Group 2

Epidemiological outcomes

QC of interventions

Exposure measures

Cohort

Primary outcome measures:

1. Incidence of clinical malaria by age-group (fever and malaria parasitemia), including multiple episodes
   a. Thresholds to define clinical malaria eg.
      i. \( >0 \)
      ii. \( >400 \)
      iii. \( >5000 \)

Secondary outcome measure:

2. Incidence of severe malaria by WHO definition if possible (has some laboratory components that may not be possible to collect in some settings)

Annual survey during peak transmission season

Prevalence surveys, random sample, exclude cohort if possible (if not possible implications for analysis, so record if individual included and if treated)

1. Prevalence parasitemia
2. Prevalence anemia (mean and Hb <8)
3. Seroconversion
4. Assess net quality

Cohort enrollment

1. Was house sprayed with IRS
2. ITN use
3. HB

4. Parasitemia

5. Other malaria interventions (Spray, coils, ITM etc)

6. Fever in prior two weeks

7. Careseeking

8. Drug/antimalarial use in prior 2 weeks

9. Serology to measure seroconversion in areas of low transmission. ?high transmission

Routine visits

1. Ask if subject had fever (if yes, RDT, BS, treat)

2. Slept outside house

3. ITN use

Data at end of study

Seroconversion

ITN use

ITN condition

Other issues:

1. Discussed active vs. passive case detection
   a. Best to use “enhanced passive” rather than active surveillance to reduce likelihood of treating during cohort follow-up
      i. Will miss those who are asymptomatic, who may make up the majority
   b. Enhanced passive detection: once per week or once every 2 weeks visits to every home,
   c. Active screening for fever (visit or other contact such as cell phone), test all who are febrile by history or measured temperature.
2. RDT can be used for diagnosis and treatment, but BS recommended for endpoint determination, including parasite density and gametocytemia.

3. Attention should be given to keeping the age composition of the cohort reasonably constant over the course of the study with a longer follow-up. Consider whether to replace children as they become 5 years of age.

4. Sample of children to follow-up – do not need to follow-up everyone in the village who receive the intervention.

5. Minimum of age ranges, must include at least 6 months to <5yo for comparison with other studies. Under fives should be reported separately

6. Only those with fever and parasitemia are cases.

7. Treatment should be with an ACT.

8. Treatment at baseline to clear parasitemia not recommended.

9. If CHWs are used for data collection and treatment, need means to capture study subjects who bypass CHW and go to HF. CHW will need to be able to make RDT and/or BS for end point analysis including parasite density, if possible. Will need system working with HF with either study staff present or agreement with HF to collect data, including RDT and/or BS.

10. If use community health workers probably need at least 1 CHW per 50 for two visits per week, 1/100 for one visit per week.

11. Multiple episodes must be handled correctly in the analysis, so that correlation is accounted for.

12. Consider collecting the following variables: SES at baseline for the purpose of stratifying clusters at randomization.

13. Consider also collecting the following covariates to collect for cohort and information for annual cross sectional survey: whether house has been sprayed, ITN use, education level of head of household, education level of mother, indicators of SES/wealth indicators, housing types, open eaves, distance from breeding sites, distance from health facilities, distance to road.

14. Consider collecting baseline incidence for one malaria season for the purpose of stratifying clusters.

15. In areas of high prevalence settings, there may be trials that use parasite prevalence as their primary outcome.

**QC of interventions**

ITNs: cone bioassays and chemical quantification testing of insecticide residual annually
Annual survey with inspection of net for holes and condition (needs standardization).

IRS: cone bioassays and chemical quantification testing of insecticide residual at 3 months after IRS and prior to subsequent spray

Range of sites tested within an individual house to assess quality of spraying.

Spraying should be done per WHO guidelines. Supervision is essential.

**Exposure measures**

ITN ownership and usage by questionnaire as per MERG MIS questionnaire

Information about net use should be by person.

Hanging nets at distribution recommended

IRS administration by questionnaire at the household

Resistance molecular and bioassays in vectors, by cluster if possible (for large study areas or low number of clusters, resistance by cluster is especially desirable).