Status of larval source management implementation in Uganda

Vector Control Working Group 15th Annual General Meeting

Movenpick Hotel and Casino
Geneva Switzerland

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3-5th January 2020
Introduction

- Larval source management (LSM) is an additional malaria vector control intervention aimed at source reduction of all mosquitoes (malaria transmitting and biting nuisances)

- Uganda is implementing LSM guided by epidemiological data and WHO criteria
  - Larviciding: breeding sites that meet the WHO criteria of 3Fs (Few, Findable and Fixed)
  - Environmental manipulation: Other breeding sites

- Stakeholder engagement and involvement including at the community level is central to all LSM activities/processes in line with the MAAM approach
General objectives of conducting LSM

- To teach the communities to identify breeding sites and destroy them
- To reduce malaria mosquito vectors population in the communities to avoid upsurges
- To involve the district leadership in the management of LSM activities in the communities
- To map the breeding sites in the districts for future management
Specific objectives of LSM

- To spray at least 90% of potential breeding sites in the epidemic districts of Kigezi region with SAFE larvicide.

- To spray at least 80% of potential breeding sites in ten epidemic districts of Northern Uganda with SAFE larvicide.

- To reduce the malaria test positivity rate among outpatient department cases tested for malaria from >75% to < 7% in accordance to UMRSP 2015-2020.

- Support elimination whenever feasible.
Specific objectives of LSM

- To attain pre-epidemic malaria levels
- Reduce the geographical extent of endemic areas
- To build the capacity of the districts to implement larviciding
- To sustain the gains of LSM in the districts
Role of LSM in Malaria Control and Elimination

- LSM is an important set of tools for inclusion in the IVM packages to ensure more effective malaria vector control

- LSM can synergize with primary interventions such as LLINs and IRS and other innovations

- It provides the dual benefits of not only reducing numbers of house-entering mosquitoes, but, importantly, also those that bite outdoors and reduces population of all mosquito species

- LSM will further reduce transmission, in a synergistic fashion, and help insecticide resistance (by reducing adult populations) and should be considered in the consolidation phase of control and elimination programmes
Methodology

- Larval control through environmental management has been advocated for at individual household and community level through IEC

- The district will take lead on the activity following the LSM guidelines and implementation strategy. District vector control and environmental officers work together

- Communities through their chairperson LCIs select the Village Health Teams (VHTs) to do larviciding

- VCOs support the trained VHTs to map breeding sites as per WHO recommendations

- Epidemiological data is used to stratify the village. LCI is involved in this process.

- All family members at the household level take on the responsibility of identification and destruction of breeding sites
Methodology Cont’d

- Identified breeding sites that meet the WHO criteria of 3Fs are treated by SAFE larvicides. Post application monitoring is done for 21 days.

- Drone technology may be applied (mapping, treatment, real time).

- Malaria transmitting mosquitoes and their habitats will be destroyed before they can transmit the parasites to humans.

- Preliminary studies conducted by the University of South Florida, College of Public Health in 2015 in Uganda supplied detailed information on drone technology.
Selection criteria of sub counties in Kigezi region

- Level of past/current disease burden/endemicity/risk of transmission (Epidemiological data from health facilities)

- Proportion of population at risk of the different vector-borne diseases

- Capacity of vector control available in the area (number of trained staff, resources available, physical infrastructures etc)

- Availability of other programs to support IVM
Selection criteria cont’d

- Level of political commitment
- Accessibility of the area all-year round
- Type and level of vector control intervention currently implemented
- Level of community willingness to support vector control programs
Breeding Habitats
MOSQUITO FACTORIES

Floating vegetation in artificial dams
Sand pits and marram pits
Brick pits
Sand pit
Mixed pit
Households
More breeding sites in Uganda

VHT treating a breeding site with larvicide during the large scale study in Nakasongola
Breeding sites cont’d
Breeding sites cont’d
Factors contributing to the successful implementation of LSM

- Leadership and clarity of objectives
- Good management
- Detailed knowledge of the local vectors
- Community support
- Collaboration between sectors
- Timely reporting of meaningful data
- Availability of resources
- Good infrastructure development
- Strong entomological surveillance system
Composition of NTF
1. Office of Prime Minister (OPM)
2. Hon. Minister of Defense
3. Hon. Minister of Health
5. WHO Country Representative
6. INRAD CORP.
7. MoFA
8. MoLG
9. MAAIF
10. MoFPED
11. MoWE
12. NEMA
13. NDA
Organizational Structure and Background of Malaria Free Uganda Initiative

Implementing Organs
1. UPDF Medical Services
2. InRaD Corporation
3. National Malaria Control Programme (NMCP)
4. World Health Organization (WHO)
5. Vector Control Division (VCD)
6. Uganda Virus Research Institute (UVRI)
7. UNHRO
8. Natural Chemotherapeutic Research Institute (NCRI)
9. Central Public Health Laboratory (CPHL)
10. College of Veterinary Medicine, Animal Resources and Bio-security (COVAB) – Makerere University
11. Development partners
12. District Local Governments
13. National Environment Management Authority (NEMA)
14. National Drug Authority (NDA)
Status of LSM-Political support

H.E giving leadership during larviciding meeting
**Government Position**

Political commitment to fight malaria is reflected in the intention of the Government to eliminate malaria from Uganda through preventive methods based on the World Health Organization (WHO) guidelines.

The MoH is actively promoting Integrated Vector Management (IVM), where multiple interventions are combined to control vector-borne diseases.

LLINs and IRS are directed against the adult vector population that enters houses, further suppression of transmission will be achieved by targeting the aquatic stages by reducing vector larval habitats, thus attacking both outdoor and indoor biting vectors. This may be particularly important in areas targeted for
Larviciding leadership at MOH
Dissemination LSM Findings to MOH Top Management

Timely reporting of data to Ministry Officials
2010
R&D of LSM Feasibility

2015

2016
Optimize tools for treatment of severe malaria

2018
Expand access to diagnostic, treatment & treatment

2019
Adoption of new vector control tools

2022
Local production of supplies

IVM
TREATMENT
DIAGNOSTICS
MANUFACTURING
Status of LSM Implementation

- District sensitization meetings conducted in 3 of the 6 districts in Kigezi region

- Trainers of trainee (TOTs) training conducted in the 3 districts of Kisoro, Kabale and Rubanda

- Procured 15,000kgs of Sunlight Activated Formulation Extract (SAFE) from Innovative Research and Development Cooperation (InRaD) in Egypt

- Mapping of breading sites that meet the WHO criteria of 3Fs (Fixed, Few and Findable) is ongoing
STRATEGIC PLAN 2010-2025

UGANDA BIO-SECURITY BORDERS

1. Reduce the burden of malaria in epidemic areas
2. Reduce the geographical extent of endemic areas
3. Support elimination where feasible
2019/2020 TARGET LSM AREAS

UGANDA

- Arua
- Gulu
- Pader
- Kitgum
- Moroto
- Murchison Falls National Park
- Lira
- Apac
- Kampala
- Bwindi Impenetrable National Park
- Mbarara
- Masaka
- Entebbe
- Jinja
- Bomba
- Mbale
- Mbarara
- Masaka
- Entebbe
- L. Victoria

DEMOCRATIC REPUBLIC OF THE CONGO
Status of LSM Implementation

- Donation of dusters and other materials used in application of SAFE received from InRaD Egypt

- Start up funds for the application of larviciding have been provided by the Government of Uganda

- Application is planned for the last week of February 2020
Thanks for Listening