Lessons learned from the measles outbreak response project in the Katanga Region 2021/22

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Background

To respond to measles epidemics more efficiently, MSF implemented a risk-targeted measles outbreak response project in the Katanga region in the Democratic Republic of the Congo. Here we capitalize on two of the epidemiological activities that took place before and during a large-scale epidemic in 2021/22: (i) the identification of high-risk health zones (HZ) for preventive activities and enhanced surveillance, and (ii) the prioritization of alerts for interventions.

Methods

To evaluate the selection of high-risk HZ in 2021/22, as well as potential alternative selection approaches, we compared outbreak sizes by risk category based on national surveillance data and evaluated preventive vaccination activities in 9 selected high-risk HZ. We further evaluated the alert scoring algorithm by comparing outbreak sizes by alert score and assessed final operational decisions guided by the score.

Results

Although, the initial selection of high-risk HZ in 2021 allowed the identification of HZ with large epidemics, choosing all HZ with coverage below 40% seems to be the most efficient approach. While a third (3/9) of HZ with preventive vaccination experienced a large epidemic, the proportion was 90% (9/10) among high-risk HZ without preventive/early vaccination. Regarding the evaluation of the alert scoring algorithm, the median size of epidemics and the risk of large epidemics increased with an increasing alert score. Median epidemic durations were shorter in HZ with MSF interventions than in HZ with non-MSF vaccination campaigns or HZ without any vaccination campaigns.

Conclusion

Selecting HZ with low vaccination coverage may be a simple efficient alternative to the current model-based strategy to identify high-risk HZ. The targeted implementing of preventive vaccination probably averted large epidemics in 6 of the 9 vaccinated HZ. The alert scoring algorithm allowed efficient operational decision making during the epidemic in 2021/22, resulting in shorter epidemics in HZ with MSF interventions.

A risk-targeted approach including preventive vaccination, enhanced surveillance, and reactive interventions allowed to limit the occurrence and scale of measles epidemics in several health zones in the Katanga region in 2021/22.