



Mass drug Administration – When Is It Useful

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MDA Definition

- “MDA consists in the administration of a full dose of antimalarial treatment, irrespective of the knowledge of symptoms or presence of infection, to an entire population in a given area, except those in whom the medicine is contraindicated.” (WHO 2015)

Objectives of MDA

- To rapidly reduce malaria morbidity and mortality
- To reduce or interrupt transmission
- To prevent relapses and resulting malaria transmission

MDA has been around for a long time !

- Years ago
 - 1930 Italy
 - 1931 Rubber plantation workers in Liberia
 - 1948: Tea plantation in Kenya
 - 1969: Northern Nigeria
- Notably MDA was done in well defined areas and with a concerted effort



Source: www.cdc.org,

Draw backs

- Requires a huge financial and logistical effort
- Inconvenience of drug administration
- Potential adverse events of repeated drug administration
- Perception of drug resistance
- Rebound of malaria leading to severe diseases

Renewed interest

- Renewed interest
 - International efforts towards malaria elimination/control
 - An indication of a reduction in malaria burden with current tools
 - ITN, ACTS, IRS
 - Successful application to other public health diseases -NTDs

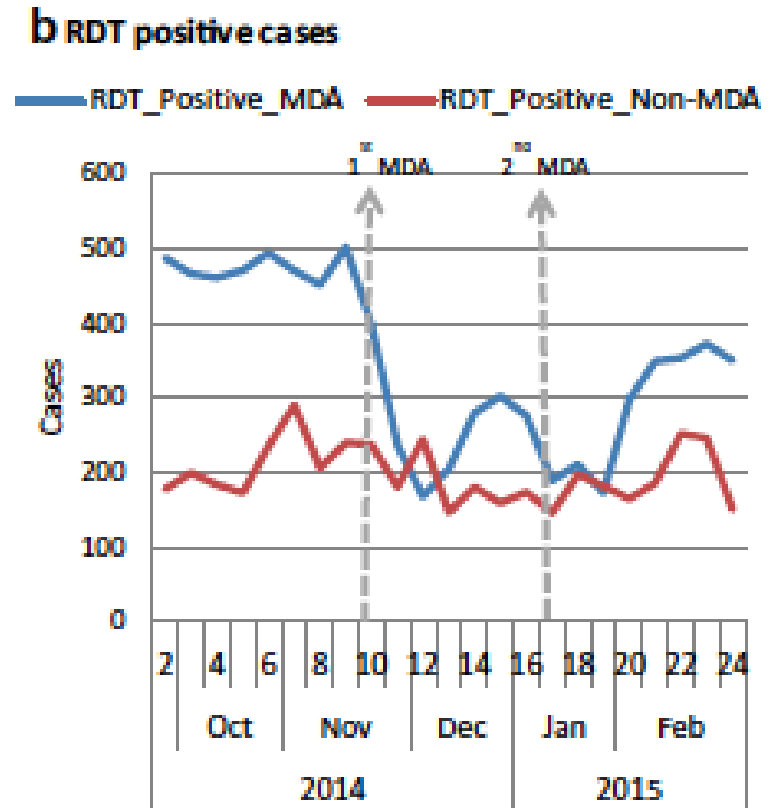
WHO recommendations, 2015

- Key recommendations
 - WHO does not recommend the use of MDA in situations other than for areas approaching elimination, epidemics, and complex emergencies
- Indeed
 - Great Mekong sub region
 - In West Africa during Ebola outbreak

MDA in Ebola Outbreak in Sierra Leone

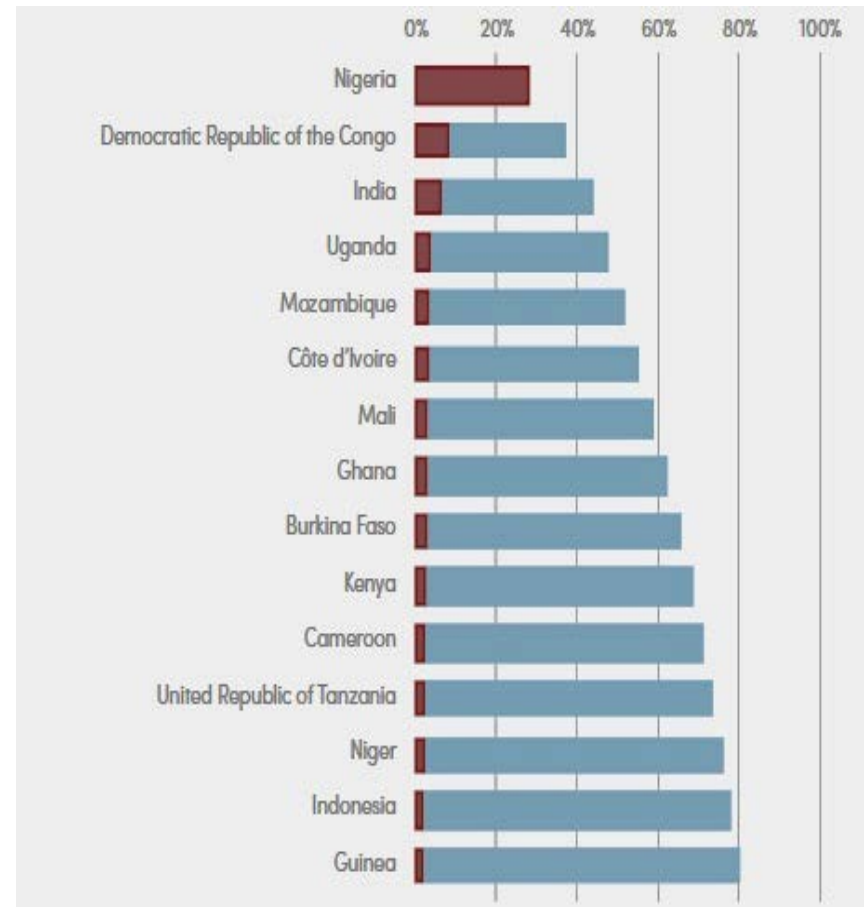
–W/ Africa

- Weak health system
- High malaria transmission
- Two rounds of MDA distribution of ASAQ
- Target: 2.7 million people
- Significantly reduced RDT positive malaria cases
- Key consideration
 - Sustenance towards elimination
 - Longer acting drug for MDA
 - Strengthening of malaria control structures to reduce transmission



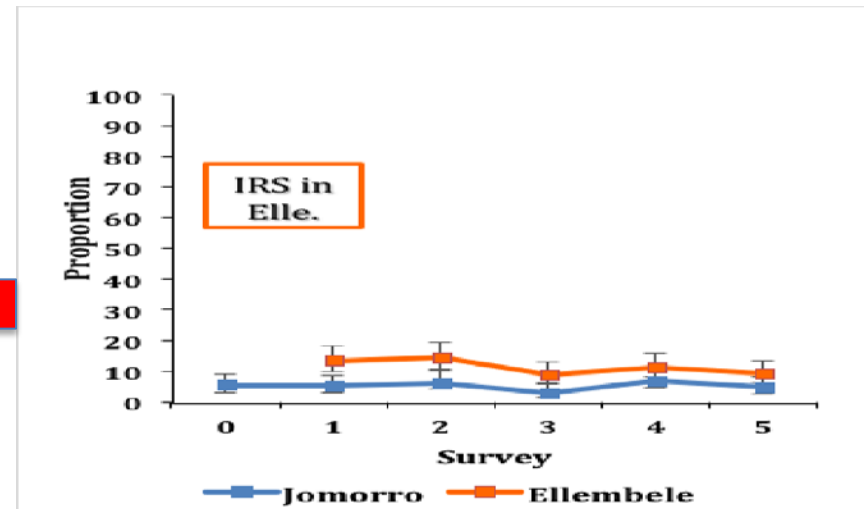
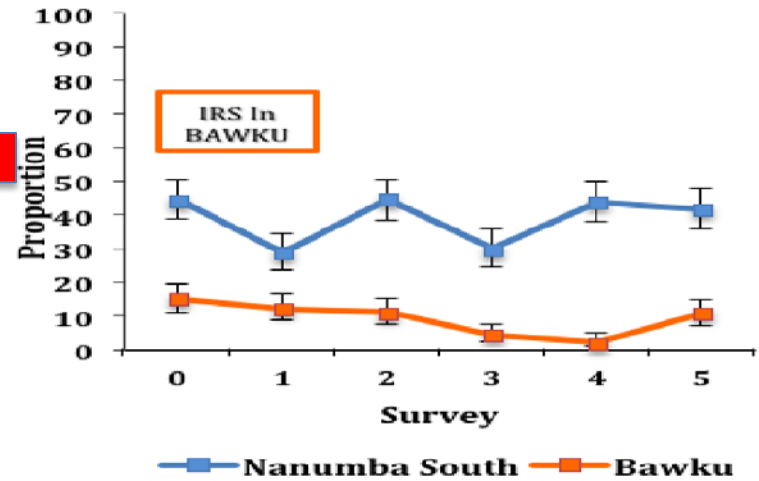
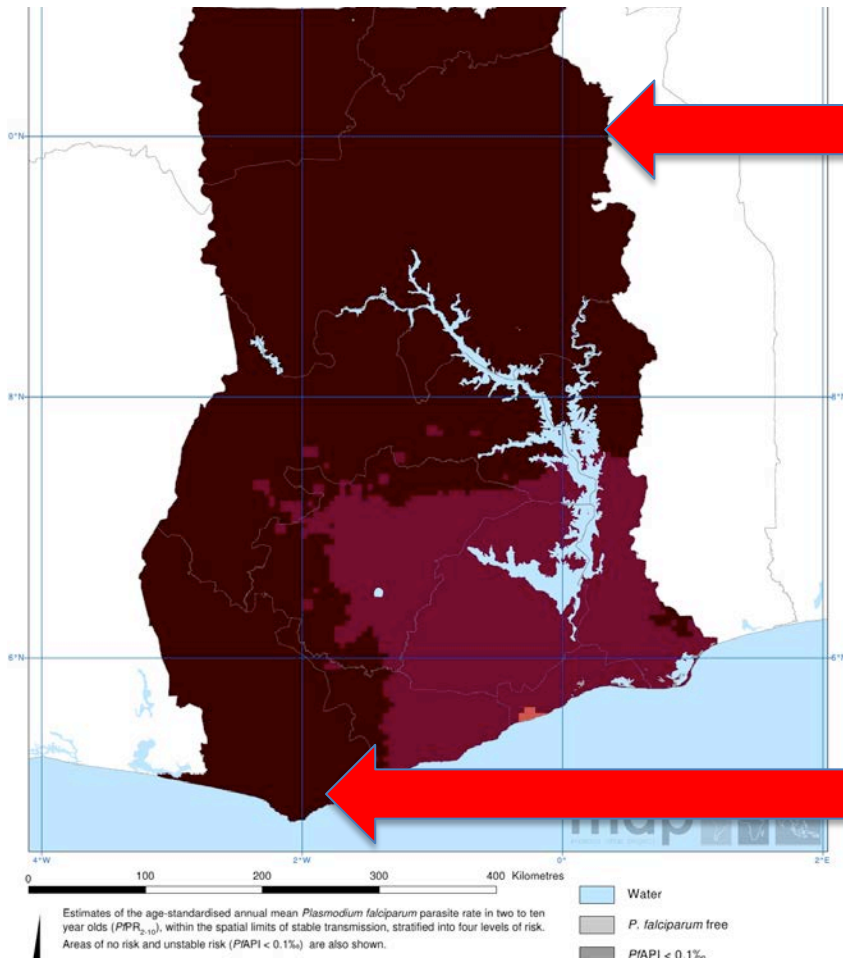
How useful is MDA in high burden countries

- 15 countries bear about 80% of the worlds malaria morbidity
- Many are located in SSA and do not meet the recommendations for MDA.
- MDA may be an elution as a strategy towards elimination
- An accelerated approach is required to merit the use of MDA

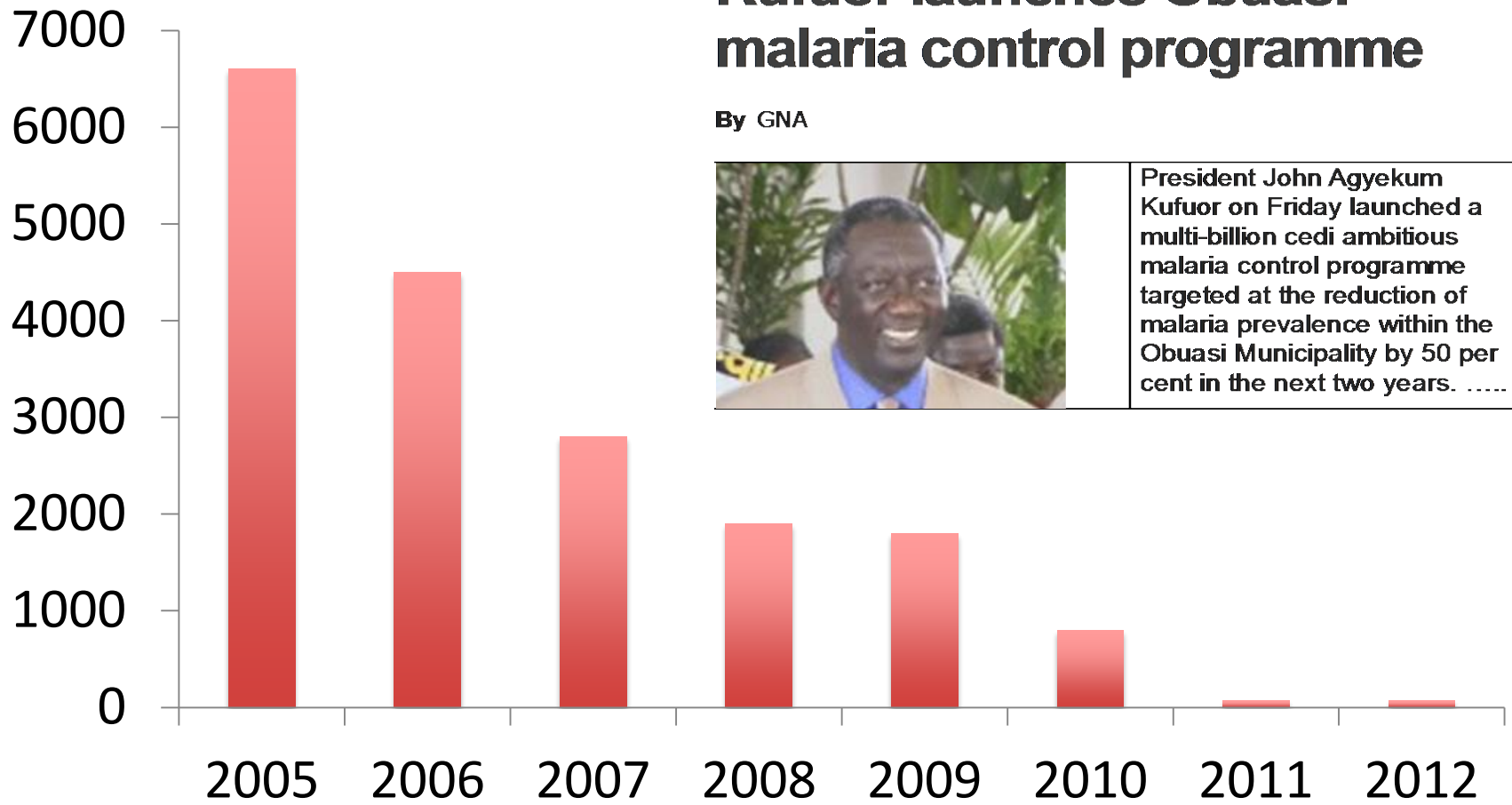


Source: World Malaria Report 2015

A focal target for MDA may be useful



Anglogold Ashanti, 2005 - 2012



Kufuor launches Obuasi malaria control programme

By GNA



President John Agyekum Kufuor on Friday launched a multi-billion cedi ambitious malaria control programme targeted at the reduction of malaria prevalence within the Obuasi Municipality by 50 per cent in the next two years.

Usefulness post MDA

- Most studies have been for a limited period, 12 months (sometimes up to 10 years)^{1,2}
- MDA reduces risk of malaria parasitemia but for a brief period < 6 months

¹Poirot E, et al. Cochrane Database Syst Rev. 2013 Dec 9,

¹Newby et. Al. Am. J. Trop. Med. Hyg., 93(1), 2015

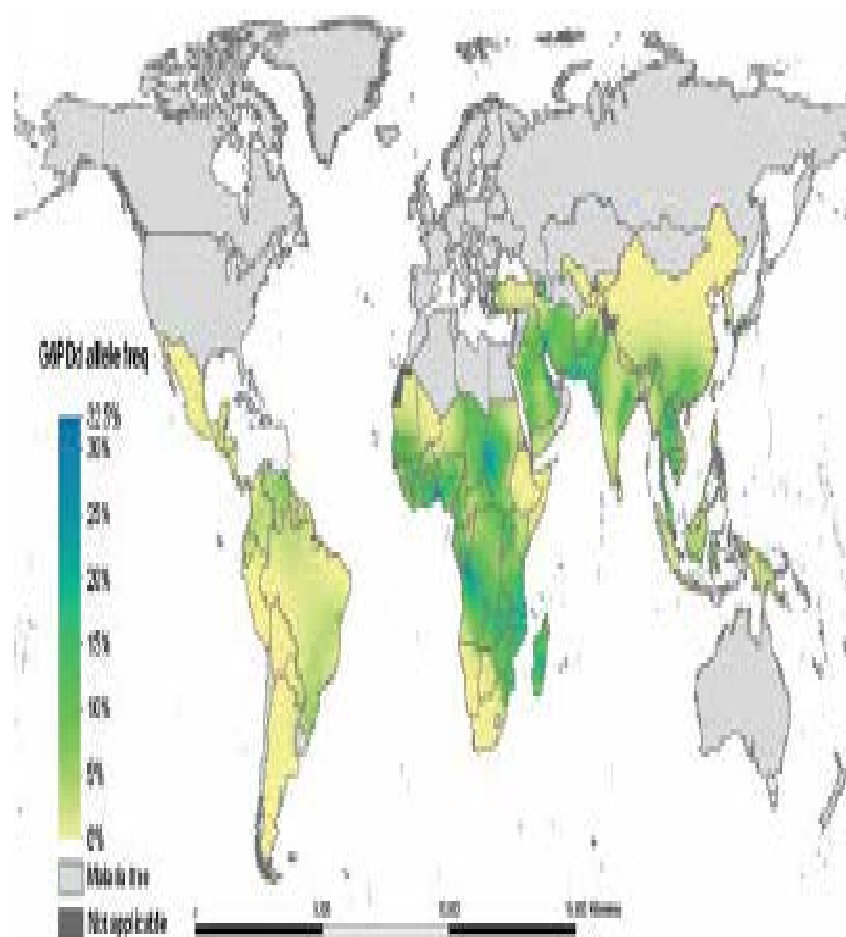
Usefulness by parasite type

- *P. falciparum* than on *P. vivax* are targets for many malaria interventions including MDA
 - MDA may have a greater impact on *P. falciparum* than on *P. vivax* when MDA is administered with same interventions¹
 - Studies differed in drugs used and study area but did not include 8-aminoquinoline
 - Where 8-aminoquinoline were used, the impact of MDA on *P. vivax* was similarly high²

¹Poirot E, et al. Cochrane Database Syst Rev. 2013 Dec 9. ²Am. J. Trop. Med. Hyg., 93(1), 2015, pp. 125–134

Drug choice, safety and delivery

- Characteristics of an appropriate drug
 - Efficacious
 - Long acting
 - Different from first line drug for treatment
 - Preferably single dose
 - Schizonticidal
 - Safety profile
 - Primaquine and G6PD diff.
 - Over 30 million doses given with a good safety profile¹



¹Newby et. Al. Am. J. Trop. Med. Hyg., 93(1), 2015

Drug choice, safety and delivery

- Drugs used previously
 - Chloroquine
 - Pyrimethamine
 - Primaquine
 - ASAQ
- Delivery with others drugs/programs
 - Can MDAs programs ride on others such as NTDs (Ivermectin distribution)?
 - Ongoing studies

ASAQ PCR corrected efficacy in Africa, 2009 - 2014



Source: WWARN Explorer (<http://www.wwarn.org>)

Surveillance structures for malaria indices

- MDA is useful within an existing malaria surveillance system
- Current technology for data collection and management are located in clinics where they exist
- Community approach is beneficial
 - Individualized data
 - Accessibility to analytics for decision making
 - Increasing penetration of internet connectivity provides an opportunity for this.

Surveillance structures for malaria indices

- In areas where health workforce is limited, trained licensed chemical shops and community based agents have been used.



Does MDA lead to resistance?

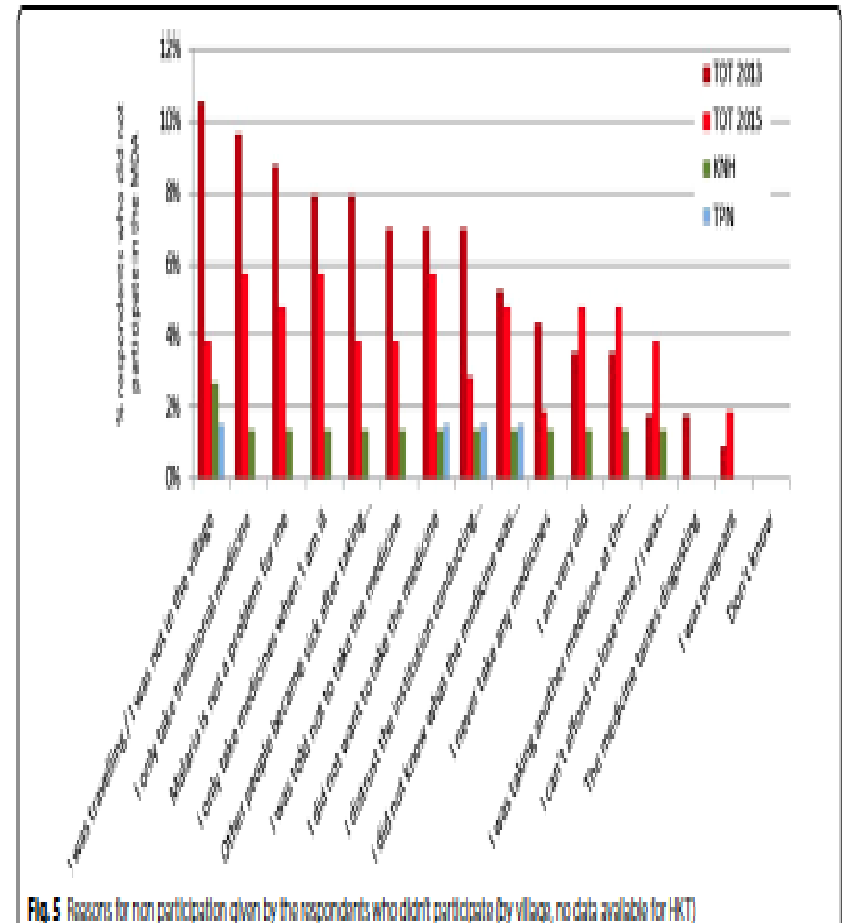
- No clear answers but MDA drug resistance is a major threat to its usefulness.
- Probability of resistance is likely to be higher in situations where parasite density is high and survive over long durations.
 - Need for rapid clearance of parasite load in the community
 - Treatment of clinical cases

MDA useful within a ready community

- Usefulness of MDA can be threatened by community dynamics
 - Rumor of a drug related death Mass Deworming Program in Ghana
 - Polio vaccination program in Northern Nigeria
- Total commitment by community members during challenges
 - Refusal of last known case of malaria to partake in MDA: individual autonomy vs public good
 - Potential to find a rare AE in a large MDA is high
 - Community fatigue when pre-elimination phase is prolonged

Acceptability of Malaria MDA in Thai-Myanmar border

- Massive campaign
- Careful effort to explain malaria transmission and pathogenesis
 - drama
 - Posters
- Impact
 - >80% coverage of MDA
 - Knowledge of malaria improved
- Reasons for non response
 - Travelled out
 - Malaria is not a problem
 - Suspicion of adverse events



What we need to know about MDA usefulness

- MDA with different combinations of drugs
- Drug resistance of drugs for MDA
- Different frequency of MDA at different transmission settings
- At different transmission setting
 - Impact on parasite prevalence, clinical malaria and on transmission
- Cost effectiveness of MDA as an intervention
- Potential impact of MDA with other interventions
 - malaria vaccines

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