Improving end-process monitoring, data analysis and use for decision making post ITN campaign in Nigeria

May 2023

Outline

- Introduction
- Previous ITN Campaign End process methodology
- Challenges with the previous methodology
- The current ITN Campaign end process methodology
- Benefits of the current methodology
- Implementation of the current methodolgy
- cLQAS classification for corrective action planning
- Data analysis & Presentation
- Challenges & Recommendations

Introduction

- Major vector control strategy for malaria control in Nigeria
- Several rounds conducted since 2009
- Over 250 million ITNs distributed so far
- Assessment of the process, outputs & outcome key to improving effectiveness of the strategy

Introduction

(End Process)

Definition

- Rapid assessment usually conducted at the end of ITN distribution campaigns in Nigeria

Why

- Unbiased evaluation of the ITN distribution outputs & immediate outcomes

Measures

- Key output / outcome indicators of ITN distribution process
- e.g., ITN coverage, ownership, access, hanging rate etc.

Conducted by

- Independent monitors called Campaign Monitoring Teams (CMTs)

Previous Methodology

4-4-10 Methodology

- 4 wards selected from each LGA in the campaign State (2 urban & 2 Rural)
- 4 settlements / communities per selected ward
- 10 households systematically sampled for interview per selected settlement

Geo-hierarchy in Nigeria

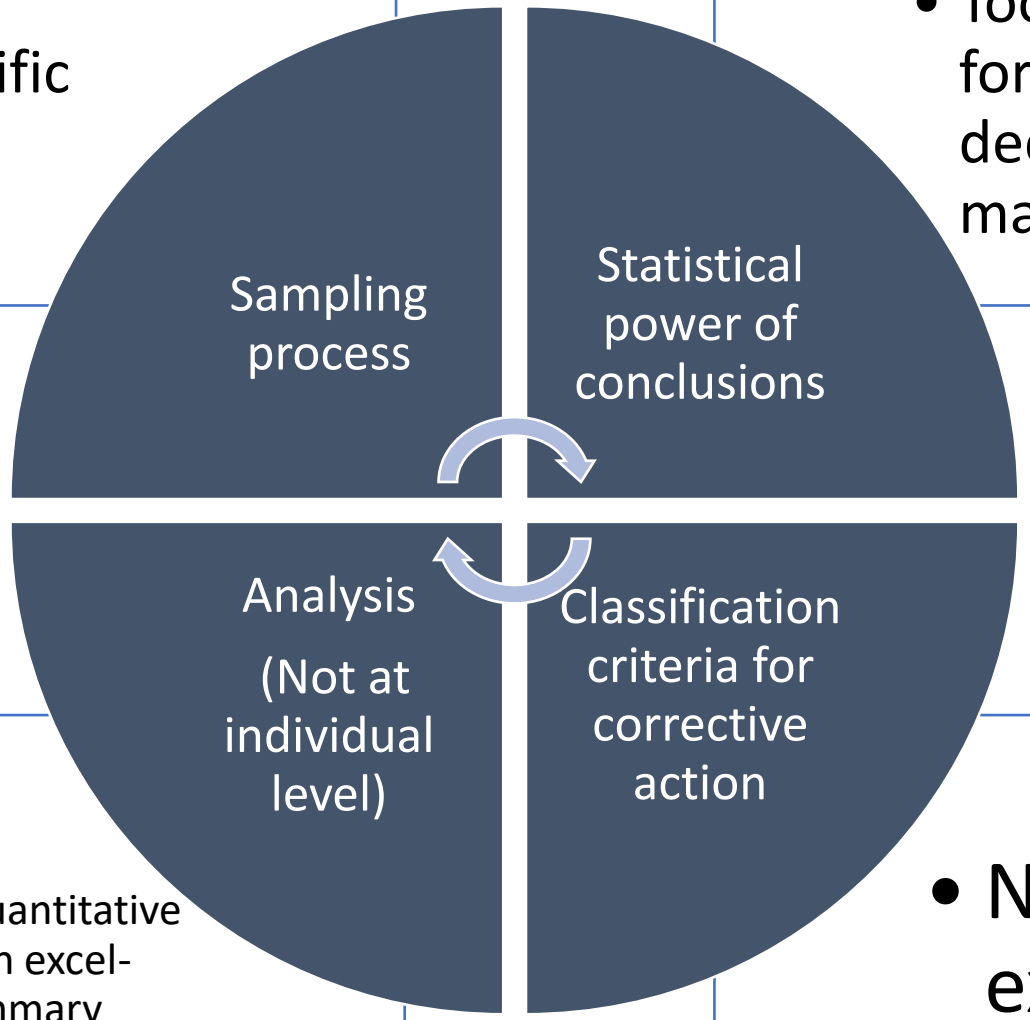
1. National
2. State
3. LGA
4. Ward
5. Settlements / Communities

Each CMT is assigned to a ward & samples 40 households in total. Data collection is done electronically using tools on ODK application.

Challenges with the Methodology

- Not Scientific

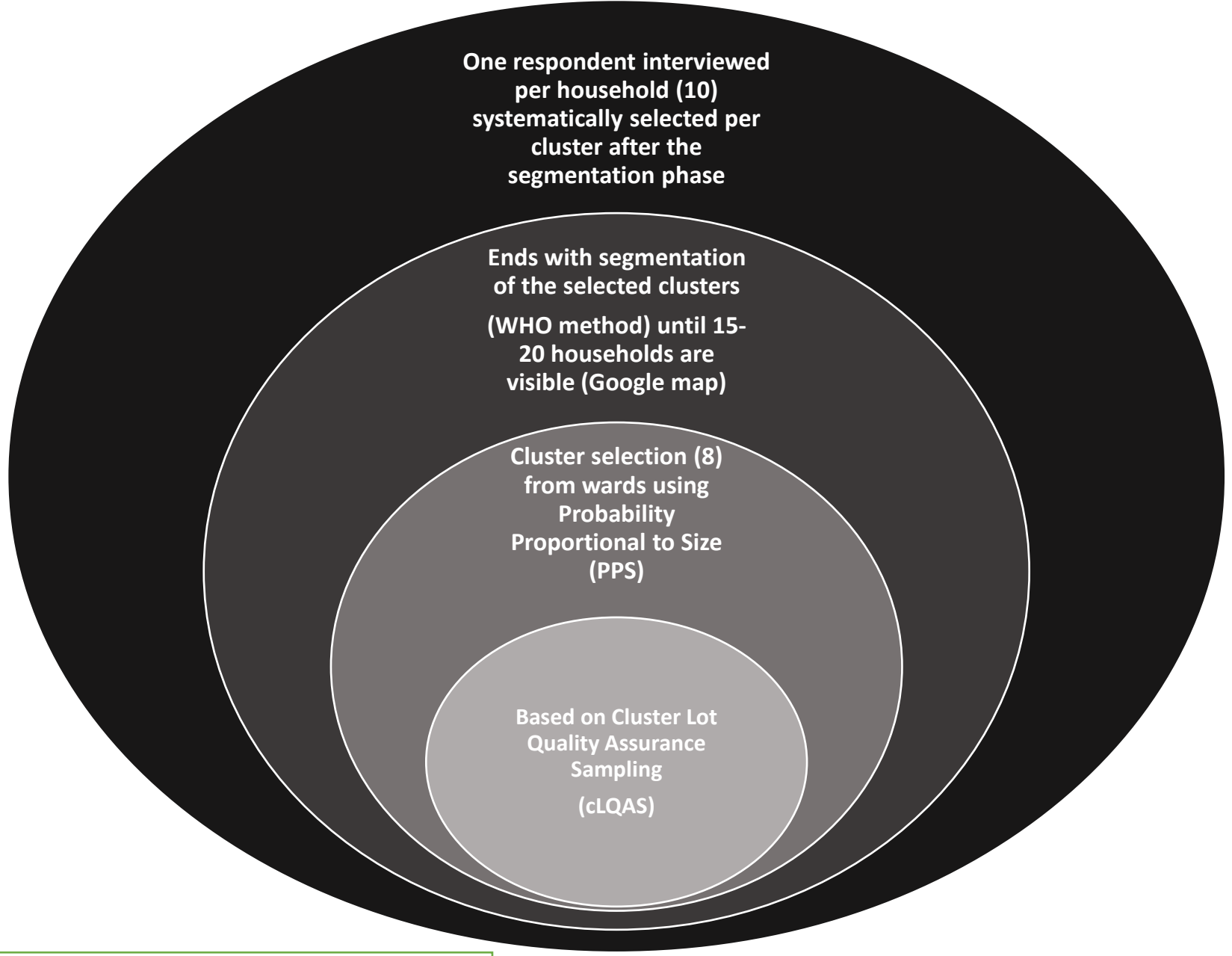
- Too poor for decision making



- Pseudo-quantitative (Done with excel-based summary template)

- None existed

Current Methodology



Weighted data analysed using Stata

Implementation of the current methodology: PPS Steps for cluster sampling

LGA	Ward	Number of communities	Population	Cumulative Population	Selected ward (8 wards)	Name of selected final segment (1 segment per Ward)	Google Map link to selected Area
			14,935				
	Tagagi	48		14,935	Cluster 1 (12,045)	Tagagi Cluster	https://goo.gl/maps/W4fyS63n8aj2Pyho8
	Ekobadeggi	46	14,939	29,874			
	Boku	54	15,232	45,106	Cluster 2 (36,257)	Boku Cluster	https://goo.gl/maps/dVCzEUwbbpeQ7bej6
	Magaji	43	15,256	60,362			
Agaie	Ekowuna	47	18,198	78,560	Cluster 3 (60,469)	Ekowuna Cluster	https://goo.gl/maps/dx5WAJg2PmYvCC6d6
	Baro	56	18,815	97,375	Cluster 4 (84,681)	Baro Cluster	https://goo.gl/maps/2PefUFfnYbwFBt9F9
	Kutiriko	48	22,667	120,042	Cluster 5 (108,893)	Kutrika/Tachi Cluster	https://goo.gl/maps/ESKgwB248uNB39Dz9
	Ekossa	73	23,890	143,932	Cluster 6 (133,105)	Ekosa Cluster	https://goo.gl/maps/NNEwX43SucWuBw5X9
	Ekowugi	52	24,485	168,417	Cluster 7 (157,317)	Ekowugi Cluster	https://goo.gl/maps/xFBum9oDhkoHzrhU8
	Etsugaie	73	25,275	193,692	Cluster 8 (181, 529)	Etsugaie Cluster	https://goo.gl/maps/m5jMbPwKR5Veq29f7
			193,692				

Ascending Order

1

5

6

7

PPES Interval: 193,692/8	24,212
Starting point: random number between 1 and 24,212	12,045
Selected Cluster 1	12,045
Selected Cluster 2	36,257
Selected Cluster 3	60,469
Selected Cluster 4	84,681
Selected Cluster 5	108,893
Selected Cluster 6	133,105
Selected Cluster 7	157,317
Selected Cluster 8	181,529

2

3

4

Sample of Cluster selection steps using PPS methodology

LGA	Ward	Name of selected final segment (1 segment per Ward)	Google Map link to selected Area
Agaie	Ekossa	Ekosa Cluster	https://goo.gl/maps/NNEwX43SucWuBw5X9
Agaie	Ekowugi	Ekowugi Cluster	https://goo.gl/maps/xFBum9oDhkoHzrhU8
Agaie	Etsugaie	Etsugaie Cluster	https://goo.gl/maps/m5jMbPwKR5Veq29f7
Agaie	Kutiriko	Tachi/Kutriko Cluster	https://goo.gl/maps/ESKgwB248uNB39Dz9
Agaie	Ekowuna	Ekowuna Cluster	https://goo.gl/maps/dx5WAJg2PmYvCC6d6
Agaie	Boku	Boku Cluster	https://goo.gl/maps/dVCzEUwbbpeQ7bej6
Agaie	Tagagi	Tagagi Cluster	https://goo.gl/maps/W4fyS63n8aj2Pyho8
Agaie	Baro	Baro Cluster	https://goo.gl/maps/2PefUFfnYbwFBt9F9

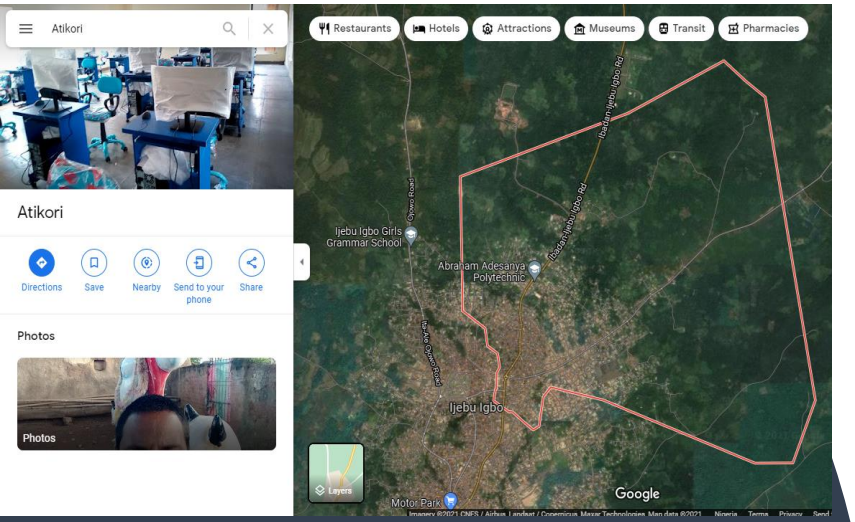
Cluster grouping	
Ekosa Cluster	Ekowugi Cluster
Etsugaie Cluster	Tachi/Kutriko Cluster
Ekowuna Cluster	Boku Cluster
Tagagi Cluster	Baro Cluster

8

Sample of final selected Clusters

S/N	LGA	Names of CMTS	Ward	Name of selected final segment (1 segment per Ward)	Google Map link to selected Area
1	Agaie		Ekossa	Ekosa Cluster	https://goo.gl/maps/NNEwX43SucWuBw5X9
			Ekowugi	Ekowugi Cluster	https://goo.gl/maps/xFBum9oDhkoHzrhU8
2			Etsugaie	Etsugaie Cluster	https://goo.gl/maps/m5jMbPwKR5Veq29f7
			Kutiriko	Tachi/Kutriko Cluster	https://goo.gl/maps/ESKgwB248uNB39Dz9
3			Ekowuna	Ekowuna Cluster	https://goo.gl/maps/dx5WAJg2PmYvCC6d6
			Boku	Boku Cluster	https://goo.gl/maps/dVCzEUwbbpeQ7bej6
4			Tagagi	Tagagi Cluster	https://goo.gl/maps/W4fyS63n8aj2Pyho8
			Baro	Baro Cluster	https://goo.gl/maps/2PefUFfnYbwFBt9F9

Sample rooster for CMT posting developed from the cluster selection template

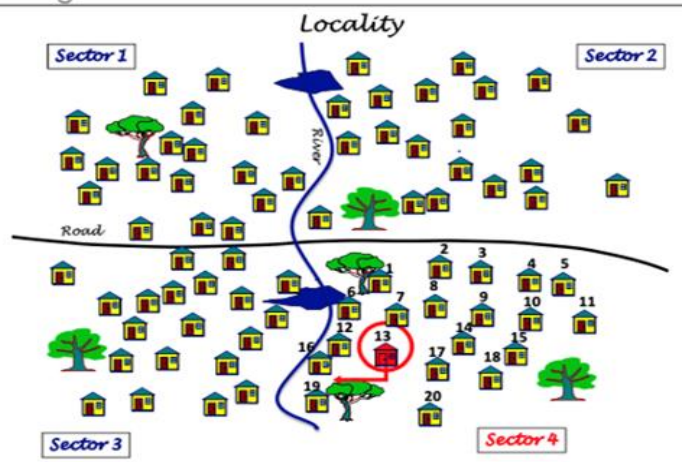


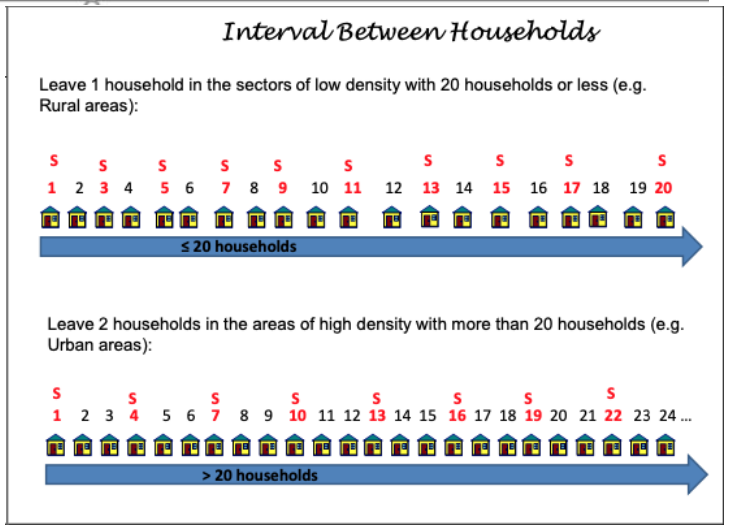
Implementation of the current methodology:

Segmentation Steps for Household sampling

WHO method: Equal Segmentation – 4 (or more) equal segments

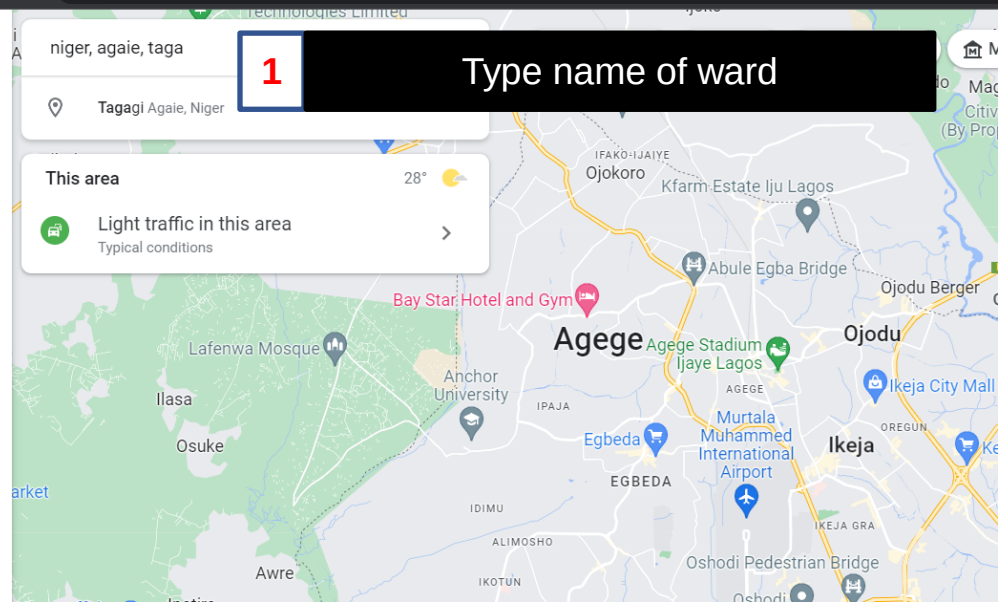
1) Divide the locality in four sectors using an available map, or sketch one identifying some landmarks (e.g. road, river, school, mosque, church, etc.).
2) Select one sector randomly and go to the selected sector.
3) If the sector has maximum 20 households (HHs), number them and select one randomly as the starting point of the survey.
4) If the sector has more than 20 HHs, repeat steps 1-3 until a sector with maximum 20 HHs is obtained.
5) Administer the survey in the HH selected as the starting point.
6) Once the survey is completed in the selected HH, turn right exiting the house and



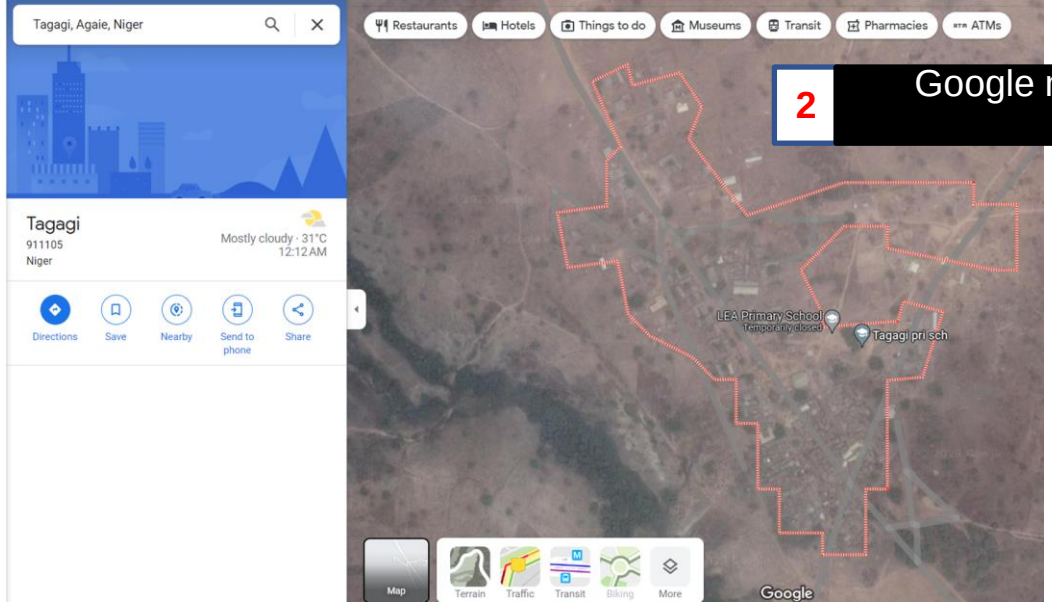


Implementation of the current methodology:

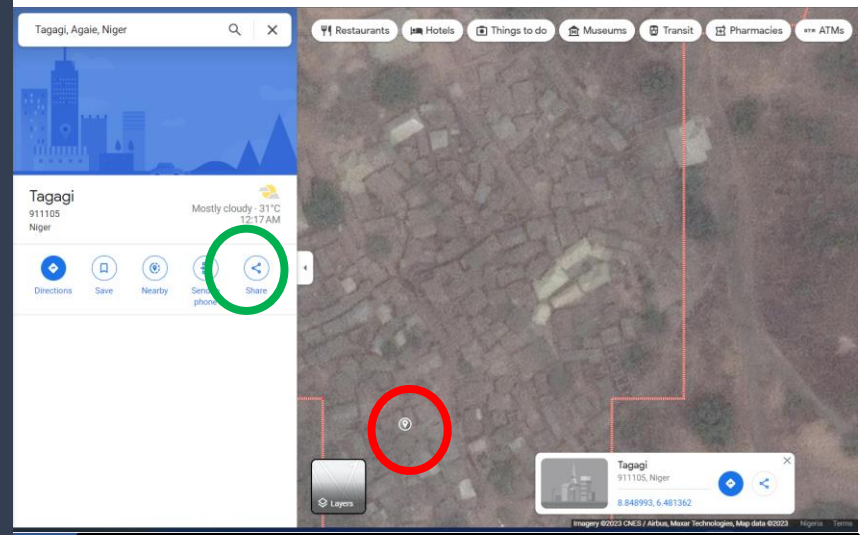
Segmentation Steps for Household sampling Cont'd



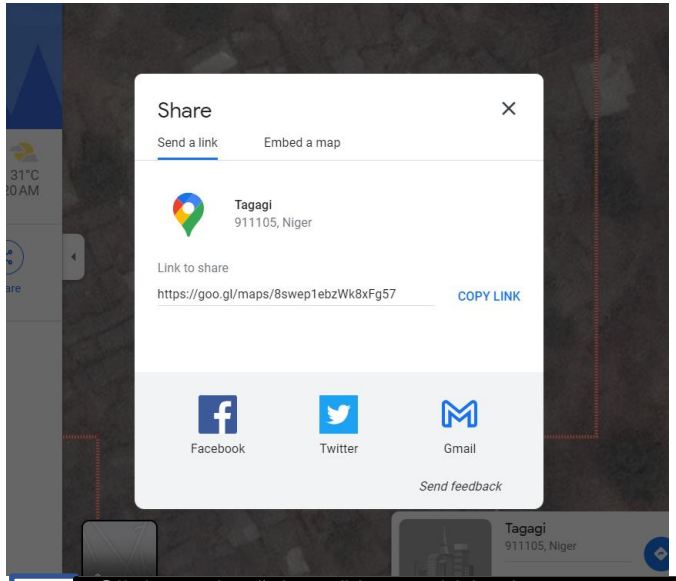
1 Type name of ward



2 Google map generated ward boundary



3 Zoom into one random quadrant of the ward boundary & continue the process until about 15-20 HHs are visible within the final segment. Then click within the selected quadrant. (See inside the red circle)

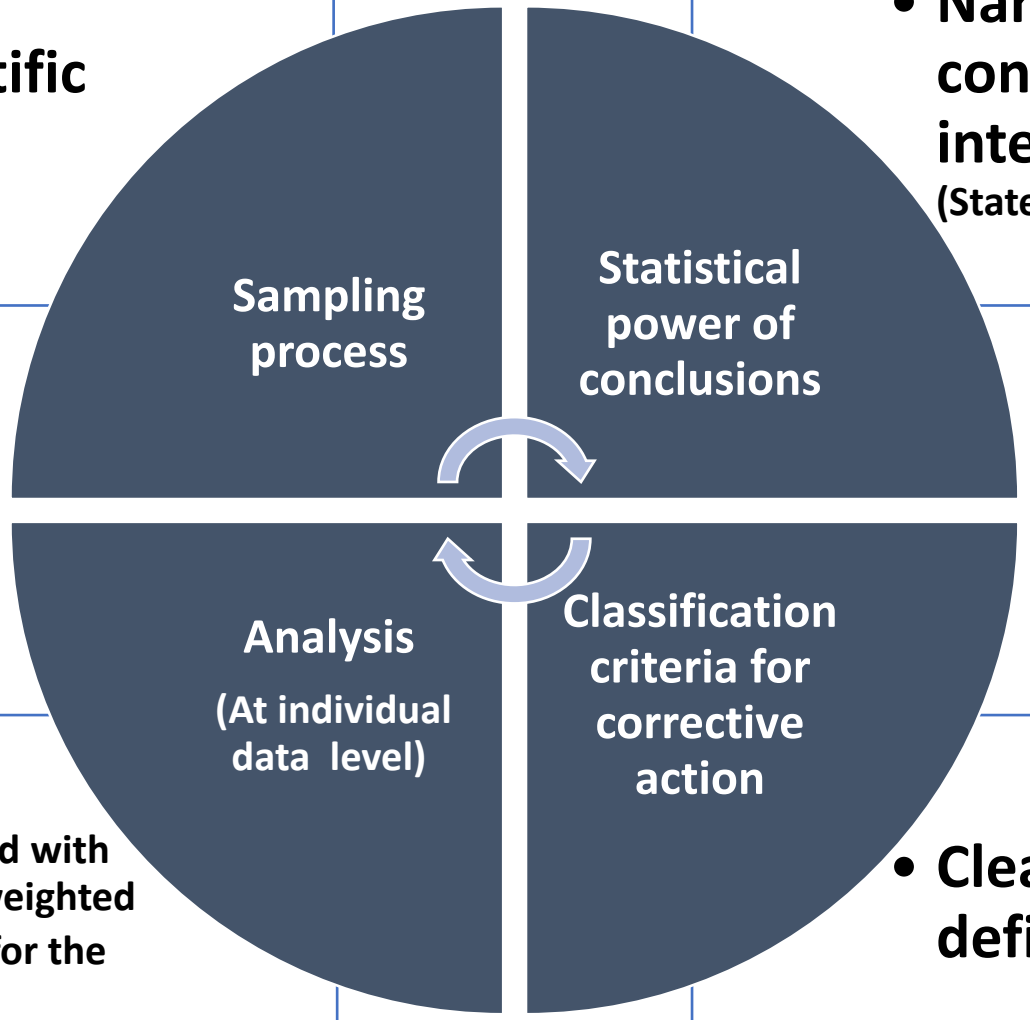


4 Click on the "share" icon within the green circle in step 3 to generate the google link included in the cluster selection template in previous slide

Benefits of the current methodology

- Very Scientific

- Narrower confidence interval (State level)



- Performed with Stata & weighted
- (Do files for the analysis developed- AMP)

- Clearly defined

No changes in the number of CMTs required as Independent monitors relative to previous methodology

LQAS Classification criteria for corrective action planning

To provide guidance on decisions for defined indicators from the assessment e.g., ITN coverage, hanging rate, use etc.

Classification	Criteria	Action
Pass (>90%)	0-5 of 80 households with incorrect ITNs data (based on re-estimated household population) post-ITN distribution	No action required, other than reinforcing the positive aspects leading to the current success.
Warning (80-90%)	6-12 of 80 households with incorrect ITNs data (based on re-estimated household population) post-ITN distribution.	Further investigation or discussion is needed. Look at other indicators (e.g., the in-process monitoring data). After more investigation, decide on supporting interventions needed.
Fail (<80%)	13 or more of 60 households with incorrect ITNs data (based on re-estimated household population) post-ITN distribution.	Investigate and consider supporting interventions needed.

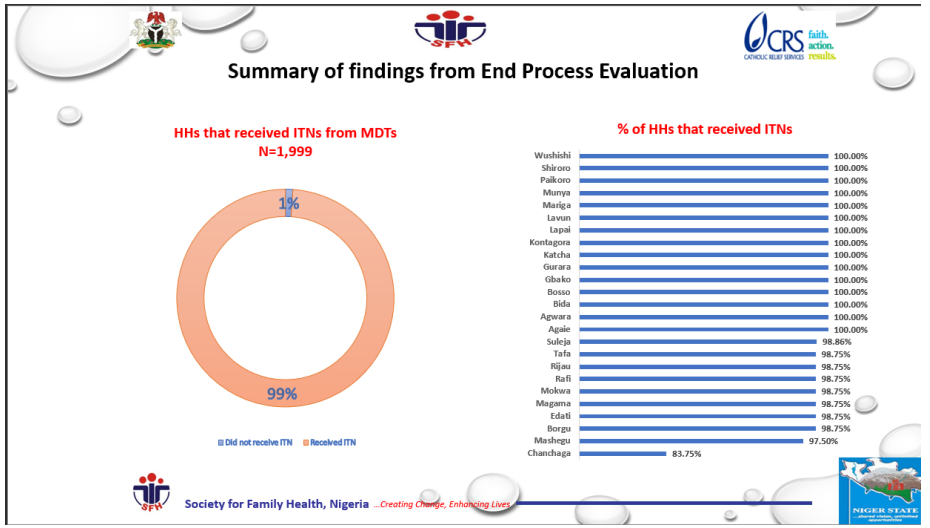
Data analysis & presentation

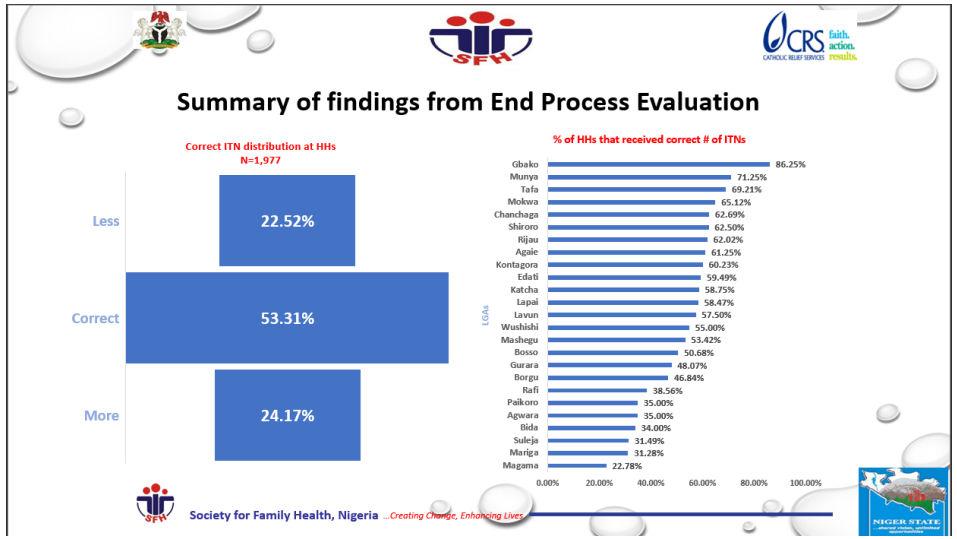
(Based on classification decision rule)

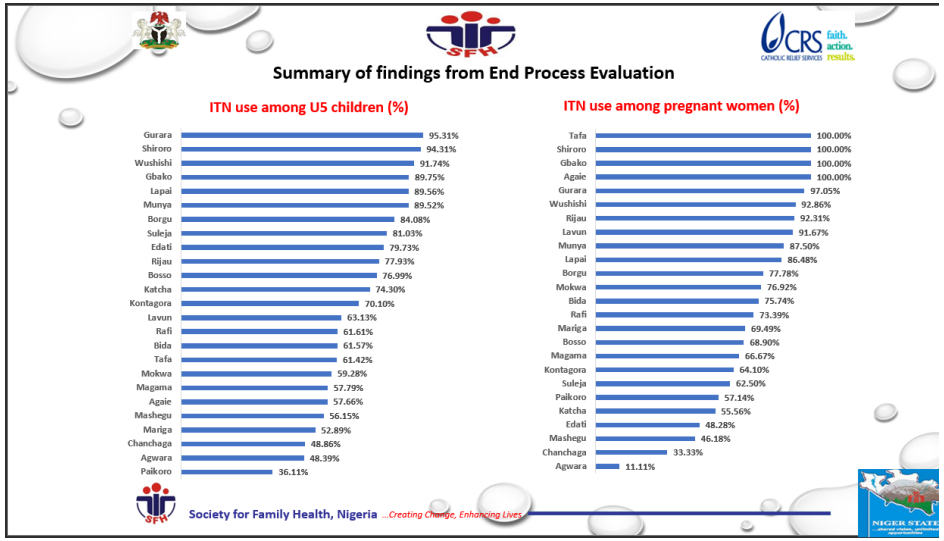
NIGER Sorted by average of indicators, classfication cut off 90/70						
LGA	ITN Received in HH	Correct # of ITN received in HH	% Pop Access	% Use, total	% Use, child <5 yo	Average
Gbako	100	86	93	86	90	91
Shiroro	100	63	95	93	94	89
Gurara	100	49	97	88	95	86
Wushishi	100	55	88	88	92	85
Lapai	100	58	86	88	89	84
Munya	100	71	78	69	90	82
Rijau	99	61	80	80	78	80
Edati	99	59	83	70	80	78
Katcha	100	63	89	64	74	78
Tafa	99	68	90	65	63	77
Bosso	100	51	81	71	76	76
Lavun	100	58	95	56	66	75
Kontagora	100	60	86	57	70	75
Borgu	99	46	86	57	84	74
Suleja	99	32	95	64	80	74
Mokwa	99	65	87	55	60	73
Agaie	100	64	88	58	52	73
Rafi	100	42	79	61	66	70
Mashegu	98	53	81	61	56	70
Bida	100	35	82	58	62	67
Mariga	100	38	87	57	49	66
Agwara	100	35	79	43	48	61
Chanchaga	84	53	84	30	49	60
Magama	99	23	75	40	58	59
Paikoro	100	35	83	34	36	57

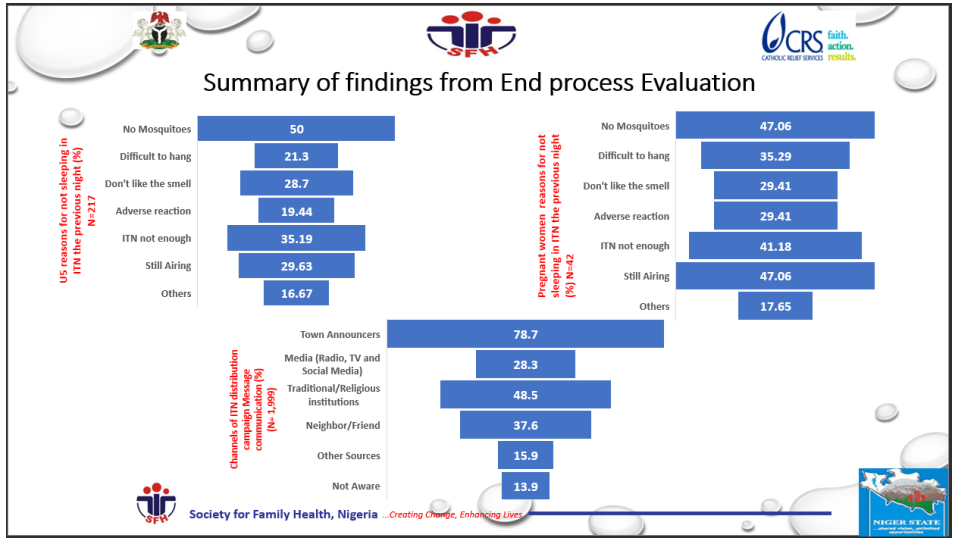
Data analysis & presentation

(Sample debriefing slides to State)









malaria consortium
disease control, better health

Data analysis & presentation

(Weighted data from ITN campaigns implemented in 2022)

Various indicators, by state, LLIN campaigns implemented in 2022.

State	Number of households (HHs) visited	Number of HHs with data	% of HHs with data	% HHs with correct number campaign LLINs	95% confidence interval	95% confidence interval half-width	Design effect
Delta	1,977	1,947	98.5	60	57-64	3-4	2.7
Kaduna	1,868	1,863	99.7	53	49-57	4	2.9
Kano	3,564	3,539	99.3	59	54-64	5	10.3
Katsina	2,799	2,782	99.4	57	54-61	3-4	3.6
Niger	2,044	2,027	99.2	52	48-56	4	3.2
Taraba	1,284	1,279	99.6	64	58-70	6	4.6
Yobe*	1,508	1,503	99.7	60	---	---	---
Total***	15,044	14,940	99.3	57	55-59	2	6.5

* Yobe state data missing cluster variable, therefore, confidence interval could not be calculated

** Analyses were weighted by LGA population, Nigeria Grid3 population data.

*** Total excluded Yobe

Data analysis & presentation

(Data on correctly distributed ITNs from ITN campaigns implemented in 2022)

Percentage of households that received correct, more, or less mass campaign LLINs according to campaign rules, by state, LLIN campaigns implemented in 2022.

State	Correct	More	Less
Delta	60	14	25
Kaduna	53	18	28
Kano	59	19	22
Katsina	57	21	22
Niger	52	24	23
Taraba	64	18	18
Yobe	57	15	28
Total	57	19	24

Data analysis & presentation

(Data on other secondary indicators from ITN campaigns implemented in 2022)

Percentage of various secondary indicators, by state, 2022 campaigns.

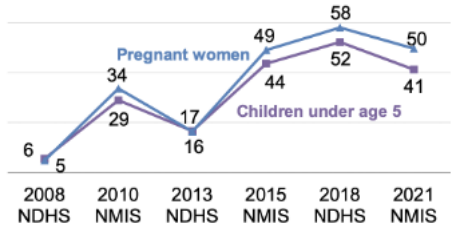
	States							
Secondary indicators	Delta	Kaduna	Kano	Katsina	Niger	Taraba	Yobe	TOTAL*
- % of received campaigns LLINs still in HH at time of interview	91	96	95	90	92	98	95	94
- % of all LLINs present in HH at time of interview that were recent campaign LLINs	84	79	74	75	76	84	75	77
- % of present LLINs that were hung the previous night	58	69	76	67	68	71	81	70
- % of all hung LLINs that were mass campaign LLINs	86	80	72	72	75	83	75	76
- % of present mass campaign LLINs that were hung the previous night	60	70	75	64	67	71	81	70
- % of present "previous/old" ITNs that were hung the previous night	51	64	81	73	70	73	80	73
ITN use								
- % of persons, **all ages**, that slept under ITN during the previous night	54	67	75	66	65	69	87	70
- % of **children** <5 years that slept under ITN during the previous night	65	79	79	67	71	79	91	75
- % of **pregnant women** that slept under an ITN during the previous night	77	82	81	73	76	78	92	79
- % of **other persons** (not children, not pregnant women) that slept under an ITN during the previous night	50	59	73	64	60	64	85	67

* TOTAL calculations did not use complex survey commands so that Yobe data could be included

Background, Nigeria MIS, Oct-Dec 2021

Figure 3.11 ITN use by children and pregnant women

Percentage of children and pregnant women using an ITN the night before the survey



Note: The definition of an ITN in surveys conducted prior to the 2015 NDHS included nets that had been soaked with insecticides within the past 12 months.

Figure 3.9 ITN access, by state

Percent of the household population that could sleep under an ITN if each ITN in the household were used by up to two people

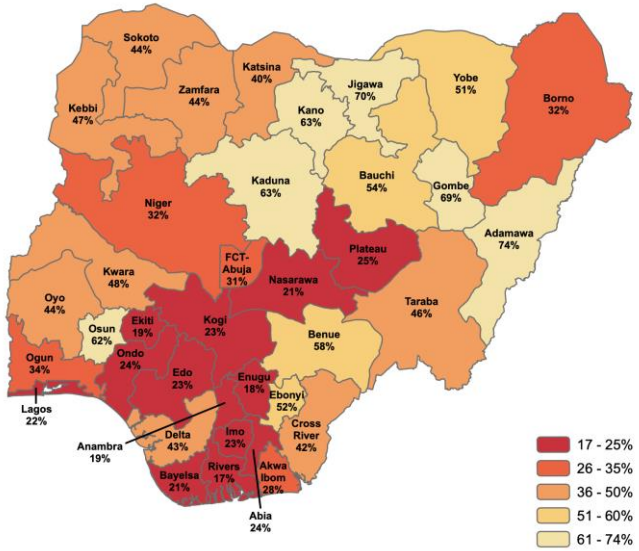


Figure 3.7 Access to and use of ITNs, by residence

Percentage of the household population with access to an ITN and that slept under an ITN the night before the survey

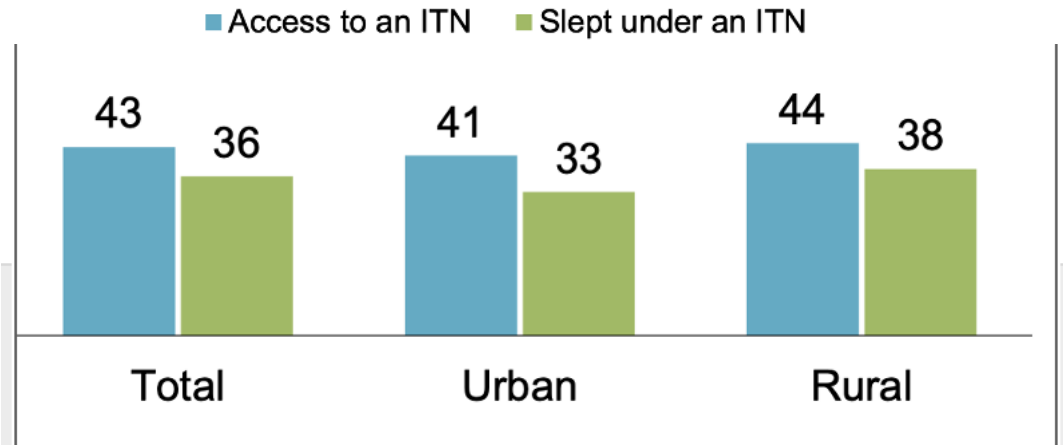
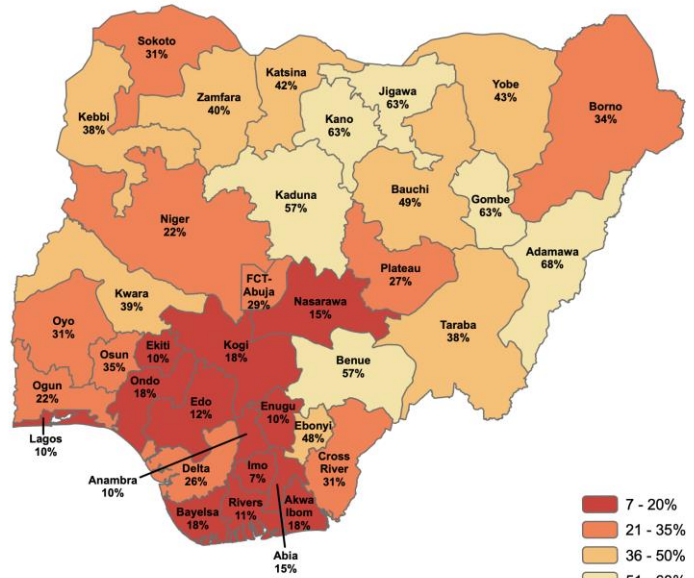


Figure 3.10 ITN use, by state

Percentage of the household population that slept under an ITN the previous night



End process data use Post-Campaign

- Findings are presented to the State during State debriefing
- Identified gaps are discussed with the State and recommendations for improvement agreed on
- Lessons from the data also feed into the lessons learnt meeting at the end of each State campaign
- The data are also valuable during the national strategy review process

Lessons

The insight from the more in-depth data analysis enabled by the current methodology has raised the need for some questions at the different levels

Outcome Level

Need to understand better:

What happens to some of the ITNs received during the distribution but not retained in some households.

Why ITN ownership, hanging rate and use are relatively higher immediately after campaigns but decline over time

Process Level

There is need for further investigation to understand:

1. Why certain households were missed
2. Why some households received incorrect number of ITNs
3. If some of these observations are real or biases introduced at some steps in the evaluation process

Operations

Do we review the lowest range of the decision criteria classification?

Challenges

Political interference in the CMTs selection process resulting in recommendation of persons with suboptimal capacities as CMTs.

Data quality issues from the CMTs who usually do not have prior skills with field data collection thereby introducing some bias in findings.

Capacity gap at the State level with respect to skill transfer to sustain the current methodology.

Suboptimal interest of the State teams to follow on with decisions rules in the decision classification.

The new methodology is generally perceived as tedious and it takes a data motivated mind to embrace the process.

Poor access to Stata or SPSS in addition to capacity issues with use of the application by most of these personnel.

Insecurity situation in almost all the campaign States which impact on cluster selection process.

High cost of accessing hard-to-reach locations as clusters when selected through the scientific selection process.

Recommendations

High level advocacy to the State teams to understand the need to have qualified persons as CMTs & hence ensure adherence to the selection criteria for the role.

It is also important for the State teams to make this communication to the politicians in the State

It is key to identify a model to stimulate State and LGA level personnel's interest in data use (Maybe a reward system)

Need to organize formal training on the current methodology across States & partners to stimulate more interest to embrace it.

Procurement of more Stata subscription to enable trained personnel access and use the application for end process data analysis.

Strengthen in-process monitoring to ease investigation into reasons for some of the gaps identified from end process.

Need to make special budgetary provisions to encourage CMTs to visit hard-to-reach clusters when selected for end process.

Acknowledgements

CRS CATHOLIC RELIEF SERVICES faith. action. results.

msh Management Sciences for Health

The Global Fund To Fight AIDS, Tuberculosis and Malaria

SFH Society for Family Health ...Creating Change, Enhancing Lives

amp | The Alliance for Malaria Prevention

IFRC

malaria consortium disease control, better health

Thank You

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