



# ITN Durability Monitoring Overview

February 4th, 2016



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# ITN Durability Monitoring

- WHOPEs guidelines published in 2011
- PMI supported monitoring in 8 countries beginning in 2008/2009
  - Currently conducting a pooled analysis based on existing data
- PMI contracted VectorWorks to develop a toolkit for ITN durability monitoring under PMI, incorporating lessons learned

# Why

- Net durability has been studied using a variety of study designs
- Operationalize the WHO guidelines
  - Important to standardize an approach for cross-comparability, simplicity, and common understanding and interpretation of results
- Durability monitoring allows PMI and others to identify places and/or products that perform under expectations
  - NOT for selecting specific nets

# Toolkit Contents

- 1. Introduction and Methods**
  - FAQ on how to carry out durability monitoring
  - Durability Monitoring timeline
- 2. Data Collection Instruments**
  - Template protocol
  - Survey questionnaire
  - Consent and recruitment scripts, household selection, etc.
- 3. Field worker Training Materials**
- 4. Data Cleaning and Analysis**
- 5. Report Templates**

# Data to be collected

- Number and brands of nets examined, by years in the field
- Number of nets not found, percent survivorship or attrition, disaggregated by reason for loss
- Years (or months) since distribution
- Size and number of holes (by WHO hole size category), and location if laboratory analysis is performed
- Data on household use, care and repair attitudes and behavior, and socio-economic status

# Outcome measures

- Total estimated area of damage and pHI for each individual net
- Proportion of surviving nets in “serviceable” condition as defined in WHO/MPAC guidance
- Estimated survival at each time point combining attrition and integrity as defined in MPAC guidance
- Graph of survival estimates against hypothetical survival curves using the tool provided by RBM VCWG LLIN durability workstream
- Estimation of median LLIN survival if more than two data points with survival <85% are available

# KEY DESIGN DECISIONS

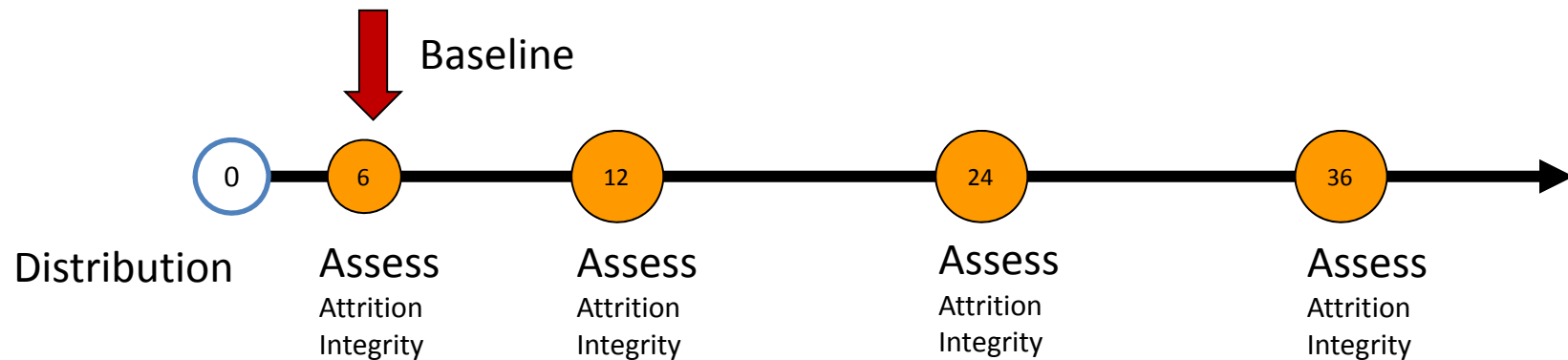
# Sampling Approach

- Prospective, longitudinal approach
- Use 15 clusters per site, 10 households per cluster.
- Assess all of the campaign nets within the household.
- Tagging occurs at the first visit (not before distribution)



# Follow-up Periodicity

- Establish the cohort ideally within 3 months post-distribution, and no longer than 6 months.
- Annual follow-ups at 12, 24, and 36 months after the nets were distributed.



## Next Steps

- Coordination of support to countries carrying out ITN durability monitoring.
- Further development of [durabilitymonitoring.org](http://durabilitymonitoring.org) toolkit (analysis, etc)
- Build community of durability monitoring implementers for support and problem-solving.

# TOUR OF [WWW.DURABILITYMONITORING.ORG](http://WWW.DURABILITYMONITORING.ORG)

**LLIN DURABILITY MONITORING**

Home Monitoring Sites Tools Results Login / Register Contact Us

The President's Malaria Initiative (PMI) has established this website as a repository for tools and datasets from long-lasting insecticidal net (LLIN) durability monitoring activities, conducted primarily under PMI-funded mechanisms. Resources available on this website include study protocols for durability monitoring, questionnaires, consent forms, training materials, data entry screens, and tools for data cleaning, preparation, and analysis. This site will also provide briefer reports combining LLIN durability data from multiple countries, to inform PMI programming. To access the content on this site you will need to become a registered user. To register or login, click the Login button at the top of the screen or [click here](#).

**Monitoring Sites**  
See where PMI is conducting durability monitoring.  
[Learn More>>](#)

**Tools**  
All the tools needed to plan, conduct, analyze and report on durability monitoring.  
[Learn More>>](#)

**Results**  
Reports and more.  
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The screenshot shows a web browser window with the URL [https://www.durabilitymonitoring.org/?page\\_id=10](https://www.durabilitymonitoring.org/?page_id=10). The page title is "LLIN DURABILITY MONITORING". The navigation menu includes Home, Monitoring Sites, Tools, Results, Login / Register, and Contact Us. The main content area is titled "Tools" and features a section for the "LLIN Durability Monitoring Package".

**LLIN Durability Monitoring Package**

The President's Malaria Initiative (PMI) Long-Lasting Insecticidal Net (LLIN) Durability Monitoring Package comprises two parts. Part 1 includes materials and tools related to study design, study implementation and data collection, up through the data entry stage. Part 2 includes materials and tools for data cleaning, preparation, analysis, and interpretation, including reporting.

This content is for members only. You must log in to view this content.

**Login**

Username or Email

Password

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The screenshot shows a web browser window with the URL [https://www.durabilitymonitoring.org/?page\\_id=10](https://www.durabilitymonitoring.org/?page_id=10). The page title is "LLIN DURABILITY MONITORING". The navigation menu includes "Home", "Monitoring Sites", "Tools", "Results", "Login / Register", and "Contact Us". A red arrow points to the "Login / Register" link in the navigation menu. Below the navigation menu, the "Tools" section is visible. The main content area is titled "LLIN Durability Monitoring Package" and contains a paragraph describing the package. Below the paragraph, it states "This content is for members only. You must log in to view this content." A "Login" form is displayed, featuring input fields for "Username or Email" and "Password", a "Remember me" checkbox, and a "Log In" button. A red arrow points to the "Forget? | Register" link below the form. The footer of the page contains the copyright notice: "Copyright 2015 Johns Hopkins University. All rights reserved."

The screenshot shows a web browser window with the URL [https://www.durabilitymonitoring.org/?page\\_id=466](https://www.durabilitymonitoring.org/?page_id=466). The page title is "LLIN DURABILITY MONITORING". The navigation menu includes Home, Monitoring Sites, Tools, Results, Login / Register, and Contact Us. The main heading is "Login / Register".

Below the heading, a message states: "Before you can access the tools and resources on this site, you must register as a LLIN Durability Monitoring User. If you wish to access the information on this site, sign-up for a new account below. If you are a registered user, please sign in below."

The interface is divided into two main sections:

- Login:** Contains fields for "Username or Email" and "Password", a "Remember me" checkbox, a "Log In" button, and a "Forgot? | Register" link.
- ACCOUNT INFO:** Contains a profile picture placeholder with the text "Your display name will appear here.", and fields for "Username \*", "E-mail \*", "Password \*", and "Confirm Password \*". A "Hide from Public" checkbox is also present. A password strength note reads: "Password must be at least 7 characters long. To make it stronger, use upper and lower case letters, numbers and symbols."

A link below the login section says "Click here to update your profile."



The screenshot shows a web browser window with the URL [https://www.durabilitymonitoring.org/?page\\_id=10](https://www.durabilitymonitoring.org/?page_id=10). The page title is "Tools | LLIN Durability Mon...". The main content area is titled "Tools" and features the "LLIN DURABILITY MONITORING" logo. A navigation menu includes "Home", "Monitoring Sites", "Tools", "Results", "Login / Register", and "Contact Us".

The "LLIN Durability Monitoring Package" section describes the President's Malaria Initiative (PMI) Long-Lasting Insecticidal Net (LLIN) Durability Monitoring Package. It is divided into two parts: Part 1 (Introduction and Data Collection) and Part 2 (Data cleaning, preparation, analysis, and reporting).

**Part 1: Introduction and Data Collection**  
Last updated: October 22, 2015  
Type of Update: *Limited: removal of minor tracked edits from three documents.*

A red arrow points to the link: [Complete DM Package Oct 22 2015 \(32 MB\)](#)

**Individual files (file sizes are listed if greater than 1MB):**

1. Introduction and Methods
  - 1a. Package Table of Contents Contents
  - 1b. PMI LLIN durability monitoring guidelines
    - Overarching technical guidance, including basic approach, costs, and outcome measures
  - 1c. DM Background and FAQ
    - Detailed description of processes and justification/rationale. (Some sections still being written).
  - 1d. Budget Templates, 1d. Budget Notes
    - Adjustable per number of study sites
  - 1e. DM Timeline

**LLIN DURABILITY MONITORING**

Home Monitoring Sites Tools Results Login / Register Contact Us

- Adjustable per number of study sites
- 1e. DM Timeline
- 2. Data Collection Instruments
  - 2a. Template Durability Monitoring Protocol
  - 2b. Baseline Survey Questionnaire
  - 2c. Sample Oral Consent Script for Participants
  - 2d. Sample Recruitment Script for Local Authorities and Chiefs
  - 2e. Sample durability monitoring Data Entry Screen (EpiData)
  - Household Selection Tools
    1. 2f.i. Household Sampling Instructions
    2. 2f.ii. Random Number List for Selecting Sections within Clusters
    3. 2f.iii. Random Number List for Household Selection 15x10
    4. 2f.iv. Form – Household Listing and Selection
    5. 2f.v. Example final sampled settlements
  - 2g. Sample Durability Monitoring Supervisor Cluster Monitoring Sheet
  - 2h. DM Sample Size Calculator
- 3. Fieldworker Training Materials
  1. 3a. Sample Training Workshop Agenda
  2. Training Presentations (PowerPoint) and Materials
    1. 3b.i. Background on Durability Monitoring (4MB)
    2. 3b.ii. Monitoring Design
    3. 3b.iii. Household Selection for Baseline
    4. 3b.iv. Overview of Questionnaire
    5. 3b.v. LLIN Hole Assessment Facilitators Guide (3MB)
    6. 3b.vi. LLIN Hole Assessment Slides (6MB)
    7. 3b.vii. Test – Hole Counting Exercise
    8. 3b.viii. Guidelines for Conducting Interviews
    9. 3b.ix. Roles and Responsibilities
  3. Visual Aids
    1. 3c. Two-page Field Tool for Tallying and Hole Size
    2. 3c.ii Visual Aid for LLIN Brands and Tags (2MB)
    3. 3c.iii. Visual Aid for Types of Holes (4MB)
  4. Post Test and Selection of Fieldworkers
    1. Post-Test
    2. Post-Test Answer Key

The screenshot shows a web browser window with the URL [https://www.durabilitymonitoring.org/?page\\_id=57](https://www.durabilitymonitoring.org/?page_id=57). The page title is "LLIN DURABILITY MONITORING". The navigation menu includes Home, Monitoring Sites, Tools, Results, Login / Register, and Contact Us. The main content area is titled "Monitoring Sites" and contains a paragraph: "PMI monitors LLIN durability in many of its focus countries. Completed, current, and upcoming monitoring activities are listed below, and will be updated as new information become available. If you are aware of information we are missing, please [contact us](#)."

Country	Product	Monitoring Areas	Publications
Mozambique 2015-2018	MAGNet & Royal Sentry	Inhambane • Tete • Nampula	
Nigeria 2015-2018	DawaPlus 2.0 (Zamfara & Ebonyi), Oyo TBD	Zamfara • Ebonyi • Oyo	Kilian A Koenker H Obi E Selby RA Fotheringham M Lynch M. <a href="#">Field durability of the same type of long-lasting insecticidal net varies between regions in Nigeria due to differences in household behaviour and living conditions</a> Malar J. 2015 Mar 24;14:123
Burma 2016-2019	DawaPlus 2.0	TBD	
Madagascar 2015-	PermaNet 2.0	TBD	
Zimbabwe 2015-2018	DawaPlus 2.0 and DuraNet	13 malaria endemic districts in Mashonaland Central and West Provinces	
Malawi 2015-2018	Yorkool, Royal Sentry	Nkhotakota • Lilongwe • Mchinji	
Nigeria 2012-2014	100 denier polyester (PermaNet 2.0® in Zamfara and Nasarawa, and DawaPlus 2.0® in Cross River)	Zamfara • Nasarawa • Cross River	