MACEPA PATH
Malaria Control and Elimination Partnership in Africa

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Government of the Republic of Zambia

Transitioning an evidence-based malaria mass drug administration research strategy to program/routine mode: factors for consideration

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Mass drug administration: the administration of antimalarial treatment to every member of a defined population or every person living in a defined geographical area (except those for whom the medicine is contraindicated) at approximately the same time and often at repeated intervals.

Source: Kirkwood G. *Population-Wide Drug-Based Strategies for Malaria Elimination*. Seattle, WA: PATH; 2016.

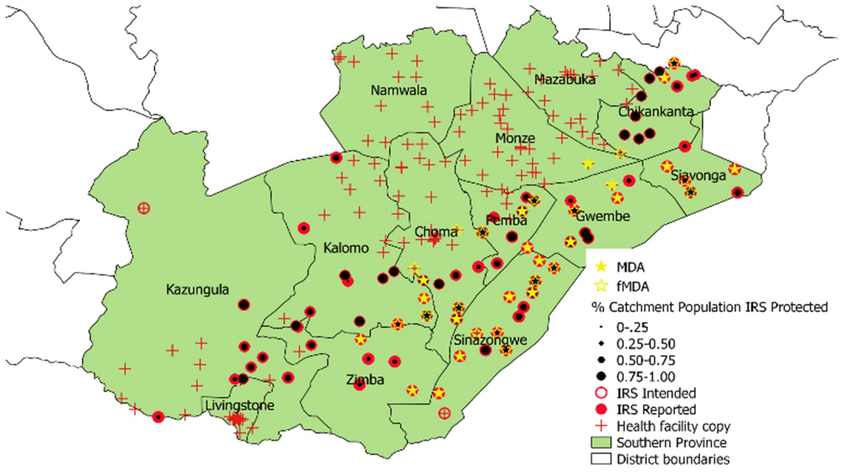
Background

The Zambia Ministry of Health has employed mass drug administration (MDA) as an intervention to complement existing interventions—bednets, indoor residual spraying (IRS), and case management—used to prevent and control malaria in Zambia. In line with the National Malaria Strategic Plan and the National Malaria Elimination Plan, the Ministry of Health and partners implemented a two-year trial with four rounds of MDA between December 2014 and February 2016 in Southern Province covering a population of approximately 300,000 people in 60 health facility catchment areas (HFCAs) within a cluster-randomized control trial design (Figure 1). The Zambia Ministry of Health is now transitioning to using MDA in a program mode.

Methods

Research mode (2014—2016)	Program mode (2016—)
MDA campaigns conducted in dry season before beginning of peak malaria transmission season.	Same as research mode.
Door-to-door campaign rounds lasted 30 days; eligible household members offered appropriate dose of DHAp based on age.	Same as research mode but campaign rounds shortened to 21 days.
Data collection using smartphones during household visits by enumerators on day 1 and adherence officers on day 3.	Data collection was paper-based by a community health worker on day 1 and adherence officers on day 3.
HFCA team composition: facility supervisor, community health worker, enumerator, and adherence officer.	Same as research mode but with no enumerator.
Vehicle used for health facility catchment team mobility.	Bicycles used by community catchment teams.
Rapid diagnostic tests used for testing of all household members.	Rapid diagnostic tests used rarely (e.g., pregnancy).

Figure 1. Health facilities and locations—MDA and IRS during trial phase (Southern Province, Zambia, 2015)



Results

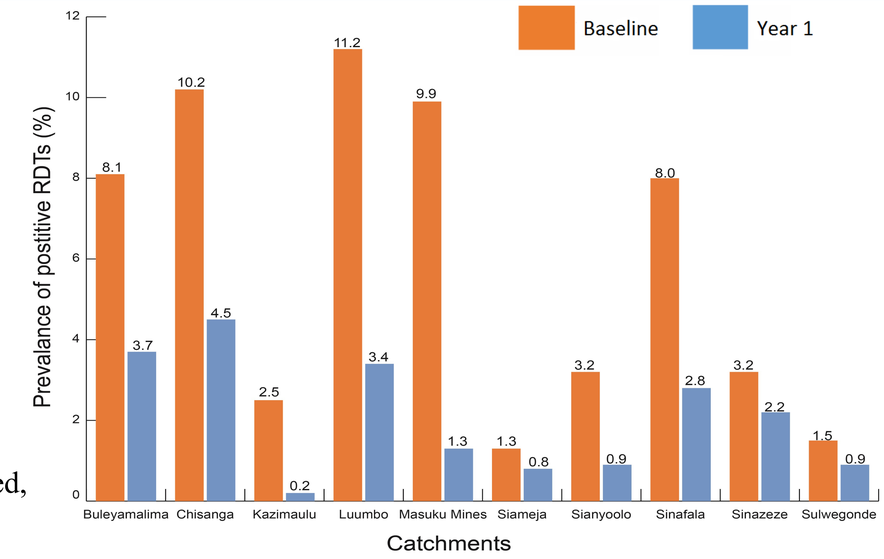
Trial results

First year results (May 2014–April 2015) showed that the enhanced package of interventions—including MDA and controls—was very effective in Southern Province study areas:

- 83% decline in parasite prevalence in young children (baseline to endpoint surveys).
- 60% decline in annual cases (by routine reporting—DHIS2).
- 93% decline in parasite prevalence in young children (Malaria Indicator Survey 2012–2015).

Second year MDA trial results (May 2015–April 2016) are currently being finalized; data collection has been completed, PCR results are being analyzed, but a continued decline in burden has been observed.

Figure 2. Change in RDT positivity for MDA (high transmission HFCAs)

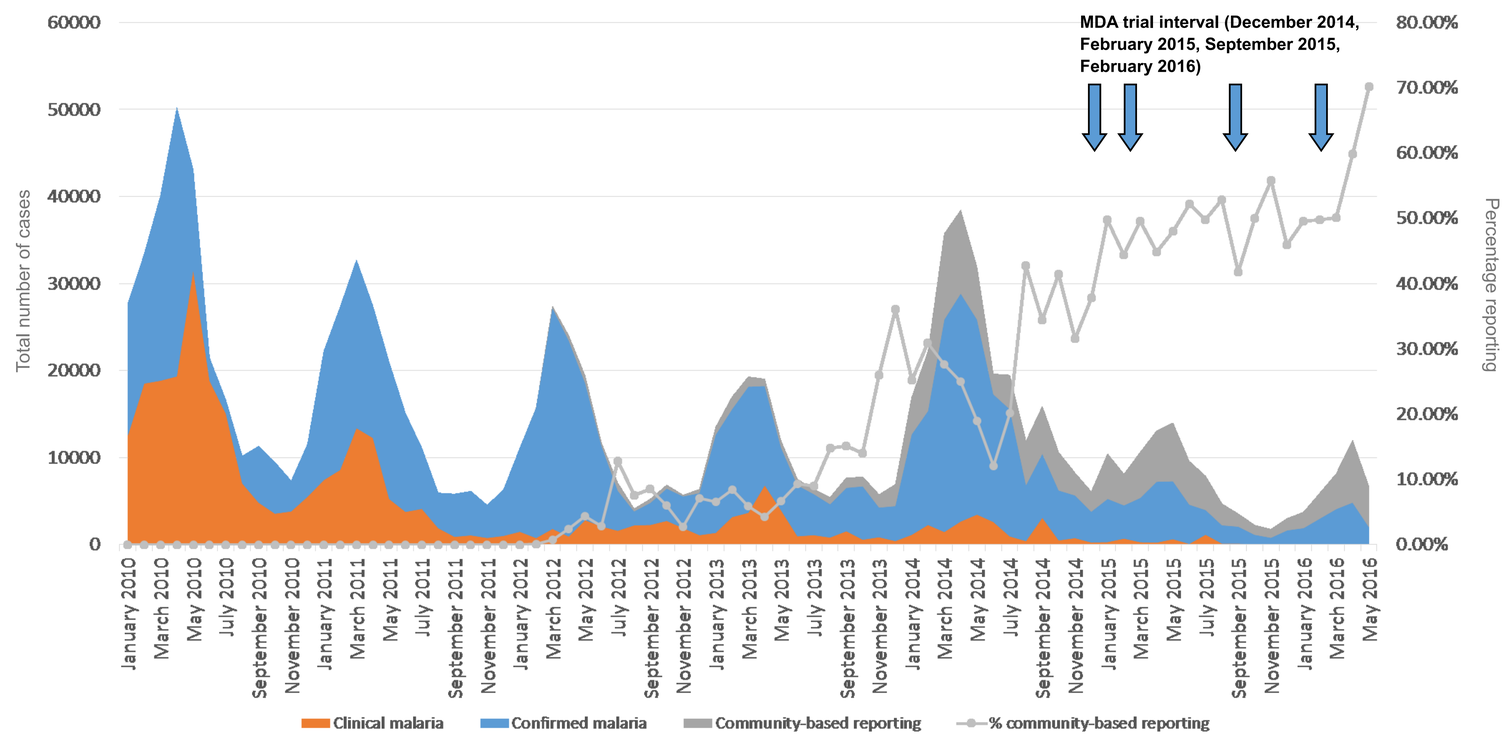


Province-wide findings

In addition to the MDA study trial results, routine data (i.e., HMIS and the rapid reporting system) showed dramatic drops in malaria cases across Southern Province (see Figure 2). Therefore, a cost-effective MDA program that is replicable to all districts and HFCAs deemed eligible for MDA should be considered to assist in accelerating reduction of local malaria transmission.

Encouraging trends since 2010 (Figure 3) show malaria is declining overall, clinical cases have disappeared due to laboratory confirmation of all cases, and community level reporting now accounts for >50% of case reporting.

Figure 3. Trends in malaria case reporting, 2010–2016, Southern Province



What we are still exploring

- Still quantifying attribution or contribution of exposure to interventions other than MDA to declines in malaria outcomes.
- The greater than expected benefit in case reduction likely reflects overall enhanced delivery of the full package of malaria interventions plus some potential contribution from "community effect."
- Could we achieve comparable results with more efficient MDA approaches (e.g., single high-coverage round, less training/supervision, alternative to house-to-house delivery)?

Conclusions

Following implementation of a successful study trial, the next logical step is to transition the MDA trial from research to program mode. Based on evidence generated from the trial, a modified MDA program has been developed that is currently being implemented in southern Zambia. Furthermore, the Ministry of Health is planning on implementing MDA in other eligible parts of Zambia with the necessary resources.