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1.0 Introduction

Anglican Diocesan Development and Relief Organization (ADDRO) in collaboration with Episcopal Relief & Development and with support from Against Malaria Foundation (AMF) collaborated with Ghana's National Malaria Control Program (NMCP), Ghana Health Service (GHS) and others for a universal Long Lasting Insecticidal Nets (LLINs) campaign in the Upper West Region. As part of the LLINs campaign, ADDRO team is to conduct Post-Distribution Check-Ups (PDCU) every six months for a period of two and half years. The purpose of the PDCU is to assess the level of net use and condition and provide useful data to the relevant GHS/NMCP leaders and partners, to contribute to health intervention decisions and planning.

The first and the second PDCU exercises for Upper West Region were conducted in March, 2017 and September, 2017 respectively.

The third PDCU exercise was carried out from 1st March to 16th April, 2018 in all the eleven (11) AMF supported Districts of the Upper West Region.

2.0 Planning for PDCU at 18 Months

In planning for the PDCU at 18 months in the Upper West Region, there were several phone and email correspondences between ADDRO regional team and ADDRO HQ team from March 1st to 10th, 2018, and they focused on the following key issues to be included in the PDCU at 18 months activities:

- (a) Ensure quality and competent enumerators and supervisors are recruited for the exercise.
- (b) Make efforts to acquire venues that are conducive for training.
- (c) Ensure that supervisors are trained for at least one hour before the joint enumerators and supervisors training. The training of supervisors to focus on their roles and responsibilities in the PDCU.
- (d) Facilitators to provide an in-depth training for enumerators/supervisors especially the new ones on the PDCU data collection
- (e) Ensure that the responsibilities of supervisors and enumerators are clearly spelled out to them during the training

(f) Ensure that the 5% checks enumerators start data collection after the third day of the main data collection. Household lists and the PDCU forms for the 5% checks to be kept by the supervisors and only given to the 5% checks enumerators after the third day of the 5% main data collection.

All these recommendations were factored into the PDCU @ 18 months training and data collection.

The teams also discussed and agreed on dates for the recruitments, training of enumerators and supervisors, data collection, supervision of data collection and retrieval of PDCU forms from enumerators. This guided the Regional team in carrying out the PDCU @18 months exercise.

3.0 The PDCU @ 18 months process

The Upper West Region mass LLINs distribution took place between September – October 2016, and one-month grace period was given to registrants who could not redeem their nets within the one-week period to do so. The third PDCU (PDCU@ 18 months) data collection took place from the 14th to 20th March, 2018 in all the eleven AMF supported districts of the Upper West Region. The processes involved in the third PDCU are highlighted in sections 4.0 to 12.0.

4.0 Consultative meetings with Ghana Health Service

ADDRO Upper West regional team visited seven (7) out of the eleven (11) AMF supported districts in the Region to meet with District Directors of Ghana Health Service and the Malaria Focal Persons to inform them on the impending PDCU exercise. Phone calls were made to the remaining four (4) District Directors to inform them of the exercise. The consultative meetings were done from 19th to 24th February, 2018. The GHS staff were pleased with the information and assured the team of their readiness to support in case their assistance was needed.

5.0 Development of data collection tools and sampling

The form used in the first and second PDCU data collection was the same form used for the PDCU at 18 months data collection in the Upper West Region. The form was the main data collection tool. It was developed by AMF with input from Episcopal Relief & Development and ADDRO. The

form contains six key questions to be administered to each household. See Annex 1 for a sample form. AMF worked on the sampling of households for the 5% main and 5% checks and generated the household lists. An additional 50% household list was generated as "spare" to take care of household heads that might be absent (deceased, relocated, etc.) during the survey period. Eleven thousand six hundred and ninety-one (11,691) households were sampled for the 5% main and 644 for the 5% checks for the Upper West PDCU @ 18 months exercise.

6.0 Printing and distribution of data collection tools

The ADDRO Upper West Regional team printed, sorted out and packaged the household lists and PDCU forms according to sub-districts and communities before the training. Each pack or plastic folder contained one community household list and the PDCU forms based on the number of households sampled in that community plus two extra PDCU forms to take care of spoilage. These plastic folders (containing PDCU forms and household list) were given out to the supervisors who checked to ensure that the folders contained everything needed for the data collection and then handed them to the enumerators at the end of the training session.

7.0 Recruitment/replacement of supervisors and enumerators for PDUC @ 18 months

ADDRO Upper West Regional team carried out recruitment/replacement of enumerators and supervisors from all sub-districts in the eleven (11) districts of the Region. During the recruitment process, priority was given to candidates who had taken part in the first and second PDCU data collection. This strategy was to ensure that experienced and good enumerators/supervisors were recruited for high quality data collection. Old enumerators and supervisors who did not perform satisfactorily in the previous PDCU exercise were replaced. The recruitment/replacement took place from the 19th to 24th February, 2018. In all, a total 259 people were recruited for the PDCU @ 18 months activities. These comprised of 67 supervisors (48 old and 19 new) and 192 enumerators (115 old and 77 new). Before these recruitments/replacements were done, ADDRO HQ and Regional team assessed the performance of the previous supervisors and enumerators and agreed on the following:

• Recruit old enumerators/supervisors who performed well, are available, and are still interested in participating in the PDCU at 18 months exercise.

- Replace all supervisors and enumerators whose performance at the second PDCU was not up to the required standard.
- Use the old supervisors to help recruit the new enumerators. The old supervisors will help to compile the list/details of interested enumerators and forward to ADDRO Regional team.
- The Regional team will visit sub-districts where supervisors were not available for the second PDCU and recruit supervisors who will then assist in the recruitment/replacement of the enumerators as explained in the preceding point.

The basic qualification/criteria for recruiting Sub-district Supervisors and enumerators were:

Sub-District Supervisors

- Resident in the sub-district
- Minimum of Senior High School Certificate (SSCE), Diploma or Higher National Diploma (HND), etc. in any related field from any recognized institution.
- Experience in supervising enumerators
- Should have good leadership skills
- Excellent written and verbal communication skills
- Ability to implement activities to meet deadlines
- Must be a team player
- Ability to motivate enumerators to carry out planned activities to achieve the desired results
- Age limit 20 years and above

Enumerators:

- Minimum of Senior High School (SHS) Certificate, Diploma or Higher National Diploma (HND), etc. in any related field from any recognized institution
- Resident and able to speak the local language of the area
- Excellent written and verbal communication skills
- Age limit 18 years and above

The role of the enumerators was to collect data by administering PDCU (forms) questionnaires to the sampled households and the role of the sub-district supervisors was to supervise and provide technical support to the enumerators during the PDCU data collection. Supervisors were expected to visit enumerators under their care at their various locations during the PDCU exercise. This was to enable them observe the enumerators interview some household heads and help address issues where necessary. They were also expected to check completed data collection forms to ensure that they were correctly filled before endorsing and collecting them.

They were to do all the above with the aid of a supervisory checklist (Annex 2) designed for monitoring enumerators in the field.

See table 1 for details of number of enumerators and supervisors recruited for PDCU at 18 months activities.

Table 1: Number of Supervisors and Enumerators Recruited

District	№ of Enume	rators		№ of Sub-D	istrict Super	visors
District	Old enumerators	New enumerators	Enumerators (Total)	Old supervisors	New supervisors	Supervisors (Total)
Wa-West	14	6	20	6	0	6
Wa-Municipal	16	8	24	3	3	6
Wa-East	10	12	22	7	0	7
Nadowli/ Kaleo	13	6	19	5	3	8
Jirapa	13	8	21	6	2	8
Lawra	9	4	13	3	2	5
Nandom	8	6	14	4	1	5
Sissala West	3	10	13	3	1	4
Sissala East	15	5	20	4	3	7
Lambussie	10	5	15	4	2	6
DBI	4	7	11	3	2	5
TOTAL	115	77	192	48	19	67

8.0 PDCU Trainings

The PDCU trainings were carried out from March 7th to 13th, 2018. They were organized at three levels; first, a refresher training for ADDRO regional staff, an hour training for supervisors and then a combined training for enumerators and supervisors. The trainings were designed to further enhance the knowledge of the old supervisors and enumerators and equip the new supervisors and enumerators with knowledge and skills to carry out the PDCU@18 months activities. Generally, the Sub-District Supervisors (SDS) training prior to the main trainings was more intensive than was in the previous PDCUs. In addition, most of the training clusters recorded 100% attendance by enumerators and SDS and about 2% or less absented themselves.

8.1 ADDRO staff training

The Upper West team had a day refresher training session on March 7th, 2018 at the ADDRO Regional office as part of the preparations for PDCU at 18 months training of enumerators and supervisors. The strategy adopted was that, staff took turns to demonstrate how they will train enumerators and supervisors using the AMF PDCU form and training manual. ADDRO's Monitoring & Evaluation Officer and Health Coordinator facilitated the training. Hilary Abii Asiah of Episcopal Relief & Development was present to support the process. After the training, teams were composed to undertake the training of enumerators and supervisors in thirteen (13) clusters in the Region for six (6) days. Each team was made up of one Headquarters staff and regional staff. Hilary Abii Asiah monitored the trainings in the various clusters and offered support as needed.

8.2 Training of Supervisors

Supervisors for the PDCU @ 18 months were trained separately for at least an hour on their specific roles and responsibilities before the combined training of supervisors and enumerators. The training took place in each of the 13 clusters from the 8th to 13th of March, 2018.

The trainings centered on the following:

- Map out strategies with their enumerators on daily basis as to how to collect the data
- Supervise and provide assistance where necessary to the enumerator during the data collection
- Fill at least one checklist for each enumerator while he/she is in the field.

- Collect/review/certify forms submitted by enumerators before handing over to ADDRO staff.
- Assist enumerators address challenges related to the exercise or report to the ADDRO Regional team for support if the need arises.
- Take account of all spoiled forms and hand them over to the ADDRO staff during the retrieval of the completed forms.

8.3 Training of Enumerators

After the supervisors training, the enumerators and supervisors were trained together. The training took place from the 8th to 13th March, 2018 in all the 13 clusters. The training began with experience sharing on PDCU at 12 months, including challenges and how they dealt with them.

Some of the experiences and challenges shared by enumerators were:

- 1. Difficulty in locating some households due to wrong spelling of names and location during data collection. In resolving this, enumerators indicated they used the spare household lists.
- 2. Complaints of some households not receiving nets and others not receiving the required number of nets. Enumerators informed the household heads that they will pass on the information to ADDRO and ADDRO will in turn share with the relevant authorities.
- 3. Difficulty in meeting households at their various homes to pick data. With this, the enumerators reported that after the third visit to the households, they resorted to using the spare household lists.

The training took the form of presentation, discussions, role plays, field practical and group work. The outline of the training included:

- A brief introduction of ADDRO and Partners (Episcopal Relief & Development and Against Malaria Foundation)
- Experience sharing (including successes and challenges) on the first and second PDCU data collection
- Definition of key terms/terminologies on the PDCU form (AMF, Household ID, First name, Last name, Brand of Net, Very Good, Ok, Poor, etc.)

- Demonstration of how to ask questions correctly to enable Household heads understand and provide correct information.
- Community/Household entry skills: Participants were taken through the process of household entry (greetings, self-introduction, purpose etc.) and communication skills (keeping eye contact and paraphrasing responses for confirmation, etc.). This was followed by peer presentations and feedback on household entry.

Enumerators and supervisors were made to fill the PDCU form independently using scenarios. These filled forms were assessed by the ADDRO team. Enumerators and Supervisors who had challenges with understanding the PDCU form were given special attention to enhance their understanding.

Two (2) out of the 259 enumerators recruited did not turn up for the training. The households that would have been visited by the two enumerator who did not turn up for the training were given to enumerators from the same community or nearby ones. Details of number of enumerators and supervisors recruited and trained are provided in table 2.

Table 2: Number of Enumerators and Supervisors recruited and trained in each District

District	# of Enumerators	# of Enui	merators t	rained	# of Supervisors	# of	Supervi trained	sors	Grand total Total (enumerators and	
	Recruited	Total Old New Recru		Recruited	Total	Old	New	supervisors trained		
Wa-East	22	22	10	12	7	7	7	0	29	
Wa-Mun,	24	24	16	8	6	6	3	3	30	
Wa-West	20	20	14	6	6	6	6	0	26	
Jirapa	21	21	13	8	9	8	6	2	29	
Nadowli/Ka	19	19	13	6	8	8	5	3	27	
Lawra	13	12	9	3	5	5	3	2	17	
Nandom	14	13	7	6	6	5	4	1	18	
Lambussie	15	15	10	5	4	6	4	2	21	
Sissala West	13	13	3	10	4	4	3	1	17	
Sissala East	20	20	15	5	7	7	4	3	27	
DBI	11	11 4 7			5	5	3	2	16	
Total	192	190	114	76	67	67	48	19	257	

Source: PDCU Supervisors and Enumerators Training - March 2018, Upper West Region

8.4 Training challenge(s) and actions taken.

There were some challenges faced during the training and notable ones included the following:

- Some new enumerators found it difficult in understanding the two tables in the PDCU form number of LLINs found hanging (Q2) and nets received during campaign (Q3). To overcome this challenge, the facilitators trained all the enumerators as if they were all new but paying special attention to the new ones and allowing the old enumerators to share their experiences. Also, in conducting the role plays, the new enumerators played the role of enumerators whiles the old enumerators acted as household heads
- In one training centre in the Nanvile sub-district, two enumerators and a supervisor could not come for the training. They had a funeral in one of the communities that they needed to attend. The two enumerators and supervisor who missed the training were trained the following day, Sunday, 11th March 2018 at the sub-district
- At the Bulenga training centre, one enumerator (new) was found to be illiterate (could not read and write) hence was dropped at the start of the training. The work he was to do was shared among enumerators who were to collect data in the nearby communities.

9.0 Data collection

The PDCU at 18 months data collection was carried out by the one hundred and ninety (190) trained enumerators, from the 14th to 20th March, 2018. However, for data quality checks, the 5% checks enumerators started data collection on 17th March, 2018 from selected households that had already been visited by the 5% main enumerators. The household list for the 5% checks were kept by the Sub-District Supervisors (SDS) and were given out to the 5% checks enumerators on the evening of the third day of the main data collection.

The data collection involved enumerators using the sampled household list containing detailed information of the household head - their full names, community, household location, house number and phone number to enable them locate the sampled household heads to interview. The enumerators were directly supervised by sixty-seven (67) sub-district supervisors to ensure effective data collection.

After data collection, enumerators educated and demonstrated to the household heads, the correct way to hang an LLIN if the household head did not know how to hang the nets correctly or where the nets observed were not hung correctly. In instances where the nets were available but not hung, the enumerators encouraged the beneficiaries to hang them.

Each supervisor visited all enumerators under his/her care at their various locations. The supervisors directly observed enumerators while they conducted interviews with some household heads. This enabled them to observe mistakes/errors and correct them on the spot. They also checked filled PDCU forms to ensure they were correctly filled. The enumerators were asked to revisit households and collect the right information if the forms were wrongly filled. After checking the forms, the supervisors endorsed and kept them for submission to the ADDRO team.

The sub-district supervisors and enumerators were also supervised by ADDRO regional and HQ staff. Additionally, the Episcopal Relief & Development staff monitored the PDCU data collection exercise. The teams visited all the 11 districts and met with some sub-district supervisors and enumerators.

9.1 Data Collection Challenges and Actions Taken

1. Some enumerators reported that some of the names of the household heads as found on their register were non-existence and therefore could not be traced. Furthermore, the names of some household heads and phone numbers were also wrong and this posed some challenge for enumerators.

Action Taken: The enumerators were advised to replace such people with the spare list in order to make up for their targets.

2. Some household heads were reported to have relocated or moved permanently from the households where they were registered before the LLINs distribution. Most of such people were farmers who have migrated to the south to seek greener pastures due to the dry season and others relocated due to the expiry of tenancy in some urban communities.

Action Taken: The enumerators were asked to replace such people with any other available person in the spare list.

10.0 Supervision of PDCU Data Collection

To provide technical backstopping to supervisors and enumerators, ADDRO Regional team undertook monitoring and supervisory visits to 45 sampled sub-districts and paid particular attention to areas where enumerators were identified during trainings to have had some problems regarding filling the form. Secondly, sub-districts where the enumerators had to combine the nearby community work were also visited to give support. The team did the field monitoring from March 14th to 19th, 2018 for the purposes of ensuring that the quality of data collection was of the highest standard.

Each supervisor visited all enumerators under his/her care at their various locations. The supervisors directly observed enumerators while they conducted interviews with some household heads. This enabled them to observe mistakes/errors and corrected them on the spot. They also checked filled PDCU forms to ensure that they were correctly done.

After checking the forms, the supervisors endorsed and collected them from the enumerators for onward submission to ADDRO regional officers. See table 3 below for the number of supervisors and enumerators visited during the field monitoring and supervision.

Table 3: Number of Supervisors and Enumerators Visited during Data collection

District	# of Sub- Districts	# of Sub- Districts Visited	# of Sub- District Supervisors	# of Supervisors Met	# of Enumerators	# of Enumerators Met
Sissala West	4	3	4	2	12	6
Sissala East	7	4	7	3	14	7
Lambussie	6	3	6	3	11	8
Jirapa	8	5	8	5	20	14
Nandom	5	3	5	3	14	9
Lawra	5	4	5	4	13	8
Wa-West	6	4	6	4	20	15
Wa-Municipal	6	5	6	5	24	17
Wa-East	7	5	7	4	19	14
DBI	5	4	5	3	7	5
Nadowli/Kaleo	8	5	8	5	21	14
Total	67	45	67	41	175	117

Source: PDCU Supervision, March 2018 - Upper West Region

10.1 Observations during Supervision by ADDRO Team

The following major observation were made by the team

- a) In all the communities visited, enumerators were on site collecting data using the PDUC
 a) 18 months forms and the household list.
- b) Most enumerators were on top of the data collection, that is, household entry was simply at its best in most cases and questions were asked correctly
- c) Most household heads were cooperating with enumerators
- d) Supervisors were on site supervising enumerators with their checklist.
- e) Some names as found in some enumerators household list could not be traced in the communities
- f) Some few new enumerators had a problem with question one and or item number one on the data collection form, which is, asking clearly to differentiate between a sleeping space and sleeping place.
- g) The 5% enumerators started data collection after the third day of the main data collection
- h) Most enumerators were visiting households early in the morning and late in the evenings because of the season as most farmers were busy harvesting their crops during the day.

10.2 Challenges and Actions taken during supervision

There were some challenges encountered by some enumerators especially among those participating in the PDCU data collection for the first time. Any time the HQ/Regional team noticed this during the monitoring and supervisory visits or when their attention was drawn to such challenges, they assisted in resolving them. The following are key challenges that were identified and resolved:

- a) Some names as found in some enumerator's household list could not be traced in the communities. In such circumstances, enumerators were advised to use names from the spare household list
- b) Some few new enumerators had a problem with question one and or item number one on the data collection form, which is, asking clearly to differentiate between a sleeping

space and sleeping place. The ADDRO Regional team gave further explanations for a clearer understanding and differentiation of the two, which is, a sleeping space is a location used or occupied by a household member(s) every night and does not only refer to location or spaces where nets are hung.

c) The Episcopal Relief & Development Officer found that an enumerator (first time participant) did not understand the entire PDCU form. All the PDCU forms filled by him had errors. Together with the ADDRO regional officer, they explained and demonstrated how to fill the form and he understood it. The enumerator was made to revisit three households for the team to observe. The team assessed and was satisfied with how he filled the form for each of the three households.

11.0 Collection of Completed PDCU Forms and Transportation to Data Centre

Collection of completed PDCU forms was carried out from 20th to 27th March, 2018. ADDRO Regional staff moved to each sub-district to meet Enumerators and Supervisors. The ADDRO Officers vetted and received the forms from the Supervisors.

11.1 Collection of completed PDCU forms

ADDRO Regional team visited each sub-district and collected the PDCU @ 18 months forms from 20th to 27th March, 2018. ADDRO Regional team and the sub-district supervisors with their enumerators met at agreed locations for the forms to be collected. Each form was vetted and checked by a Regional staff. The number of successfully filled forms by enumerators were determined and each enumerator was paid accordingly. However, the Sub-district Supervisors were paid a fixed allowance.

11.2 Transportation of Completed PDCU forms to Data Centre

Eleven thousand, eight hundred and seventy-six (11,876) completed PDCU @ 18 months' forms were transported to the data center in Bolgatanga on 10th April, 2018 for data entry. This comprised of eleven thousand, three hundred and twenty-five (11,325) forms for 5% main and five hundred and fifty-one (551) for 5% checks. The completed data forms were packaged according to communities in plastic folders (my clear bag). These plastic folders were packaged according to

sub-districts in labelled brown envelopes. The brown envelopes were put into labelled small jute bags (each district had one jute bag).

12.0 PDCU Data Entry

AMF added a data entry field to the Upper West Region PDCU data entry site called PDCU at 18 months for the data entry. The data entry was from the 12th to 16th, April 2018 by thirty (30) data entry clerks. A total of 11,325 household data forms were entered (as shown in the AMF database). This represents 97% (11,325) of PDCU forms entered compared to the expected/target of 11,691 forms. The reason for the shortfall in the number of expected forms from the field is that some households could not be interviewed because the household heads could not be located either because they had relocated from the community or due to death of the household heads. Even though the spare household lists were used, the target was still not achieved. A total of 25,217 LLINs were reported as received by the 11,325 households visited during the PDCU survey. Out of this, 21,406 (85%) LLINs were found hung over sleeping spaces; 1,845 (7%) were present in the households but not hung over sleeping spaces, 5% were not present in the households (nets worn out hence not usable) and 3% not present in the households for other reasons than worn out. Some major reasons (other than nets worn out) respondents gave for nets received but not present in the households were nets given to wards to take to schools and nets given to other family members in different communities. See table 4 for summary of nets received and their status (copied from the AMF database, April 23rd, 2018).

Table 4: LLINs received and their status

	AMF Nets												
Region	Но	ouseholds		Nets Received	Nets H	lung	Present not hung		Missing		Wo out/ usa	Missing + Worn Out	
	Target	# entered	%	#	#	%	#	%	#	%	#	%	%
UWR	11,691	11,325	97	25,217	21,406	85	1,845	7	760	3	1,206	5	8

13.0 Results of PDCU at 6 months, 12 months and PDCU at 18 months

An analysis of the results of the PDCU at 6 months, 12 months and PDCU at 18 months shows the following:

- 1. PDCU at 18 months shows almost the same percentage of households interviewed (97%) as PDCU at 12 months (97%). In addition, PDCU at 12 and 18 months are higher than PDCU at 6 months (91 %)
- 2. Number of LLINs found hung is higher at PDCU at 18 months is lower than PDCU at 12 months but higher than PDCU at 6 months. That is 85% at 18 months, 89% at 12 months and 79% at 6 months. One main reason for lower LLINs found hung in the households during PDCU at 18 as against PDCU at 12 months is that more LLINs are now worn out.
- 3. LLINs present in the households but not hung is higher during PDCU at 18 months (7%) than PDCU at 12 months (6%). The reasons may be due to the high temperatures (up to 42°C) in Northern Ghana around March, which deters some people from using the nets.
- 4. The proportion of LLINs worn out are higher during PDCU at 18 (8%) than PDCU at 12 (5%) and 6 months (0.5%). This implies that the LLINs get worn out with time. Therefore, at 18 months, more LLINs were worn out than at 6 months. See details in table 5 below:

Table 5: Comparing Results of PDCU at 6, 12 and PDCU at 18 months

Region	PDe	CUs	
	PDCU @ 6	PDCU @ 12	PDCU @ 18
PDCU	months	months	months
Target HHs to be visited	11,706	11,697	11691
Actual HHs visited/entered into database	10,660	11,321	11,325
%	91	97	97
Nets received	23,913	25,976	25,217
Net hung	19,015	23,144	21,406
% of Net hung	79	89	85
Nets present but not hung	3996	1,535	1,845
% of Nets present but not hung	16.8	6	7
Nets Missing	771	803	760
% of Nets Missing	3.2	3	3
Nets worn out/not usable	128	494	1,206

% of Nets worn out/not usable	0.5	2	5
% of Nets missing+ worn out/not usable	3.8	5	8

14.0 Analysis of monthly malaria cases – Upper West Region – October, 2017 to March, 2018

The overall picture of the malaria cases data from the 11 Districts of the Upper West Region (all AMF supported) shows a decline from October, 2017 to March, 2018 as shown in table 6 below. Malaria cases declined from 13,751 in October 2017 to 7,937 in November 2017, this further declined to 6,482 in December 2017. There was however, a rise in malaria cases in January, 2018 to 7,744. The reasons for the rise is not known. The malaria cases dropped again to 7,499 and 5,844 in February and March, 2018 respectively.

With respect to children under five years, the trend is similar. The cases dropped from 5,313 in October, 2017 to 3,362 in November, 2017. The cases further dropped to 3,226 in December, 2017. However, there was an increase to 4,026 cases in January, 2018. The reason for the increase in malaria cases in January is not known. In February and March, 2018, malaria cases reduced to 3,971 and 2,889 respectively.

Malaria cases among pregnant women in the 11 districts shows similar trend. The cases decreased from 711 in October to 563 in November, 2017. It further dropped to 492 and 330 in December, 2017 and January, 2018 respectively. Unlike the trend observed among children under five years, malaria cases among pregnant women increased in February to 585 from 330 in January. However, this decreased again in March, 2018.

Overall malaria cases for the six months period indicates that Wa Municipal had the highest number of cases of 8,108, followed by Jirapa with 5,737 cases. These two districts with the highest number of malaria cases are followed by Wa West and Sissala West districts with 5,492 and 4,962 cases respectively. However, Daffiama-Bussie-Issa recorded the lowest number of malaria cases (2,272 cases), followed by Wa East (2,840) and Nandom (3,085).

Table 6: Monthly Malaria Cases from October 2017 to March 2018

Month/Year	Age group	Daffiama- Bussie-Issa	Jirapa	Lambussie- Karni	Lawra	Nadowli- Kaleo	Nandom	Sissala East	Sissala West	Wa Municipal	Wa East	Wa West	Total
	U5 year	204	570	415	496	507	334	499	502	665	402	719	5,313
October, 2017	PW	33	59	52	18	80	49	34	49	198	73	66	711
	5 to 70+ years	426	1098	645	614	846	628	852	771	889	397	561	7,727
	Total	663	1727	1112	1128	1433	1011	1385	1322	1752	872	1346	13,751
Massaultan	U5 year	109	358	287	329	212	202	320	306	482	218	539	3,362
November, 2017	PW	27	45	42	24	33	31	40	55	174	43	49	563
2017	5 to 70+ years	176	387	390	364	314	334	444	388	581	264	370	4,012
	Total	312	790	719	717	559	567	804	749	1237	525	958	7,937
Dagamban	U5 year	140	345	361	256	272	269	199	299	408	206	471	3,226
December, 2017	PW	11	28	22	6	41	20	10	42	133	128	51	492
2017	5 to 70+ years	157	282	321	235	246	200	216	220	597	29	261	2,764
	Total	308	655	704	497	559	489	425	561	1138	363	783	6,482
	U5 year	139	388	378	328	419	213	175	367	789	299	531	4,026
January, 2018	PW	15	18	22	14	41	14	10	19	142	26	9	330
	5 to 70+ years	172	360	372	246	374	199	214	267	709	147	328	3,388
	Total	326	766	772	588	834	426	399	653	1640	472	868	7,744
	U5 year	181	443	294	295	365	174	215	527	677	239	561	3,971
February, 2018	PW	26	32	22	243	51	6	12	9	132	18	34	585
	5 to 70+ years	197	355	322	5	293	163	235	343	562	155	313	2,943
	Total	404	830	638	543	709	343	462	879	1371	412	908	7,499
	U5 year	135	383	294	199	278	105	121	398	503	111	362	2,889
March, 2018	PW	15	17	25	12	23	14	13	53	115	12	32	331
	5 to 70+ years	109	569	319	171	177	130	142	347	352	73	235	2,624
	Total	259	969	638	382	478	249	276	798	970	196	629	5,844
		2,272	5,737	4,583	3,855	4,572	3,085	3,751	4,962	8,108	2,840	5,492	49,257

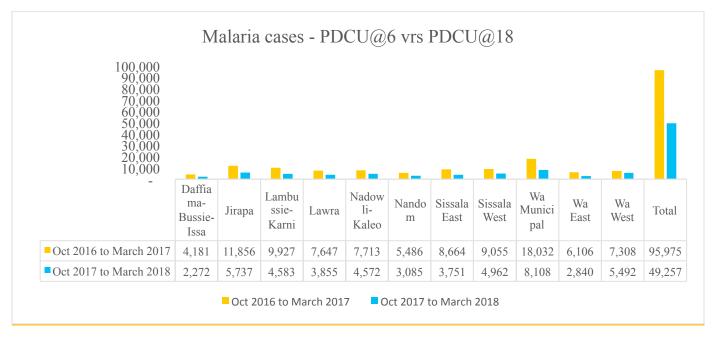
14.1 Analysis of Malaria Cases for two periods – October, 2016 to March, 2017 & October, 2017 to March, 2018

The analysis of the malaria cases for two periods, October, 2016 to March, 2017 and October, 2017 to March, 2018 shows that overall, malaria cases for the period October, 2017 to March, 2018 are lower than malaria cases for the same period the previous year – October, 2016 to March, 2017. Malaria cases dropped from an overall total of 95,975 to 49,257 cases. On District basis, the same trend was observed. See figure 1 below.

The reasons for the reduction in malaria cases in the Upper West Region may be due to the following reasons.

- 1. The indoor Residual Spraying (IRS) being carried out in the region
- 2. The implementation of the seasonal Malaria Chemo-Prevention (SMC)
- 3. The monthly/quarterly sensitization on Malaria, Diarrhea and Pneumonia being carried out by ADDRO/Episcopal Relief & Development.

Figure 1: Malaria cases – PDCU @ 6 months versus PDCU @ 18 months



Conclusion

The PDCU at 18 months in the Upper West Region built on experiences and lessons from the PDCUs at 12 and 6 months. In addition, the Episcopal Relief & Development Officer's recommendations based on his monitoring of the Greater Accra PDCU @ 18 months contributed to improved training, data collection and other activities for the Upper West Region PDCU@18 months. The number of correctly filled PDCU forms entered into the AMF database was 97%. This is the same result for PDCU at 12 months but higher than PDCU at 6 months which achieved 91%.

ANNEXES

Annex 1: PDCU Form

														$\overline{}$											
7				TRIBUTIO				, (Country/R	egion:	GHANA	/UPPER WEST	District r	ame:											
AGAIN	NST	OF	MOS	QUITO NET	USA	\GE		Date	of distrib	ution:	SEP-C	OCT 2016	Sub-District r	ame:											
FOUNDA	RIA							Dat	e of this s	urvey:			Community r	ame:											
Househ	Household ID: PLEASE WRITE IN CAPITALS										Househ	oldID:						PLEAS	E WRITE	IN CAPI	TALS				
To the Ho	nusah	old He	ad in the	past, you received r	nosmuit	n nate	for free	in a com	munity distr	ribution	We are	ronducting	To the l	lousaho	ld Head II	the na	st, you received m	nosmuit	n net	s for fre	ee in a con	mmunity (distributio	n Wear	a conducting
				useholds to assess n								_					holds to assess n								_
your home	e to ga	ther th	is informa	tion.									your hor	ne to gat	her this inf	ormatio	n.								
				my home, in my p on of my mosquite		e,		_									home, in my po of my mosquito		e,		_	_			
to asses	June	usc un	Conditi	or or my mosquite	neu.			Signatu	re/Thumb	Print o	f House	hold Head	10 8531	as uie u	se and co	Idition	or my mosquite	riiets.			Signatu	re/Thun	nb Print o	of House	ehold Head
Name of t	he Ho	usehol	Head Fi	rst name				Last n	ame				Name of	the Hou	sehold Hea	d Firs	t name				Last	t name			
			Contact	Number											C	ontact I	Number								
										_															
	-			ping spaces are the									1. How r	nany reg	ularly used	sleepin	g spaces are ther	e in th	e hou	sehold	?				
				table for all nets fo kip to question #3)	und ha	nging	in the h	ousehold:									ble for all nets for to question #3)	und ha	nging	in the	household	d:			
		Brand		Net distributed i		Vet cond		1	How many s			Net condition			Brand of net		Net distributed	Ne	t condi	ition	_	How many	slept under	,	Net condition
	Olyse	ØO(t t Per		recent mass	Ven	(3(O) v OK	tick one)	# Children	this net la:	t night?	# Other	Very Good		Olyset	O(tick or Perma-	Other	in recent mass distribution?	Very	VO(ti OK	ick one)	# Children	this net I	last night? m #Preg	# Other	Very Good
Example	0	N	8 0	₩ .	Goo	d	0	Under 5	5 to 18 yrs	w 1	adult	fewer than 2 holes of less than 2cm	Example	0	Net	0	distribution:	Good	0	0	Under 5	5 to 18 yr		adult	of less than 2 cr
Net 1	0	(_		0	-	-	_	1	-	┢	each	Net 1	0	0	0		0	0	0	1	\vdash	+	\vdash	each
Net 2	0		_		0	_	-	l				OK fewer than 10 small holes	Net 2	0	0	0		0	0	0		\vdash	+-	\vdash	OK fewer than 10 :
Net 3	0	(0	_	0					Poor	Net 3	0	0	0		0	0	0		†	+	\vdash	holes Poor
Net 4	0	(0		0	0	0					more than 10 small holes or 1 big hole,	Net 4	0	0	0		0	0	0					more than 10 s
Net 5	0	(_		0	_	-					larger than 10 cm	Net 3	0	0	0		0	0	0					holes or 1 big h larger than 10 c
Net 6	0	(_		0	_	0	_	_		_	If there are more than 10 nets	Net 6	0	0	0		0	0	0	<u> </u>	ـــــ	_	₩	If there are mo
Net 7	0	(_		0	_	-	-				continue on another form (and	Net 7	0	0	0		0	0	0	<u> </u>	₩		₩	continue on another form (
Net 8 Net 9	0				0	_	+-	\vdash			\vdash	mark both forms).	Net 8	0	0	0		0	0	0	⊢	₩	+	+	mark both form
Net 10	0		_		0	_	0					1	Net 10	0	0	0		0	0	0		\vdash	+-	\vdash	1
								•	_		_														
3. Of the	nets re	ceived	in the rec	ent universal cover	ge can	noaien	ONLY						3. Of the	nets rec	eived in th	e recent	t universal covera	age can	npaig	n ONLY	ĵ.				
Numb	ner ori	einally	received	Hung				resent ot hung #	, L		t presen		Nun	her origi	nally recei	ved	Hung sum of ☑ ticke	4-6-			Present not hung			Not prese	
	Number originally received sum of ☑ ticked above but not hung * Worn out Other *									,		Sum of the ticke	eu abor	ле 			_	Worn o	at _	Other*					
* Deason	- T								*Reas	on.															
+ ncu301	*Reason:									* Read	viii.								—		_				
	4. Does the household head know how to hang and use a net correctly? Ask the household head to demonstrate how the nets are used at night if not obvious from the nets hanging												now to hang and o					m the net	s haneine	Yes	/ No				
	5. How many people in this household have had blood-test diagnosed malaria in the last month?												old have had <u>bloc</u>												
J. HOW III	ану ре	opie III	uns nous	ciivid Have Had <u>DiO</u>	Artest	ulagii	oseu M	010116 III U	ie iast iiloli	un: [1 WOH .c	папу рес	pie in this	nouseh	viu nave nad <u>Dioc</u>	nd-test	ulagi	ivsed f	nanaria in 1	une last fi	ionth?	\sqsubseteq	
6. How ma	any pe	ople a	e there in	this household?									6. How r	nany peo	ple are the	re in th	is household?								
CERTIFIC					Γ	Surve	yor's r	iame					Supervisor's name									Т			
I certify										and signature:									\perp	Off	icial Star	np			

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Annex 2: Checklist for PDCU Supervision

GHANA AMF SIX-MONTHLY PDCU -SUPERVISORY CHECKLIST

COMMUNITY LEVEL SUPERVISION

FOR USE BY SUB-DISTRICT SUPERVISORS

<u>Instruction for sub-district supervisors: Fill form for each enumerator during the PDCU data</u> Collection.

Sub-district
Date Time
Signature

- 1. Does the enumerator have adequate number of PDCU forms needed for the day's work? Yes/NoIf No, why?......
- 2. Observe the enumerator collect data in <u>one household</u> from start to finish and record the following:
 - 2.1. Record the start time here (e.g. 2.43pm)
 - 2.2. Did enumerator greet the household head? Yes/No
 - 2.3. Did enumerator explain the purpose of the visit? Yes/No
 - 2.4. Did enumerator ask for household head's Consent before interview? Yes/No
 - 2.5. Did enumerator ask household head to sign or thumbprint PDCU form? Yes/No
 - 2.6. Did enumerator fill the details of HH head (names & phone number) Yes/No
 - 2.7. Did enumerator check the number of LLINs household received during campaign? Yes/No
 - 2.8. Did enumerator ask of the condition of LLINs in the HH? Yes/No
 - 2.9. Did enumerator ask of number of people who slept under LLINs the previous night Yes/No
 - 2.10. Did enumerator ask of nets hung, not present etc. Yes/No
 - 2.11. Did enumerator ask if HH head know how to hang and use nets correctly Yes/No?

mo	2.1. nth?	2. Did enumerator ask now many people in	HH nad blood-test diagnosed maiaria in the last
		Yes/No?	
	2.1	3. Did enumerator ask how many people are	in the HH Yes/No?
	2.1	4 Record the finish time here (e.g. 2.57pm) .	
	(Ex	plain to the enumerator any corrections and	improvements required in private.)
3.		ect one completed PDCU form and foll rmation:	ow-up to the HH and verify the following
4.	Ask	the head of the household if enumerator vis	ited the household
5.	If y	res to 4 Ask/check the following	
	5.1.	The number of LLINs received	
	5.2.	The number hanging	
	5.3.	The number of people in the HH	
6.	Doe	es 5.1, 5.2 and 5.2 agree with information on	completed form Yes/No.? If no find out why.
7.	Wha	at problems were observed and what correct	ive actions were taken? Use the following table
, •	belo	•	and adviced the consens of the roll of the second the s
	0010	····	
No		Problems observed	Corrective action taken

7. Enumerate 2 key observations/lessons learnt	
	numerate 2 key observations/lessons learnt