



## Minutes of the 2<sup>nd</sup> Meeting of Insecticide Resistance Work Stream

Tuesday 8<sup>th</sup> February 2011  
IFRC, Geneva, Switzerland

**Work stream leader: Janet Hemingway (LSTM)**

**Rapporteur: Hilary Ranson**

The following 16 outstanding action points were agreed upon in the February 2011 meeting of the VCWG Insecticide Resistance (IR) Work Stream. They are listed in order of priority. Proposed action points were added by Janet Hemingway (JH) after the meeting. Progress on the first four will need to be reported at the RBM Board Meeting in May.

*1. Establish an outline Global Plan for insecticide resistance monitoring, management and impact assessment. The plan should cover a 2 year time frame and identify the contribution of different interest groups (countries, industry, academia, transnational and industrial organisations, donors etc) and indicate who owns the actions. It should include an assessment of resources (capacity and information) needed.*

Discussion points: Should represent all stakeholders and link closely with Insecticide Resistance Action Committee (IRAC). Revision of WHO monitoring guidelines is ongoing (consultancy led by Maureen Coetzee). If IR action plans to be incorporated into Round 11 of Global Fund, guidelines on how to do this are needed this year. Consider using consultancy to complete plan. The plan should include an assessment of the need for capacity building.

Action:

- JH to incorporate various ideas into a basic framework that consultants could flesh out into the Global Plan for presentation at the RBM board.
- Jo Lines (JL) to request funding for the above from the Board at the May meeting if funding (~US\$80-120K) cannot be made available for this from the current budget.

*2. Support an international advisory panel convened by WHO to assist countries interpret resistance data. Panel should also provide guidance or entomological investigations in areas where outbreaks or significant unexpected increases of malaria have occurred. Draft recommendations and Terms of Reference (TORs) for such a panel.*

Discussion points: TORs to be developed. Acknowledged information will often be incomplete but can provide recommendations on 'best guess' or 'least worse' action plans. Could include case studies e.g. from Zanzibar and Malawi. Written guidelines needed.

Action:

- JH to form work stream sub-group to draft TORs. Volunteers to be sought to collate case studies. Support requested for workshop sub-meeting (US\$30K) and case study collation (US\$12K).

3. *Dissemination and Linkage: there should be a webpage for malaria vector insecticide resistance information, on the Roll Back Malaria (RBM) or WHO Global Malaria Programme (GMP) websites with links to IRAC, Malaria Research and Reference Reagent Resource Center (MR4) et al. Suggest GMP to host with the RBM work stream to collect resources.*

Discussion points: If WHO hosted, easier to deal with confidentiality issues. Data on resistance should be in format that can be readily imported into IRbase.

Action:

- JL to assess the possibilities of hosting and any associated resource issues.

4. *Establish Standard Operating Procedures for assessing the underlying resistance status of field populations in locations where new formulations or Active Ingredients (AIs) can be tested. Would need to be formally adopted and part of the protocol for WHO Pesticide Evaluation Scheme (WHOPES) assessment to avoid duplication of effort.*

Discussion points: Expt hut trials should be carried out in areas where resistance has been fully characterised using robust SOPs to enable equal evaluation of products. Behavioural resistance must also be considered.

Action:

- Resources available under AvecNet, an FP7 funded consortium. Standard Operating Procedures (SOPs) to be developed and tested in 3 field sites. Resistance characterisation in these sites is ongoing.

PROGRESS ON ABOVE 4 TO BE REPORTED TO RBM IN MAY.

5. *Aid in the development of draft guidelines for the minimum criteria, assessment and validation of resistance breaking products.*

Discussion points: Criteria for testing needed prior to product development. Noted that this group is an advisory group and cannot make recommendations. Need a WHO process to approve.

Action:

- JH to convene a work stream sub-group with other stakeholders. Funding required for 2 day intensive workshop with ~15 participants (IRAC\Global Alliance\IVCC may help co-fund). Anticipated cost ~US\$40K in total.

6. *Complete the Cochrane style review on insecticide resistance impact on entomological and epidemiological indicators and publicise the outputs.*

Discussion points: Very little good data available linked to epidemiological indicators. Modeling of impact of resistance may be helpful. Publications used for this, and other malaria vector control Cochrane reviews, should be made available. Could be uploaded onto Armed Forces Pest Management Website.

Action:

- Ongoing by JH, expected to be complete within 6 months. BW or MM to provide process and contacts for lodging information on the Armed Services website. Contribution of US\$5K towards costs of extracting the data to speed up publication requested.

7. *Establish a slot for presentation of the resistance group findings at the next RMB Board (May 2011).*

Complete: Mikkel Vestergaard to suggest the item to the Board. Board member present and confirmed it would be possible.

ITEMS 1-7 ARE PRIORITIES FOR FIRST 6 MONTHS. LONGER TERM PRIORITIES BELOW.

8. *Establish a global network for supporting and linking regional networks such as African Network on Vector Resistance to Insecticides (ANVR), Asian Collaborative Training Network for Malaria (ACTMalaria), Amazon Malaria Initiative (AMI), TDR Resistance Network etc. Assess potential linkages with WorldWide Antimalarial Resistance Network (WWARN).*

Discussion Points: Consultant currently investigating linking IR data to WWARN drug resistance site. Will report back within 6 months.

10. *Support WHO in establishing the discriminating dosages for public health pesticides where a formal WHO dosage does not exist but where products are in active use.*

This will require funding for various labs to undertake the assessments and a WHO committee will need to be assembled to assess the data. Papers can be made up using the tentative dosages available via WHOPES. Cost ~US\$400K for development and assessment of data.

11. *Provide Quality Control support for insecticide procurements.*

Discussion Points: Increasing problem of fraudulent vector control products necessitates simple Quality Control (QC) procedures for pre and post procurement. Should be available at sub regional level.

12. *Undertake a systematic review of the type and frequency of known broad and narrow spectrum resistance in Anopheles.*

Completed. Publication in Trends in Parasitology 2011. Should be kept updated. Need Action Points: develop plan to keep this updated. Consider additional review of insecticide resistance management (include case studies).

13. *Establish whether non pyrethroid interventions (e.g. Indoor residual spraying (IRS), Durable Wall Lining (DL) in Long Lasting Insecticidal Nets (LLIN) areas where pyrethroid resistance has become an operational issue would be beneficial.*

14. *Encourage supply of impregnated papers (and kits) via industry or other Good Laboratory Practice (GLP) lab production facility to fulfill demand.*

15. *Encourage the use of studies evaluating alternative sampling strategies to replace human landing catches. Sampling strategies must include indoor and outdoor methods and any biases in species compositions from different trapping methods evaluated.*

16. *Capacity building is needed in some countries in line with ongoing vector control needs assessments.*

#### **ACRONYMS**

ACTMalaria: Asian Collaborative Training Network for Malaria AIs: Active Ingredients

AMI: Amazon Malaria Initiative

ANVR: African Network on Vector Resistance to Insecticides

DL: Durable Wall Lining

GLP: Good Laboratory Practice

GMP: Global Malaria Programme

IR: Insecticide Resistance

IRAC: Insecticide Resistance Action Committee

IRS: Indoor residual spraying IVCC: Innovative Vector Control Consortium

JH: Janet Hemingway

JL: Jo Lines

LLIN: Long Lasting Insecticidal Nets

MR4: Malaria Research and Reference Reagent Resource Center

QC: Quality Control

RBM: Roll Back Malaria

SOPs: Standard Operating Procedures

TORs: Terms of Reference

WHOPES: WHO Pesticide Evaluation Scheme

WWARN: WorldWide Antimalarial Resistance Network