ASSOCIATION FOR COMMUNITY DEVELOPMENT

Annual Report Malaria Component 2016-2017

association for community development

Table of Contents

List of Tables

List of Figures

Acronyms

ACD	Association for Community Development
ABER	Annual Blood Examination Rate
MBER	Monthly Blood Examination Rate
API	Annual Parasite Incidence
BCC	Behavior Change Communication
CBOs	Community Based Organization
DMC	Directorate of Malaria Control
FATA	Federally Administered Tribal Areas
FR	Frontier Region
KP	Khyber Pakhtunkhwa
GF	Global Fund
LHWs	Lady Health Workers
LLINs	Long Lasting Insecticide Treated Nets
MIS	Malaria Information System
NFM	New Funding Model
NGO	Non-Governmental Organizations
PF	Plasmodium Falciparum
PV	Plasmodium Vivax
RDT	Rapid Diagnostic Test
WHO	World Health Organization
MIS	Malaria Information System
ACT	Artemisinin Based Combination Therapy
CM	Case Management
VC	Vector Control
IEC	Information, Education & Communication
WMD	World Malaria Day

1. Project Background:

Pakistan has a population of approximately 185 million with 98% (182 million) of population at risk of developing Malaria. Global Fund (GF) support is the main driving force for changing malaria epidemiology in Pakistan since 2002. Epidemiologically, Pakistan is classified as a moderate malaria endemic country with a national API averaging at 1.69 (MIS, 2013) and wide diversity within and between the provinces and districts. Plasmodium Vivax and Plasmodium Falciparum are the only prevalent species of parasites detected so far, with P.Vivax being the major parasite species responsible for >80% reported confirmed cases in the country.

The key underlying risk factors for malaria endemicity and outbreaks in Pakistan include; unpredictable transmission patterns, low immune status of the population in lowest endemicity areas, poor socioeconomic conditions, mass population movements within the country and across international borders with Iran and Afghanistan, natural disasters including floods and heavy rain fall in a few areas, lack of access to quality assured care at the most peripheral health settings, low antenatal coverage and internally displaced population (IDPs) crisis in the agencies and districts along western border. About 700,000 people (National Disaster Management Authority) have recently been displaced from high endemic zone of North Waziristan to neighboring districts of KPK due to conflict situation.

The malaria indictor survey (MIS) was conducted in 2013 in 38 (GF R-10) highly endemic districts of the country showing highest prevalence rates in the region of Federally Administered Tribal Areas (FATA) (13.9%) followed by Balochistan (6.2%), and Khyber Pakhtunkhwa (KP) (3.8%).

The NFM grant envisages covering 43 districts of Pakistan with comprehensive Malaria Control Interventions identified in the Malaria National Strategic Plan 2015—2020. The proposed interventions are based on the national strategic framework 2015—2020 and comments of the Technical Review Panel (TRP) on the NFM concept note. The NFM grant is managed by two principal Recipients (PR) i.e Department of Malaria Control (DMC) and Indus Hospital. ACD is working with the DMC as Sub-recipient of the grant for Seven Agencies, Six FRs and Seven districts of KP.

2. Objectives of the Project:

a. To ensure and sustain universal coverage of multiple prevention to population at risk in 10 target Agencies-FATA (Bajaur, Khyber, Kurram, North-Waziristan, Mohmand, South-Waziristan, FR-Bannu/Lakki, FR-Peshawar/Kohat, Orakzai, FR-Tank/D-I-Khan) by 2017.

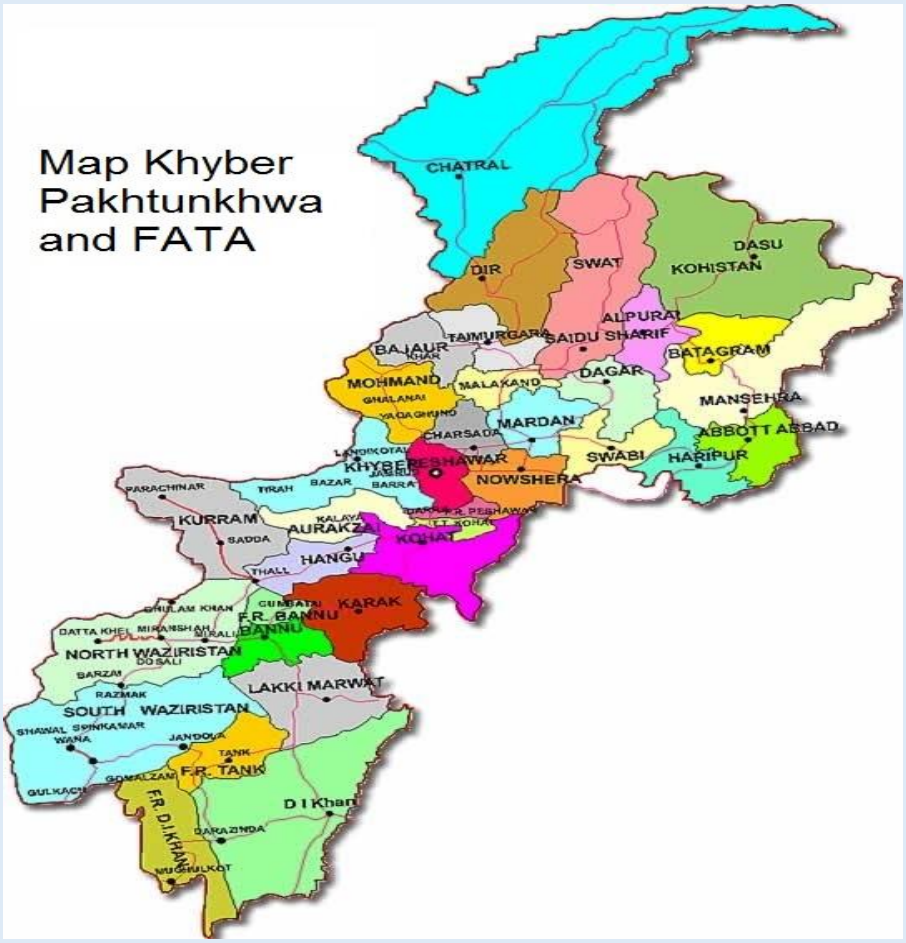
b. To ensure and sustain > 80% coverage for the provision of quality assured early diagnosis and prompt treatment services to population at risk in target districts by 2017.

c. To increase community awareness up to 80% on the benefits of early diagnosis, prompt treatment and Malaria preventive measures using health promotion, advocacy and BCC interventions by 2017.

d. To ensure availability of quality assured strategic information (epidemiological, entomological and operational) for informed decision making.

e. To enhance technical and managerial capacities of malaria control programs in planning, implementation, management and M&E.

3. Target Districts, Agencies & FRs



Following are the tribal Agencies & FRs for ACD operations:

1. Bajaur Agency
2. Kurram Agency
3. Orakzai Agency
4. South Waziristan Agency
5. Mohmand Agency
6. Khyber Agency
7. North Waziristan Agency
8. FR Peshawar/FR Kohat
9. FR Lakki/FR Bannu
10. FR D.I. Khan/FR Tank
11. District Swat
12. District Shangla
13. District Lower Dir
14. District Buner
15. District Kohat
16. District Hangu
17. District Karak

4. Activities Description

i. Strengthen Existing Diagnostic Services:

ACD have supported the selected health facilities from existing public sector health facilities for diagnosis and treatment of Malaria. The support includes provision of microscopes, medicine, laboratory reagents, trainings and minor renovation of centers where needed. This support has enhanced the capacity for health centers for provision of Malaria Programme services to the target communities.

ii. Establishment of Rapid Diagnostic Test (RDT) Centers at First Level Care Facilities (FLCFs)

ACD supports the existing First Level Care Facilities (FLCFs) designated as Rapid Diagnostic Test (RDT) Centers for Malaria diagnosis and treatment. These centers were provided RDT kits and anti-Malaria medicine for early diagnosis and prompt treatment.

iii. Prompt and Effective Anti-Malaria Treatment

ACD provides support to 712 Malaria diagnosis and treatment centers in FATA and KP. Free of charge quality assured anti-malarial medicine are provided to patients needing Malaria treatment. The anti-malarial drugs include: tab. Chloroquine, tab. Primaquine, tab. Quinine, tab. ACT (Artesunate + SP), tab. Artemether + Lumafentrine. Provision of early diagnosis & prompt treatment with effective Anti- Malarial drug is the most efficient intervention in reducing parasite reservoir & overall morbidity & mortality.

iv. Enhancing the Capacity of Healthcare Providers in Proper Malaria Case Management Treatment

Malaria Case Management Treatment according to National Malaria guideline is essential for the provision of standardized and effective Anti- Malarial drugs & to avoid development of resistance. ACD has trained health care providers working in the public sector health facilities on the National guidelines and protocols for managing Malaria. These trainings are provided on Malaria Case management, rapid diagnostic test (RDT), Microscopy, Malaria information system (MIS).

v. Involvement of Private sector in Malaria diagnosis & treatment

Approximately 80% of patients in Pakistan are catered by private sector. However, 50% of Malaria patient in high endemic districts seek services of private sector (MIS 2013). Majority of Malaria cases in private sector are treated on clinical grounds without confirmatory tests. To involve private sector in malaria diagnosis and treatment ACD has established 97 RDT centers from the target of 100 private RDT centers in the target agencies and FRs of FATA.

vi. Prevention through universal coverage of LLlNs in target Agencies/FRs

According to WHO Long Lasting Insecticidal Nets (LLlNs) is the most effective mean of vector control in highly endemic areas. LLlNs distribution outlets established in the agencies and FRS have been used for smooth and timely distribution of the LLlNs to the neediest populations. LLlNs have been distributed on mass scale to achieve universal coverage so that more than 80% of population in stratum IA agencies i.e. Kurram, Khyber, North Waziristan, FRS are covered.

vii. Behavior Change Communication

To enhance Malaria awareness, case detection and adherence to treatment, ACD has implemented the National Malaria Program Advocacy, Behavior change communication (BCC) strategy through a coordinated approach in the FATA region. The activities included community, awareness sessions, health education & distribution of IEC materials. These activities have been carried out through LHWs, CBOs & ACD staff.

viii. Monitoring and Supervision

Regular Monitoring and Supervision of the field activities was carried out by the senior program management and monitoring team dedicated for the purpose. Monthly and quarterly review meetings at the national, provincial and district level were conducted for data validation and performance updates.

Table 1: Programmatic Achievements Malaria Prevention and Control Project

July, 2016- June, 2017			
Activity Description	Target	Results	Achievement
CM-2a: Proportion of confirmed malaria cases that received first-line antimalarial treatment according to national policy at public sector health facilities	80%	77%	96%
CM-2c: Proportion of confirmed malaria cases that received first-line antimalarial treatment according to national policy at private sector sites	77%	66%	86%
Number & percentage of upgraded and functioning health facilities, microscopy and RDT Centers Public in 10 Agencies of FATA-Pakistan	826	805	97%
CM-4: Proportion of health facilities without stock-outs of key commodities during the reporting period	805	602	75%
VC-1: Number of long-lasting insecticidal nets distributed to at-risk populations through mass campaigns	863019	829219	96%
VC-3: Number of long-lasting insecticidal nets distributed to targeted risk groups through continuous distribution	74604	79494	107%
M&E-2: Proportion of facility reports received over the reports expected during the reporting period	5408	4773	88%
Health Care providers Trained on Case Management	705	700	99%
Malaria Technician trained on Malaria Diagnosis: RDT & Microscopy	555	556	100%
Behavior Change Communication: People reached through Advocacy and awareness through LHWs, NGO/CBOs/ and Religious leaders.	272332	273887	101%
Behavior Change Communication: Advocacy and Awareness Session Conducted by ACD	10480	10586	101%
Training of Health care providers on MIS and outbreak response	432	418	97%
Monthly Review Meetings at district level	246	228	93%

5. Objectives of Malaria Surveillance

Malaria surveillance connotes the maintenance of an on-going watch over the status of malaria in a group or community. The main purpose of surveillance is to detect changes in trends or distribution of malaria to initiate investigative or control measures. It provides a basis for measuring the effectiveness of anti-malaria Programme. Malaria surveillance includes laboratory confirmation of presumptive diagnosis, finding out the source of infection and identification of all cases and susceptible contacts and still others who are at risk in order to prevent further spread of the disease. The ultimate objective of malaria surveillance is prevention and control of malaria in the community.

6. Malaria surveillance as an integral part of Primary Health Care system

'The disease load' or 'disease potential' of malaria in the community is governed by different parameters such as "infected persons", 'susceptible persons', and "vector and environmental conditions". Although the case detection and its treatment is not the end of all endeavors, early detection of a case and its radical treatment reduce the risk of infecting vector mosquitoes and thus reducing transmission of malaria in the community. The timely collection and examination of blood smear is the key element in the National Malarial Control Strategy. If all the detected cases are given radical treatment early, it will certainly lead to depletion of the human reservoir of malaria parasite in the community.

7. Passive Case Detection (PCD)

All the fever cases attending the hospital screened for malaria and given presumptive treatment. Malaria clinics are established in all the health institutions in high risk areas wherein the blood smears are examined on the same day and treatment is given according to National Malaria Case Management Guidelines.

Rapid Fever Survey: In case of an epidemic outbreak, every village in the suspected epidemic zone is covered in a short duration by deploying additional man power. House to house visits are undertaken and all fever cases are screened by taking blood smears. These blood smears are examined at the earliest preferably at a temporary field laboratory at the village level.

Mass Fever survey: As an alternative to Rapid Fever Survey, mass survey of the entire population may be carried out in the suspected epidemic zone. Here all the population irrespective of age, sex or fever status is screened by taking blood smear. Specially children and pregnant ladies must be included in survey.

8. Annual blood smears examination rate and its validity

Malaria surveillance presumes that every malaria case will present itself with symptoms of fever at some point of time during the course of infection. Therefore, if all fever cases occurring in the community are kept under surveillance over a period of time and their blood smears are examined for malaria parasite, the total malaria parasite load can be examined. However, there are some exceptions. Some of the malaria patients who give history of fever during the past fortnight but do not have the fever at the time of blood smear collection may not show microscopically detected parasitaemia in the peripheral blood. On the other hand, some afebrile persons can be positive for malaria parasite. On account of operational as well as technical reasons fortnightly surveillance is recommended.

This indicator provides information on overall diagnostic activity and can be useful in interpreting trends in malaria cases. While some past guidance suggested that the annual blood examination rate should be in the region of 10% in order to provide reliable trends, the empirical evidence for such a target is not strong. In high-transmission settings, the rate is likely to greatly exceed 10% (Source: Disease surveillance for malaria control WHO).

The level of (Annual Blood Examination rate) ABER depends on the number of fever case in the community. The fever rate in the community fluctuates widely from month to month and year to year. These fluctuations are due to other viral and bacterial infections prevalent in the area. For accurate estimates of malaria endemicity, the blood smear examination rate specially the Monthly Blood Examination Rate (MBER) rate should be equal to fever rate of the month in the community. Therefore, it is necessary to ensure that all persons having fever during malaria transmission months are included in the total blood slides examined during the year.

The MBER norms are 0.8 percent during non-transmission season and 1.2 to 1.8 percent during transmission season. ABER is the cumulative sum of monthly rates during the year.

While collecting ABER or MBER, total blood slides collected are taken into account except number of blood smears collected and examined during a mass survey and their results should not be included while calculating ABER or MBER.

$$\text{ABER} = \frac{\text{No. of blood smears collected during the year}}{\text{Population covered under surveillance}} \times 100$$

$$\text{MBER} = \frac{\text{No. of blood smears collected during the month}}{\text{Population covered under surveillance}} \times 100$$

ABER/ MBER is an index of operational efficacy of the Programme. The Annual Parasite Incidence (API) depends upon the ABER. A sufficient number of blood slides are systematically obtained and examined for malaria parasite (accurate API).

9. Slide Positivity Rate (SPR):

The Slide Positivity Rate among the blood smears collected through both active and passive surveillance gives a more accurate information on distribution of malaria infection in the community over a period of time. This indicator can provide information on trends in malaria. In some settings, slide positivity rates have decreased from 30–60% to < 10% in response to control measures implemented in the previous 2–3 years. Test positivity rates can vary by season, and the peak test positivity rate seen during a year might be quite different from the annual average (Source: Disease surveillance for malaria control WHO).

Monthly SPR is calculated to find out the seasonal rise and fall in malaria prevalence in the community. The SPR of blood slides collected from cases currently having fever will be higher than the SPR of the slides collected from cases with history of fever. Therefore, higher positivity rates are obtained in blood smears collected at the passive case detection (PCD). Trends in SPR can be utilized for predicting epidemic situations in the area. If monthly SPR exceeds by 2 ½ times of the standard deviation observed in SPR of the preceding 3 years or preceding 3 months of the same year, an epidemic builds up in the area can be suspected. Monthly or yearly trends of SPR are utilized to study the impact of control operations.

SPR is measured as follows:

$$\frac{\text{No. of blood smears found positive for malaria parasite}}{\text{No. of blood smears examined}} \times 100$$

10. Annual Parasite incidence (API)

API is the total Number of confirmed malaria cases per 1000 population per year. The number of malaria cases fluctuates with the transmission season; it can be useful in assessing the success of preventive programs and demand for treatment in the public sector. The variable is, however, sensitive to changes in reporting rates, diagnostic practice and use of health facilities. Care should be taken to ensure that reporting has been consistent over time, by examining trends in health facility reporting rates, annual blood examination rates and total outpatient attendance. If these indicators have changed, it may be more informative to examine trends in test positivity rates (slide or RDT) or confine the analysis to a subset of health facilities that have reported consistently over time.

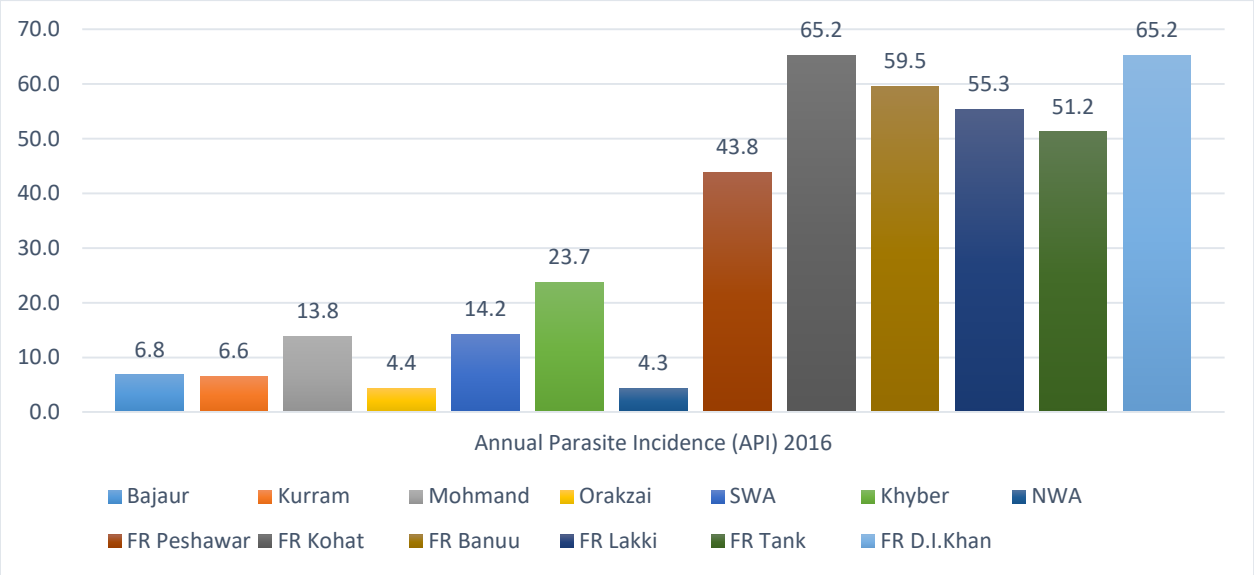
API is measured as follows:

$$\frac{\text{No. of confirmed malaria cases in a year}}{\text{Population of Community}} \times 1000$$

11. Malaria Situation FATA / Agencies Pakistan

Figure 1: Annual Parasite Incidence

Figure 1 shows API of 7 Agencies and 6 FRs in which ACD is implementing Malaria Control Program. The highest API of >40 is recorded from FRs (FR Peshawar, FR Kohat, FR Bannu, FR Lakki, FR Tank and FR D.I Khan), API recorded from Khyber Agency, Mohmand Agency and SWA are >10, Bajaur and Kurram Agency API >5 while lowest API recorded is from Orakzai and NWA i.e. < 5. Among 13 localities of Agencies/FRs,9 Agencies/FRs are with API >10 which means parasite transmission is high in these areas, 2 Agencies/FRs are with moderate transmission that is with API <10 while in only 2 Agencies transmission is low i.e. API >5.



Note: According to national malarial control strategy areas with > 5 API are included in stratum 1-A districts for vector control intervention (universal LLINs coverage). Areas with <5 are included in stratum 1-B because of moderate Malaria transmission.

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Figure 2: Slide Positivity Rate (SPR), Annual Parasite Incidence (API) & Blood Examination Rate (BER)

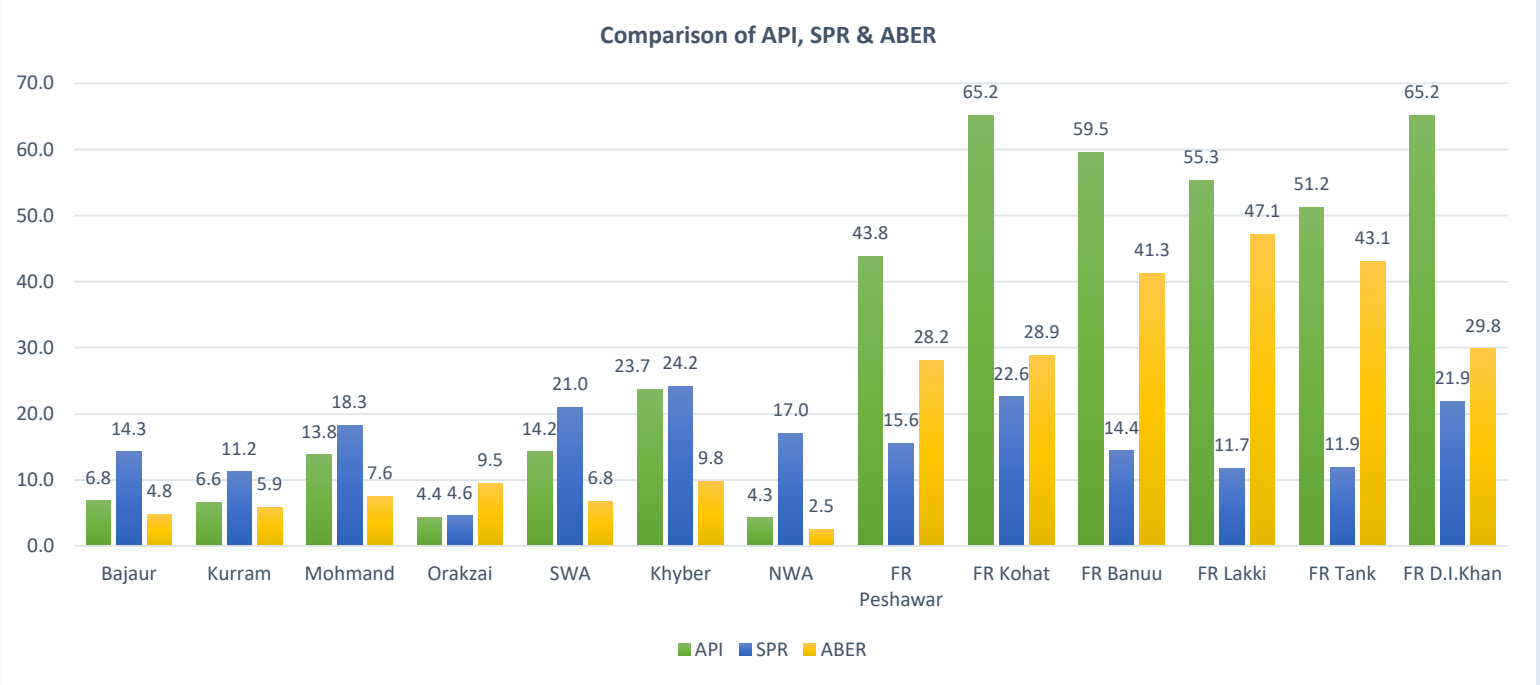


Figure 2 is a demonstration of comparison between SPR (Slide Positivity rate), API (Annual parasite incidence) and BER (Blood examination rate).

- API of the FRs (FR Peshawar, FR Kohat, FR Bannu, FR Lakki, FR Tank and FR D.I Khan) are highest >40, while SPR remains <20 and ABER is >20. Which shows that ABER is according to standard limits i.e. >12 while SPR is high >20. The API is above 40 which shows the population is either not static (IDPs) or there are other associated factors which increases the API.
- Khyber Agency API is highest among all Agencies with high API: 23.7, SPR: 24 but ABER is not satisfactory i.e. < 10.
- In Mohmand Agency API: 13.8 and SPR is high i.e. 18.3 while ABER is 7.8 which is low, that increases the chances of high API and high SPR.
- South Waziristan Agency API :14.2 and SPR :21 while ABER remains 6.8 which is low and affect the SPR and API.
- Bajaur Agency and Kurram Agency API <5 while SPR of both agencies are >10 with ABER <6 which indicates that with low ABER the SPR is high and it increases the API.
- Orakzai agency and North Waziristan malaria transmission remains low i.e. <5 but the SPR of NWA is >15 with ABER 2.5 which shows low screening with high positivity, in Orakzai Agency ABER is good with API and SPR <5.

Figure 3: PF: PV Ratio 2015

Epidemiologically, Pakistan is classified as a moderate malaria endemic country with a National API averaging at 1.08 (MIS, 2015). With wide diversity within and between the provinces and districts. Plasmodium Vivax and Plasmodium Falciparum are the only prevalent species of parasites detected so far, with P. vivax being the major parasite species responsible for >80% reported confirmed cases in the country.

The figure shows the ratio between P. Falciparum & P. Vivax of Agencies/FRs, which clearly shows that the disease burden of P. Vivax is more i.e. 91 % than P. Falciparum i.e. 9 % in the year 2016.

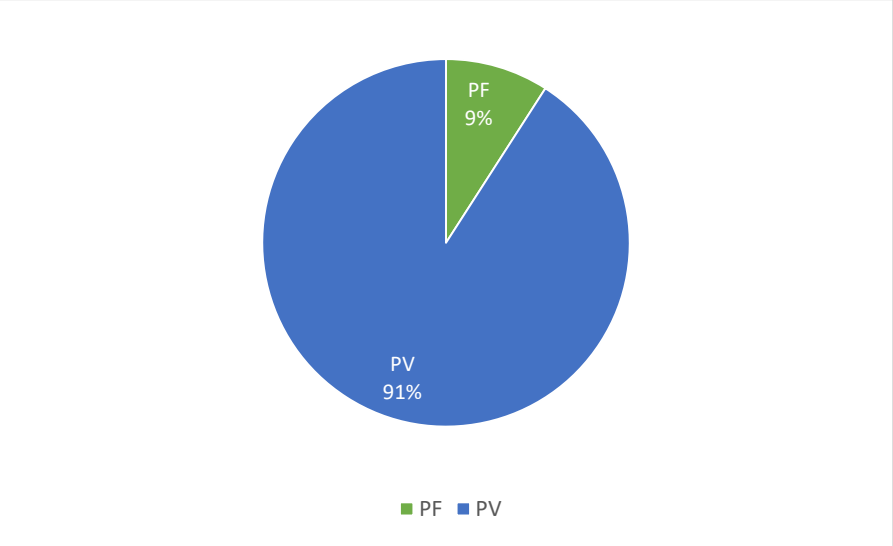
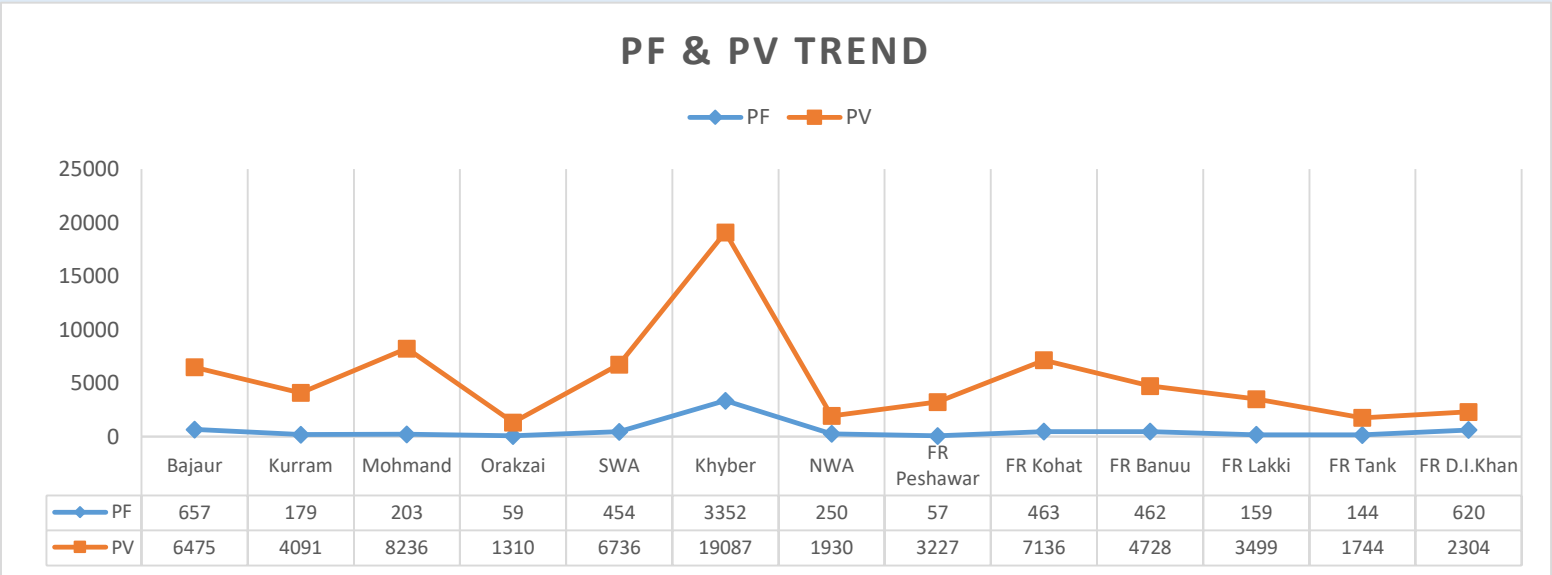


Figure 4: PF & PV Trend

Plasmodium Falciparum (PF) and Plasmodium Vivax (PV) trend graph Agency/FR wise shows that the overall disease burden of PF is comparatively low than PV.

The trend shows that Khyber agency, FR Kohat, Mohmand Agency, Bajaur Agency and SWA have high PV cases as compared to other Agencies and FRs. Whereas only Khyber agency is showing highest burden of PF cases as compared to all other Agencies and FRs.



	Bajaur	Kurram	Mohmand	Orakzai	SWA	Khyber	NWA	FR Peshawar	FR Kohat	FR Banuu	FR Lakki	FR Tank	FR D.I.Khan
PF	657	179	203	59	454	3352	250	57	463	462	159	144	620
PV	6475	4091	8236	1310	6736	19087	1930	3227	7136	4728	3499	1744	2304

The data reviled that Plasmodium Falciparum (fatal specie of malaria parasite) cases are below 15 % as compared to Plasmodium Vivax which means one of the core objective of Malaria control program is achieved with zero mortality reported due to malaria.

12. Activities Pictures

Malaria Microscopy Training

Case Management Training

Case Management Training

RDT Training

MIS Training

MIS Training

BCC Session

BCC Session

LLINs Distribution

LLINs Distribution

Monthly Coordination Meeting

Monthly Coordination Meeting

Monitoring Visit

Monitoring Visit

Community level Verification

Community Feedback

Community level Verification

LLINs Usage Demonstration

13. World Malaria Day:

This day was initially adopted as Africa Malaria Day in 2001, a year after the historic Abuja Declaration was signed by 44 malaria-endemic countries at the African Summit on Malaria. It was aimed at providing education and understanding of malaria as well as spreading information on implementation of national malaria-control strategies, including community-based activities for malaria prevention and treatment in endemic areas. It was later adopted by the World Health Assembly, World Health Organization (WHO)'s decision-making body, in its 60th session in May 2007.

15 years. It targets reducing the rate of new malaria cases as well as reducing malaria death each by at least 90 per cent; eliminating malaria in at least 35 countries; and preventing a resurgence of malaria in all countries that are malaria-free. The timeline of 2016-2030 is aligned with the "2030 Agenda for sustainable development", the new global development framework endorsed by all UN member states.

According to the World Malaria Report 2016, the rate of new malaria cases fell by 21% globally between 2010 and 2015. Malaria death rates fell by 29% in the same 5-year period. In sub-Saharan Africa, case incidence and death rates fell by 21% and 31%, respectively. Other regions have made substantial gains in their malaria responses, but the disease remains a major public health threat. In 2015, the global tally of malaria reached 429 000 malaria deaths and 212 million new cases.

ACD commemorated World Malaria Day in 2017 all around FATA and KPK simultaneously on 25th April, 2017. ACD activities included Behavior Change Communication Sessions on large scale, Seminars and Awareness Walks with Health Department Representatives, Political Leadership and Elders of the community. The events of ACD were given coverage by Print and Electronic Media, which resulted in spreading of Malaria messages throughout FATA and KPK.

The theme of this year's celebration was in continuation from last year that was 'End malaria for good'. The theme reflects the vision of a malaria-free world set out in the "Global technical strategy for malaria 2016- 2030" and adopted in May 2015 by the World Health Assembly. This strategy aims at dramatically reducing the global malaria burden over the next

World Malaria Day, Pictures Gallery

Director ACD receiving Award for Best Performance over a Decade in FATA

Awareness Walk in Bajaur Agency

Community Awareness Seminar on WMD in South Waziristan Agency

Health Staff Awareness Seminar on WMD in Mohmand Agency

Community Awareness Seminar on WMD in District Hangu

Female Community Awareness Seminar on WMD in FR Bannu

14. Limitations:

During the implementation ACD faced number of challenges. The main challenge was functionality of Health Facilities in North Waziristan Agency after the Military Operation ended and repatriation started in the late 2016. ACD Team performed extra ordinarily by functioning of the health facilities and distribution of LLINs to the people of North Waziristan. Furthermore, ACD was given target of 300 New Health Facilities to be established in Khyber Pakhtunkhwa which was a huge challenge, but that has been successfully achieved by commitment and hard work of the Staff. Stock position in the year 2016-2017 was only 75%, which was one of the major challenges during the period as the issue was on National Level ACD managed to treat the maximum number of patients and ensured that no patient is left untreated by reshuffling of stock from low positivity areas to high positivity areas. Security situation of FATA and KP is always challenging but the moral of ACD team to work for the community enabled them to work against all the odds and achieve their desired targets in the best possible manner.

15. Acknowledgement:

ACD Management takes the opportunity to thank all the Staff members involved in the implementation of the Project, as without their tireless efforts in such Hostile and challenging conditions it was impossible to implement and achieve the desired targets of the project.

We are highly indebted to Directorate of Malaria Control, Islamabad (Principal Recipient) for their timely and continuous support during the entire Period. We would like to express our gratitude towards IVMP-FATA, IVC-MCP/KPK for their cooperation, support and guidance for smooth implementation. We would further like to express our special gratitude and thanks to Directorate of Projects and all other stake holders who have supported ACD technically and administratively in implementing the reported project during the project duration.