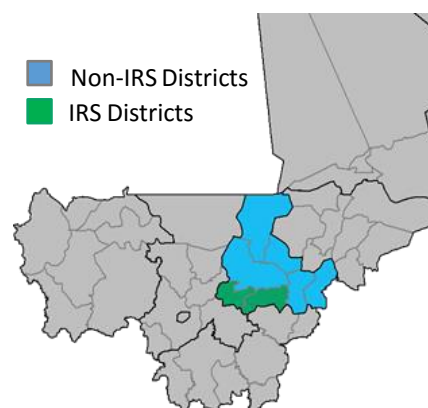


Evidence snapshot: Third generation IRS (3GIRS) in Ségou Region, Mali

Background:

The Ségou Region in central Mali has a high malaria burden: in 2013, parasite prevalence in children younger than 5 years of age was 56%.¹ Though many people in Ségou sleep under insecticide-treated mosquito nets (ITN) to help prevent malaria infection¹, the mosquitoes in Mali are highly resistant to the kind of insecticide used on nets (pyrethroids).^{2,3}

In 2014, some districts in Ségou participated in the US President's Malaria Initiative (PMI) Africa Indoor Residual Spraying (AIRS) project. Houses in these districts were sprayed with a newer, 3GIRS product⁴: Actellic® 300CS, which contains an encapsulated organophosphate insecticide, pirimiphos-methyl (PM).



The epidemiological impact of 3GIRS in Mali, 2014⁴:

In the six months after houses were sprayed with Actellic® 300CS, IRS districts reported malaria incidence rates **36% lower** than the non-IRS districts. This corresponds to **76,260 fewer cases** of malaria recorded at health centers from the IRS districts, compared to what was seen in the comparable non-IRS districts.

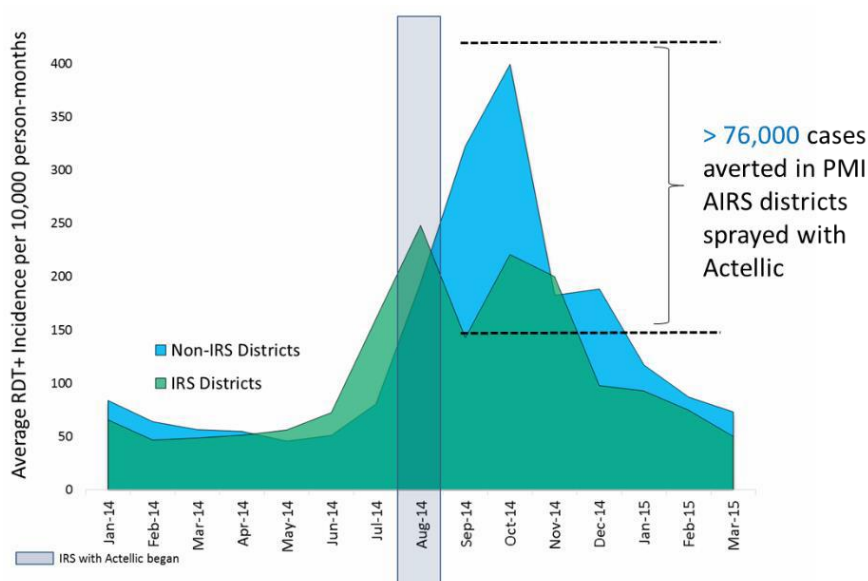


Figure 1. After spraying Actellic® 300CS in 2014, the incidence of malaria cases reporting to public health centers was reduced by 36% compared to neighboring districts without an IRS intervention.



The entomological impact of 3GIRS in Mali, 2014:

Of note, the same 2014 IRS campaign was associated with decreases in the numbers of mosquitoes collected during entomological surveillance. In IRS areas, significant reductions were observed in the number of malaria mosquitoes:

- ↓ Resting Indoors (**79% fewer mosquitoes in IRS districts**)
- ↓ Biting Indoors (**93% fewer mosquitoes in IRS districts**)
- ↓ Biting Outdoors (**84% fewer mosquitoes in IRS districts**)

Evidence snapshot: Third generation IRS (3GIRS) in Ségou Region, Mali

The epidemiological impact of shifting IRS operations to Mopti Region in 2017:

After the 2016 spray campaign, IRS activities were shifted from one district in Ségou Region to four districts in Mopti Region. The effects were striking (Figure 2).

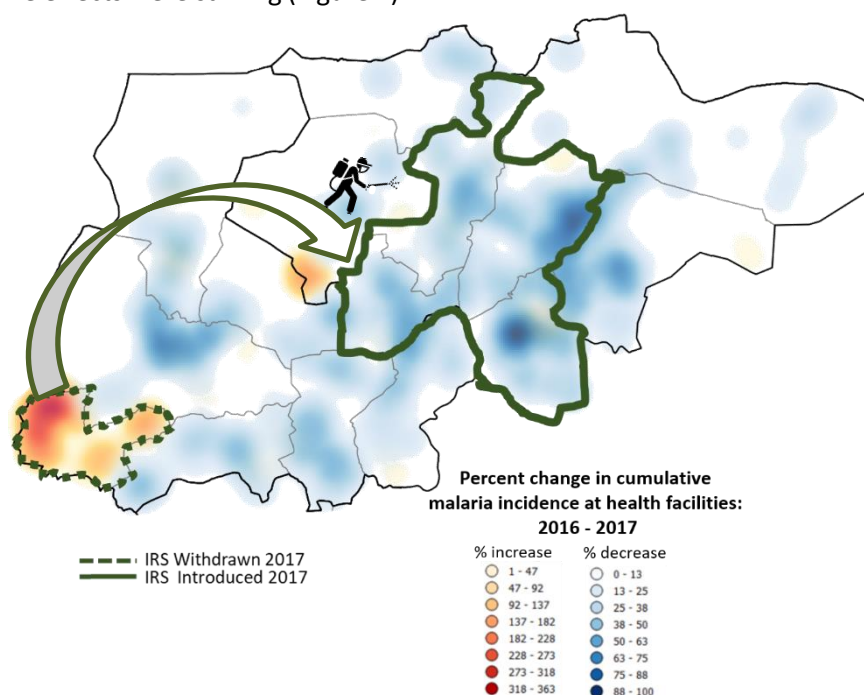
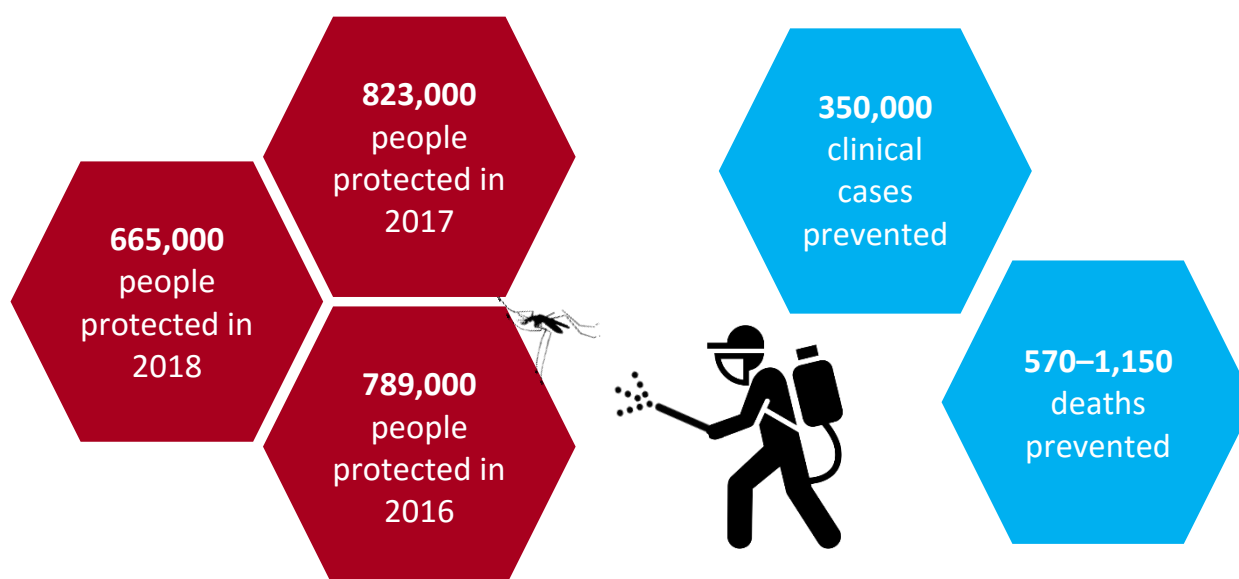


Figure 2. After 3GIRS operations were shifted from Ségou to Mopti in 2017, malaria case incidence rates went significantly up (**106%**) in districts where IRS was suspended and significantly down (**42%**) in districts where IRS was introduced.

Mali first participated in the project in 2016. Since then, NgenIRS investments have increased the number of people protected by 3GIRS products substantially:



¹2013 Demographics and Health Surveys. ²PMI, 2016. Mali: Entomological Monitoring of 2015 IRS Activities. ³Cisse, et al. 2015. Mal J. 14:327, ⁴Wagman, et al. 2018. Mal J. 17:19

‡ 3rd generation IRS products are effective against pyrethroid-resistant vectors and have a residual efficacy of at least 6 months.