How to make Larval Source Management work for Integrated Vector Management

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Success with LLINs and IRS

- LLINs and IRS have greatly reduced malaria transmission.
- However they only target INDOOR biting and resting mosquitoes.
Main challenges for IRS/LLINs

• (Residual) transmission mediated by different species (An. arabiensis vs An. gambiae ss)

• Mosquitoes feeding OUTDOOR, or BEFORE people go to bed

• Behavioural avoidance of control measures by mosquitoes

• Mosquito resistance to insecticides used for IRS and LLINs
LSM in Africa today

... the current development of nationwide projects within the framework of the malarial control programs of Angola, Zambia and Ghana, as well as local programs in Dar es-Salam (Tanzania), Rivers state (Nigeria) and in the capital of Burkina Faso. Other programs are still at the implementation stage in Malawi, Guinea Bissau, Equatorial Guinea and Benin...

Need for guidelines for LSM

- Countries need to be guided on How, Where, When to integrate LSM in IVM
- There are debates about the current Interim WHO statement
- The current business-driven LSM needs to be addressed
Requirements for LSM

- Understanding local malaria ecology
- Strong management within NMCPs
- Strengthening capacity in entomological skills
- Good larvicides (WHOPES recommended)
- Would work better in the “sustained control” phase rather than “scale-up for impact” stage
Where LSM could work for IVM

LSM could complement LLINs and IRS in areas where:

• outdoor malaria transmission is proven
• resistance threatens the impact of IRS/LLINs
• malaria transmission is focal (hotspots) or epidemic prone areas
• LSM enhances the uptake/use of LLINs and IRS
• LSM would be cost-effective
Where should LSM be considered

• where larval habitats are well-defined, possibly seasonal or relatively few
• where habitats are accessible by ground crews
• where the climate is cooler and larval development is prolonged.
Where should LSM be considered

Such conditions are common

• in urban environments,
• desert fringe communities,
• highland settlements and
• rural areas with high population densities
Who should implement LSM

- NMCPs should have a LSM unit
- Full involvement of the local community
- Incentivize/pay the LSM personnel
- Involvement of insecticide suppliers should be limited to logistical/technical support
- NMCPs should involve other stakeholders (agriculture, land use, infrastructure) and share costs where possible
Monitoring LSM impact

- Successful LSM reduces adult vectors abundance
  - ... the application of Bactivec® and Griselesf® in breeding sites resulted in larval reductions of 99.8% and 99.6% respectively 72 hours after treatment, bearing testimony to the efficacy of both products...

- Independent institutions should be involved in assessing the impact of LSM