

Case Study: Adapting Ghana School-Based Insecticide Treated Net Distribution to the Covid-19 Pandemic

I. IMPLEMENTATION

CONTEXT

Malaria is endemic and perennial in all parts of Ghana, with varying transmission intensity and seasonal variations that are more pronounced in the northern regions. The key findings from the 2019 Malaria Program Review (MPR, 2019)¹ indicate that the malaria parasite prevalence in Ghana reduced from 27.5% in 2011 (Multiple Indicators Cluster Survey, 2011) to 14.1% in 2019 (Malaria Indicators Survey [MIS], 2019)² representing a 48.7% reduction in prevalence. Confirmed malaria cases (with microscopy and RDTs) increased from 155 per 1,000 population in 2015 to 193 per 1,000 population in 2019, while the malaria test positivity rate decreased from 50% in 2012 to 20.1% in 2018. Nationally, the proportion of deaths attributed to malaria decreased from nine per 100,000 population in 2013 to 1.4 per 100,000 population in 2018 (Routine Data, DHIMS2).

In general, Insecticide-Treated Net (ITN) access has increased from 59% in 2014 to 67% in 2019. The proportion of children under five years who slept under an ITN the previous night increased from 47% in 2014 to 54% in 2019; however, there was only a marginal increase from 43% in 2014 to 49% in 2019 among pregnant women who slept under an ITN the night prior to the survey (Ghana Demographic and Health Survey 2014, MIS 2019).

Revised Strategy and Budget Implications

Originally, the nationwide 2020 school-based ITN distribution plan was to distribute one ITN to each pupil in P2 and P6 in all public and private basic primary schools in May 2020. However, due to the COVID-19 pandemic, basic primary schools were closed from March to December 2020, therefore forcing the National Malaria Control Programme (NMCP) and partners to modify the plan for the 2020 school-based ITN distribution. Following the partial reopening of junior high schools in October 2020, the distribution timeline was adjusted from May 2020 to November-December 2020 and the target classes were adjusted from P2 and P6 to P6 and JHS2³.

The distribution of ITNs during the COVID-19 pandemic necessitated changes in planning and coordination, training, logistics management and campaign implementation. Investment in personal protective equipment (PPE) and enforcement of COVID-19 protocols was a key feature of the 2020 school-based distribution.

The following activities with appropriate adaptations due to the COVID-19 pandemic were carried out.

¹ Malaria Programme Review Report, 2019

² Malaria Indicators Survey Report, 2016

³ Based on the NetCalc simulation, two classes were found to be sufficient to sustain universal coverage gains in addition to routine distribution through health facilities. Class 2 and 6 were chosen considering the lifespan of a net. JHS 2 was selected since it was the only class re-opened to complete their third term.

MACROPLANNING

The ITN subcommittee was responsible for macroplanning at the national level which district teams then implemented at the district level with adaptations for district contexts as needed. At the national level, macroplanning involved developing timelines and activities, and quantifying resources needed to achieve the objective of each activity. Activities included procurement and logistics planning to ensure the right quantities of ITNs were procured and in time for the school-based ITN distribution, warehousing and storage arrangements, transportation of ITNs from the national level to district education stores and schools, training, distribution and monitoring thereof, and social mobilization. For each activity, specific COVID -19 adaptations were made to ensure the safety of pupils, teachers, Schools Inspectorate Support Officers (SISOs), and supervisors.

COORDINATION

There was a strong partnership and coordination between the Ghana Health Service (GHS)/NMCP, the Ghana Education Service (GES)/School Health Education Programme (SHEP), PMI Ghana, PMI VectorLink, and USAID Global Health Supply Chain-Procurement and Supply Management (GHSC-PSM) through the NMCP-led ITN subcommittee which met regularly to discuss ITN-related issues including the COVID-19 adaptations to prevent infections. The ITN subcommittee also had to meet more regularly than usual in order to consider the numerous alternative options for modified school-based ITN distribution following the partial reopening of junior high schools and ultimately made the decision to target students in P6 and JHS2.

The NMCP coordinated the implementation of the 2020 school-based ITN distribution. This included frequent online meetings to discuss school-based ITN distribution planning and the establishment of WhatsApp groups to share information and provide status updates.

Whilst there was no direct engagement with the Ghana COVID-19 Taskforce, the school-based distribution rigorously observed the Taskforce's COVID-19 prevention protocols in all activities.

QUANTIFICATION

Quantification of ITNs for school-based ITN distribution relied on data from the 2019 GES Educational Management Information System (EMIS). This dataset has a one-year lag as it is published at the end of each academic year. Hence, the distribution of ITNs for pupils in P6 and JHS2 was based on primary class 5 and junior high school 1 class data, under the assumption that the same cohort of pupils will be in the selected classes – P6 and JHS2 – in the next academic year.

PROCUREMENT

A total of 1.4 million ITNs were procured by GHSC-PSM with funding from PMI for the 2020 school-based ITN distribution. Although original quantification and procurement were based on P2 and P6 enrollment, the number of ITNs procured was sufficient to meet the needs of the P6 and JHS2 pupils since enrollment numbers typically reduce in the older age groups in a school.

Due to the COVID-19 pandemic, the PMI VectorLink project procured 2,000 KN95 masks for use at all inperson trainings by participants and trainers. All training venues were required to provide hand washing equipment and alcohol-based hand sanitizers for use by participants and trainers. At all schools, the Government of Ghana provided masks for students and teachers, hand washing equipment and alcohol-based hand sanitizers, and upheld other COVID-19 mitigation measures. These supplies and measures provided the needed assurance for safety among pupils, teachers, and stakeholders.



Figure 1: Hand Washing Equipment Supplied by the Government to a Basic School in Dodowa, Eastern Region

MICROPLANNING

During the school-based ITN distribution microplanning session in each district, participants discussed necessary preparations for distribution activities as applicable to a given district's context. Key preparations discussed regarded proper and effective communication to school head teachers on the distribution dates, and mobilization of P6 students to collect ITNs during the distribution period, as they were not currently in class in-person. Each school's COVID-19 protocols for pupils and teachers to follow to prevent infection among pupils (both in school and out of school) were discussed. Participants shared experiences on the distribution of worksheets to pupils during the school closures, and mobilization strategies used to encourage pupils and parents to redeem worksheets from schools. The lessons learned from this experience were implemented during the school-based ITN distribution in many districts. Participants also discussed the transport arrangements from national to district level and onwards to schools.

After the training, each district completed a district level micro plan, detailing route and transportation options for ITNs to ensure smooth implementation.

LOGISTICS

Logistics planning for the school-based ITN distribution involved warehousing, contracting and managing third party logistics contractors, transporting ITNs from national to district stores and subsequently to schools, and the use of tracking tools to ensure accountability for and safety of the ITNs. ITNs for the school-based distribution arrived in Ghana in April 2020 but remained in national warehouses until October 2020 before they were transported to district education stores for distribution to schools in November 2020. Logistics were conducted and achieved by GHSC-PSM. A meeting with third party logistics contractors (3PLs) reinforced the need to ensure adherence to COVID 19 protocols during loading, offloading and transit. Measures such as physical distancing at all times, hand washing and use of mask were discussed with and then adhered to by 3PLs during the distribution.

PAYMENTS

All payments (transportation, mobilization, meals, and other training costs) were paid via mobile money and direct payments into bank accounts. Although this was the first time this method had been used in the Ghana school-based distribution, this was serendipitous rather than planned.

TRAINING

A total of 2,320 officers, primarily circuit and district officers, were trained in-person and virtually. The inperson training for SISOs included 1,665 participants and the virtual training for district education and health officers included 655 participants. Unlike previous school-based ITN distributions, the need to ensure physical distancing necessitated a shift from the use of school venue spaces which are typically smaller and lower-cost, to hotels with conference facilities which are typically larger and higher-cost. A COVID-19 adaptation checklist was developed to ensure all venues met the agreed criteria.

Trainings included discussion on measures to prevent COVID-19 infections during the school-based ITN distribution. Messages reinforced COVID-19 mitigation measures already in place, including hand-washing, physical distancing, and respiratory hygiene protocols. The GES designed this set of COVID-19 communication materials which were distributed at the trainings for use during distribution activities.

Trainers facilitated discussions among participants about the perceived barriers and motivators to ITN use among pupils and households and reiterated the need for pupils and households to consistently sleep under an ITN every night and all through the night. Trainers also facilitated discussions among participants about ITN care, such as using a mild soap to wash ITNs and airing ITNs in the shade after washing.



Figure 2: Participants in a Training



Figure 3: SISOs Entering Distribution Data Using the Net4schs App

Use of technology

The NMCP, with support from PMI VectorLink, had developed and piloted the Net4Schs App in early 2020 to collect and report data during school-based ITN distribution. SISOs and district education and health officers were the main users of the app while conducting monitoring and supervision visits. Tablets installed with the app and training materials including COVID-19 adaptations were provided to each SISO by the NMCP. The Nets4Schs App eliminated the labor intensive and time-consuming process of manual recording and reporting of data. It reduced delays in data collection and reporting and improved data accuracy. Data is stored centrally on the Net4Schs App platform and can be retrieved when needed. The NMCP has also developed a NetApp for mass campaigns and has over 4,000 android tablets for use during such activities.

DISTRIBUTION

The GES school structure provided a strong platform for school-based ITN distribution. During the distribution, the GES clustered an average of 15 schools into a circuit for supervision by a SISO. SISOs conducted supervision visits to ensure successful implementation in their assigned circuit with support from district and regional officials. Additionally, the district education stores served as storage facilities for ITNs before transportation to schools for distribution. Finally, each school has a parent teacher association (PTA), which are an important channel of communication and which played an especially critical role in 2020, given the modified approach to school-based ITN distribution. Through PTAs, parents of P6 students were informed that their children should report to school to receive an ITN.

During the school closure period, the GES had already been successfully distributing worksheets to pupils to enhance learning, which served as a good model for the distribution of key information on ITN distribution to the P6 pupils who were out of school at the time. The distribution of worksheets to pupils by the GES involved mobilizing parents and pupils through existing community and school structures such as school management committees, PTAs, community information centers, and faith-based organizations. All these channels were used to disseminate information about the school-based ITN distribution to parents of P6 pupils and P6 pupils themselves. Frequent hand washing and sanitizing was in place to prevent infection.

Class teachers were responsible for the distribution of ITNs to pupils, supervised by head teachers. ITNs were issued to pupils according to class enrollment as recorded in registers. All individuals involved in the distribution of ITNs, or who received an ITN (pupils), adhered to physical distancing and other COVID-19 protocols. In addition, only teachers and pupils physically handled ITNs during the distribution. No monitors, including SISOs, were allowed to physically handle the ITNs to reduce the risk of infection.

Trained class teachers, with the support of school-based SHEP coordinators, educated groups of pupils on ITN use and care prior to the distribution of nets. During data collection and supervision, SISOs used a checklist to ensure pupils had adequate information on ITN use and care and when gaps were identified; the SISOs educated pupils to close the knowledge gap.



Figure 4: A Pupil Receiving an ITN From Class Teacher



Figure 5: Class Teachers Demonstrate How to Hang an ITN

SUPERVISION AND MONITORING

SISOs were the primary supervisors for the distribution. Each SISO visited all schools in their circuit to check whether the 3PLs supplied the required quantity of ITNs, whether pupils were issued ITNs, and whether pupils were educated on malaria prevention. SISOs used the supervisor's checklist on the Net4schs App during their supervision and monitoring visits and entered distribution data into the Net4Schs App, crossing the data for accuracy before the data were synchronized. District health and education officers also conducted supervision and monitoring visits. Five officers from each participating district conducted supervision and monitoring visits, with each officer visiting a minimum of ten schools in their district. The number of regional and national health and education officers involved in the supervising distribution at the school level were limited and focused on resolving issues raised by circuit and district officers.

OUTCOME

A total of 1,175,249 ITNs were distributed to pupils in P6 and JHS2 in 26,488 public and private schools in 15 regions from October to December 2020. 98.2% of the targeted schools (26,448 of 26,881) and 95.5% of the target pupils (1,175,249 of 1,226,699) received ITNs through this distribution. The remaining ITNs in all regions (51,450) were transferred from the various GES stores to GHS stores to be distributed through routine facility ITN distribution.



Figure 6: Net4schs Dashboard Showing ITNs Distributed

II. COVID-19 ADAPTATIONS

To minimize the spread of COVID-19, the following mitigation measures were implemented during all meetings, trainings and, where relevant, during the distribution of ITNs to the pupils:

- SISOs were clustered in 50 different training centers with a maximum of 40 participants per session to allow physical distancing of at least two meters from each participant to another. All training venues had hand washing facilities and adequate ventilation.
- Hotel and training venue providers checked the temperature of participants prior to entry.
- SISO training participants used an alcohol-based sanitizer or washed their hands with soap and water prior to entering and immediately upon leaving the venue.
- SISO training participants were provided K95 masks for use during the training. Mask use by all participants was enforced throughout the training.
- Meals and snacks provided at each venue were individually packaged for participants. No self-service or buffet style food service were permitted.
- The NMCP and partners advised participants to practice respiratory hygiene by coughing or sneezing into a bent elbow or tissue and then immediately disposing of the tissue and washing hands.
- The NMCP and partners also advised participants to avoid touching their face, eyes, nose, and mouth while at the trainings and afterwards.



Figure 7: A Participant Washing Hands Before Entering Training Venue

III. OBSERVATIONS AND LESSONS LEARNED

- Importance of collaboration, communication, and flexibility. By the end of the initial four-week distribution period, about 30% of P6 pupils had not redeemed their ITNs from their schools. The GES Director General, therefore, issued a directive extending the distribution period to six weeks to allow out-of-school P6 pupils to redeem their ITNs. Flexibility is critical to the implementation of school-based ITN distribution and was especially so during the COVID-19 pandemic.
- **Provision, promotion, and use of COVID-19 prevention methods.** Pupils in both P6 and JHS2 adhered to the COVID-19 prevention protocols when redeeming their ITNs. All JHS2 pupils who were in school at the time of distribution wore their masks while ITNs were distributed. Each school had hand washing facilities and maintained smaller class sizes to allow for physical distancing among pupils. Distribution to pupils in P6 mainly took place outdoors to reduce the risk of COVID-19 infection.
- Importance of accurate data and impact of COVID-19 on private school operations. Some private schools had ceased operations because of the long closure of schools due to the COVID-19 pandemic. Third party logistics contractors engaged by GHSC-PSM were required to transport ITNs intended for these schools back to the district GES stores. All ITNs remaining at the district GES stores were then later transferred to the districts' GHS stores for distribution through health facility ITN distribution.
- **Involvement of district health and education officials.** District education and health officers were actively involved in monitoring the school-based ITN distribution in schools and ensured pupils received their ITNs and also adhered to COVID-19 protocols. District education and health officers also mobilized parents and pupils in P6 to collect their ITNs from schools. All persons visiting schools had to wear face masks and also adhere to in-school COVID-19 protocols.
- Use of existing communication channels and the importance of close collaboration with SISOs. SISOs used social media (WhatsApp) and other means such as telephone calls to obtain updated school enrollment data from school head teachers before going to schools for monitoring. The same provided opportunity for SISOs to share COVID-19 updates. Updated school enrollment data enabled SISOs to target and visit schools that had surplus ITNs, and when necessary, moved surplus ITNs from those schools to schools with a deficit.