

# Mass drug administration as a tool for rapid reduction of malaria morbidity and mortality in emergency settings

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WHO recommends mass drug administration (MDA) for malaria in complex emergencies. Angumu health zone in Ituri (DRC) is a highly malaria-endemic area with an overburdened health system and hosting internally displaced persons (IDP). Three MDA rounds were implemented with high coverage from September 2020 to January 2021 by Ministry of public health and MSF in 4 health areas. We compare reported mortality and morbidity in locations where MDA has been performed and locations where it has not.

A first cross-sectional population-based retrospective mortality survey was conducted in March 2021. Two-stage cluster sampling was used in villages; all IDP sites were surveyed with systematic random sampling.

Data was collected for 2554 households and 15470 individuals, whom 721 died in the 18-month recall period. The U5MR decreased in the locations where MDA had been implemented from 2.32[1.48-3.16] deaths/10,000 people/day before the MDA to 1.10[0.5-1.71] after, whereas it remained stable from 2.74 [2.08-3.40] to 2.67 [1.84-3.50] in the same time periods in other locations. The U5MR and malaria-specific mortality was significantly higher in non-MDA locations after MDA was implemented (aRR=2.17[1.36-3.49] and 2.60[1.56-4.33] respectively for all-cause and malaria-specific mortality among children <5 years). Morbidity appeared lower in MDA locations 2.5 months after last round: reported malaria-specific morbidity was 14.7%[11-18] and 25.0%[19-31] in villages and IDP sites where MDA had been implemented, while it was 30.4%[27-33] and 49.3%[45-54] in other villages and IDP sites.

The observed sharp decrease of under-5 mortality and morbidity confirms that MDA has the potential to become an important malaria-control tool in emergency settings. Based on these results, new MDA rounds, along with Indoor residual spraying campaigns, are planned in the health zone in 2022. A set of surveys will be conducted before, during and after these to confirm the effect observed in 2021 and evaluate its duration.

Mass drug administration could be used as an important malaria-control tool in emergency settings, allowing sharp reduction of malaria-related mortality in highly malaria-endemic areas.

