Eave Tubes

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Eave Tubes - A new paradigm in malaria vector control

• New product that provides **house-level protection**

• Under evaluation at WHO VCAG: “Lethal House Lure”

• Phase 3 RCT in Côte d’Ivoire - supported by BMGF
Eave Tube Intervention

Côte d’Ivoire RCT: 3022 houses with Eave Tubes
On average 10 Eave Tubes per house

Steps per house:
• Drilling holes & Installing Tubes
• Installing insecticide-treated gauze inserts
• Window screening (untreated mesh)
• Closing off open eaves & wall gaps
Eave Tube gauze - Mode of action

- Gauze Coating with **long-lasting static charge**
- Developed by In2Care founder to bind air-borne pollen
- Can be loaded with any insecticide dust
- Very effective insecticide transfer to mosquito skin

*Patented Technology: WO2009048324A1*
High dose of insecticide is picked up
Maximizing insecticide bioavailability

IRS: Insecticide gets absorbed into porous walls

Eave Tube: insecticide particles on top of fiber

LLINs: insecticide is impregnated into the fiber or in slow-release coating
Maximizing insecticide bioavailability

IRS: Insecticide gets absorbed into porous walls

Eave Tube: insecticide particles on top of fiber

LLINs: insecticide is impregnated into the fiber or in slow-release coating

Eave Tube gauze has all insecticide available for pick up
- Kills resistant mosquitoes
- Kills even when short contact is made
Short mosquito contact $\rightarrow$ high dose transfer needed

Video results Tanzania

<table>
<thead>
<tr>
<th>Eave Tube contact time</th>
<th>Semi-field (N= 56) An. arabiensis</th>
<th>Field (N= 106) Wild-type mosquitoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.6 min</td>
<td>2.8 min</td>
</tr>
<tr>
<td>Median</td>
<td>3.3 min</td>
<td>1.3 min</td>
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</tbody>
</table>


Ongoing studies in Côte d’Ivoire - Ethovision® video tracking software
Delivery system for novel actives & mixtures

• Static Eave Tube gauze can bind all sorts of powders/particles/dusts:

- Deltamethrin dust
- Fungus spores
- Pyriproxyfen particles

• Mixtures of multiple actives can be applied
Delivery system for novel actives & mixtures

• Static Eave Tube gauze can bind all sorts of powders/particles/dusts:

• Positioning at eave level (no human exposure)
• Very small surfaces treated = low doses per house

Potential to deploy novel chemistries
Reducing insecticide quantities

Bednet
~ 10 $m^2$ surface to treat

House walls (IRS)
~ 150 $m^2$ surface to treat

10 Eave Tube inserts per house
~ 0.15 $m^2$ surface to treat
Delivery tool for WHO recommended insecticide Mosaics
Delivery tool for insecticide Rotations

Insecticide 1 (yr 1)  Insecticide 2 (yr 2)  Insecticide 3 (yr 3)
Scalable Implementation

High-speed Drill tools

Brick moulds – no need for Tube

Eave Brick option
Eave Tube Delivery

Implementation Pilots 2018 - 2019
Thank you

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