



Partnership To End Malaria

30th of January, 2019

4th IRS IRM Priorities Work Stream meeting

NgenIRS Project Update: *Building an Evidence Base for 3GIRS*

Molly Robertson – Evidence Lead

Presentation Summary

NgenIRS Background and Update 2 – 7

Overcoming market failure

Creating an Evidence Base

Evidence of Impact 7 – 16

Mozambique CRT Design

Mozambique CRT Impact – Ento

Mozambique CRT Impact – ACD

Observational Impact – Mali

Observational Impact – Northern Ghana

MERG Task Force – a problem

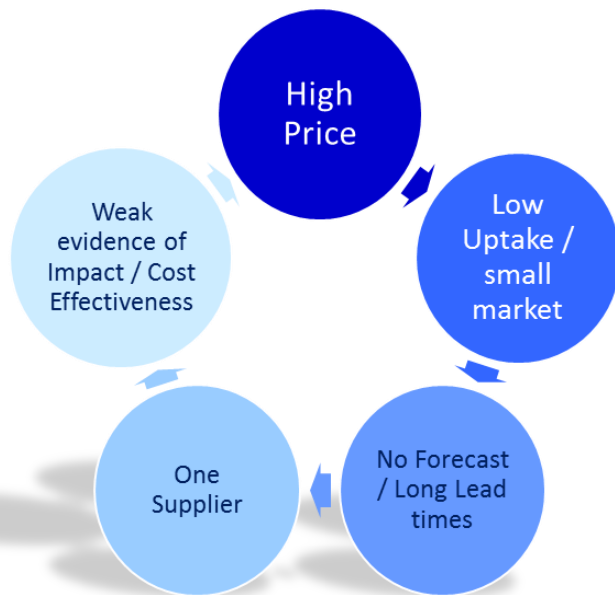
MERG Task Force – working to a solution



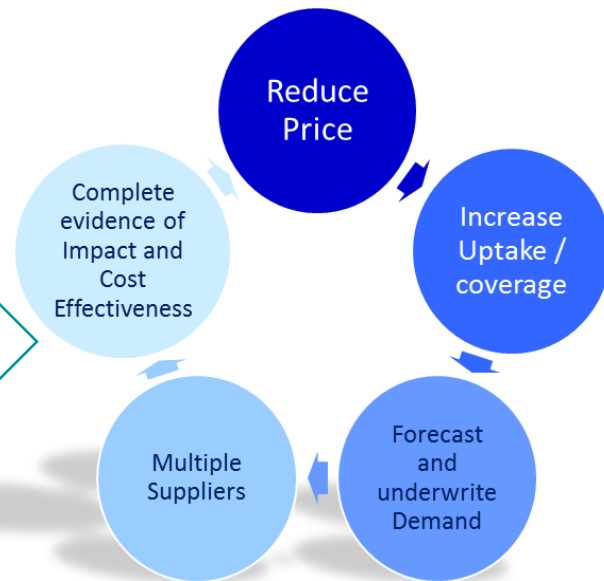
Future Plans 17 – 18

Project Rationale and Pillars of Catalytic Market Shaping

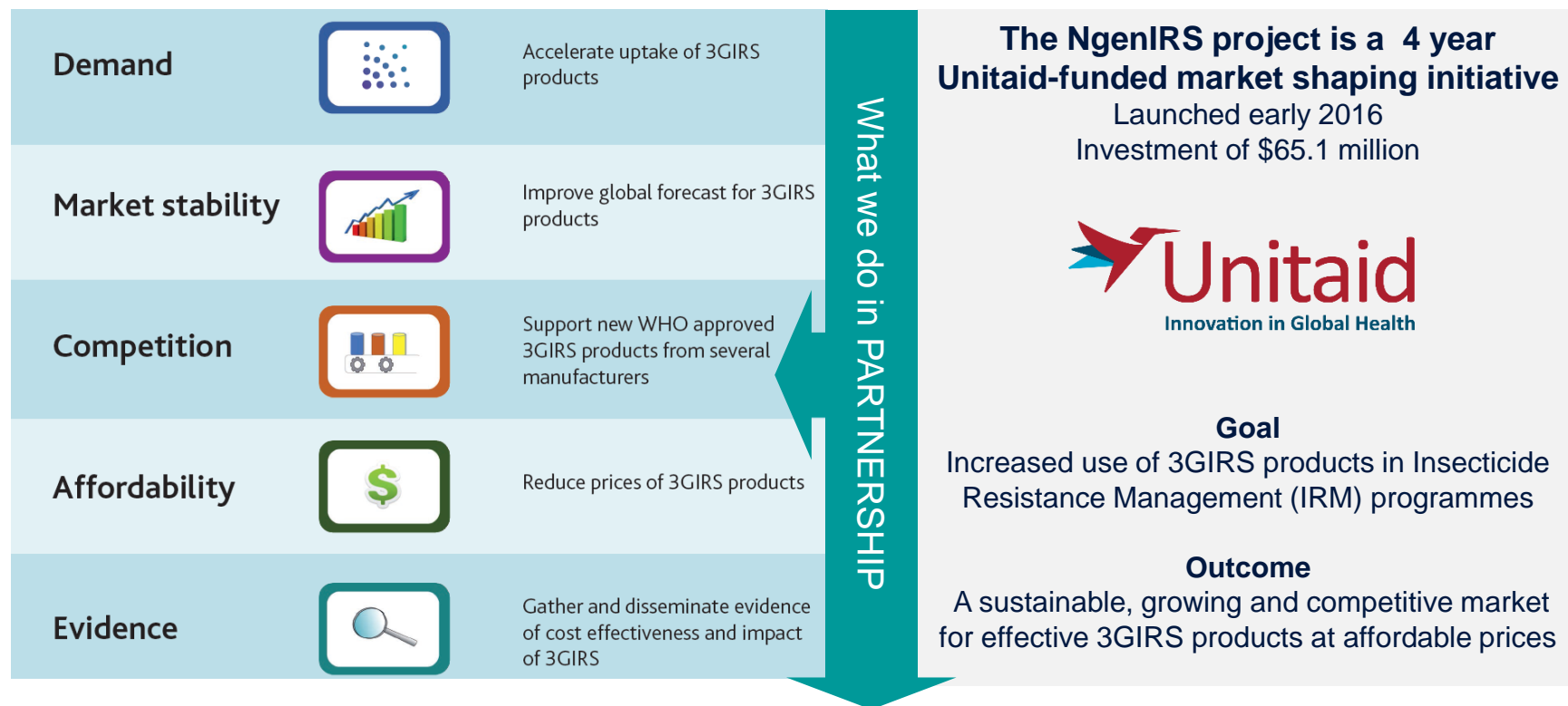
The Market for 3rd Generation IRS Underlying Causes of Shortcomings



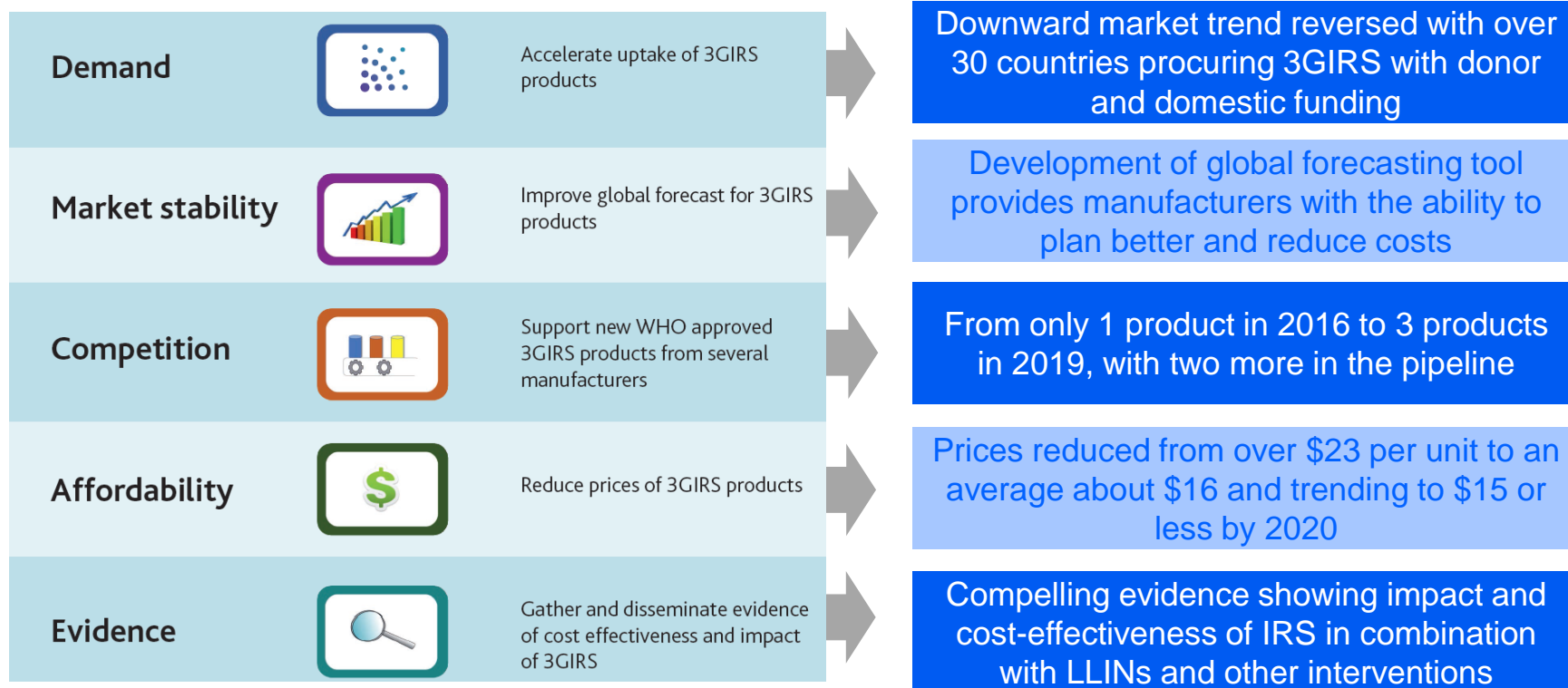
Market Shaping Intervention



Project Goal, Objectives and Strategies



Project Accomplishments (2016 – 2018)



The Global Fund
To Fight AIDS, Tuberculosis and Malaria



PATH
1000+ 1111111111

BILL & MELINDA GATES foundation

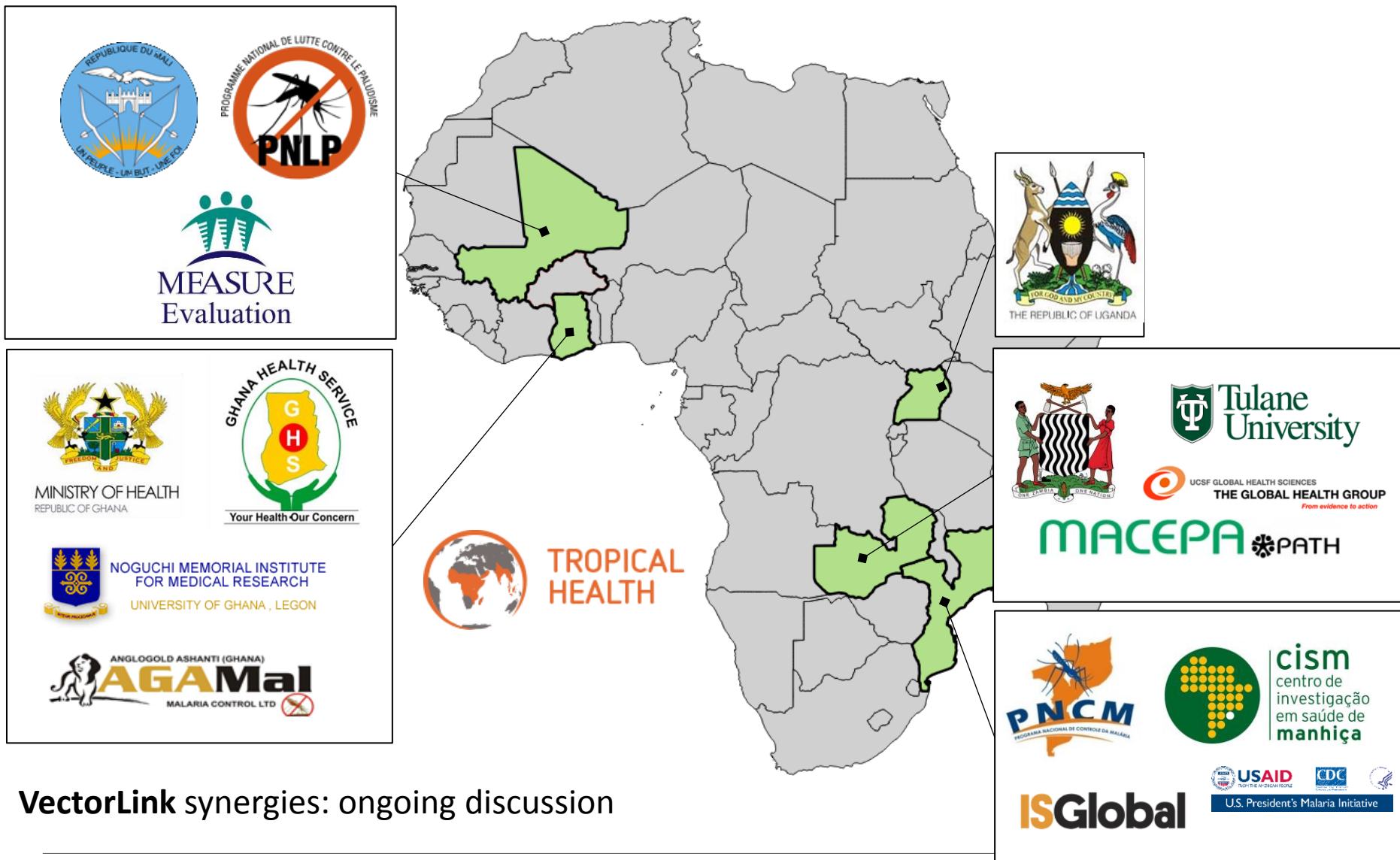
syngenta



SUMITOMO CHEMICAL



Impact and Cost-effectiveness of 3GIRS: Developing a Robust Evidence Base



VectorLink synergies: ongoing discussion

Impact and Cost-effectiveness of 3GIRS: Developing a Robust Evidence Base

Mali: Observational analysis of impact of IRS (including 3GIRS) from 2011-2014 in Segou

Analysis of shifting IRS to Mopti

Upcoming - costing

Ghana: Observational analysis of the impact of 3GIRS in Northern Savannah of Ghana

Upcoming analysis of previously unsprayed areas and introduction of SumiShield in 2018

+ costing

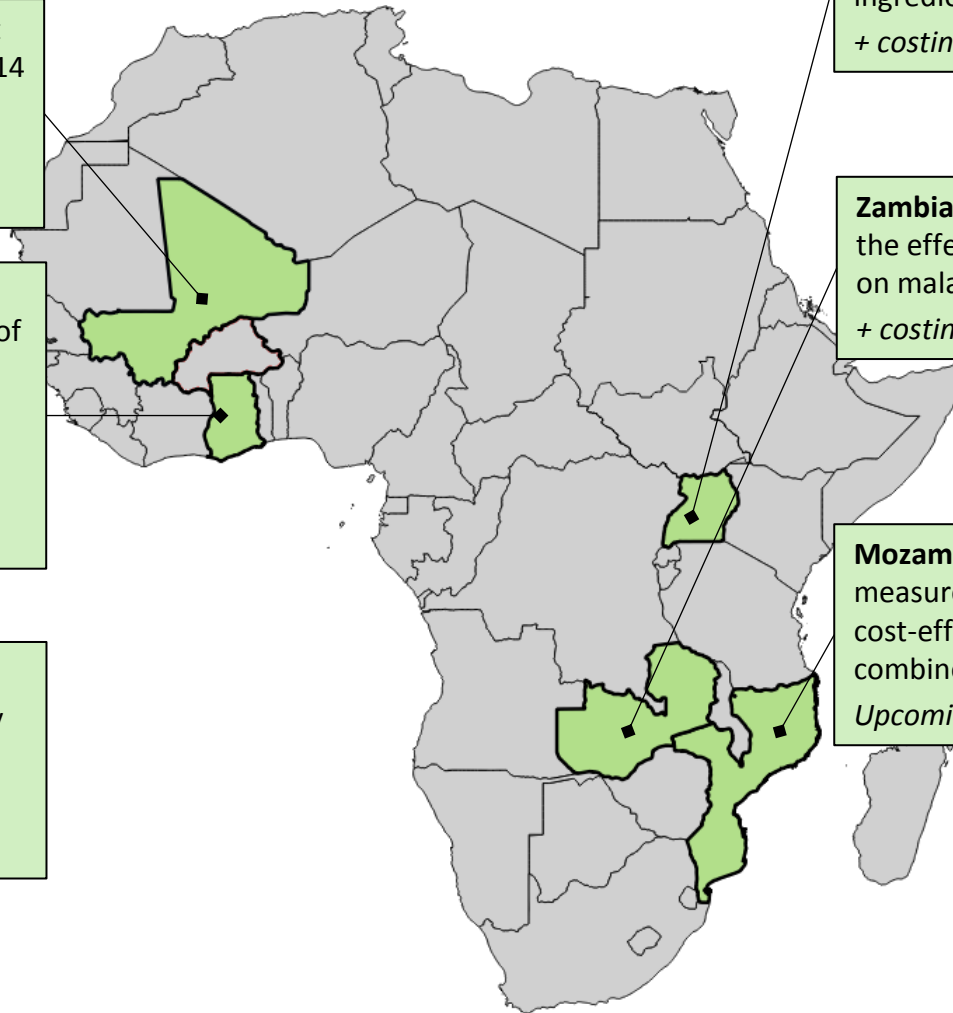
Cross-cutting activities:

- Global Costing Framework & country costing
- Review of IRS indicators
- Topic-based multi-country analyses

Uganda: Support analysis of the impact of switching active ingredients to a 3GIRS product
+ costing

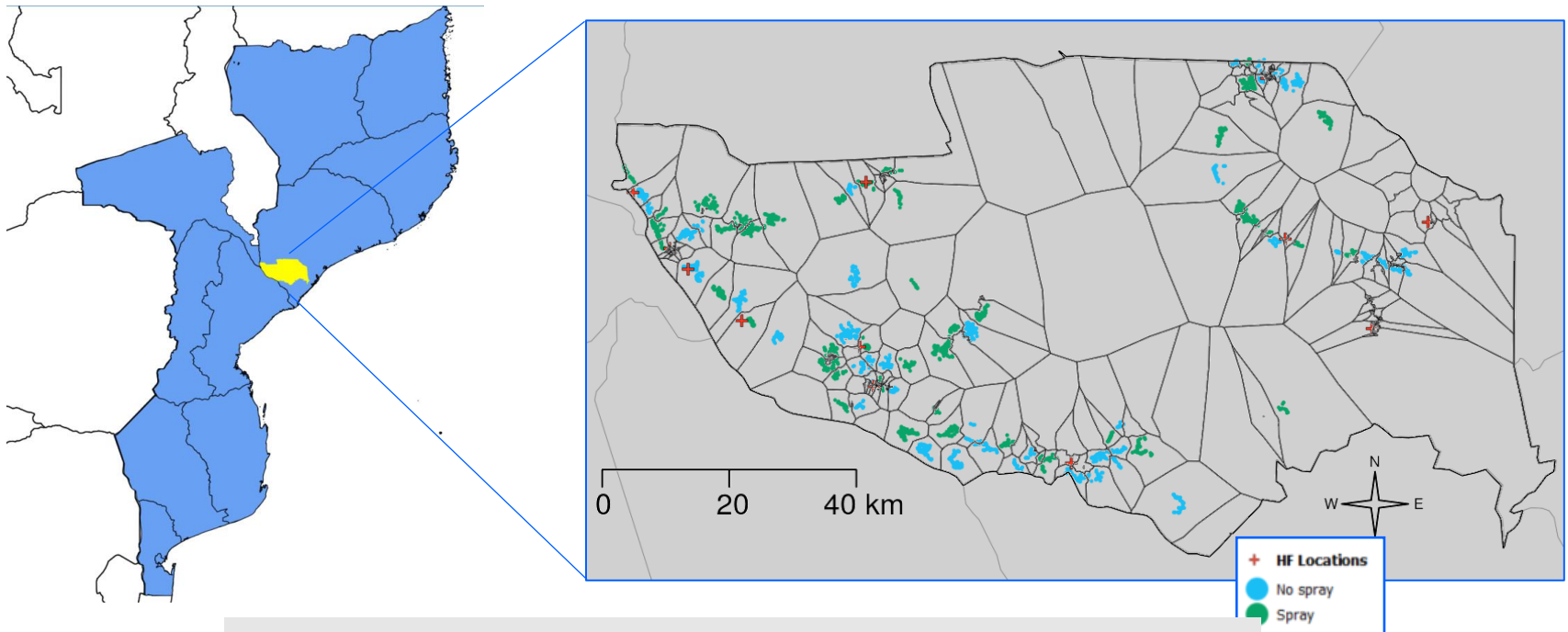
Zambia: Retrospective evaluation of the effectiveness of IRS with Actellic on malaria transmission
+ costing

Mozambique: Prospective CRT to measure the health impact and cost-effectiveness of 3GIRS combined with LLINs
Upcoming analysis of SumiShield



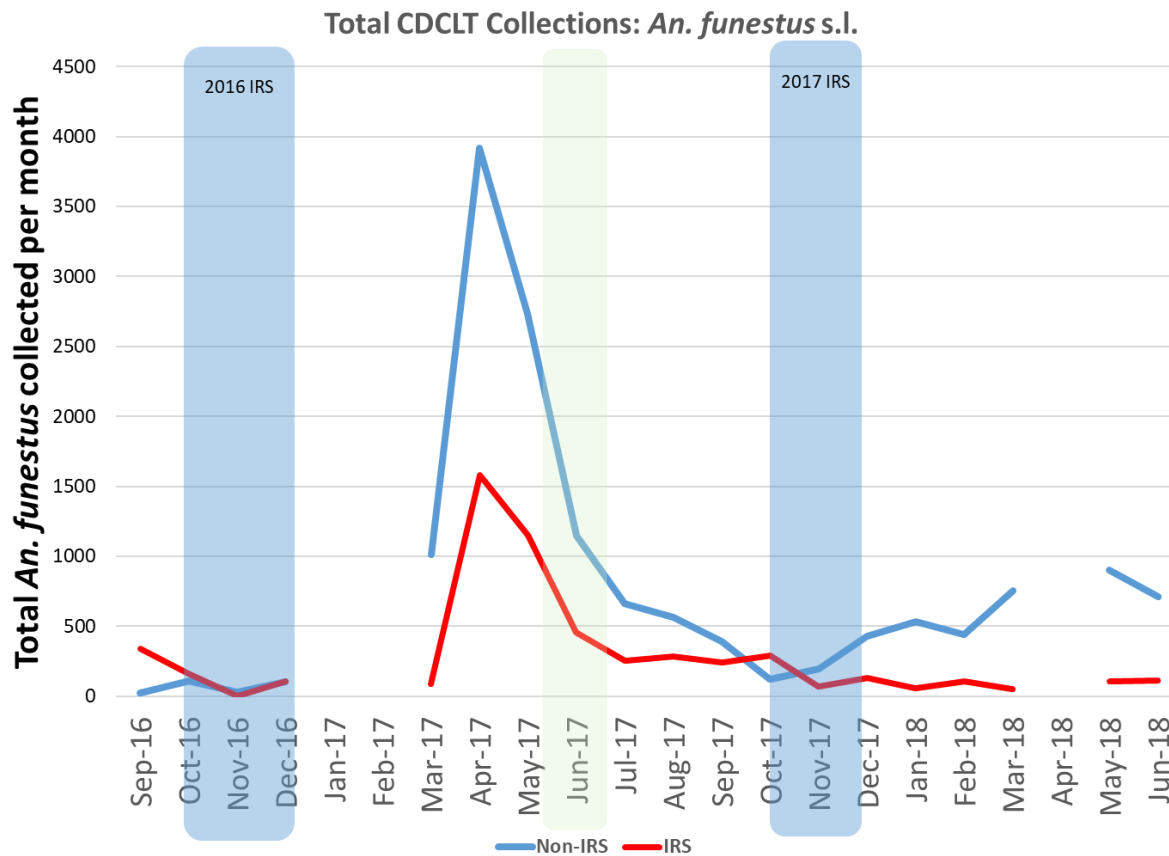
VectorLink synergies: ongoing discussion

Cluster Randomized Trial in Mozambique: The impact of 3GIRS in addition to standard LLINs



Study Arm Characteristics			
	Non-IRS	IRS	Total
Total Population	67,433	60,099	127,532
Population u5	11,730	10,944	22,674
Total Number of clusters	43	43	86
(Cluster Size Large)	(19)	(18)	(37)
(Cluster Size Medium)	(14)	(15)	(29)
(Cluster Size Small)	(10)	(10)	(20)
LLIN Ownership ¹	62%	63%	-
Jan 2017 Prevalence	62%	65%	-

Cluster Randomized Trial in Mozambique: The impact of 3GIRS in addition to standard LLINs



Monthly trends in total *An. funestus* specimens collected in CDCLTs

63% reduction in 2017 (year 1)*
85% reduction in 2018 (year 2)*

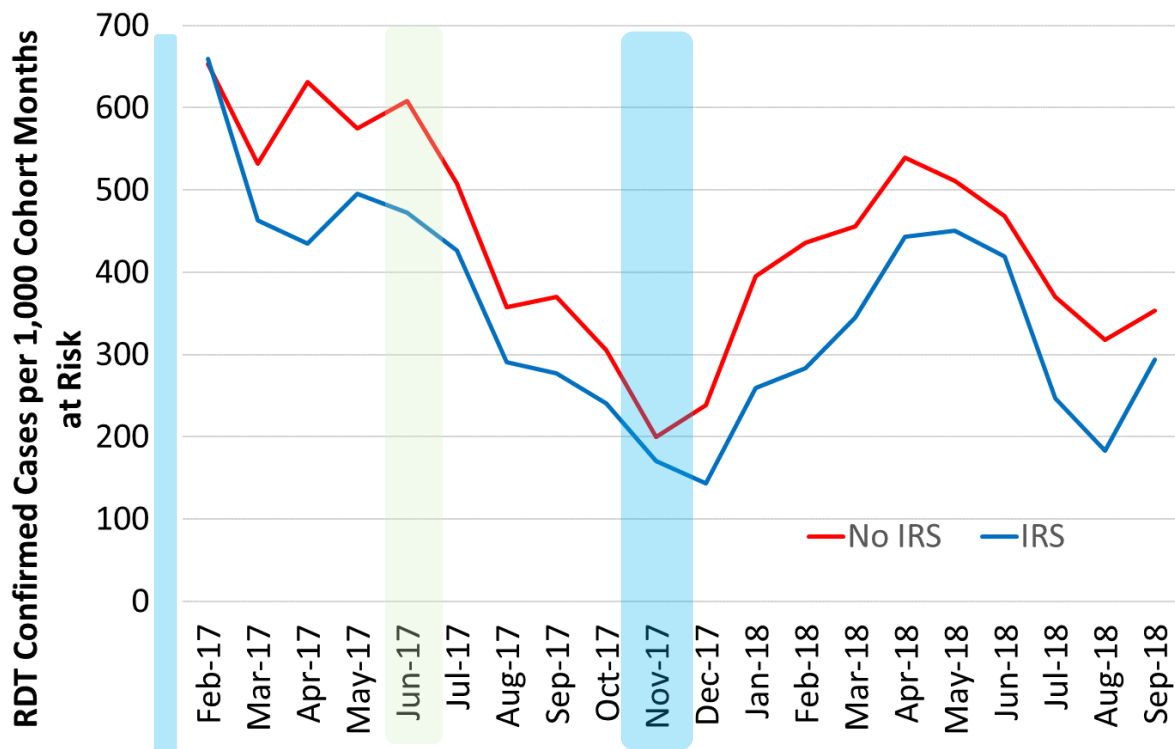
(* $p < 0.001$)

IRS
Campaig
n

Mass LLIN
Distribution

Cluster Randomized Trial in Mozambique: The impact of 3GIRS in addition to standard LLINs

Monthly Cohort Incidence By Spray Status (ITT)



Monthly trends in Cohort incidence (1,536 Children u5 tested monthly)

17% Protective Efficacy of IRS on top of LLINs ($CI_{95} = 9\% - 35\%$)

IRS
Campaig
n

Mass LLIN
Distribution

Observational evidence of impact – Mali



■ No IRS ■ IRS

Wagman *et al. Malar J* (2018) 17:19
<https://doi.org/10.1186/s12936-017-2168-2>

Malaria Journal

RESEARCH

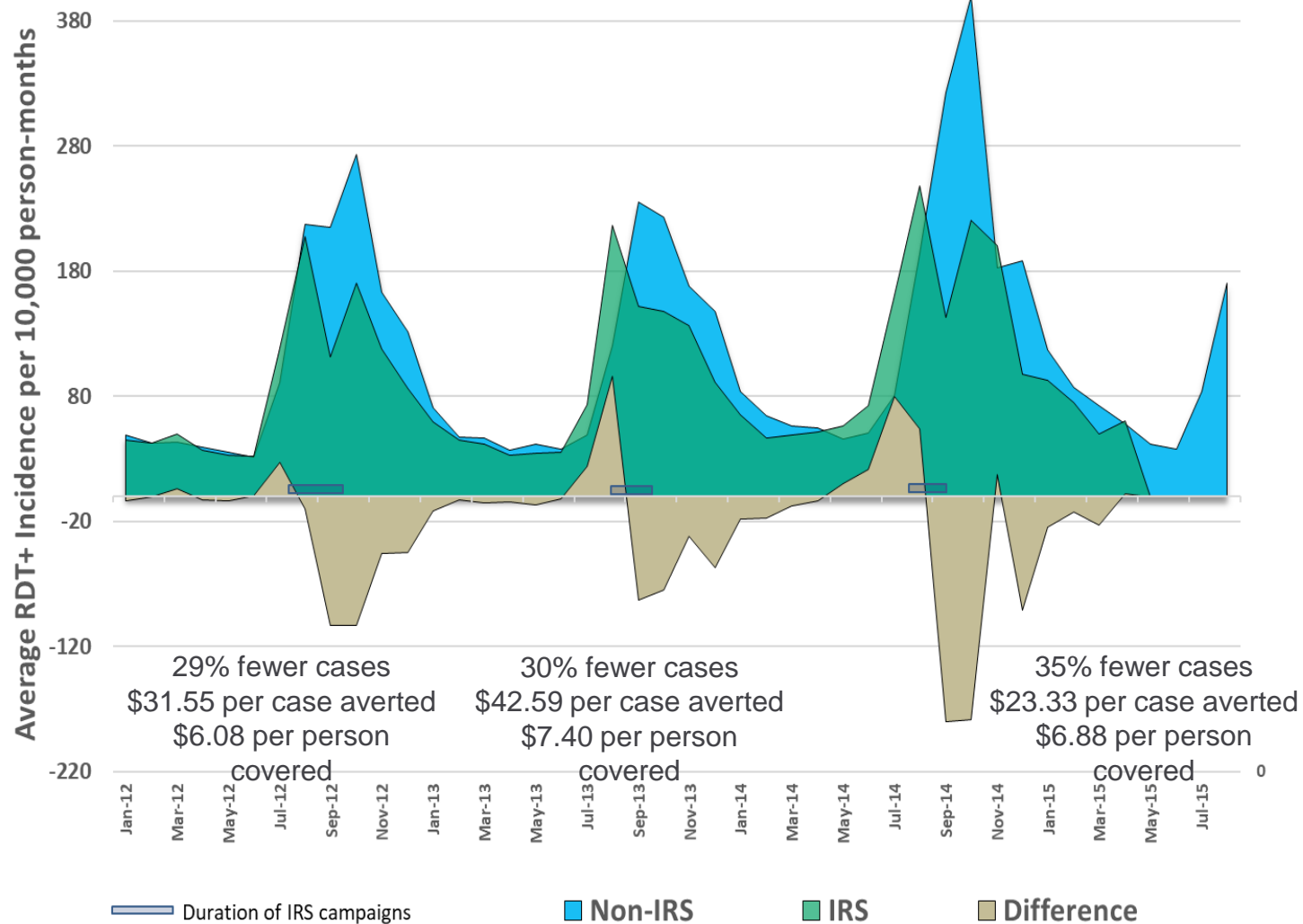
Open Access



An observational analysis of the impact of indoor residual spraying with non-pyrethroid insecticides on the incidence of malaria in Ségou Region, Mali: 2012–2015

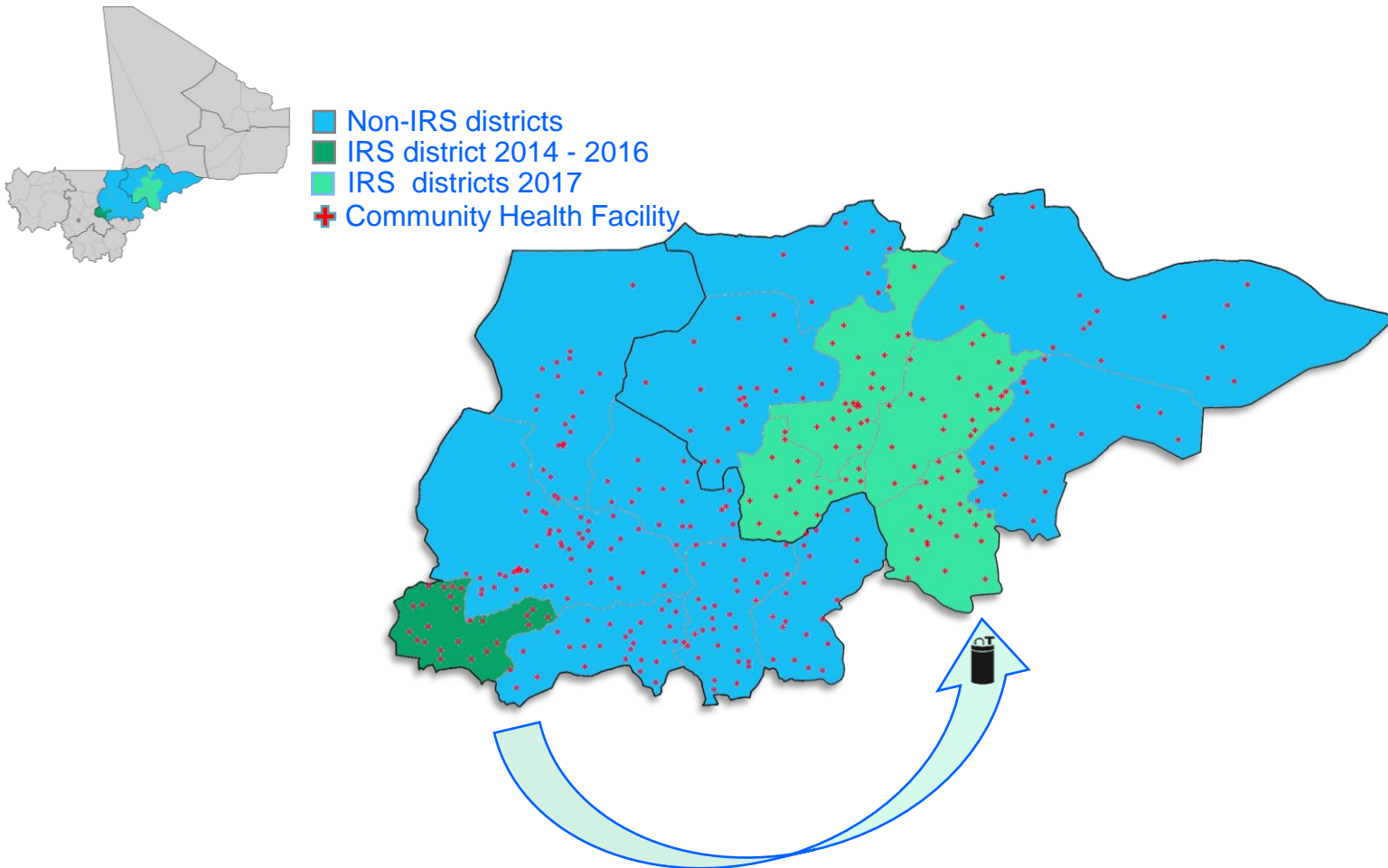
Joseph Wagman^{1*}, Christelle Gogue¹, Kenzie Tynuv¹, Jules Mihigo², Elie Bankineza³, Mamadou Bah³, Diadier Diallo⁴, Andrew Saibu⁵, Jason H. Richardson⁶, Diakalkia Kone⁷, Seydou Fomba⁷, Jeff Bernson⁸, Richard Steketee⁹, Laurence Slutsker⁹ and Molly Robertson¹

Observational evidence of impact – Mali



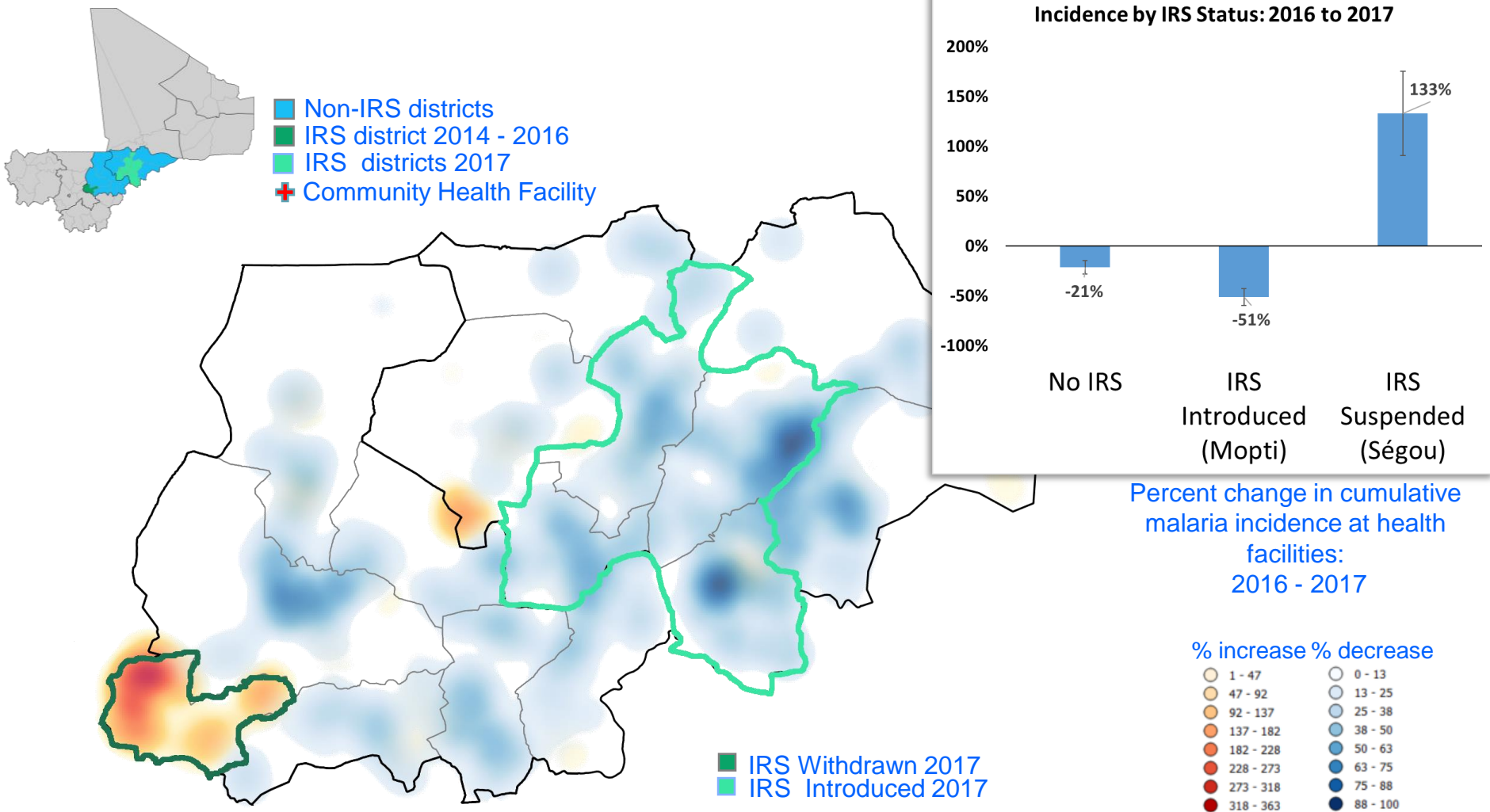
Observational evidence of impact – Mali

2017 PMI AIRS IRS operations were shifted from Ségou region to Mopti Region



Observational (non-randomized) evidence of impact – Mali

2017 PMI AIRS IRS operations were shifted from Ségou Region to Mopti Region

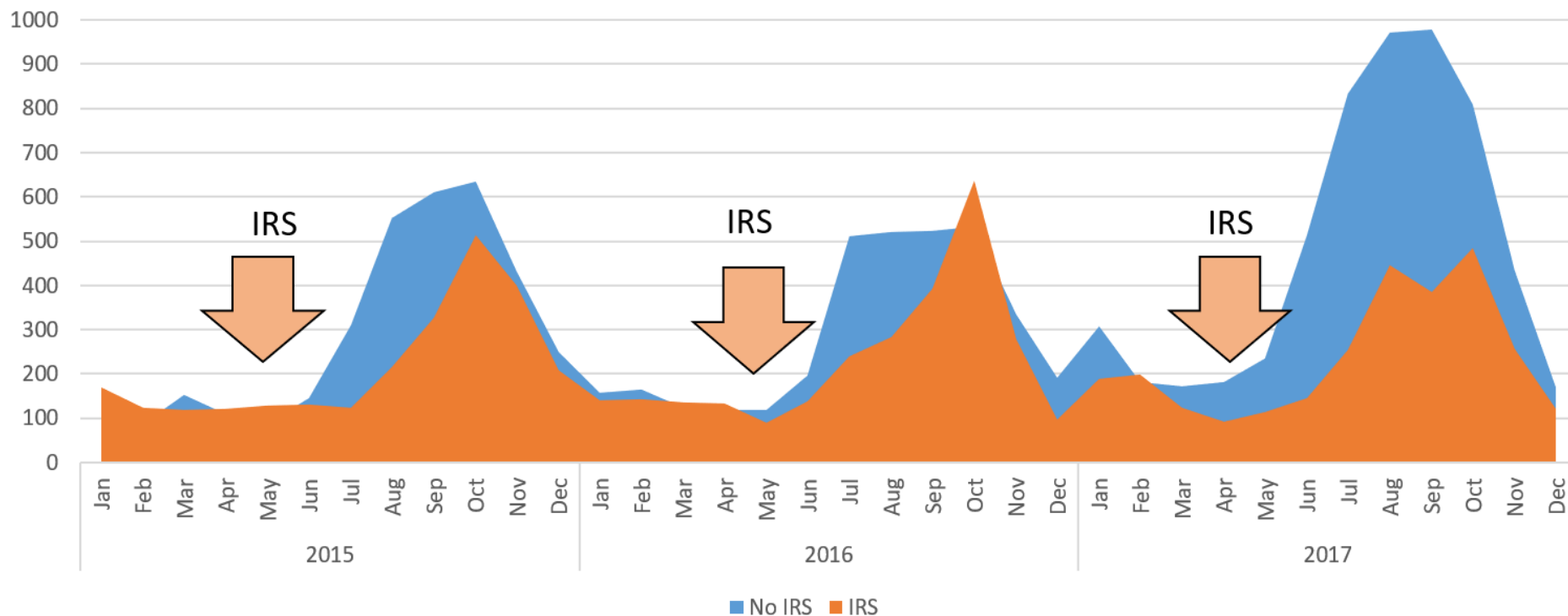


Observational (non-randomized) evidence of impact – Northern Region of Ghana

During peak transmission months (JUN – SEP)
Case incidence rates were more than 75% higher in non-IRS districts than in IRS districts



Average Monthly Incidence 2015-2017 - NR



Future Country Specific Work

Additional Publications and Analyses Pending

Mali – Effect of shifting operations to new districts & combining IRS with SMC

Ghana – Observational evaluation of SumiShield & Effect of introducing IRS to previously unsprayed districts

Zambia – Combined impact of IRS and MDA & Impact of coverage methods

Mozambique – SumiShield Analysis in Mopeia study area

Cross-Cutting Activities and Analysis

MERG Task Force – Harmonizing IRS Indicators

The ability to cross-analyze vector control interventions across different countries, implementing partners, and implementation strategies is hampered by a **multiplicity of measurement methods and indicator definitions**. Small changes in definitions can greatly impact the interpretation and analysis of the effectiveness of vector control programs.

Costing and Cost-effectiveness

Harmonization of costing frameworks was conducted. Visits to Mali and Ghana were completed. Visits to Zambia, Mozambique and Uganda are pending.

Dissemination

Discussion & Engagement on IRS impact and role in the vector control toolbox

Transition and Sustainability

New Nets Project
PMI/VectorLINK



Thank you.

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