#1455

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

Molly Robertson[1], Christelle Gogue[1], Kenzie Tynuv[1], Joe Wagman[1], Ashley Thomas[2], David Larsen[3], Francisco Saute[4], Baltazar Candrinho[5], Chadwick Sikaala[6], Tara Seethaler[7], Charfudin Sacoor[4], Carlos Chaccour[4,9], Joe Brew[9], John Miller[1], Rick Steketee[1], Jeff Bernson[1]

[1]PATH, Washington, DC, USA,; [2]Abt Associates, AIRS project, Bethesda, MD, USA; [3]Department of Public Health, Food Studies and Nutrition, Syracuse University, Syracuse, NY, USA; [4]Centro de Investigação em Saúde de Manhiça, Maputo, Mozambique; [5]Programa Nacional do Controle da Malaria, Maputo, Mozambique, [6] Elimination 8, [7] Clinton Health Access Initiative, [9]ISGlobal, Barcelona Ctr. Int. Health Res. (CRESIB), Hospital Clínic - Universitat de Barcelona.

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. found

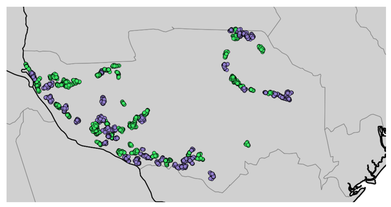
- Using "targeted" rooms encourages better field reporting and speaks best to what programs are measuring
- Using "targeted" rooms requires good enumeration or geographical reconnaissance, which malaria programs are currently investing in

Case: Mozambique Enumeration

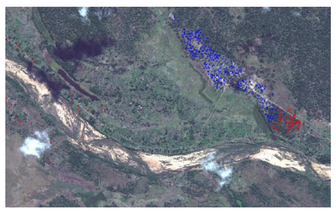
CHALLENGE Rapid enumeration of the Mopeia district in Mozambique was required to randomly implement IRS for the COST trial assessing the cost-effectiveness of combining IRS and LLINs

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.

RESULTS



Ground based enumeration geo-located households



Satellite imagery overlay allowed for identification of structures that were not found through ground enumeration

Introduction

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.

Approach

PATH, under the NgenIRS* project, brought this problem to the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG**). A taskforce was developed under the MERG to determine the extent of the problem and suggest solutions. The case studies in this poster represent some of the challenges in indicator harmonization. Ultimately, this taskforce is working towards compiling situational analyses, challenges, and recommendations for harmonization of the following broad categories:

Quantifying and planning for IRS	**Targeting/Coverage**
Enumeration	**Targeting strategy**
Quality Assurance	**Measuring Impact**
Cross-comparison of Malaria Control Interventions	

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.

MERG Task-Force Members

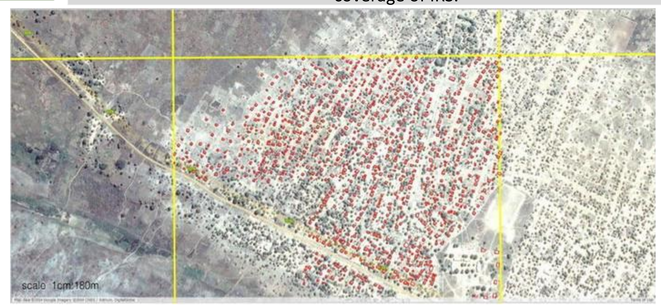
Chairs: Dave Larsen, Syracuse University; Molly Robertson, PATH; Members: Michael Paula, ICF – MEASURE; Cameron Taylor, ICF – DHS; Tara Seethaler, CHAI; Jason Richardson, IVCC; Oliver Briet, SwishTPH; Liliana Carvajal-Velez, UNICEF; Abdisalan Noor; GMP; Ashley Thomas, PMI AIRS; Camila Damasceno, MOH 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 Akros, working with the Zambian National Malaria Elimination Center and PMI AIRS, developed the mSpray tool that utilizes satellite enumeration to provide an accurate map of structures to spray operators. Navigable maps lead the spray operators to houses to be sprayed. Spray operators then select found structures and mark them as sprayed or not. The instant feedback leads to improved spatial coverage of IRS.

CONSIDERATIONS



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.

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 cascades to the reporting to the National Malaria Control Program, and results in a discrepancy in how IRS coverage is defined and reported.

CONSIDERATIONS

AGAMal Definition

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.

PMI AIRS Definition

The PMI AIRS project defines an "eligible structure" as a free-standing and independent building/unit in which people sleep/spend a night and has sprayable surfaces where inside partitioning only indicates the number of rooms *within* the structure

RESOLUTION 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.

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 protect 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 appropriate partners.