

# Solution Brief: Liverpool School of Tropical Medicine

## Serious Games for Malaria Vector Control

### BACKGROUND

The Initiative is sponsored by the Liverpool School of Tropical Medicine, an affiliate of IVCC and a leading non-governmental organization specializing in malaria vector control. Smart Game Systems developed the prototype and delivered the video game for deployment in sub-Saharan Africa. Smart Game Systems is providing a cutting edge serious game analytics solution to IVCC to measure the impact of the malaria vector control video game.

### GOALS

- Develop scenario around insecticide resistance management (IRM): identify key challenges, priorities, dynamics, decision points, data, etc.
- Convey foundational scientific knowledge, how to develop IRM plan, and best practices for implementation
- Address underlying factors that impact decision making, e.g., communication, attitudes, organizational cultures, etc.
- Validate the approach in at least two operational settings
- Lay groundwork for broader implementation

### TARGET AUDIENCE

Malaria Program Practitioners  
University Faculty and Students  
Entomologists and Aides  
Vector Control Department Staff

### CHALLENGES

- Little understanding or use of data for making decisions at all levels from policy to middle management to field operations,

leading to waste of resources and loss of lives

- Enormously complex system with many different types of data points—entomology, disease cases, operations, vector control interventions, etc.
- Small, seemingly inconsequential decisions can have huge negative impacts
- People are moved into positions for which they lack experience; limited training opportunities
- Stakeholders work in ‘silos’ and don’t communicate or collaborate with each other
- Various stakeholders have different perspectives and priorities; don’t understand each other



### RESULTS

- Overall average of survey of healthcare practitioners: 4.75 of 5
- 22% tested insecticides annually the first time playing, 44% tested insecticide annually the second time playing.

- For players that completed at least three rounds each in two separate games (only five), 0% implemented rotations the first time playing, and 40% implemented rotations the second time.

#### Quotes from participants:

“I have continued playing. The more you play, the more you understand.”

“This concept is fantastic. All you need to do is scale it up and deliver it to more programs.”

“This is a good technology for vector control. Please make a more detailed game.”

### SOLUTION OVERVIEW

- Develop a prototype serious digital game
- Deploy the game in target countries and implement an evaluation study of participant impact.
- Develop an evaluation strategy that incorporates at least the first two levels of evaluation:
  - *Level 1:* How the participant likes the program (Experience)
  - *Level 2:* How much the participant learned (Knowledge)
  - *Level 3:* How much more the participant is able to do (Skills)
  - *Level 4:* What difference the program made to results (Outcomes)

- Develop a data collection strategy of game impacts that streamlines the process and increases the quality of the data
- Create a game management system that provides "at-a-glance" information about performance across LSTM sites to deliver maximum, immediate, impact
- Integrate and correlate data about people, processes, and organizational goals to uncover opportunities to optimize performance



**The serious game, “Malaria Vector Control” was developed from data used to reduce resistance of pesticides to control the spread of malaria. The game provides opportunities for measurement of impact on practitioners, the program, and the region**