



U.S. President's Malaria Initiative

# Best Practices and Lessons Learned from the Mass Insecticide Treated Net Distribution Campaign Pilot

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## Background

Since 2010, Ghana's National Malaria Control Program (NMCP) and partners have implemented point mass distributions (PMDs) of insecticide treated nets (ITNs), as part of the national strategy to reduce malaria transmission. PMDs have helped rapidly increased ITN ownership among households by allocating one ITN to every two people in all registered households, which led to household ownership of ITNs (73% of households own at least one ITN, 51% of households have one ITN for two persons in a household, MIS 2016). To sustain the high coverage achieved through mass campaigns, complementary continuous ITN distribution through routine channels—such as the health facilities (antenatal and child welfare clinics) and primary schools—are deployed.

After two national mass campaigns implemented in Ghana (2010–2012 and 2014–2016), the NMCP and partners sought to harness the available technology to enhance efficiencies in household registration and distribution. This led to the introduction of a locally developed mobile application deployed on handheld electronic mobile devices. Previously, household registrations were paper-based and used paper coupons to capture household data. A member of the household received the coupon and the registration assistant (RA) kept the counterfoil. On the distribution day, a household member presented the coupon and they received the allocated ITN. Information on the counterfoil was used to allocate ITNs for each registered household.

For the 2018 PMD, the NMCP created a mobile application (NetApp) for android tablets. Used for data collection and distribution of ITNs, the application eliminates the laborious manual allocation of ITNs to households because it calculates and allocates ITNs to households during registration. Additionally, data is stored centrally and can be retrieved when needed, unlike paper-based data storage and retrieval of information. To test this tool and to identify needed changes and lessons learned before the national PMD, a pilot was deployed in four districts in the Eastern and Volta regions in November and December 2017.

In addition to testing NetApp, the pilot emphasized the importance of planning and implementation for key areas of the campaign—planning and coordination, logistics, monitoring and evaluation, and social and behavior change communication (SBCC). Officers were assigned specific roles and were held accountable for their duties. They also considered the evaluation of the planning, implementation, and duties for effectiveness and usefulness. Ultimately, the lessons learned from the pilot, both for the NetApp functionality and planning and logistics, will be used to inform the national scale up of the PMD.

## Selection of pilot districts

Four districts were selected for piloting the new PMD tools and approach: two in the Eastern Region (New Juaben and Asuogyaman), and two in Volta Region (South Tongu and Akatsi). When selecting districts, they considered the availability and quality of Internet services. The application requires Internet connectivity for logging in; after logging in, registration and distribution can be done off-line. New Juaben and South Tongu are urban districts with reasonable Internet services, while Akatsi North and Asuogyaman are predominantly rural with poor Internet connectivity and hard-to-reach communities. The diverse regions were intentionally selected to test the application's functionality in multiple settings.

## Pilot campaign approach and activities

The planning and implementation of the campaign pilot and subsequent scale up focus on four main areas:

- planning and coordination
- monitoring and evaluation/information technology (IT)
- SBCC
- logistics

These focal areas are the basis for training national, regional, district, and sub-district officers to ensure these important aspects of the campaign receive adequate attention.

The following are the main activities implemented for mass campaign implementation:

- informative meeting with regional health directorate focal officers
- district and sub-district planning meeting
- SBCC
- training-of-trainers session for district and sub-district officers
- RA's training
- household registration
- data validation
- distribution point attendants' (DPAs) training
- distribution
- post-distribution SBCC
- post-campaign review meeting

## Pilot Outcomes

This table includes information on the outcome of the pilot campaign. The pilot achieved distribution of 202,725 to 116,013 households; 92.2% of the estimated population was registered, while 80.4% of the allocated ITNs were distributed. On average, assistants registered 35 households per day. Urban districts recorded the lowest redemptions (New Juaben: 66.8% and South Tongu: 88.7%). Urban communities are relatively difficult to mobilize during campaigns and usually require more innovative SBCC approaches to reach them, including mobile van announcements at dawn before people go to work. Additionally, most urban dwellers are not available during working days and are best targeted during weekends.

District	Population Registered	No. of Households Registered	No. of ITNs Allocated	No. of ITNs Distributed	Av. No. of Households Registered/RA/Day	Percentage of Estimated Population Registered	Percentage of Allocated ITNs Distributed
Akatsi North	35,815	9,493	20,779	18,736	44	94.0	90.2
South Tongu	119,963	27,085	67,274	59,648	37	111.9	88.7
Asuogyaman	105,707	25,689	59,862	54,662	27	92.0	91.3
New Juaben	178,915	53,746	104,378	69,679	35	82.3	66.8
<b>Total</b>	<b>440,400</b>	<b>116,013</b>	<b>252,293</b>	<b>202,725</b>	<b>35</b>	<b>92.2</b>	<b>80.4</b>

## Best Practices

### Planning and Coordination

- The composition of the regional and district coordinating teams were the same as the national planning team, which helped ensure focused monitoring by the national and regional teams.
- The roles of all officers in each focus area were clearly defined during the regional planning meeting to help ensure work effectiveness and efficiency during the distribution exercises.
- Trainings were well coordinated by district teams in all four pilot districts to ensure that all individuals involved in the distribution clearly understood their duties.

### Social and Behavior Change Communication

- Regional and district SBCC teams worked together to develop jingles and other SBCC messages in English and the predominant local languages. This increased awareness during the registration and resulted in the high redemption rates.
- Letters were sent to all religious organizations—churches and mosques—to inform the community members about the campaign. Letters were also sent to all health facilities: antenatal clinics, child welfare clinics, and outpatient departments.
- Districts used radio stations, mobile communication vans, community information centers, gong gong beaters, and announcements at community gatherings to inform community members about key campaign timelines.
- In both districts, most community members indicated they heard the campaign messages from sources other than radio stations. Use of other communication approaches/channels such as antenatal clinics, OPDs, Child Welfare Clinics and churches proved to complement the use of radio and other conventional social mobilization approaches. This reinforces the importance of using multiple communication channels to inform audiences.

### **Monitoring and Evaluation/IT**

- Using the application and the mobile device eliminated the printing of large quantities of paper coupons and reduced the time health workers spent allocating ITNs for households and completing summary forms.
- Data validation was limited to a central point and did not require teams visiting districts to validate data prior to ITN distribution because this was done during previous campaigns.

### **Logistics**

- Focal officers for logistics received practical exercises on how to fill out the various forms for tracking ITNs and other campaign commodities. This resulted in accurate documentation and tracking of all campaign commodities.
- The number of ITNs allocated to districts was based strictly on registration data provided by the NetApp. This eliminated deficits and excess ITNs movements from one district to another prior to distribution. Previously, quantification and supply to districts were based on district population estimates.

## **Challenges**

### **Planning and Coordination**

- The late release of funds from the region to the districts during registration and distribution exercises delayed the implementation of field activities.
- Data was not used to guide the allocation and distribution of code cards. This resulted in shortages and delayed daily registration of RAs.
- The quality of paper used to print the household codes was poor; in some cases, they were partially torn when they were presented during distribution.

### **Social and Behavior Change Communication**

- Subdistricts in New Juaben had to pre-finance SBCC activities. In the process, effective but expensive channels were sacrificed for less expensive channels.
- Registration assistants could not communicate the redemption/distribution point to households. This shows a disconnect between the micro plan and implementation because communities were assigned distribution points in the micro plan.
- The change of the distribution date was not adequately communicated to community members in New Juaben. This affected the turnout during the few days of the distribution period until community members were told the new dates.

### **Monitoring and Evaluation/IT**

- Many district and sub-district supervisors could not log on to the NetApp with their assigned user names and passwords. This made monitoring the RAs activities almost impossible.
- In some instances, phones delivered to the district health directorates were not charged; districts had to charge the phones before dispatching them to the sub-districts.

- Some phones and tablets took a long time to respond to commands and some were frozen—the RAs had to restart them. Even when they were restarted, the login failed because of poor Internet connectivity.
- Some phones did not work at all during entire campaign: training, registration, and distribution.
- The required Internet connectivity to log in is a particular challenge because of the fluctuating Internet connectivity.
- In most cases, users could only log in early in the day when connectivity is usually good.
- The NetApp, during the pilot, allowed multiple synchronization resulting in duplicate data. Post-registration data cleaning was done to delete the duplicate data entries in order to reflect reality.
- For the household size field in NetApp, there was no limit to the number of digits able to be inputted. This caused problems when RAs would mistakenly records telephone numbers in the field intended for household size. The NetApp should not accept more than two digits in the household size field.
- For super admin users, the data summary provided by the application does not segregate data on the two districts. National officers/super admin users had to log in as district officers to view specific district data.
- Some district officers, RAs, and DPAs had to use their personal phones during the campaign exercise. In some instances, data was not synched and caused problems during distribution because they could not find the names of some household members.

### **Logistics**

- The ITNs to some districts, sub-districts, and pre-positioning sites were delivered late at night and during the weekends, making it difficult for health workers to find people to offload them from the vehicles.
- The data did not guide the allocation and distribution of code cards. This caused shortages and delayed the daily registration of RAs.

### **Registration**

- Some RAs could not write household codes clearly. This was a setback during distribution because distribution teams could not read the codes and beneficiaries had difficulty redeeming their ITNs.

### **Distribution**

- Because of procurement delays, the tablets earmarked for the campaign were not delivered on time, so smart phones were loaned from another department of the Ghana Health Service for the pilot distribution. Although they were almost enough phones for the pilot, their specifications were significantly lower.
- Redeeming ITNs was difficult in some cases because the individual names given to the RAs during registration were not the same names given during distribution. People have multiple names and they sometimes give a different name at the distribution center than the name used for registration. The solution will be to include the name of the beneficiary on the code card during registration.
- Being unable to trace the beneficiary using both name and unique code caused issues for the beneficiaries at some distribution centers.

- In all four pilot districts, it was difficult to get codes and/or names of some beneficiaries at distribution points. Beneficiaries sometimes stood for many hours because it was so difficult to retrieve their registration information from NetApp.
- Some phone batteries had a very short lifespan, leaving communities stranded midway through the distribution process. Beneficiaries were asked to leave and come back later, but some did not return.

## Lessons Learned/Recommendations

- The omission of the name of the household head on the code card posed challenges during distribution, because it was the only source of reference. Although the name of the household heads were entered during household registration, beneficiaries could not remember which name was used during registration; it is common for people to have multiple names.
  - Recommendation: Code cards should include the name of the household head, in addition to the code.
- Using alphanumeric codes were a challenge during the pilot.
  - Recommendation: During scale up, use a new coding system that includes community names and only numbers (no alphabet). Previously the coding was alpha-numeric. This has two purposes. First, the code on a card will indicate the person's community and, second, using numeric codes will eliminate codes in caps and small letters, which is often confusing.
- Communities should be well demarcated and well named.
  - Recommendation: Boundaries should be agreed to and communicated to RAs to avoid multiple registration.
- The NetApp in its current state has multiple challenges (see the Challenges section).
  - The IT team, with support from the President's Malaria Initiative (PMI) VectorWorks will review the application and fix all the bugs before the scale up. The most important modification is to allow the application to store RA/DPA login details that allow the user to log in again when offline.
- Daily tracking of households registered is required during scale up to detect missing data after the data is synchronized.
- Four people may not be needed for distribution.
  - In scaling up, three officers are recommended for the following roles: (1) distribution assistant in charge of operating the application, (2) logistics focal person, and (3) SBCC/crowd control. During the pilot, different people had the SBCC and crowd control roles.
- Samsung tablets will replace the small Huawei phones during scale up. Personal phones will not be used for registration or distribution.
- The use of Stores Issue, Receipt Voucher and tally cards improved documentation, tracking, and accountability of campaign commodities during the pilot and should be continued during scale up.
- The period of registration and distribution should be seven days each. This will allow sufficient time for revisits and mop-ups, where necessary.



## Conclusion

The pilot registration and distribution exercise in the four selected districts in the Eastern and Volta regions provided extremely useful insights into the benefits, as well as the shortfalls, of the NetApp mobile application. Observations made will inform the revision of the *Mass Campaign Implementation Guidelines* and the modification of the NetApp to address identified gaps. Ultimately, using a mobile device for registration and distribution of ITNs proved to be a better option compared to paper-based registration and it should be continued.

Additionally, focused area planning and implementation ensured training of officers to specifically ensure key areas of the campaign: planning and coordination, logistics, monitoring and evaluation, and SBCC were well planned and executed. Officers had specific roles and were held accountable for their duties. Key recommendations, such as using three DPA officers instead of four will reduce resource wastage and increase process efficiency. Additionally, recommendations on the design and quality of code cards, number of days for registration and distribution, and others are intended to ensure quality and efficient ITN distribution process during scale up. Ultimately, the lessons learned from the pilot will inform the national scale up of the PMD.