Optimal choice of vector control methods

A RBM VCWG Work stream

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Larval control: separate work stream

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Our purpose

The VCWG will work with WHO and partners to develop evidence and guidelines for optimizing resources in vector control, including:

1. **Appropriate mix of LLINs, IRS and other current and emerging vector control methods**

2. **New vector control concepts such as Durable Wall Lining; includes the development of an overall "road map" among partners for filling data-gaps and agreement on processes to facilitate testing, acceptance as a public health tool and deployment (link with regulatory approval at country and WHOPES level).**

3. **Support efforts to enable countries to more effectively stratify transmission ecologies, logistics and other considerations to allow better targeting of control measures.**

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Comparative assessment of IRS and LLINs and their combination

Hold under the work stream "Optimal choice of vector control methods" of the RBM Vector Control Working Group (VCGW)

Geneva/Ecogia, 22-23 June 2010

Meeting objectives

1. To support the coordination of the testing of LLINs versus IRS and their combination in multiple endemic settings in sub-Saharan Africa in terms of design, outcomes (epidemiological and entomological), timing, coordinated reporting, and standard economic evaluation.

2. To identify gaps in the ongoing and planned testing in order to support prospectively further essential research initiatives.

3. To provide a preliminary advice to countries with regard to the combination of LLINs and IRS, especially in view of the upcoming GFATM Round 10 application.

What is the effect of introducing a new VC method in a setting with ongoing malaria control activities?

Scenario: **Add IRS in a country that had already a mass LLIN distribution to children (60% overall use), IPTp (50%) and moderate access to ACTs?**

Q1: **What is the effect (health impact) of this additional control measure?**

Q2: **Assuming we know the cost, what is the marginal cost-benefit?**

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Main outcomes combination meeting (1)

- Good overview of different ongoing and planned evaluation trials (Bioko, Gambia, Kenya, Malawi, Mozambique, Sudan, etc.); coordination and communication felt to be very valuable.

- Defined standard epidemiological and entomological outcomes; useful for who?

- Recommendation to GFATM not different from Feb. 2009: currently not enough evidence to recommend combination of LLINs and IRS

Considering resistance status, coverage level for the different interventions, effects of a second intervention on acceptability of the first one, effect on mosquito populations, etc.

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A review of the status and future of durable wall linings (DL)

Hold under the work stream "Optimal choice of vector control methods" of the RBM Vector Control Working Group (VCGW)

Geneva/Ecogia, 23 June 2010

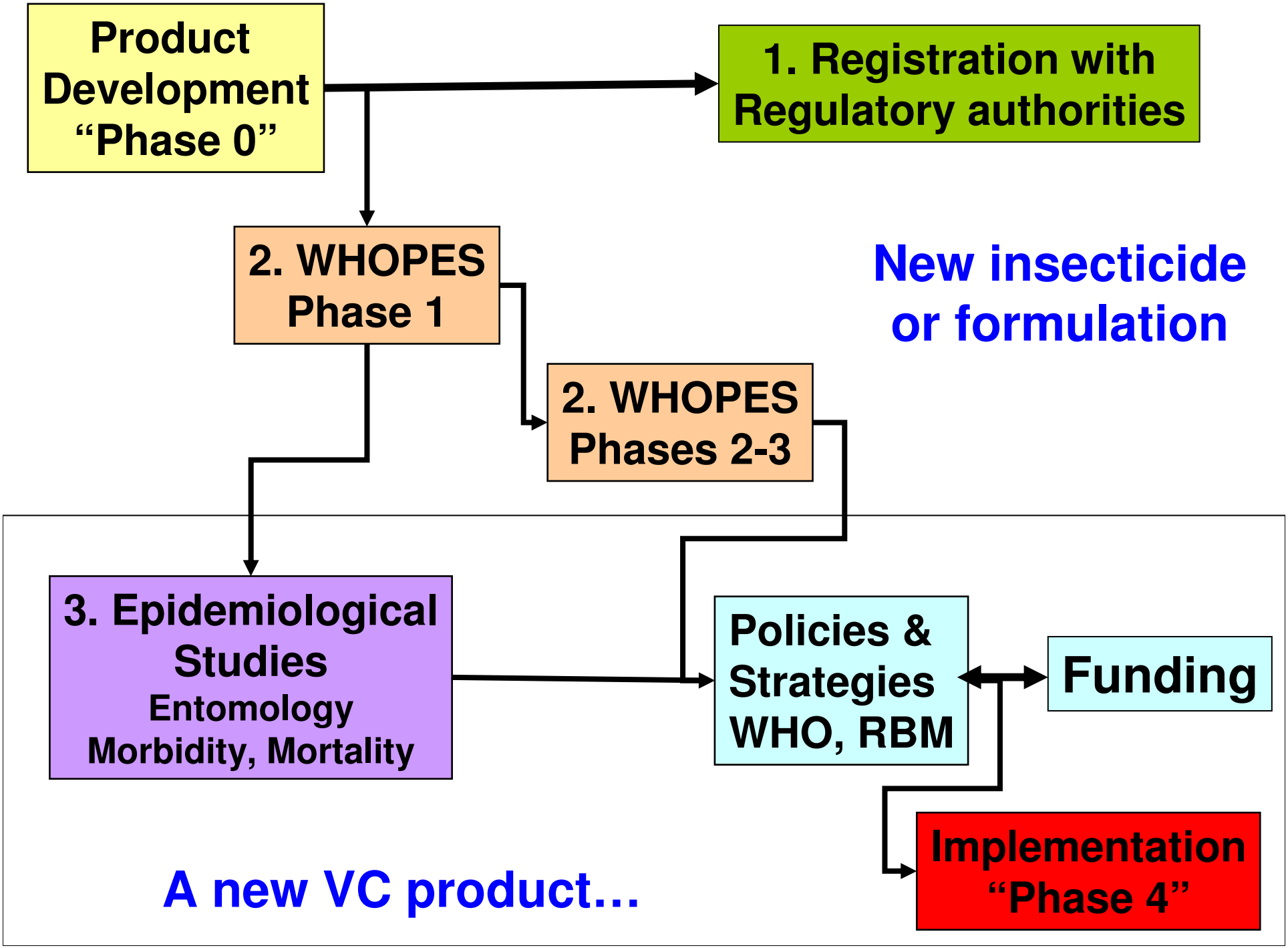
Meeting objectives

1. To outline a testing programme leading to epidemiological and entomological proof-of-principle of DL as large-scale vector control tool through full-scale comparative field trials.

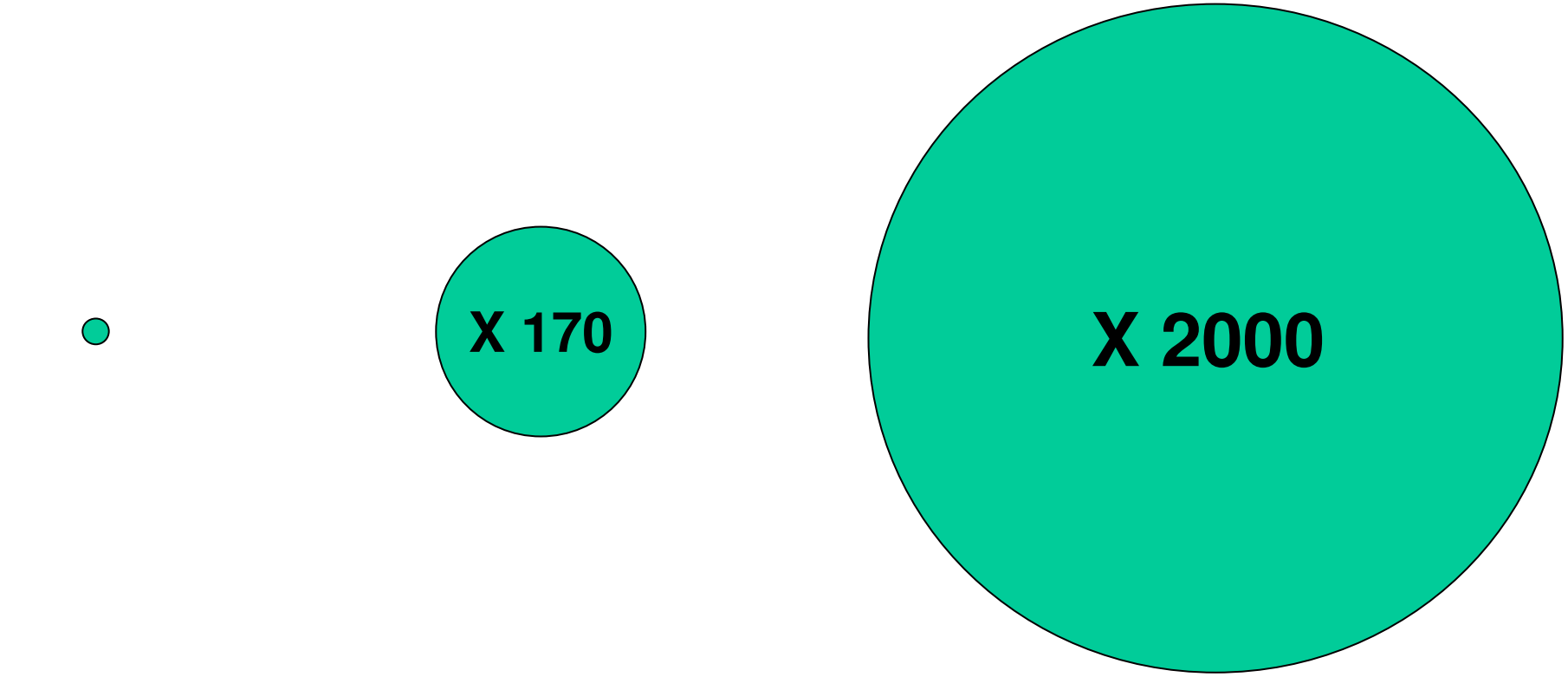
2. To prepare and submit to WHOPES a recommendation with regard to the testing of DL (Phases 1-3).

3. To outline how a potential investment of CDC and USAID in DL research could be most effective.

4. To discuss and draft plans for the future development of DL with alternative (non-pyrethroid) insecticides (including fungi and Insect Growth Regulators (IGRs)).


Product Development "Phase 0"
1. Registration with Regulatory authorities
2. WHOPES Phase 1
New insecticide or formulation
2. WHOPES Phases 2-3
3. Epidemiological Studies
Entomology
Morbidity, Mortality
Policies & Strategies WHO, RBM
Funding
Implementation "Phase 4"
A new VC product…

- **Cost of generating solid evidence versus**
- **current and future vector control investments**



Cost of ITN trials: <10 mio USD

Investment to-date in LLINs (2004-2010): USD 1.7 Billion (WHO 2009)

Future investments: 1 Billion per year for 2011-2030 USD 20 Billions GMAP 2008

Main outcomes DL meeting (1)

1. DL represents a new and distinct vector control intervention, with characteristics of both IRS and LLINs.

2. At present it is impossible to define a class-specific Target Product Profile (TPP) because different concepts are being worked on.

3. As a result, WHOPES testing guidelines will need to be developed for each product at this stage; more work on defining appropriate testing procedures is urgently required.

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Main outcomes DL meeting (2)

4. Solid epidemiological evidence needs to be generated before DL can be recommended for large-scale implementation. This should include at least four large-scale cluster randomized controlled trials in different settings, one at least with substantial pyrethroid resistance.

5. For the first-in-class product the use of a pyrethroid insecticide is adequate because of the practical advantages for the required large-scale testing. For subsequent products, however, non-pyrethroids or mixtures of insecticides should be considered.

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New issues arising…

Science. 2011 Feb 4;331(6017):596-8.

A cryptic subgroup of Anopheles gambiae is highly susceptible to human malaria parasites.

Riehle MM, Guelbeogo WM, Gneme A, Eiglmeier K, Holm I, Bischoff E, Garnier T, Snyder GM, Li X, Markianos K, Sagnon N, Vernick KD.

Institut Pasteur, Unit of Insect Vector Genetics and Genomics, Department of Parasitology and Mycology, 28 rue du Docteur Roux, Paris 75015, France.

- **Outdoor biting mosquitoes - how to target them?**
- **Changes in mosquito behaviour**
- **Impact effects of resistance**
- **Etc.**

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Work stream meeting, Monday 17.00 to 19.00

- Meet, connect, and briefly review progress

- Obviously, this is not enough for work in groups and discuss specific issues.

The <u>two main objectives</u> of this two-hours session are:

1) Review briefly the latest developments since the June 2010 meetings in Geneva

2) Plan our next activities / meetings during 2011

Over 50 participants expressed interest…

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Time	Topic	Presenter
17.00-17.10	Introduction and review of agenda	C. Lengeler (Chair)
Part 1: Durable wall lining (DL) and similar new VC products		
17.10-17.20	Review of recent trials of DL in West Africa	Mark Rowland, LSHTM
17.20-17.40	Update of work on DL: short time slots allocated according to the number of presenters	All interested – no formal presentation
17.40-17.50	Review of work on DL target product profile	Tom Mc Clean, IVCC
17.50-18.10	Key elements of 2011 work plan *Products, funding*	All
Part 2: Evidence on the combination of VC methods		
18.10-18.30	Update on running and planned trials, new evidence; short time slots allocated according to the number of presenters	All interested – no formal presentation
18.30-19.00	Key elements of 2011 work plan *Products , funding*	All

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