The Potential of Larval Control in Malaria Elimination

Moh Seng CHANG
Institute of Health and Community Medicine, University Malaysia Sarawak, MALAYSIA &
George Taleo, National Vector Borne Disease Control Programme, VANUATU
Justifications- Larval source management in Malaria Elimination (pre-elimination & elimination phases)

- **Pre-elimination phase:**
  - As a supplement vector control measures to LLIN, focal IRS and personal protection measures (repellent, improved housing etc.)
  - Contribute to elimination of malaria foci – as part of the remedial measures in a limited geographical area
  - Delay vector resistance to chemical insecticides
  - As a environment sanitation program in general public health services

- **Elimination phase**
  - As part of the entomological investigations in the event of any re-introduction of cases to the elimination locality –active foci
  - Larvae/pupae monitoring in addition to adult mosquito can be used to estimate receptivity (presence of abundance vector) of the geographical area
  - Encourage community engagement in maintenance phase (community source reduction) and sustain community in vector control
Vanuatu, South Pacific islands
Characterisation of An farauti breeding sites – A case study in Tanna Island Vanuatu

- **Baseline survey for larval breeding sites as part of the entomology study – pre-elimination phase**

1. A single vector species- *An farauti*, Punctulatus group, a coastal species (brackish species)
2. Distribution of larval on the island confined: 0.5 KM from the sea coast

- **Characterization of breeding sites:**
  - Temporary ground pools, such as wheel ruts, pools in earthen drains and borrow-pits
  - Rock pools
  - Slow running streams
  - Small pond with overgrowth vegetation/algae
  - Natural depressions
  - Spring wells

- **Seasonality:** rainy season – treatment of breeding sites is best during the dry season to prevent vector proliferation during next rainy season
Laval Sites Determination – Tanna island (Vanuatu)
An farauti main breeding sites in Vanuatu
An farauti breeding sites in Vanuatu
Larval Control plan in malaria elimination –Tanna island

- Larval control: 3-monthly larvicide treatment of any surveyed potential breeding sites found possible for mosquito larvae/pupae, irrespective of whether Culex or Anopheles.
- Any pupal sample collected is allowed to hatch to adulthood for confirmation as Anopheles.
- Man-made breeding sites are eliminated through community efforts to encourage filling in of holes, drainage of standing water, releasing of fish or removal of vegetation/algae.
- Breeding sites are re-surveyed and retreated after three months.
Thank you
Acknowledgements

- Ministry of Health Vanuatu, National Vector Borne Disease Control Program
- Swiss Tropical and Public Health Institute (Swiss TPH)