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Malaria Update

Volume 4, Issue 1 | Quarterly Bulletin | January-March 2019

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LLIN distribution to mass population at Ward No. 6, Gauriganj in Jhapa district which is single malaria risk ward in Province 1 as of microstratification 2018.

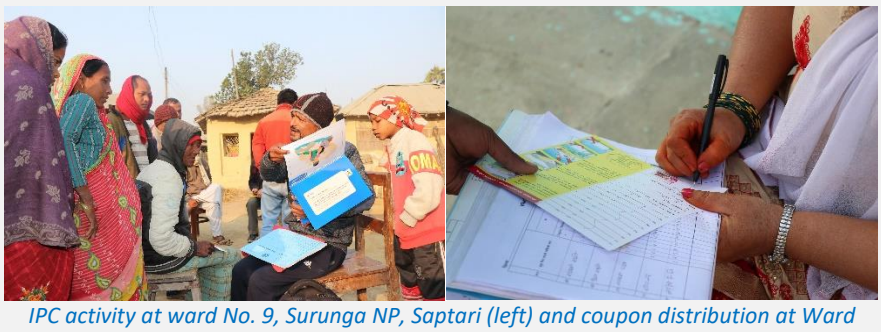
Mass Distribution of LLIN in Risk Wards

Epidemiology & Disease Control Division (EDCD) and Save the Children International in coordination with provincial and local level authorities distributed Long Lasting Insecticidal Net (LLIN) in high & moderate risk wards based on microstratification 2018.

Through the implementing partner Lifeline Nepal, 2,76,225 LLINs were distributed as a part of the mass distribution and 40,821 LLINs were handed to municipalities to distribute from health facilities across high and moderate risk wards for pregnant women during their 1st ANC visit. The mass distribution was conducted in 105 risk wards of 51 municipalities across 18 districts (Jhapa, Saptari, Dhanusha, Sarlahi, Nawalparasi-East, Rupandehi, Kapilvastu, Dang, Surkhet, Salyan, Banke, Bardiya, Mugu, Bajura, Dadeldhura, Baitadi, Kailali and Kanchanpur). Similarly, LLINs for ANC handed over to the concerned 69 local levels of the same 18 districts with additional nets provided to Bara & Sindhuli districts where mass distribution was conducted in 2018.

Prior to the distribution, orientation was provided to central level staffs of Lifeline Nepal and it's field level staff for the process regarding household survey, Inter Personal Communication (IPC) and LLIN distribution. During the mass distribution, household survey was conducted in targeted wards. The information of family members was collected with the GPS logbook and coupon distributed for collecting LLINs during distribution time being maintained during the course of the survey. A total of 81,860 household were surveyed with 504,835 household members including 253,006 males and 251,829 females.

IPC is one of the important activities to sensitize the community and population at risk on prevention of malaria transmission as well as the correct use of the distributed LLIN. This promotive activity was also carried out by the field staff of Lifeline Nepal during household survey. A total 195,975 (39%) household members of age 10 or above were provided basic knowledge of malaria and its' preventive measures as well as proper use of LLINs by using/showing flip chart.



IPC activity at ward No. 9, Surunga NP, Saptari (left) and coupon distribution at Ward No.2, Ishworpur NP, Sarlahi during household survey for mass distribution of LLIN.

Importance of Drug Compliance in Malaria Elimination Setting

Malaria, a disease caused by the genus Plasmodium and transmitted through the bites of female anopheles' mosquitoes, is curable when detected timely. Malaria is still endemic in 87 countries with an estimated 219 million cases and death toll up to 435,000 in 2017, majority of which is in the African Continent. The highest burden of malaria is observed in 5 countries; India taking 4% of total burden. Nepal lying close to India with open, porous borders has seen significant reduction of malaria cases in last 10 years. Nepal is progressing towards malaria elimination with the set goals of achieving zero indigenous cases in 2022 well ahead of the WHO Global Technical Strategy for Malaria-the global call to eliminate by 2030. Currently, the main choice of drug for management of vivax malaria in Nepal is 3 days of Chloroquine and 14 days of primaquine while ACT is used against *Plasmodium falciparum* (Pf). *Plasmodium falciparum* is more serious among the various species of the parasite and is the leading cause of deaths in the world. However, in Nepal Pf accounts for less than 10% of total malaria cases annually with maintained zero deaths of the indigenous cases since 2012.

The growing concern for malaria case management has been the emerging resistance to antimalarials especially ACT and chloroquine across various countries including those in the Mekong region. Several studies have excluded drug resistance in Nepal, adhering to the drug compliance is an area of prime importance. It poses a huge challenge in an elimination setting as migrants and travelers from different countries endemic to malaria pose a significant threat requiring a strict vigilance. Information regarding the use of anti-malarial drug and its adherence is very limited. Numerous factors can determine the patient's treatment adherence such as perception of the disease (symptoms, complications etc.), perceptions of treatment (taste, cost, complexity of the schedule and side effects), patient factors (knowledge, education, occupation, accessibility to health facilities, stigma, cultural and ritual things, economic status etc.), health staff factors (length of consultation, behavior, knowledge, disease history, prescription, patient load, laboratory evidence etc.) the relationship between the patient and health workers (communication, follow up). In studies conducted in Senegal in 2010, the adherence in children was 65% (Malar J. 2009; 8: 118.). Similarly, 76% of the patients in a study conducted in 2009 in Thailand did not meet with the treatment protocol for PV (J Health Popul Nutr. 2009 Feb; 27(1): 4–13). It is mandatory that all the eliminating countries in order to reach to the elimination targets to ensure 100% drug adherence in patient's treatment from all levels.

Plasmodium vivax is the most dominant species in Nepal accounting more than 90% of the total cases. PV, in its life cycle within the human host, produces dormant stages known as hypnozoites that live in liver for weeks to months to years causing relapse. Primaquine is administered for 14 days for the radical cure. However, its dose and administration differ according to individual G6PD levels in blood and is not recommended drug to the pregnant women or lactating women and children below six months. There is limited information why relapses occur in certain group of people with different frequencies and not in others. Generally, relapse cases can occur if full course of drug is not given. 14 days course is too long time that the patients do not comply with the complete therapy and ignore as the symptoms of malaria disappear soon after 3 days of chloroquine intake. There are instances where relapse cases have been occasionally observed in Nepal (in recent outbreaks of Bajura, Baitadi and Mugu) and mostly in people coming from adjacent Indian borders. In practice, commercial markets and drug stores do not seem to comply with the national treatment protocol due to which the patients receive incomplete treatment or under dose use of drug. The risk of re-introduction of the parasites in given foci always remains if the complete treatment of the patients is not met making the elimination goals at significant risk. Additionally, suboptimal use or overuse of the drug can lead to the development of anti-malarial drug resistance. Drug resistance malaria parasites have been found in other parts of the world. This issue can be serious to reach to the elimination if control measures and strict full adherence (STA) to the drug regimen is not closely monitored.

National malaria elimination program requires SMART surveillance with STA as a part of intervention to prevent malaria from reintroduction and spreading resistant forms. Empirical treatment and rampage use of anti-malaria drugs in clinical settings without adequate laboratory evidence is also troublesome due to inappropriate drug use. The dose, parasite type, parasite density and resistance mechanisms are key players to lead to the anti-malaria drug resistance. It is important to conduct small operational researches to know drug compliance in patient's treatment regarding type of drug use, dose, duration and frequency of relapses in different geographical and demographical groups.

So far, there are no tools available to discriminate relapse from recrudescence or new infections in Nepal. Studies have, however, shown successful in determining the relapse from new at the genetical level.

Malaria on Track Meeting

Save the Children International in coordination with Epidemiology & Disease Control Division (EDCD) organized a 2-day workshop on 9th & 10th January 2019 at Hotel Radisson, Kathmandu. The objective of the meeting was to discuss on Case Based Surveillance, Focus Investigation & Malaria Mobile Camp (MMC) guideline, QA/QC mechanism, Micro-Planning and review on Nepal Malaria Strategic Plan (NMSP) addendum.

Dr. Suman Thapa, Sr. Technical Specialist for malaria program presented data to show malaria burden at provincial level including the number of active foci. He also stressed on the need to conduct regular ACD in 85 foci areas and malaria mobile camp targeting risk population at Kailali, Kanchanpur and in the Eastern region. The presentation also focused on the priority to involve the private sector and community engagement. The concept of Community Acting Together Towards Elimination (CATTE) was proposed to select someone in the community who can lead, motivate and orient people.

Similarly, Dr. Lungten Wangchuk, Team Leader from WHO presented her feedback on NMSP addendum for rephrasing and removing irrelevant content as per new federal structure. She emphasized on engaging the private sector and suggested to influence medical associations to follow updated treatment protocol. Dr. Subhash Lakhe from WHO put forth his views to promote operational research by program to enhance program quality and indicated that there is no role of PCR in routine diagnosis of malaria and can only be used for research purposes.

The meeting decided to finalize the case-based surveillance and foci investigation guidelines as per the feedback and present it to TWG meeting for endorsement. The meeting also formed a working team for NMSP addendum review and a group under the leadership of NPHL to organize a workshop to help develop the malaria laboratory plan. At the end, Dr. Bibek Kumar Lal, Director of EDCD delivered vote of thanks and admitted malaria outbreaks in unexpected, non-endemic areas, which is the major challenge for the program. He also stressed the need to develop innovative ideas and approaches to help reach the set targets.

Workshop on Development of National Malaria Laboratory Plan

National Public Health Laboratory (NPHL) organized a one-day workshop for development of national malaria laboratory plan. The workshop was conducted with active participation of representatives from Ministry of Health & Population (MoHP), Department of Health Services (DoHS), WHO, JHPIEGO, VBDRTC, BPKIHS, EDCD, NPHL, Sukraraj Hospital, Save the Children International, and authorities from Province Health Directorates. The program was honored with the presence of Dr. Dipendra Raman Singh from MoHP, Dr. Guna Raj Lohani, Director General of DoHS and Dr. Harish Chandra Upreti, Director of NPHL as a chief guest.

The objective of the program was to review existing malaria diagnostic technologies and make relevant recommendations on their appropriate use to support national malaria elimination strategies. The workshop also reviewed the existing QA/QC system for malaria microscopy and malaria rapid diagnostic tests (RDTs) and recommended appropriate QA/QC mechanism complimenting the recent federalization. It was an initiation to develop a 3-year (2019-2021) National Malaria Laboratory Plan.

There were presentations on various topics such as applications and limitations in malaria laboratory diagnosis; quality assurance in malaria laboratory diagnosis; proposed mechanism for malaria microscopy and RDT QA/QC in Nepal etc. The participants provided their feedback and suggestion after each presentation. Furthermore, there was a group work on the 3 thematic areas; microscopy QA, RDT QA and diagnostic approaches. The participants were divided into 3 groups to exercise on the roles & responsibilities of various levels across the Ministry and Provinces while they also helped list out the necessary activities & support needed on each topic which eventually helped develop the final draft of the national malaria laboratory plan.

Group picture of the participants at the end of the session.

Glimpse of Program Activities

SR Orientation for LLIN distribution.

Maintaining bin card (in & out record) of LLIN in warehouse at Bara.

Case Based Investigation and RACD at Pathariya in Kailali.

Malaria patient follow-up visit at Manahari-03 in Makwanpur.

Meeting with FCHV at Naya Belhani HP in Nawalparasi East.

Verifying malaria data at Rohini Rural Municipality in Rupandehi.

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