training and hiring staff to implement the campaign. Drone mapping and satellite images provided by NGO partners were used to determine the best location to begin spray campaigns based on the extent to which houses had full or partial roofs or reconstruction of houses had begun. The NMCP and partners trained 514 spray operators, 25 supervisors, 30 mobilizers and 120 team leaders for the IRS campaign. The one-month campaign was launched on April 25 just over one month after the cyclone.

Reason 3: Coordination between national malaria programs and NGOs can be slow and complicated, but is required for impact

Partner coordination and integration with other emergency response activities is critical to maximize all available resources and ensure their alignment with national best practice. Many of the health care providers at the front lines of the cyclone response were national government employees who were familiar with national case management protocols and reporting systems but partnering organizations did not rapidly learn and adhere to these systems, resulting in fragmentation and parallel systems. NGOs need to provide emergency response staff with national malaria treatment and prevention guidelines as well as training on differences that might be introduced by changes in commodities to ensure alignment with national protocols.

The Malaria Taskforce established direct partnership with NGOs, as well as the Brazilian and South African militaries. After the immediate search and rescue efforts subsided, there was interest and commitment by both militaries to prioritize malaria efforts by coordinating transportation and logistics for malaria commodities and human resources to ensure they arrived where urgently needed. While many partners and the cluster system were slow to respond to fill the logistical gaps needed to strengthen the NMCP emergency malaria prevention efforts, military resources were provided directly with flexibility and immediacy. Improving direct partnership with all security forces ensured that resources could be transported and stored appropriately.

Advance preparation and removing barriers to collaboration will ensure that NMCPs are prepared to launch a coordinated response to prevent and control malaria during natural disasters. Partnerships with NGOs and other agencies were critical to the malaria prevention and control response after Idai but it was the leadership and experience of the NMCP that funneled these efforts and ensured a rapid response preventing any malaria outbreak.

Moving Forward

To ensure that we are prepared to prevent and control malaria during the next climate emergency, it's important we recognize the roll of the government malaria response in areas where strong government support exists, that we support these efforts rather than run parallel to them, and that we advocate for preparation in all areas in which climate instability is likely to create emergencies that necessitate a vector control response. While malaria elimination is the goal, inadequate preparation for climate emergencies, and subsequent outbreaks will be a major barrier to any country or regional elimination efforts.

Climate emergencies are increasing, and control of vector-borne diseases should be a critical component of responses that cross sectors of the humanitarian emergency Cluster System. National governments should proactively develop response plans and lead the vector control response.