

## **Insert 1 – Revised Box 5: Interpretation of data for resistance management purposes – 2012**

### **Guideline for Evaluating Insecticide Resistance in Vectors Using the CDC Bottle Bioassay**

#### **Reflects revision of WHO recommendations for inferring insecticide resistance presence**

A mortality in the range 98–100% indicates susceptibility.

A mortality of less than 98% is suggestive of the existence of resistance and further investigation is needed.

If the observed mortality (corrected if necessary) is between 90% and 97%, the presence of resistant genes in the vector population must be confirmed. The confirmation of resistance may be obtained by performing additional bioassay tests with the same insecticide on the same population or on the progeny of any surviving mosquitoes (reared under insectary conditions) and/ or by conducting molecular assays for known resistance mechanisms. If at least two additional tests consistently show mortality below 98%, then resistance is confirmed.

If mortality is less than 90%, confirmation of the existence of resistant genes in the test population with additional bioassays may not be necessary, as long as a minimum of 100 mosquitoes of EACH species was tested. However, further investigation of the mechanisms and distribution of resistance should be undertaken.

When resistance is confirmed, pre-emptive action **MUST** be taken to manage insecticide resistance and to ensure that the effectiveness of insecticides used for malaria vector control is preserved.