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**After Action Review (AAR) results:  
plague response in Madagascar  
helped improve national  
preparedness for subsequent  
plague season**

Case Study



## Abstract

Plague is endemic in Madagascar. However, in 2017 and 2018, a deadly plague epidemic affected Madagascar's capital and port cities. When this outbreak receded, the country's health ministry, with support of WHO, organized an after-action review (AAR) in July 2018. Based on the AAR findings and identified priority actions, the health ministry and its partners took steps to coordinate the plague response for the subsequent plague season. Key steps included strengthening regional and local networks, implementing data management and case management procedures, addressing reservoirs and training community health workers. The implementation of priority actions from AAR of the 2017-2018 outbreak response made a significant difference in Madagascar. During the next plague season, between August 2018 and April 2019, the number of reported cases was ten times lower than during the epidemic in the previous plague season.

## Description

### Process and outcomes

**The initial plague season:** Pneumonic and bubonic plague are endemic in Madagascar. An average of 400 cases of bubonic plague are reported annually, mainly from rural areas in the central highlands. The plague season in Madagascar runs from September to April. In 2017 and 2018, a deadly plague epidemic affected both the country's endemic and non-endemic areas, including its capital Antananarivo and port city, Toamasina. A total of 2,676 cases and 225 deaths linked to pneumonic and bubonic plague were reported in 57 of the country's 114 districts. An extensive emergency response, led by the government of Madagascar and supported by the WHO and partners, was launched to help control the outbreak.

**The AAR:** In July 2018, after a pneumonic and bubonic plague epidemic, Madagascar's Ministry of Health organized an After-Action Review (AAR) of the emergency response, using standardized WHO methodology, in order to support strategies to strengthen preparedness capacities in anticipation of the next plague season. This response was reported to the international

community as required by the International Health Regulations (IHR).

**AAR Results:** The AAR identified multiple challenges which arose during the 2017-2018 response. These included issues related to: (i) coordination and logistics, (ii) surveillance and laboratory capabilities, (iii) communication, social mobilization and community engagement, (iv) case management, infection prevention and control, and vector control, and (v) reservoir and environmental management.

Analysis of the AAR findings recommended the implementation of priority actions for preparedness, including: (i) coordination of plague response through the development of a national contingency plan for epidemics and pandemics, (ii) development and implementation of data management procedures for both national and district levels, (iii) strengthening of regional plague coordination committees, (iv) standard operating procedures for case management and infection, prevention and control at points of entry and (v) the reinforcement of response capacities for vector control and reservoir management using a minimum of 156 community health workers.

Sri Lanka immediately began implementing these priority actions, with the support of WHO,



Resolve to Save Lives and other key partners. Madagascar had completed a Joint External Evaluation (JEE) two months preceding the 2017 plague outbreak and recommended priority actions following this. The strengths, gaps and priority actions identified during the AAR in July 2018 were aligned with 2017's JEE recommendations.

**The subsequent plague season:** The next plague season ran from 19 August 2018 to 21 April 2019, resulting in 257 isolated cases and leading to 50 deaths across 28 of the 114 districts in the country. This represented a 90% decrease in the number of confirmed plague cases when compared to the 2017-2018 plague season, suggesting the potential contribution of AAR priority actions to reduce disease spread.

## Way forward

AARs are vital in improving preparedness capacities in countries, as demonstrated in Madagascar. These exercises are crucial in mitigating the impact of health emergencies and in strengthening global health security. They can be used to track the strengths and weaknesses

seen during JEE, and to monitor progress and gaps in health security.

## Lay Summary

Although plague is endemic in Madagascar, the country experienced an outbreak of pneumonic and bubonic plague in 2017-2018 that resulted in 2,676 cases and 225 deaths. As the outbreak receded, the country's health ministry with the support of WHO, organized an After-Action Review (AAR). The review led to recommendation and implementation of specific priority actions for preparedness including: better coordination of response, strengthening of regional committees, implementation of data management procedures, control at points of entry, health worker training and the use of standard operating procedures for case management and infection prevention and control.. The next plague season, between August 2018 and April 2019, reported only 10% of the cases reported during the previous epidemic. The caseload had dropped by 90%. Madagascar demonstrated that AARs can be a key part of improving preparedness capacities in countries.

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