Challenges in measuring and analyzing vector control interventions: indicators, baselines and definitions.

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Case: Harmonizing Coverage across the E8

**CHALLENGE**
To monitor progress and identify gaps in IRS implementation across the southern Africa region, the Elimination 8 (E8) needs a single IRS coverage metric

**RESPONSE**
In August 2017, the E8 Vector Control Technical Working Group agreed on using the following definition for reporting: # sprayable rooms sprayed / total # sprayable rooms in the target area

### Considerations
- **Rooms vs. structures**
  - **Should we use “rooms” as the base unit (more granular and accurate) or “structures” (easier to tie to enumeration)?**
  - To improve visibility into partially sprayed buildings, the TWG decided to report on “# of rooms” to the E8. Countries will update their spray forms accordingly
- **Sprayable vs. non-sprayable**
  - Some homeowners request additional, non-standard rooms be sprayed
  - If a room is sprayed on request of the homeowner but is not a typical room for spraying, it will not be counted in the coverage numerator or denominator
- **Targeted vs. untargeted**
  - Using “targeted” rooms encourages better field reporting and linking it to programs

**Approach**
Implementation of Indoor residual spraying (IRS) for vector control is undergoing significant shifts as insecticide resistance has emerged for some insecticides and other insecticides are coming onto the marketplace, driving a need for rotation and layering of products. Insecticide treated bednets (ITNs) and other vector control tools are similarly undergoing transformations that could add complexity to malaria impact evaluations. At the same time, advances in satellite technology, rapid reporting, and routine surveillance system have allowed for more comprehensive assessment of the impact of these tools and their combinations in near real time. However, the ability to cross-analyze vector control interventions across different countries, implementing partners, and implementation strategies is hampered by a multiplicity of measurement methods and indicator definitions. Small changes in definitions can greatly impact the interpretation and analysis of the effectiveness of vector control programs.

### Case: Mozambique Enumeration

**CHALLENGE**
Rapid enumeration of the Mopeia district in Mozambique was required to randomly implement IRS for the COST trial assessing the cost-effectiveness of combining IRS and LLINs

**RESPONSE**
GPS ground geolocation was conducted in a house to house enumeration. This ground based enumeration was checked through satellite imagery overlaid with GPS points. This allowed the team to determine areas that had been missed through ground based enumeration and send in enumeration teams. This is one example of how to triangulate enumeration information.

Following the gathering and analysis of some of the diversity in measurements, the MERG taskforce presented a product outline at the October 2017 MERG meeting in Senegal. This product will continue to be developed through the taskforce and the MERG co-chairs will determine the correct review and approval process for a final product with input from other RBM and WHO working groups.

### Case: Ghana Structures

**CHALLENGE**
Two implementers are delivering IRS to beneficiaries in Ghana: AngloGold Ashanti’s Malaria Control project (AGAMal), the PMI Africa Indoor Residual Spraying (AIRS) project. At the inception of both projects, AGAMal and PMI AIRS independently defined a “structure” eligible to receive IRS. This disparity complicates the reporting to the National Malaria Control Program, and results in a discrepancy in how IRS coverage is determined and reported.

For AGAMal, a “structure” definition specifies that an “eligible structure” is an enclosed room or space within a standing building or house, which can be extended to exterior verandahs. As yet, no translational algorithm has been developed to allow the two data sets to be harmonized with one another while both implementers continue to deliver IRS services to their respective target geographical areas.

### MGER Task-Force Members

Chairs: Dave Larsen, Syracuse University; Molly Robertson, PATH; Members: Michael Paula, ICF – MEASURE; Cameron Taylor, ICF – DHS; Tara Seethaler, CHAI; Jason Richardson, IVCC; Oliver Briet, SwishTPH; Liliana Carvajal-Velez, UNICEF; Abdalain Noor; GMP; Ashley Thomas, PMI AIRS; Camila Damasceno, MOH Brazil; Lia Florey, PMI; Maureen Coetzee, U. of Witwatersrand; Joe Wagman, Christelle Gogue, and Kenzie Tynuv, PATH.

### Case: Zambia Targeting

**CHALLENGE**
WHO recommends spray coverage exceeding 85% within communities to ensure effective IRS implementation. IRS implementation has typically not achieved this threshold. Current monitoring paradigm relies on implementation teams to determine the denominator in population coverage of spray operators.

**RESPONSE**
A centralized team used satellite imagery to identify structures. This was loaded, with GPS coordinates into the mSpray tool. Ground enumeration was then joined with the spray activities so that each structure was coded and new structures were designated to give an accurate calculation of target areas and the denominator for sprayable structures.

**Partners**

*The NgenIRS (Next Generation IRS) project is a partnership, led by IVCC, that includes the US President’s Malaria Initiative, Abt Associates, and PATH. NgenIRS works in close collaboration with leading insecticide manufacturers, national malaria control programs, the Global Fund, and other stakeholders to save lives and promote health by reducing transmission of malaria through affordable indoor residual spraying of long lasting, non-pyrethroid insecticides. It is funded by UNITAID. For more information please visit www.ngenirs.com or email David McGuire (david.mcguire@ivcc.com).

**The Monitoring and Evaluation Reference Group (MERG) is a working group under the Roll Back Malaria Partnership. The purpose of the MERG is to facilitate alignment of partners on strategies and best practices for developing effective systems to monitor and evaluate M&E malaria control programmes. It also identifies emerging research questions and needs related to the implementation of M&E initiatives and communicates these to}