

Impact of deployment of Artemether Lumefantrine (AL) with rapid diagnostic tests (RDTs) at community level in Tigray, Northern Ethiopia

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for

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The Tigray region - Background

- Surface area - 80,000 km², 75% malarious
- Population - 4.5 million (81% rural)
- Population access to health service – 56%, at the start of the project
- Hypo endemic transmission: malaria parasite rate from 3-10% to 0-3% – Low immunity, prone to epidemics
- High treatment failure of Sulfadoxine-Pyrimethamine (35.9%, 2003,) – Artemether-lumefantrine as first-line drug for *P. falciparum* since 2004

* Potential Health Service Coverage is calculated by multiplying the total number of PHC Facilities by the respective standard number of population to be served by the total population.



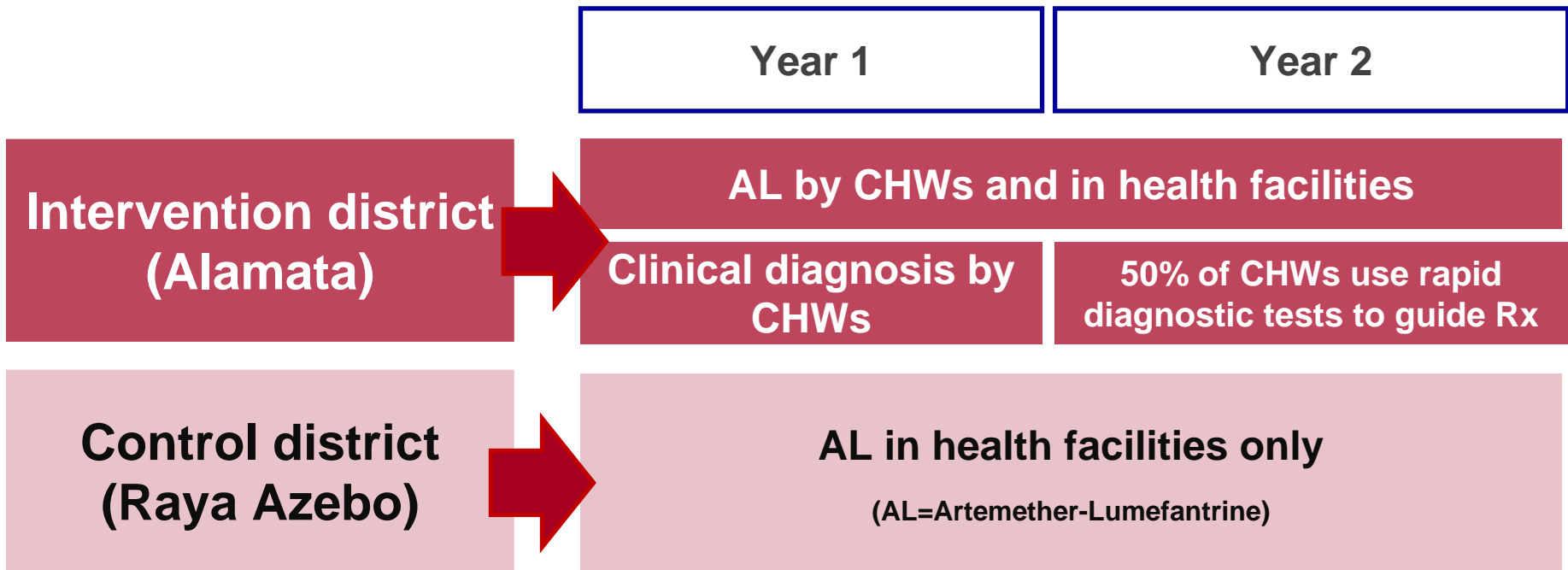
The Tigray Project: Objectives

- To assess the impact of community deployment of artemether-lumefantrine on malaria morbidity, admissions and in-patient deaths, health services utilization and malaria attributable mortality rate
- To assess the feasibility and impact of phased introduction of Rapid Diagnostic Tests (RDTs) at community level to support home-based management of malaria with artemether-lumefantrine

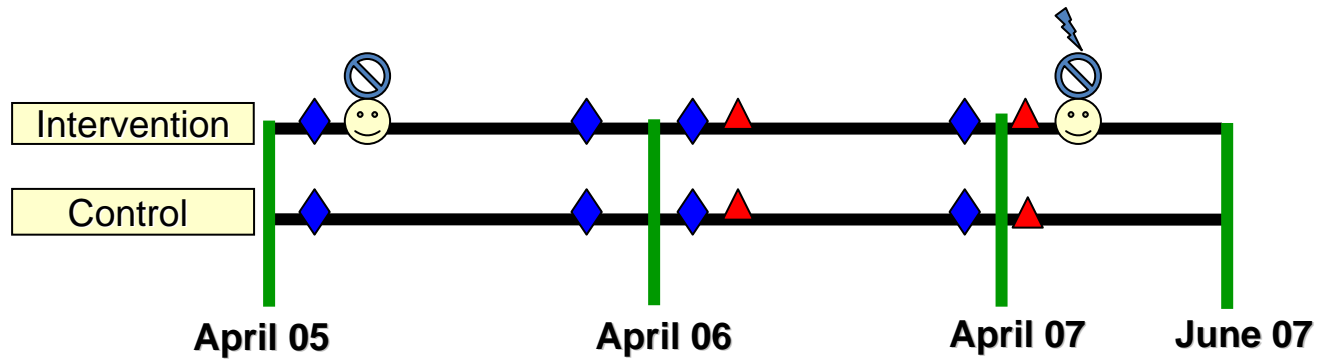
The Tigray Project - Study Districts

	Intervention District (Alamata)	Control District (Raya-Azebo)
Population	124,896 in 64 villages,	114,438 in 58 villages
Altitude range	1438 – 2571 m (81% of the population)	1500 – 1908 m (95% of the population)
Health Service Coverage	24% 33 Voluntary CHWs	36% 56 voluntary CHWs
Ongoing Malaria Control Interventions	Indoor Residual Spraying, Insecticide Treated Nets, Case Management (AL, CQ Quinine)	Indoor Residual Spraying, Insecticide Treated Nets, Case Management (AL, CQ Quinine)

The Tigray Project: Study design

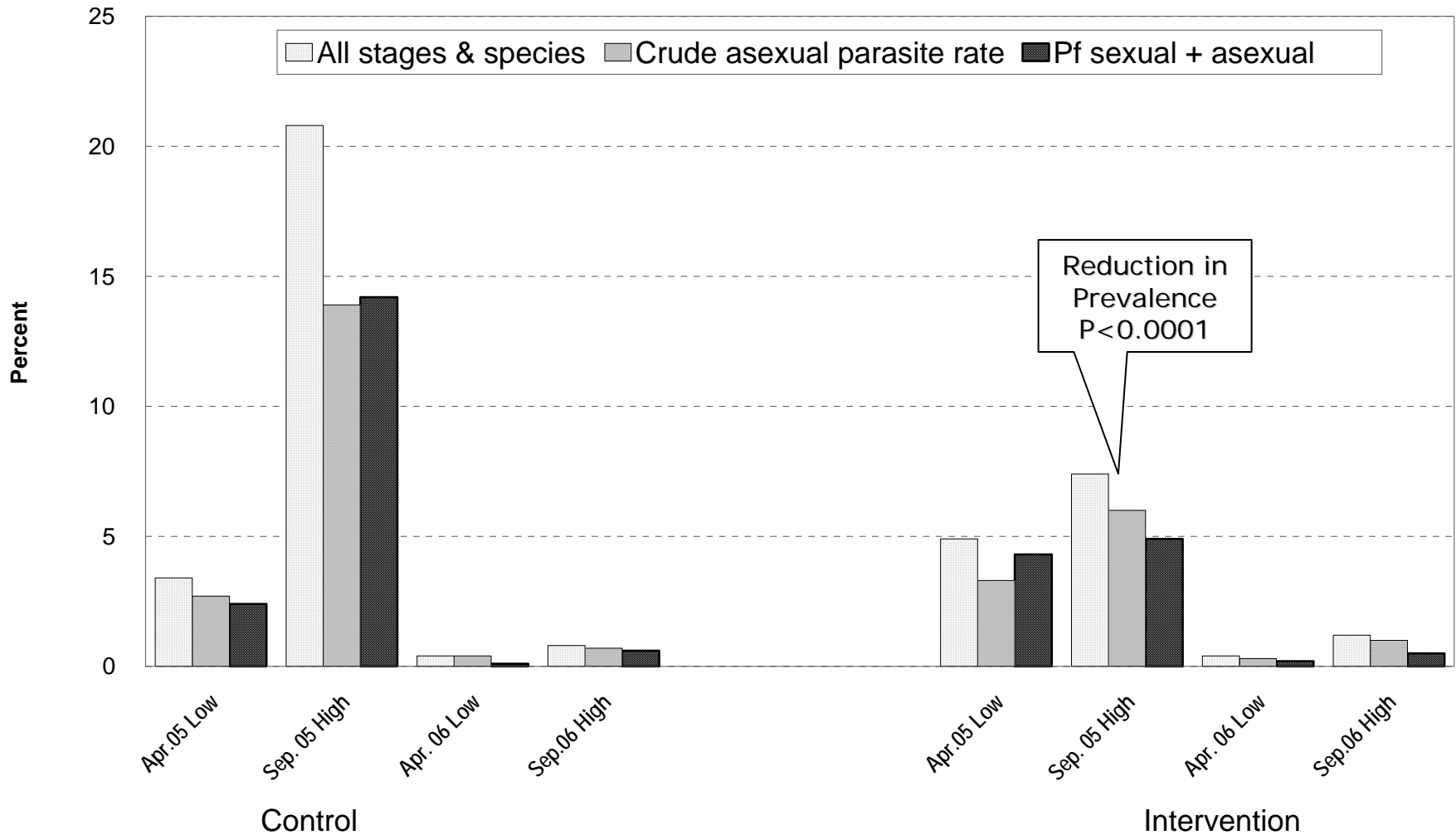


The Tigray Project: Outcome measures



- ◆ Malaria Prevalence survey
- ⊘ Adherence to six dose regimen of Artemether-Lumefantrine
- 😊 Ease of use of RDTs by CHWs
- ⚡ Impact of use of RDTs on malaria management and cost savings
- ▲ Community based malaria mortality survey

Results – Malaria Prevalence



Results - Cost of Treatment with and Without RDTs

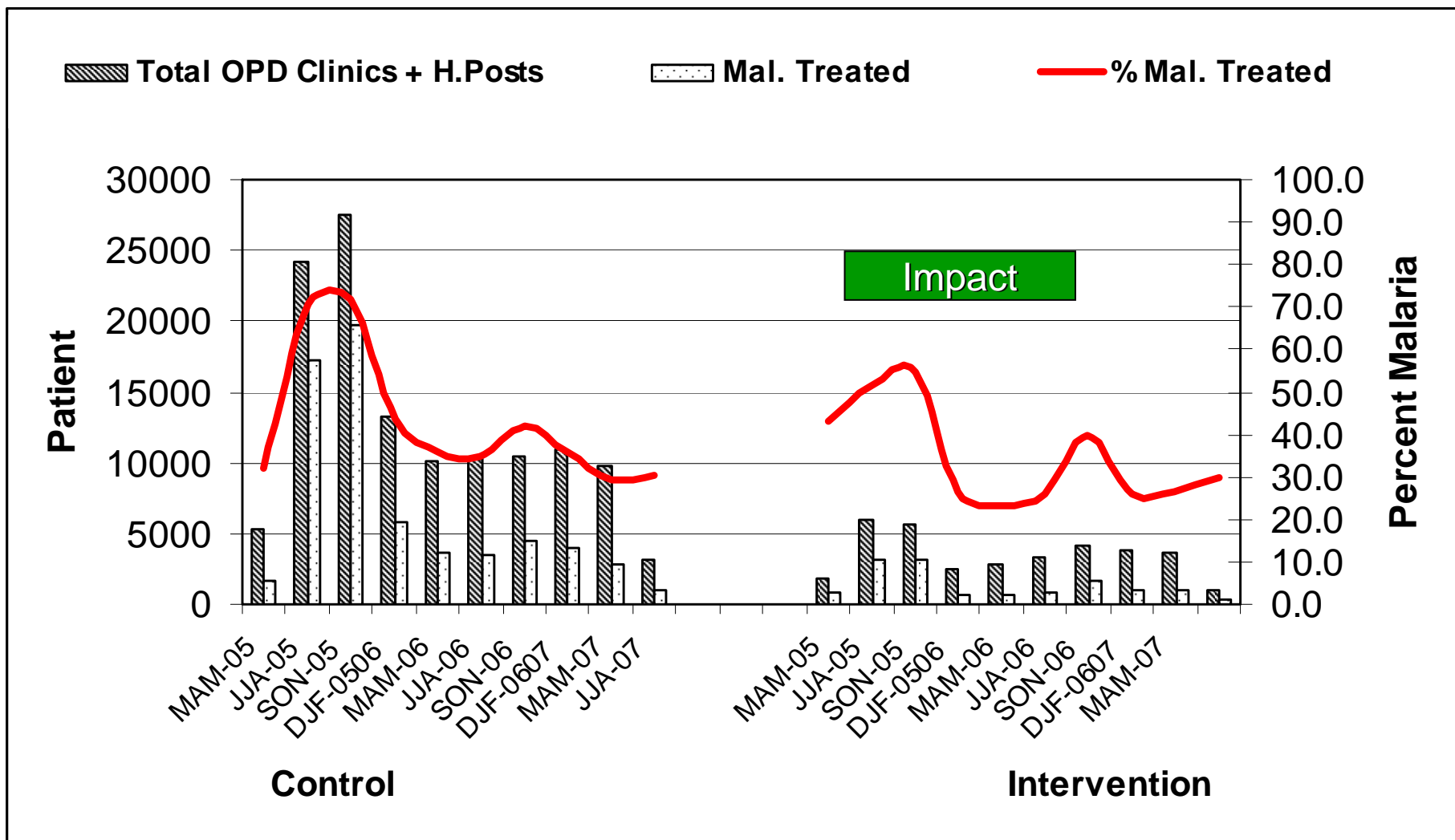
Total examined fever cases	5122
Total P. falciparum cases	527
Total Cost of RDT based treatment (glove, RDTs, AL, CQ for RDT negative fever cases)	USD 4738.60
Theoretical Cost of Treatment if based on clinical diagnosis (no RDTs)	USD 11,940.30

US 0.9 (with RDT)

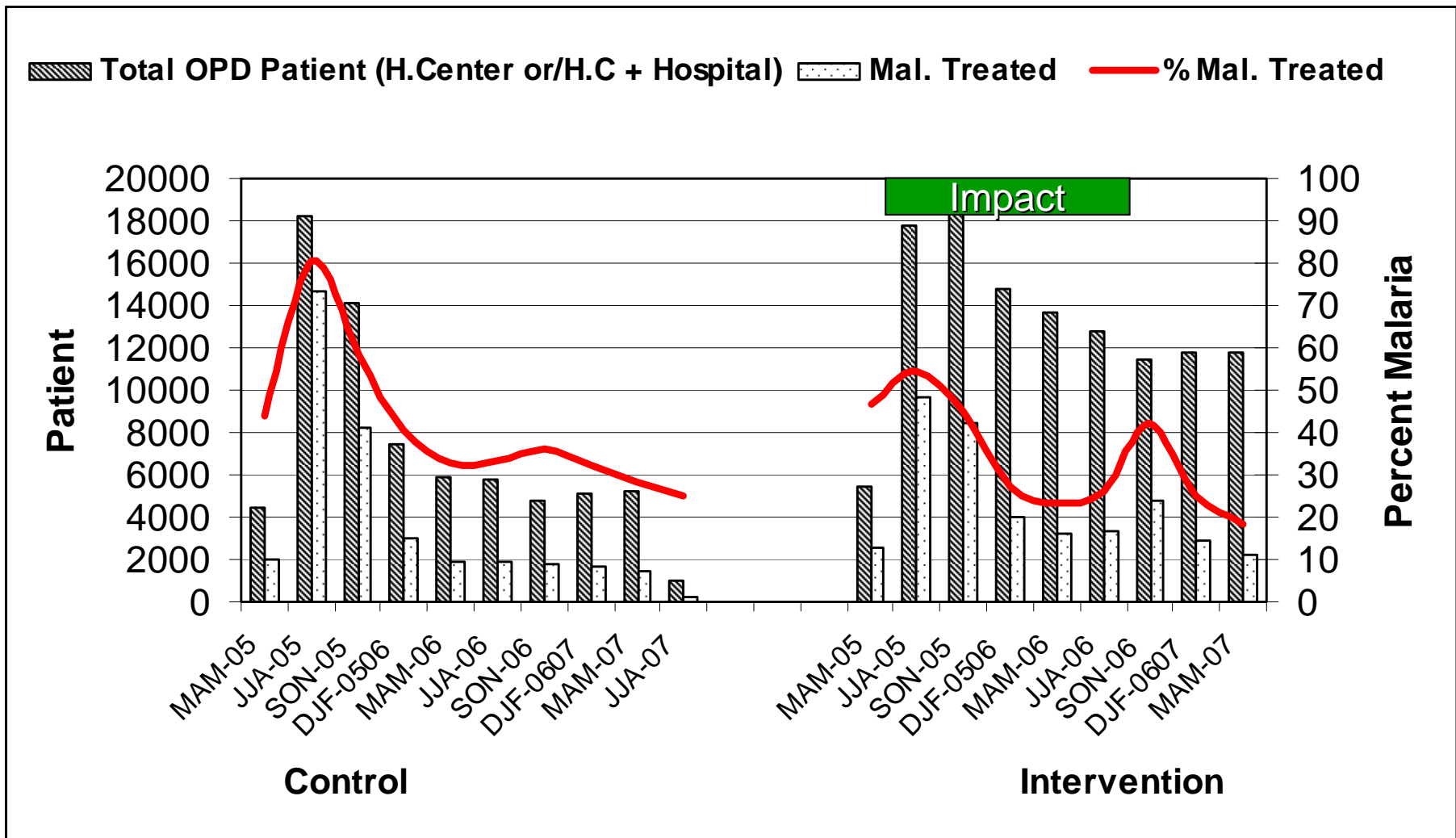
US 2.3 (with no RDT)

Based on Coartem public sector price 2001 - 2006

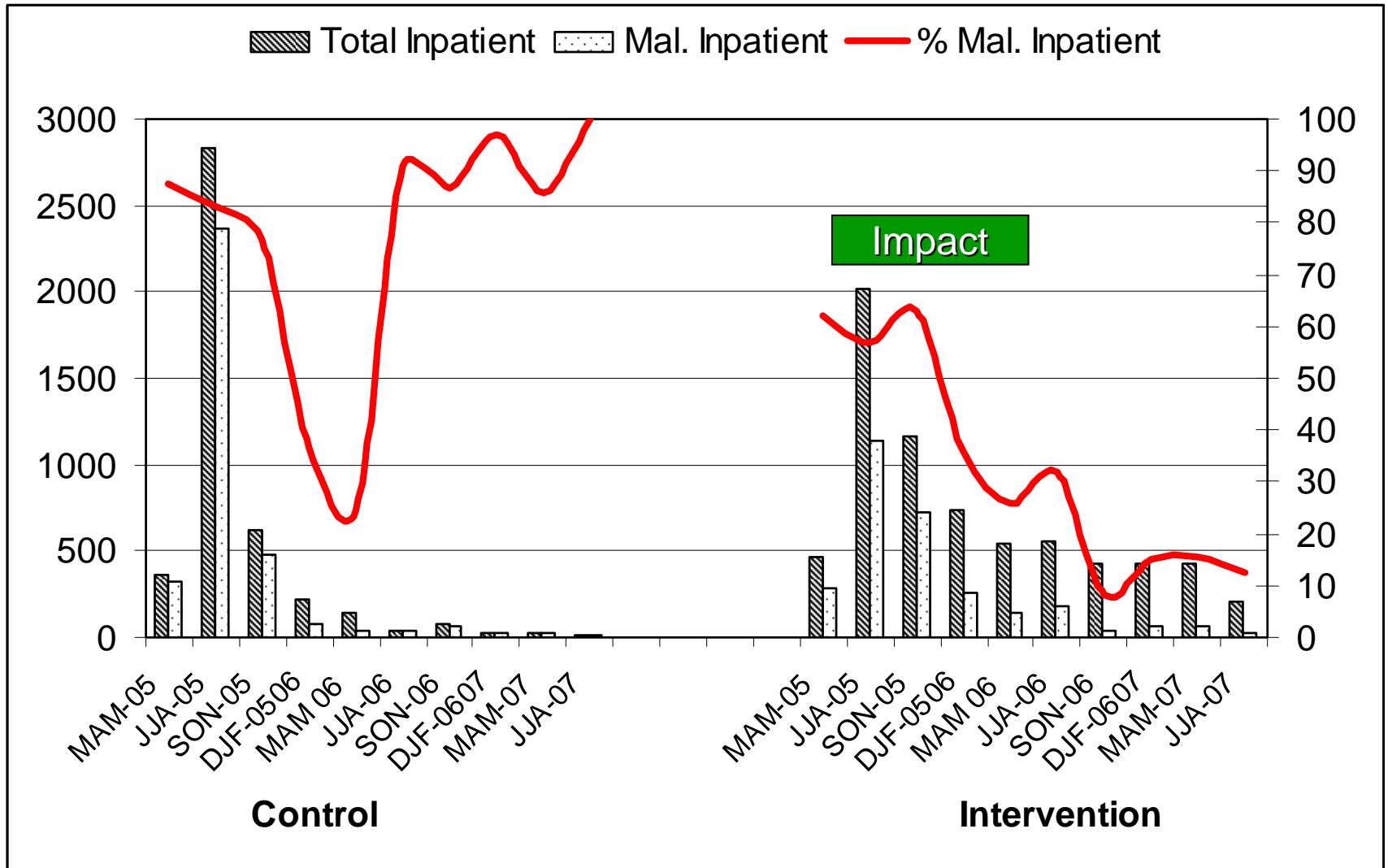
Potential Impact - Quarterly OPD Cases at Clinics and Health Posts



Potential Impact - Quarterly OPD Cases at Health Centres & Hospital



Potential Impact - Quarterly Health Centre & Hospital Inpatient



Mortality Survey

- Rationale: to document mortality in rural areas with limited access to health services
- Mortality survey conducted (verbal autopsy based on an Inter-VA model)* – May 2006
- All deaths during recorded through census in 109 villages,
- Data collected by 109 trained enumerators,
- VA questionnaire was adapted and translated into the local language,
- A second survey conducted in the same villages using the same tools April 2007

● * Fantahun, M., E. Fottrell, Y. Berhane, S. Wall, U. Högberg, and P. Byass, Assessing a new approach to verbal autopsy interpretation in a rural Ethiopian community: the InterVA model. *Bulletin of the World Health Organisation*, 2006. **84**(3): p. 204-210.

Results of Mortality Survey – Year I

	Intervention district (Alamata)	Control district (Raya Azebo)	Total
Total population	133,518	106,995	240,513
Number of deaths	720	656	1,376
Number of deaths due to malaria*	28	44	72
Deaths due to malaria/ 1,000 population	0.21	0.41	0.30

- Incidence Rate Ratio = 0.52x, P=0.014; 95% CI 1.1, 5.4

*Based on verbal autopsy interviews

Summary

- Community deployment of AL with RDT
 - Improves access to service close to home and reduces the burden on health facilities,
 - Contributes to marked decline in malaria related deaths
 - Reduces the risk of malaria specific mortality during epidemics
 - Proves feasibility of use of RDT and AL at community level
 - Saves the total cost of disease management at community level compared to clinical diagnosis

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