

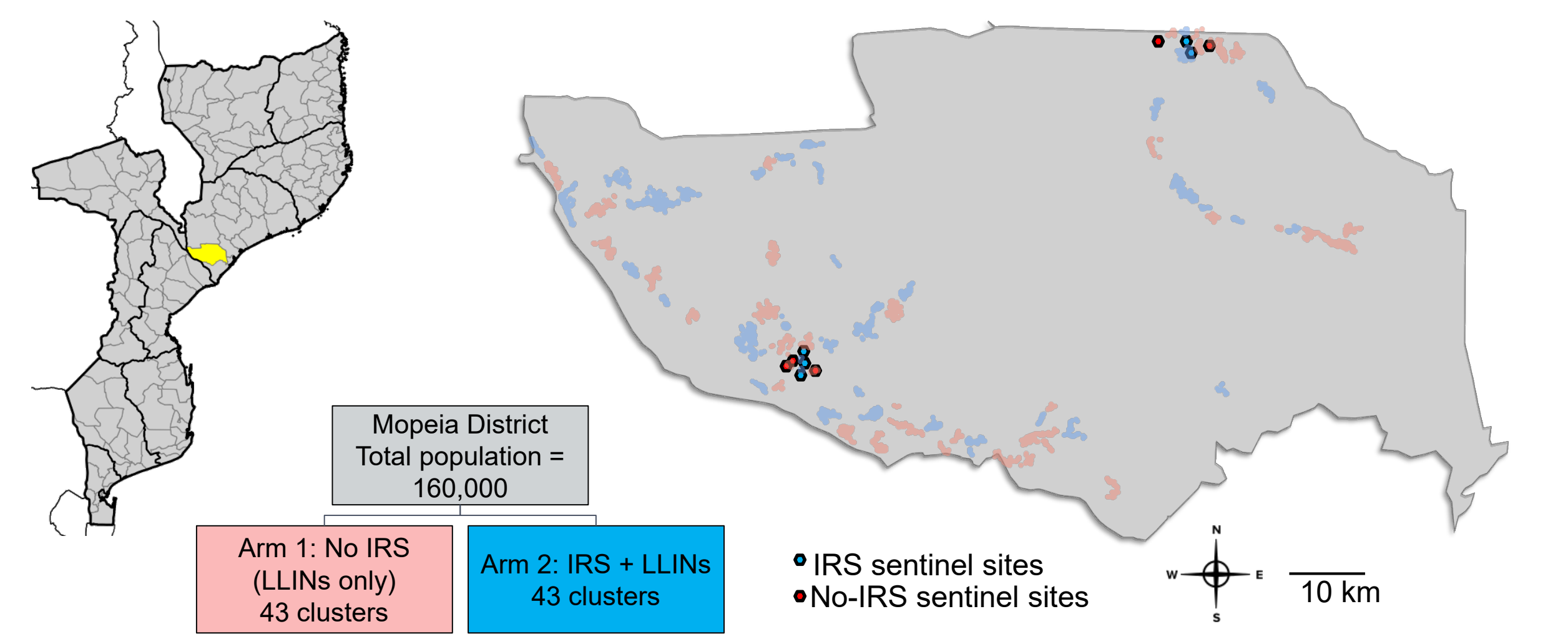
The Impact of Third-Generation IRS in a High Malaria Burden District of Mozambique

Entomological Surveillance Results from a Cluster-Randomized Controlled Trial

Joseph Wagman¹, Aklilu Seyoum², Stephen Magesa², Kenysson Varela², Rodaly Muthoni², Christelle Gogue¹, Kenzie Tynuv¹, Carlos Chaccour³, Francisco Saúde³, Rose Zulliger⁴, Abuchahama Saifodine⁴, Baltazar Candrinho⁵, Jason Richardson⁶, Christen Fornadel⁶, Laurence Slutsker¹, Molly Robertson¹
jwagman@path.org; mrobertson@path.org

Background

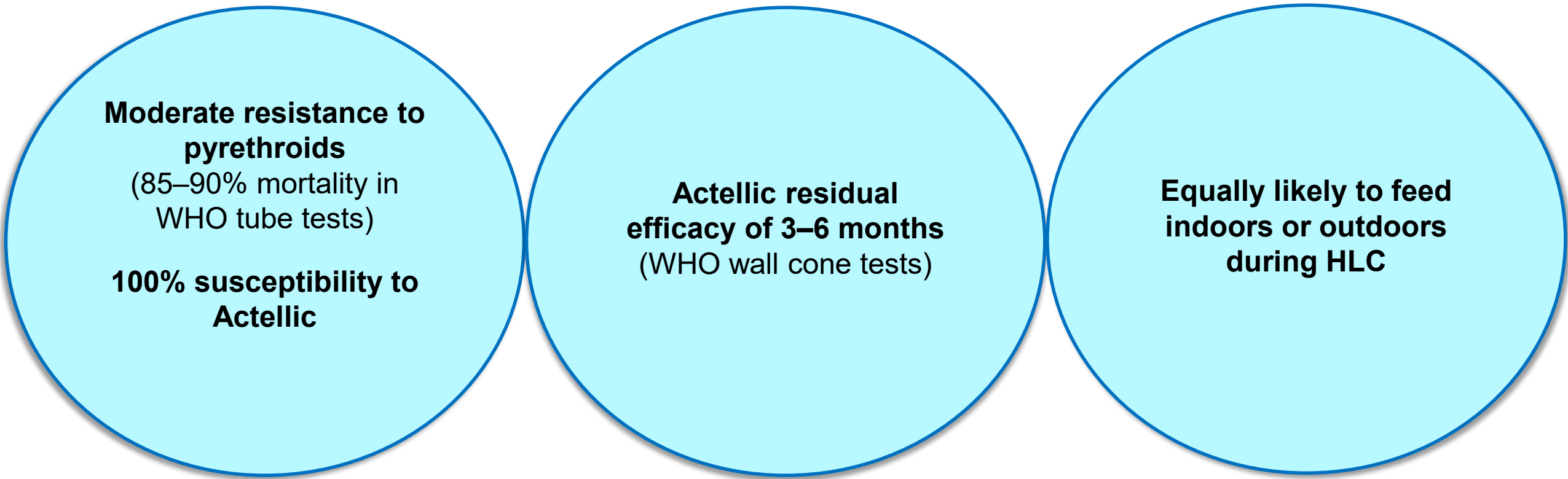
The district of Mopeia, in the Zambezia Province of central Mozambique, has a high burden of malaria despite high levels of coverage with long-lasting insecticidal nets (LLINs). In this context, a two-year, two-armed, cluster-randomized controlled trial (CRT) was conducted to **evaluate the impact of indoor residual spraying (IRS) with Actellic®300CS, a third-generation IRS* (3GIRS) product, in addition to standard LLINs.**



All clusters benefited from a universal LLIN coverage campaign in 2017—household ownership of at least one net was over 90% in both study arms in 2018.

Vector Bionomics

An. funestus s.s. was the dominant vector throughout the trial:
93% of *Anopheles* collected; 97% of sporozoite positive specimens

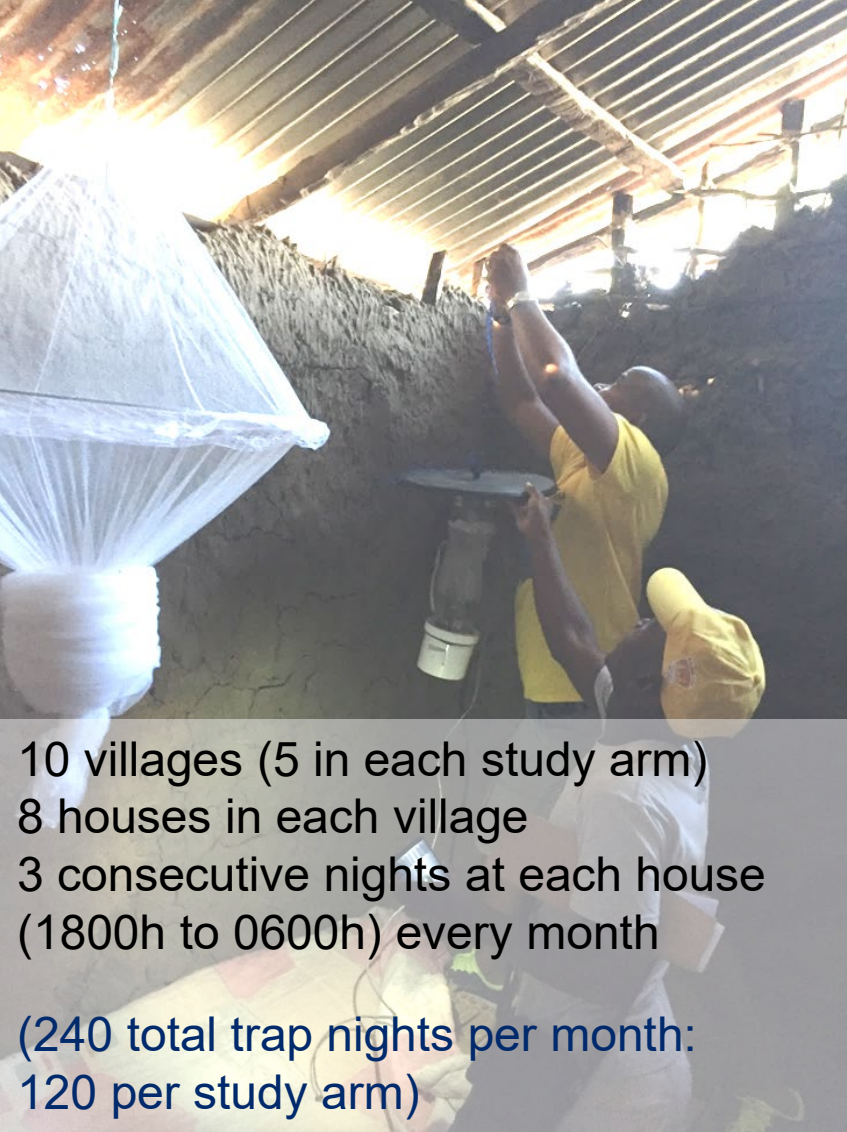


An. gambiae s.s., *An. rivulorum*, *An. coustani* s.s., and *An. namibiensis* specimens also tested positive for malaria sporozoites and were likely secondary vectors.

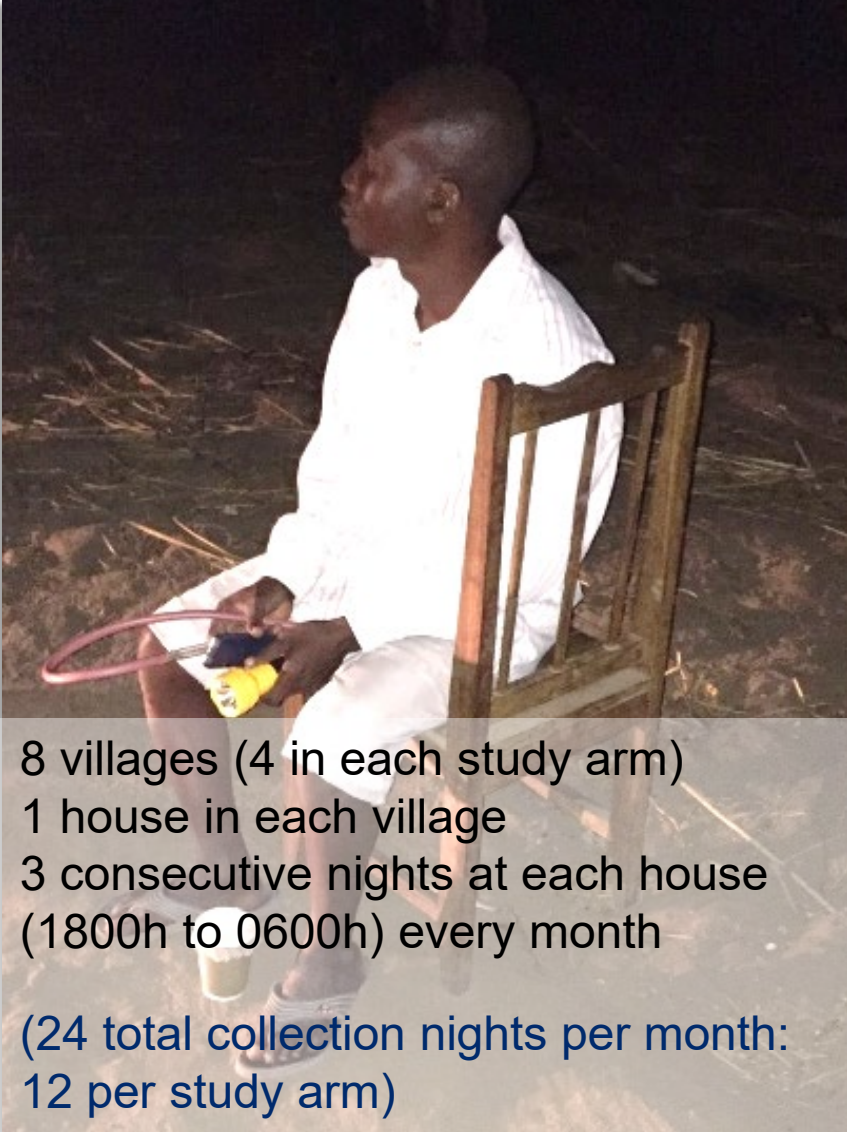
Methods

The impact on vector populations of 3GIRS on top of standard LLINs was assessed through indoor CDC light trap collections and paired indoor-outdoor human landing collections.

CDCLT = CDC miniature light trap

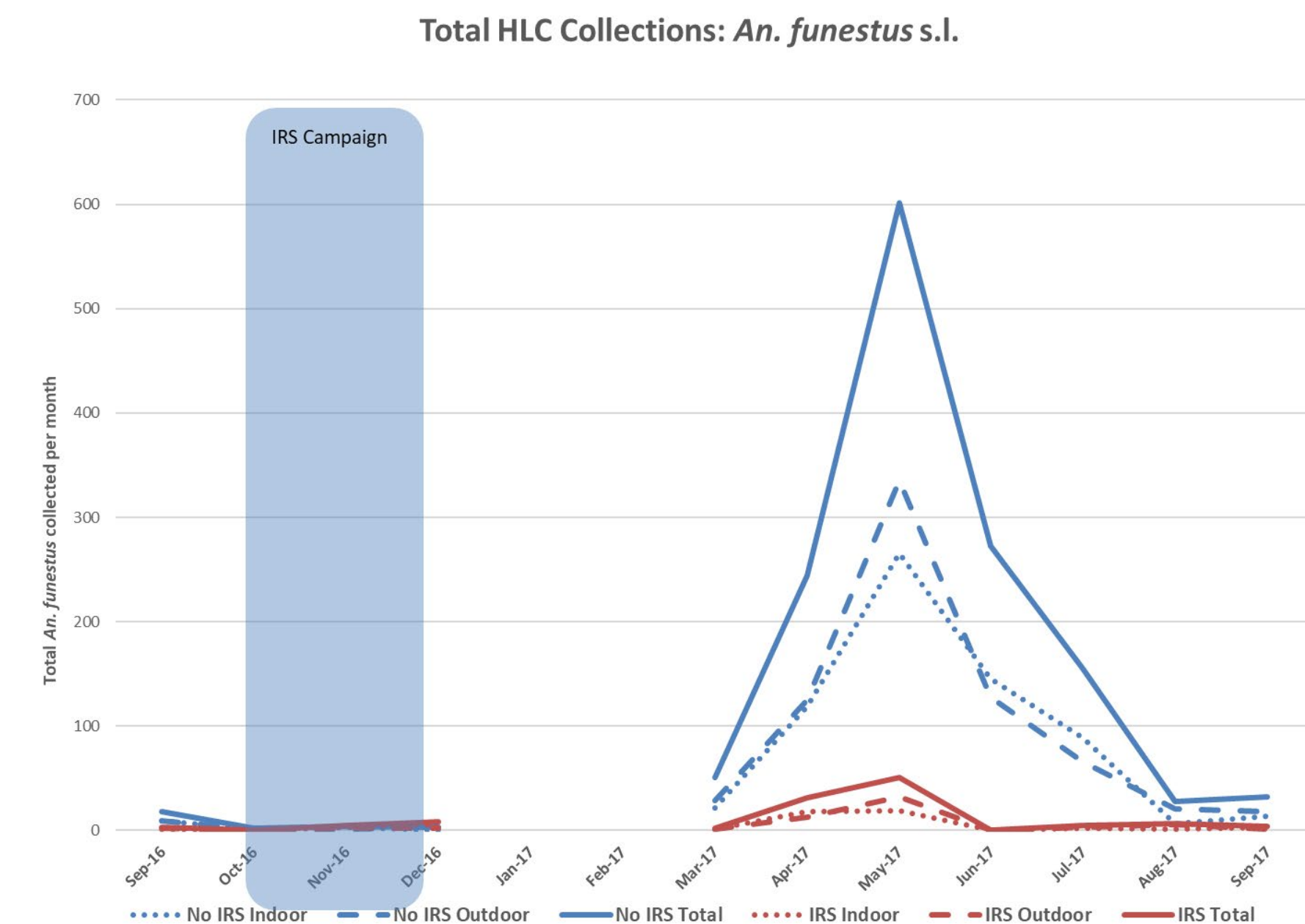
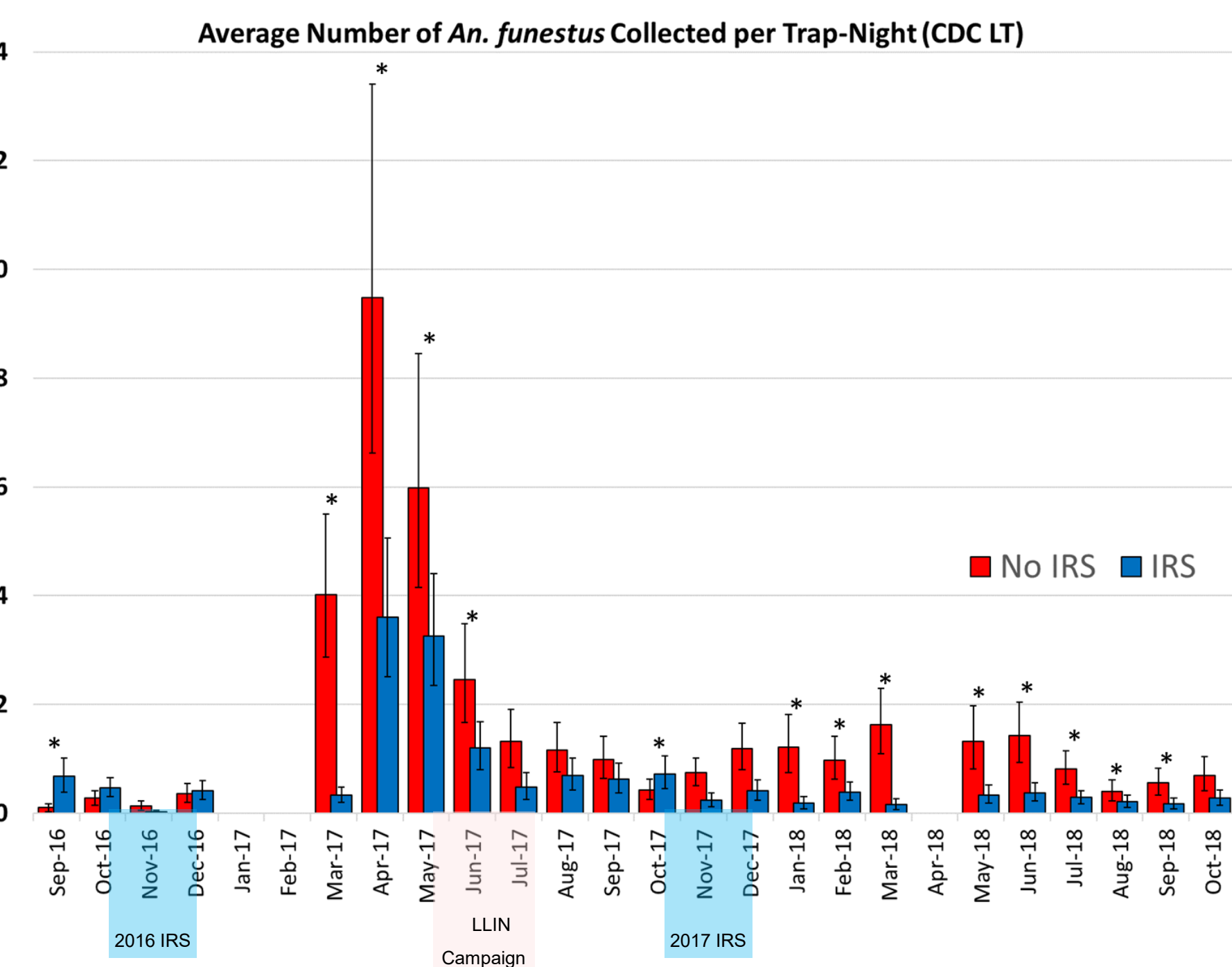
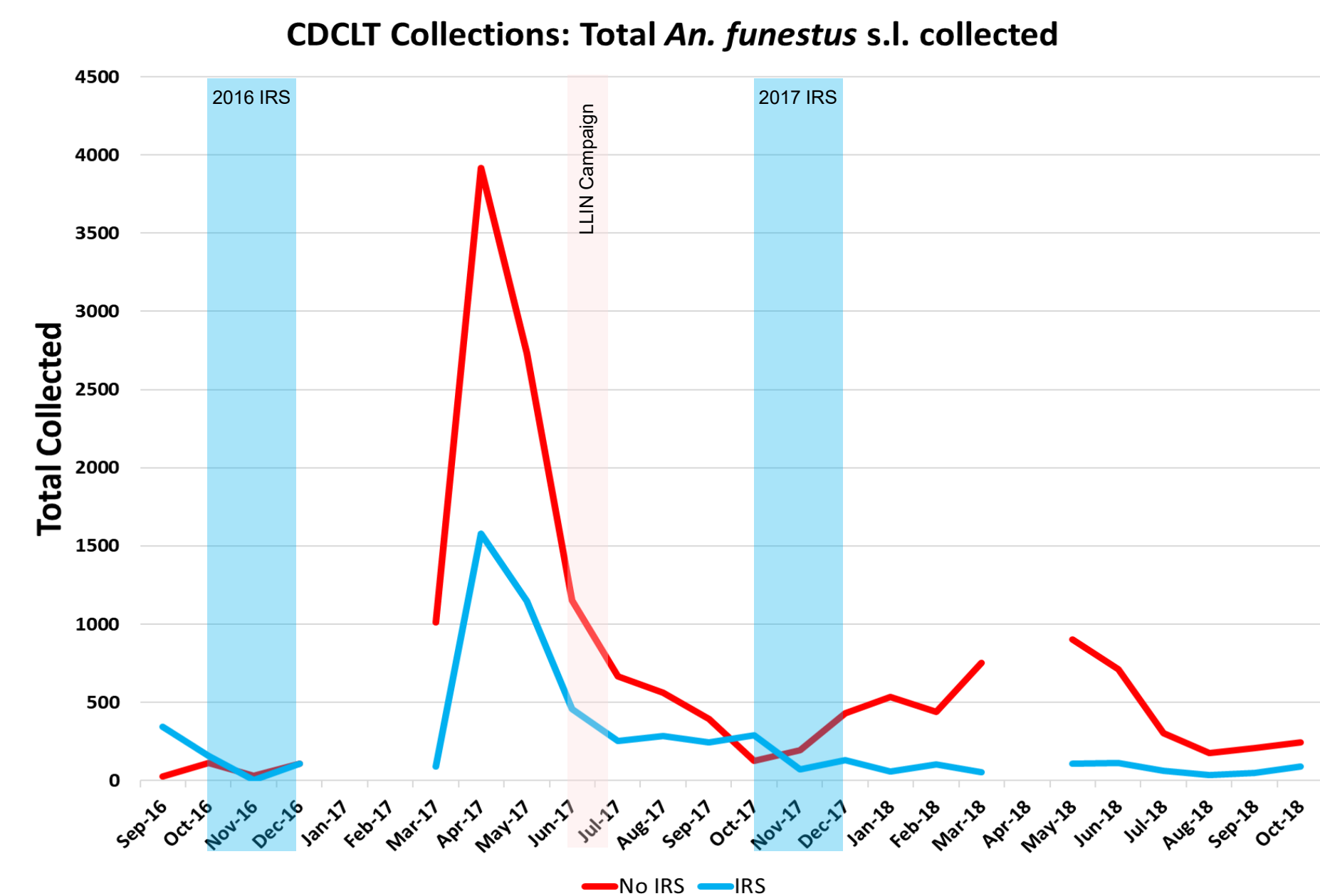
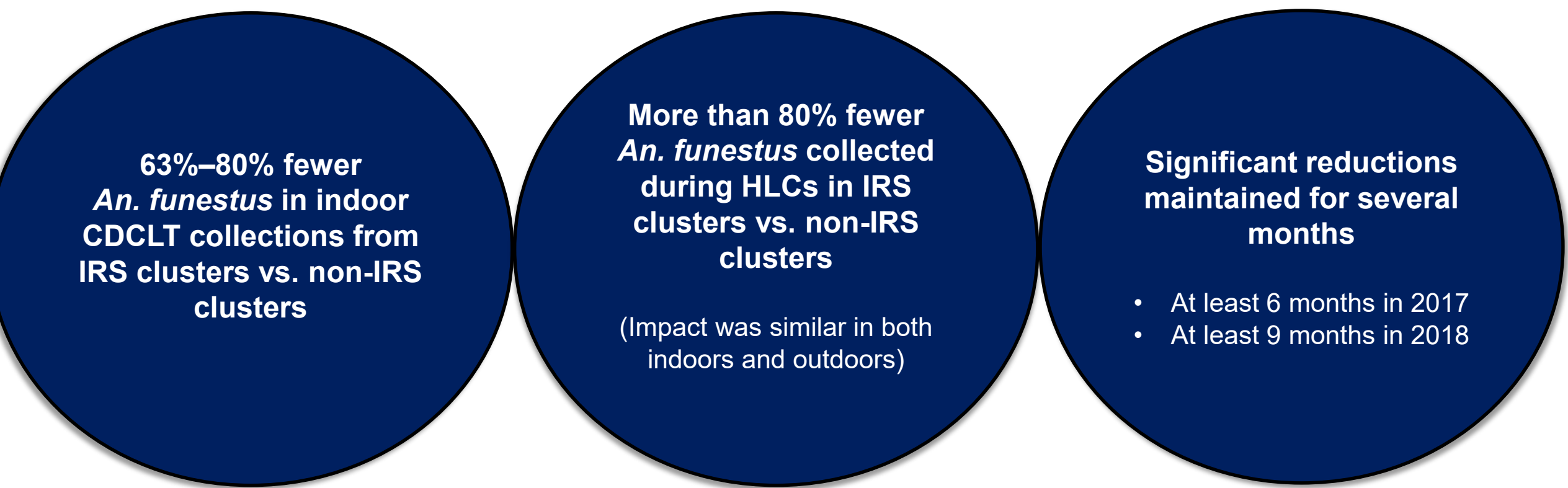


HLC = human landing collection



Results

The IRS campaigns had a significant, substantial impact on reducing exposure to *An. funestus*.



*The NgenIRS (Next Generation IRS) project is a partnership, led by IVCC, that includes the US President's Malaria Initiative, Abt Associates, and PATH. NgenIRS works in close collaboration with leading insecticide manufacturers, national malaria control programs, the Global Fund, and other stakeholders to save lives and protect health by reducing transmission of malaria through affordable indoor residual spraying of long-lasting, non-pyrethroid insecticides. It is funded by Unitaid. For more information, please visit www.ivcc.com/market-access/ngenirs or email David McGuire, Programme Director (david.mcguire@ivcc.com).

The 3GIRS campaigns of 2016 and 2017, co-deployed with an LLIN universal coverage campaign, substantially reduced human exposures to malaria vectors in Mopeia.

There was significant additional impact when co-implementing both WHO-recommended vector control strategies in these high-burden communities with pyrethroid-resistant vectors.



* Third-generation IRS (3GIRS) products are those that are effective against pyrethroid-resistant mosquitoes and have a residual efficacy of at least 6 months.