



Partnership To End Malaria





February 7, 2018

Practical application of GPIRM recommendations in IRS programs: Insecticide rotations

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Project

What are we trying to achieve with this session?

Agree to develop rational guidance on how to implement pre-emptive subnational rotation of multiple long-lasting IRS insecticides

Why is this urgent?

- By the end of 2018, there will likely be 3 3GIRS products available.
- In the absence of clear guidance, here are a few possible future scenarios:
 - Some countries may decide to ride the horse as long as they can
 - Some countries may decide to switch entirely to a new insecticide
 - Some countries may switch to a mosaic pattern
 - Some countries may choose to rotate (whichever way) every year
 - Some countries may choose to rotate after every two years
 - etc.
 - Chaos!!!
- Such a situation would undermine our ability to comply with the GPIRM guidance on rotation
- It would cause instability in the market, which would in turn undercut the ability of manufacturers to ensure consistent supply

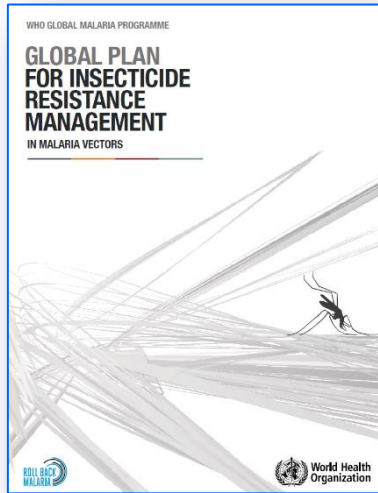
Key points

- With multiple long-lasting IRS (3GIRS) products available, the pre-emptive annual rotation goal outlined in GPIRM is achievable.
- With new products entering the market there is risk of short-sighted 3GIRS product procurement decisions based only on price, mode of action or insecticide class.
- Funders and procurers have the opportunity to simultaneously prevent resistance build up and affect the cost-effectiveness of IRS by adopting pre-emptive, subnational rotation strategies where appropriate.
- 100% shifts from one effective long-lasting IRS product to another within the market would undermine the goals of increasing competition, reducing product cost, and reducing market volatility of IRS products.
- Experts have proposed a new strategic approach based on pre-emptive rotation of multiple 3GIRS products within a country to support resistance prevention best practices while also providing an optimal 3GIRS market with stable, multi-year forecasts of multiple products with different modes of action.
- PMI, AGAMal and several National Programs have adopted this strategy and will spray both Actellic 300CS and SumiShield 50WG in 2018.

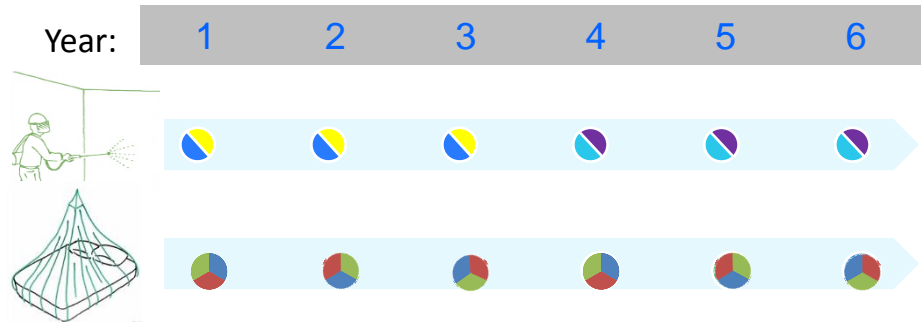
GPRIM: with new products programs can rotate

Basic principles:

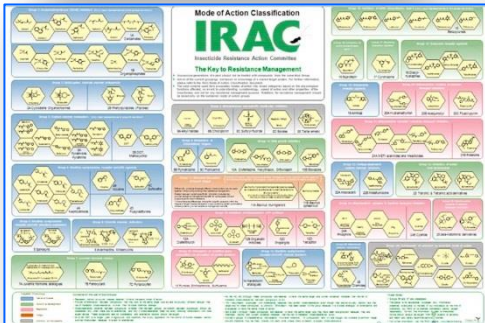
- The same insecticide should not be used for IRS and LLINs in the same setting
- Insecticide rotation is practiced to avoid population accumulation of resistance



IRS: > 6 month efficacy, multiple AIs used in subnational rotation



LLIN: 2 AIs with different MoA both used at full efficacious rates, maintained >20 washes. Replaced every 2 or 3 years.



Implementation guidance:

- What does “rotation” really mean and how should rotation be implemented?
- As we enter a new era of product choice, practical guidance is lacking and proactive, best practice strategies are needed.

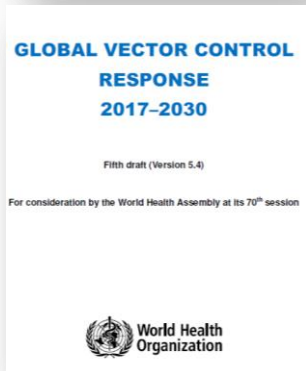
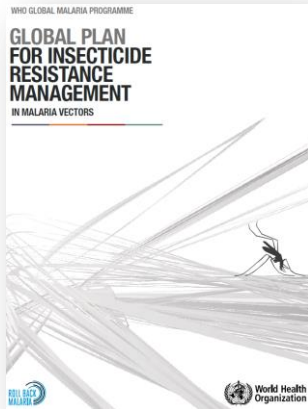
Rotation as part of WHO recommendations

GPIRM, WHO, 2012

- Technical recommendation includes **pre-emptive rotation for IRS**
- Two or preferably more insecticides with different modes of actions should be used in rotation, ideally in an annual cycle
- New products will facilitate the adoption of rotation strategies
- Most experts consider that insecticide resistance will likely have significant operational impact if no pre-emptive action is taken

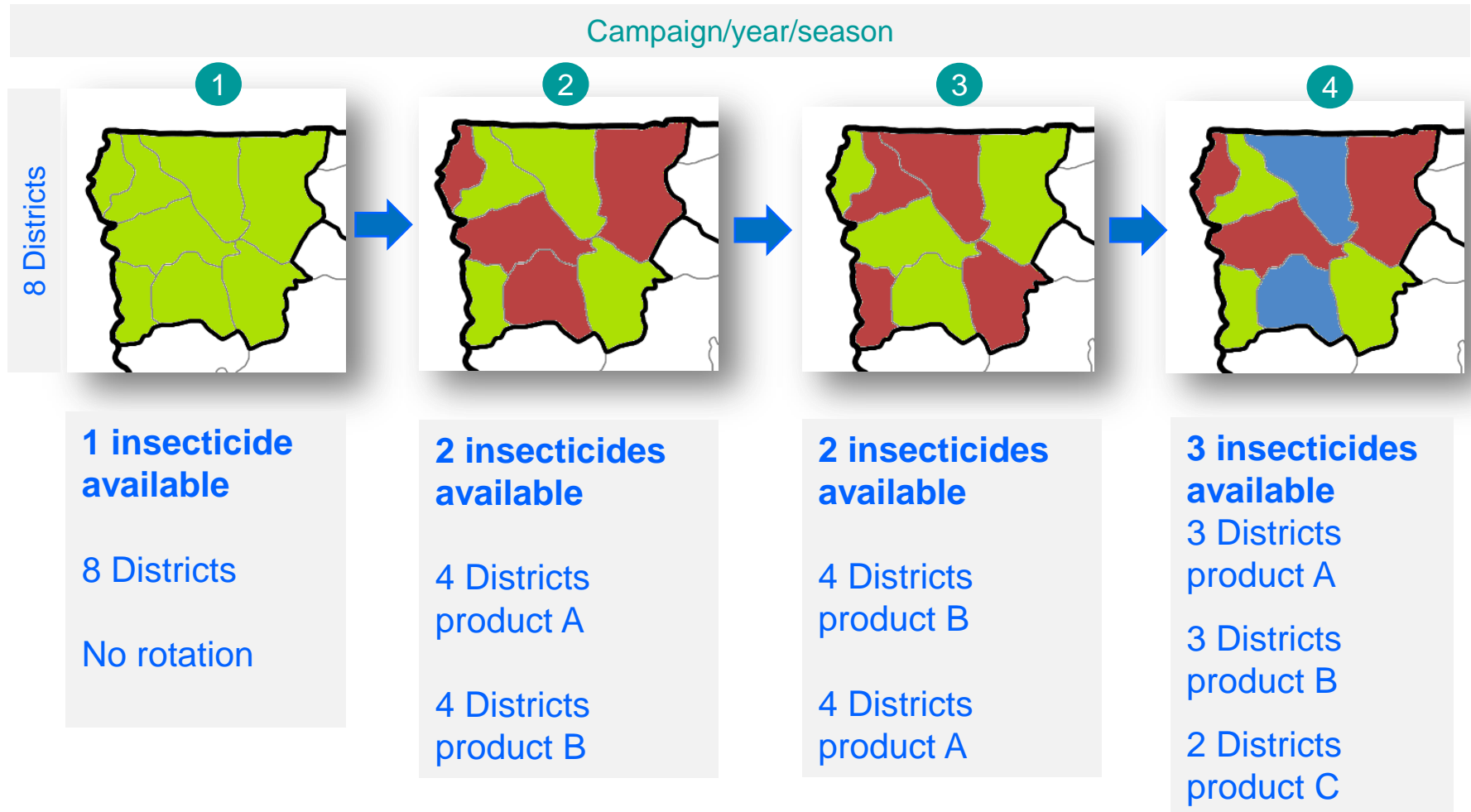
Framework for a national plan for monitoring and management of insecticide resistance in malaria vectors, WHO, 2017

- Four strategies can theoretically be used to mitigate the impact of resistance: rotation of insecticides, combination of interventions, “mosaic” spraying and use of insecticide mixtures
- Rotations using insecticides with different modes of action should be implemented for IRS



Rotating 3GIRS insecticides*

Theoretical example of sub-national rotation strategy using 3GIRS products



*3GIRS– Third generation IRS insecticides, designed to be effective against pyrethroid resistant mosquitoes and have an indoor residual efficacy of at least six months

Rotating 3GIRS insecticides



- Colors indicate different 3GIRS products (ideally with different modes of action)
- A long term strategy based on GPIRM recommendations and best available data
 - ✓ Expanding from a single insecticide to 3 product rotation
 - ✓ **Does not require waiting for evidence of product failure**
 - ✓ Resistance monitoring data used to alert of problems and allow for locally adapted adjustment if necessary
 - ✓ **Focus is on prevention**...not waiting for data warning of product failure
- Volumes and costs relatively constant from year to year
- Rotation by district or other sub-national spatial unit, as appropriate and practical



Other Considerations:

- SumiShield & FludoraFusion – distinct products?
- Factoring in potential country-level variations in residual life of 3GIRS products
- Factoring in potential price differences post-NgenIRS
- How best to advocate for ‘bigger picture’ pre-emptive rotation strategies at country-level

LET'S ACT NOW!



Thank you, find out more
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