Supporting Accelerate to Zero: The BMGF Malaria Vector Control Research Agenda

RBM VCWG
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The world has three potential future trajectories for malaria...

...in our strategy, we have chosen to 'Accelerate to Zero', which leads to three overarching goals for the period (2014-2020)

Global annual malaria parasite incidence

Goals
1. Accelerate to Zero Now (new strategies using current tools)
2. Prepare for the Future (new strategies using new tools)
3. Sustain Progress (current strategies using current tools)

"Bend the Curve"
We have organized our work around six initiatives

*Our three strategic goals...*

- **Accelerate** to Zero Now
- **Prepare** for the Future
- **Sustain** Progress

...will be supported by the six initiatives that organize our work
A High Level Strategy to Eradicate Malaria

1) Detect the parasite
2) Eliminate the parasite from its reservoir
3) Prevent transmission of the parasite

Assumptions:
• New tools (Dx, Rx, Vx, Ix) are needed
• No single tool or activity by itself is the solution- history tells us this!
• Effective coordination/integration of these activities will be required to eradicate malaria
• Elimination of malaria will proceed in a geographic progression; management of re-infestation crucial if eradication is to be achieved
General Considerations for Constructing a Detailed Vector Control Strategy

A strategy will require multiple inputs and it will need to change over time in response to new developments in science and technology, as well as changes in the real-world situation.

There are no magic bullets, no short cuts, and no single player is going to be able to do this on their own.
Integrated Vector Management

Entomological and Environmental Monitoring Activities:
- Vector identification/abundance measures
- Pathogen and insecticide resistance detection
- Correlates: environmental variables; allows for ecological niche modelling

First Step: “Know thy enemy”
- Identification
- Distribution
- Behavior
- Bionomics
- Epidemiology

Measures taken to prevent pathogen transmission by a vector
- Source reduction (environmental management/engineering)
- Biological control (Bti, larvivorous fish, copepods)
- Chemical control (LLINs, IRS, ULV sprays, repellents)
- Genetic control (HEGs, RIDL, other GM approaches)

Ensures continuous, successful integrated management
Residual transmission – Mind the Gap!

(A)

6 PM

10 PM

GAP

6 AM

(B)

6 PM

6 AM

GAP

“Risk behaviour”

Grand Challenges in Global Health

TOPIC:
New Approaches for Addressing Outdoor/Residual Malaria Transmission

Grand Challenges Explorations Round 14
September 2014

http://gcgh.grandchallenges.org/
(Current call for proposals closed)