
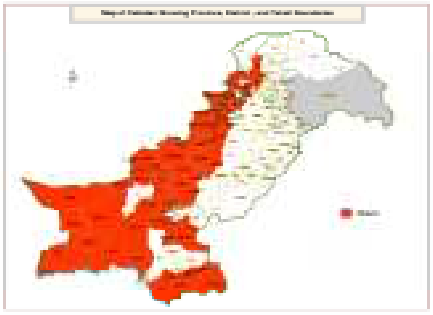


Strategic Plan

Malaria Control Program Pakistan (2015-2020)

‘Strengthening malaria control interventions in high and moderate endemic districts’

and

‘Moving towards eliminating malaria in low endemic districts’

Prepared by: **Directorate of Malaria Control Pakistan**	**Supported by:** **World Health Organization**

(May, 2014)

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Prepared by:

Directorate of Malaria Control Pakistan

Supported by

World Health Organization

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FOREWORD

In recent years, there has been significant progress in expanding coverage of key malaria interventions such as early diagnosis and prompt treatment with effective anti-malarial drugs and vector control interventions with an ambition to provide universal coverage with Long Lasting Impregnated Nets (LLINs) in affected populations in Pakistan. Major efforts to scale up have had the support of international and national partners. In 2012/13 radical treatment has been first introduced at primary and secondary health facilities, microscopic diagnosis was strengthened and there was an expansion of the use of Rapid Diagnostic Tests which diagnose both *P.vivax* and *P.falciparum* at both hospital and health facility levels. Vector control was stepped up and only in 2012/13 about 1.6 million LLINs were distributed free of cost in malarious areas.

The main aim of expanding access to these interventions was to achieve objectives set out in previous national plans and to address the recommendations of national and international reviews. Since 2012 the malaria control activities in districts in high risk stratum have increased rapidly resulting in increased coverage with LLINs, and availability of ACTs in public health facilities. The results to date is due to the enormous support of implementing partners delivering health services on the ground, donors and technical support agencies.

Estimates based on the latest surveys in country and distribution databases indicate that we are making steady progressing in achieving Scale-Up for Impact. Focus in the previous National Strategic Plan was aimed at increasing availability of interventions at health facility level. This new strategic plan emphasizes the need to create and impact by comprehensive coverage and sustainability of all interventions by involving all the stakeholders including key affected communities.

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ACRONYMS

ACT	Artemisinin-based Combination Therapy
ANC	Antenatal Care
API	Annual Parasite Index
BCC	Behavior Change Communication
CQ	Chloroquine
EPI	Extended Program of Immunization
FATA	Federally Administered Tribal Areas
FM	Facility Monthly Report
GFATM	Global Fund to Fight AIDS, Tuberculosis & Malaria
GPIRM	Global Plan for Insecticide Resistance Management
DEWS	Disease Early Warning System
DHIS	District Health Information System
DOT	Directly Observed Treatment
DOMC	Directorate of Malaria Control
IEC	Information, Education and Communication
IMNCI	Integrated Management of Newborn Childhood Illness
IRS	Indoor Residual Spraying
IVM	Integrated Vector Management
KPK	Khyber Pukhutoon Khwa
LLINs	Long Lasting Insecticidal Net
LSM	Larvicidal Source Management
MC	Microscopy
MCP	Malaria Control Program
M&E	Monitoring and Evaluation
MIS	Malaria Information System
MIS	Malaria Indictor Survey
MoH	Ministry of Health
NGOs	Non Governmental Organizations
PF	*Plasmodium falciparum*
PV	*Plasmodium vivax*
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
SP	Sulphadoxine-Pyrimethamine
SPR	Slide positivity rate
TGF	The Global Fund
UCs	Union Councils
VBD	Vector Born Disease
WHO	World Health Organization
WHOPES	WHO Pesticide Evaluation Scheme

A-CORE PLAN

1. BACKGROUND

1.1. Geography, population and climate

Pakistan belongs to the South Asian region and covers an area of about 796,096 sq. kilometers. It is bordered by Afghanistan to the north-west and Iran to the west while the People's Republic of China borders the country in the north and India to the east. Pakistan has five provinces; Balochistan, Gilgit-Baltistan (GB), Khyber Pakhtunkhwa (KP), Punjab, Sindh, and three regions; Azad Jammu Kashmir (AJK), Federally Administered Tribal Areas (FATA) and Islamabad Capital Territory (ICT). Pakistan is divided into three major geographic areas: the northern highlands, the Indus River plain and the Balochistan Plateau. The northern highlands contain some of the world's highest peaks. The Balochistan Plateau lies in the west and the Thar Desert in the east. The 1,609 km (1,000 mi) Indus River and its tributaries flow through the country from the Kashmir region to the Arabian Sea. There is an expanse of alluvial plains along it in Punjab and Sindh.

The last population census was done in 1998. Currently the country population[1] is estimated at 182.5 million with 35% urban and 65% rural. The population growth rate is projected at 1.7 annually[2]. The highest population density is in Punjab province and lowest in Balochistan province. The population less than 5 years is 12.5%, between 0-14 is 37%, 15-64 is 59% and above 65 years is 4% whereas, and there are 1.07 male / female in the country. The national language of the country is Urdu whereas the official language is English.

The climate varies from tropical to temperate, with arid conditions in the coastal south. There is a monsoon season with frequent flooding due to heavy rainfall and a dry season with significantly less rainfall or none at all. There are four distinct seasons: a cool, dry winter from December through February; a hot, dry spring from March through May; the summer rainy season, or southwest monsoon period, from June through September; and the retreating monsoon period of October and November. Rainfall varies greatly from year to year, and patterns of alternate flooding and drought are common.

[1] National Institute of Population Studies, Government of Pakistan, 2012

[2] data.world bank.org/indicator/SP.pop.grow, 2009-2013

In past few years, Pakistan has faced several natural disasters including earthquakes (KP and Balochistan) and flooding in several districts across the country (almost every year) and is prone to such natural disasters in future.

1.2. Political and economic situation

The Islamic Republic of Pakistan has a parliamentary system of government. The President of Pakistan is the head of state, the Prime Minister is head of government, and there is a multi-party system. The Government of Pakistan *vide* 18th constitutional amendment devolved multiple functions, including federal units of health programs, to the provinces with effect from 1st July 2011. However, recognizing the importance of several health functions, including the management of a few key public health programs, a Federal Ministry of National Health Services, Regulations & Coordination (NHS, R&C) has been established in Islamabad; the Directorate of Malaria Control (DoMC) is being managed by this Ministry.

According to the World Bank categorization, Pakistan falls in the list of lower-middle-income countries, has primarily an agrarian economy (66% population lives in the rural area), and has diverse cultural and geographical patterns. Health cannot be segregated from the country's overall economic and social development. Pakistan's Human Development Index (0.515) ranks low 146 out of 187 countries and its GDP per capita is estimated as 2,566 US$. Life expectancy and education are also low; 0.487, 0.217.[3]. The annual per capita health expenditures for Pakistan as per National Health Accounts (NHA) 2009-10 are (Rs.2,611) 31.2 US$[4]. For comparison, the respective figures reported to WHO by India and Bangladesh are 51.0 US$ and 25.0 US$, respectively. According to the NHA, the ratios of health expenditures over GDP (2009-10) are 3.0% while this ratio for public and private sector health expenditures is 9.2% and 2.5% respectively. In the health sector, Pakistan is receiving major international grants from the Global Initiative for Vaccination and Immunization (GAVI), the Global Fund to Fight against AIDS, TB and Malaria (GFATM) and USAID. According to the HDI, 60.3% of Pakistan's population lives on under $2 a day and some 21% live on under $1 a day.

[3]United Nations Development Program, HDI report 2013

[4] National Health Accounts 2009-2010, Pakistan Bureau of Statistics, Government of Pakistan

1.3. Health Situation:

In Pakistan the distribution of years lost by causes is mainly due to communicable diseases (64%)[5] followed by non-communicable disease (26%) and injuries (9%). The under-5 mortality rate (per 1000 live births) is 72, whereas the maternal mortality ratio (per 100,000 live births) is 260 in 2011.

1.3.1. Health infrastructure: Public sector

The public sector is the main source for the provision of preventive care and hospital care to the urban and rural populations. In the provision of curative care for minor ailments, the public sector caters services to around 25% of the population. Health services in the public sector are provided by various types of general and specialized hospitals. There is also a network of primary health care outlets including Rural Health Centers (RHCs), Basic Health Units (BHUs), dispensaries and Maternity and Child Health (MCH) centers and about hundred thousand lady health workers (LHWs). These centers are mainly under the control of the provincial departments of health and at the level of district is management by EDO/DHO.

Table 1: Number of major public sector health facilities in provinces/region

Districts/ region	Number of Facilities				
	Hospital	RHC	BHU	Dispensaries	MCH Center
KP	103	85	819	360	58
Balochistan	93	69	499	545	93
Sindh	81	125	707	272	36
FATA	32	8	173	428	75
Punjab	124	299	2471	181	166
TOTAL	**433**	**586**	**4669**	**1786**	**428**

The capacity of the district health authorities is generally considered suboptimal and this is one of the main reasons for unsatisfactory progress in health care delivery and indicators.

1.3.2. Health infrastructure: Private sector

The private sector is large and unregulated comprising both qualified and unqualified service providers in the disciplines of Allopathy, Homeopathy and *tibb* (Traditional Herbal Medicine). The private sector caters to about 75% of the population's curative primary healthcare needs.

[5] Pakistan health profile, WHO, 2013

The not-for profit NGOs range from small-scale local setups to a countrywide network of health outlets such as PRSP/PPHI (managing about 4,000 primary health care facilities in the country).

Table 2: Private health care providers by country/province[4] 2009-10

Country/province	Urban		Rural		Total	
	Number	%	Number	%	Number	%
Pakistan	**83,689**	**40**	**123,023**	**60**	**206,712**	**100**
Punjab	47,005	36	83,406	64	130,411	63
Sindh	23,642	71	9,637	29	33,279	18
KP	11,047	29	27,052	71	38,099	18
Balochistan	1,995	41	2,928	59	4,923	2

The distribution of private health care providers varies among the provinces. Punjab, being the most populous province, leads with 63% of the total private sector health care providers. Sindh has the highest percentage of urban health care providers (71%) followed by Balochistan (41%). With respect to rural health care providers, KP has the highest percentage (71%) followed by Punjab (64%), Balochistan (59%) and Sindh (29%).

Malaria is mainly considered as a rural disease, so involving private care providers in the rural areas should be the priority.

Table 3: Out-patient service providers 2009-10 by type and province[3]

Country/ province	Individually run solo clinics	Out-patient centers	Dental clinics	Homeopathic clinic	Hakeem/Herbalist clinic	Traditional birth attendant/Dai	Others	Total
	Number							
Pakistan	**96,645**	**916**	**6,443**	**27,819**	**28,985**	**29,445**	**6,590**	**196,843**
Punjab	47,749	541	3,865	22,584	23,402	21,264	5,766	125,171
Sindh	19,548	99	1,214	2,241	3,062	4,169	409	30,742
KP	26,222	258	1,230	2,830	2,2225	3,049	391	36,205
Balochistan	3,126	18	134	164	296	963	24	4,725

For all of Pakistan, the estimated total number of out-patient health service providers is 196,843; of these, individually run solo clinics (Allopathic clinics) have the highest proportion (49%) followed by Traditional Birth Attendant/ Dai (15%), Hakeem/Herbalist clinics (14.7%),

Homeopathic clinics (14%), Dental clinics (3.3%) and others (3.3%). In addition, anecdotal information suggests that there are three times more unqualified than qualified providers in Pakistan. The Malaria Indictor Survey 2013 showed that people mostly use allopathic medicines for the treatment of fever.

This implies that while considering the involvement of the private sector in malaria case management the priority should be given to the clinics run by qualified allopathic doctors.

1.4. Malaria Control Strategic Plan, Pakistan (2015-2020)

After 18 constitutional amendment in 2011, health became the sole provincial prerogative making respective departments of health responsible for institutional directions, strategies and resource allocation. The new plan is meant to incorporate; changes in country context due to post devolution scenario; experiences of provinces, regional and district of implementing interventions; ownership by all stakeholders with lead role of provinces and regions; change in strategies related to LLINs and IRS implementation; and making projections and estimating costs to bring an impact on disease by reducing malaria cases.

Malaria Control Strategic Plan (2015-2020), Pakistan is a "full expression of demand" and is a tool mainly to give insight towards Malaria program, sensitizing policy makers and partners and basis to generate resources. The plan is guided through key resources which are National Malaria Strategic Plan (2011-2015), Rapid programmatic assessment 2013, Malaria program review-MPR 2013, Malaria indicator survey-MIS 2013 and Provincial and Regional malaria control strategic plans 2014.

Malaria control strategic plan 2015-2020, Pakistan entails developing innovative strategies that will:

a. Improve the performance and impact of malaria control in Pakistan with maximizing public sector investment and accountability in malaria control activities
b. Reduce diagnostic delay related to malaria and improve the efficacy of treatment
c. Prevent malaria disease by effective vector control interventions with universal coverage of LLINs and selective IRS
d. Better surveillance and program management
e. Prioritize research that has the potential to change policy and practice in malaria care in the province

1.4.1. National Malaria Strategic Plan 2011-2015

The National Strategic Plan (NSP) 2011-15 provides a detailed account on the status and direction of the major malaria prevention and control strategies that include quality case management through prompt diagnosis and effective treatment, selective vector control, scaling up of the use of long-lasting insecticide treated nets and epidemic preparedness, detection and response. The strategy contains initiatives to improve community level case-management and control. It provides supporting strategies that include partnership and coordination, monitoring and evaluation, operational research, and human resources development which will contribute to health system strengthening. The strategy was focussed on reducing malaria in 38 districts identified as high-risk areas, where the greatest gains will be made in reducing overall national malaria burden and the highest cost-effectiveness can be achieved. This will contribute to achieving the Millennium Development Goals. In addition to the focus on these priority districts, the strategy aimed to sustain existing successes and maintain the low endemicity in formerly endemic areas (for example, in Punjab Province). The overall goal was in line with MDG 6 and aimed to reduce the burden of malaria by 75% percent (from 2000 levels) by 2015. The objectives were to provide the basis for achieving universal coverage of malaria control interventions to the most at-risk populations in highly endemic districts by 2015 by; enhancing access by the population at risk to quality assured early diagnosis and prompt, effective treatment services; scale-up coverage of multiple prevention interventions (especially LLINS & Indoor Residual Spraying [IRS]) to the level of universal coverage in the target population in high-risk districts; strengthen existing Malaria Control Programme management capacity to coordinate, plan, implement and monitor effective curative and preventive interventions nationwide; strengthen programme capacity in enhanced epidemiological surveillance for timely detection and curtailment of malaria outbreaks; and improve public sector health facility utilization for early diagnosis, effective treatment and preventive measures through enhanced community awareness and participation.

In the situation analysis section below, the key implementation achievements by the program since the last strategic plan 2011-2015 has been described.

1.4.2. International malaria review mission (MPR)-Federal and Provinces/Region

In year 2013, with the support from WHO, a detail malaria program review was conducted in all the provinces, FATA region of Pakistan and at federal level. The exercise was based on detail desk review and provided in-depth information of the malaria control situation and highlighted

some the key areas which requires strengthening in order to have an effective malaria control program in the country. The following thematic areas were discussed.

- *Program Management*
- *Malaria Diagnosis and Case Management*
- *Malaria Vector Control*
- *Malaria Commodities, Procurement and Supply Chain management*
- *Advocacy, Information, Education, Communication and Community Mobilization*
- *Epidemiology, Surveillance, Monitoring, Evaluation and Operational Research*
- *Epidemic and Emergency Preparedness and Response*

Note: The findings of the MRP has been used in respective provincial and regional strategic plans and also in various sections of the Malaria Control Strategic Plan Pakistan

1.4.3. Malaria indicator survey (MIS)

A malaria indicator survey has been conducted in month of Sept-Nov, 2013 in 38 malaria high risk districts in the country which included three provinces (Sindh, Balochistan and KP) and all the agencies of FATA region. The survey included a Household Survey and a Health Facilities Survey and the findings of the survey were very informative and are used under the relevant sections of provincial and regional strategic plans and also in Malaria Control Strategic Plan Pakistan.

1.4.4. National, provincial/regional and community events

The Strategic Plan was developed through a broad based consultative process which involved national, provincial and regional consultations. The following were the key events:

1. National consultative meeting Bhurban (participated by Federal, Provincial and Regional Malaria control programs, WHO, consultants and partners)
2. Provincial consultative meetings (participated by DoH, WHO, consultants and partners)
3. National consultative meeting Islamabad (participated by Federal and Provincial and Regional Malaria control programs, DoH, WHO, consultants and partners)

District and community involvement in development process

In province of Balochistan, district Pishin and district Killa Abdullah was visited which are malaria high risk districts. Interactions were made with the EDO(H), Medical Superintendent of

DHQ hospital, PPHI representative, Distt. health management team and partners. Moreover, rural health centers and basic health units were visited where facility in charges and malaria patients were interviewed to get their feedback on the strategies and interventions. Household where LLINs were distributed and IRS was sprayed were also visited. Community stakeholders were also consulted during these visits to understand their perspective to the strategies and interventions.

At Quetta, which is the provincial capital, meeting with Minister Health, Secretary Health, Dean Institute of Public Health, Provincial Coordinator Malaria Control program, Provincial LHW program, PPHI representatives, SRs, SSRs, Save the Children, WHO, Bill and Malinda Gates foundation were carried out on the proposed malaria control strategies and interventions.

Note: The list of events related to development of national and provincial/ regional level along with dates and participants has been annexed.

2. SITUATION ANALYSIS

2.1. Malaria burden and epidemiology

2.1.1. Country situation

With an estimated burden of 1.6 million cases annually, malaria is considered as a major public health problem in Pakistan. It contributes 22% of total disease burden in the Eastern Mediterranean Region (EMR) and has been grouped with Sudan and Yemen in category 3 countries[6] . Epidemiologically, Pakistan is classified as a moderate malaria endemic country with national API averaging at 1.69 and important diversity within and between the provinces and districts. The two parasites which account for malaria in Pakistan are *Plasmodium Vivax* and *Falcipaum*. The main vectors in the country are Anopheles Culicifacies and Anopheles Stephensi.

Among the key underlying risk factors for malaria endemicity in Pakistan includes; mass population movements within the country and across international borders with Iran and Afghanistan, natural disasters and civil unrest, unpredictable transmission patterns due to climatic changes, low immune status of the population and poor socioeconomic conditions. These are accentuated by the declining health infrastructure, resource constraints, poor access to preventive and curative services and lack of monitoring drug resistance in parasites and insecticide resistance in vectors. There are various constraints and inequalities posed by the unstable political and security situation in some districts which undermine both universal access as well as quality assurance of the malaria control program in Pakistan. In addition, gender remains one of the key factors affecting access to healthcare in the country.

The first ever malaria prevalence survey was conducted in 2009 in 19 highly endemic districts of the country showing highest prevalence rates in FATA 13.9% followed by Balochistan 6.2% and Khyber Pakhtunkhwa 3.8%. It was more or less consistent with the reported incidence. In the recent most Malaria Indicator Survey 2013 conducted in 38 highly endemic districts, revealed that overall malaria prevalence was 1.59% (15.9/1000 population), PV:PF ratio was 84:16. The prevalence was highest in FATA followed by KPK, Balochistan and Sindh.

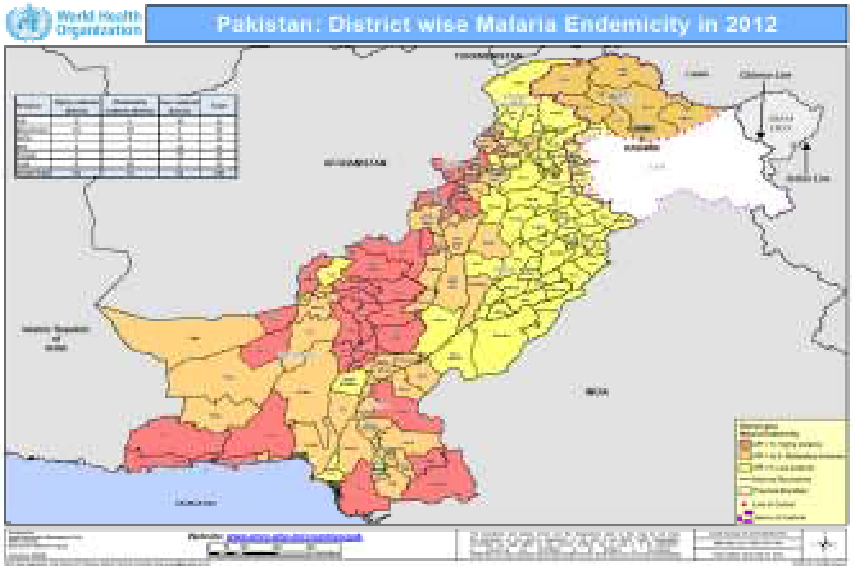
The demographic information of microscopically confirmed malaria cases is limited. Situation analysis conducted in the low endemic province of Punjab in 2008 revealed that males of age >

[6] World Malaria Report, 2013

14 were more affected by malaria infections compared to females of the same age group indicating the low immunity linked with low endemicity and the relatively higher exposure potential of males to vector bites during their late-evening agriculture activities. In the 19 priority districts the % of confirmed malaria cases among children below 5 years was 17.82 % of confirmed cases.

The mapping of Malaria situation (2012 data) shows clearly that the highly endemic districts are located gradually in Balochistan (API 7.68), FATA (6.83), Sindh (2.92), and KPK (2.76), Punjab (0.19) and AJK (0.10). Many reported cases from these provinces/region are due to falciparum malaria which is the most dangerous form of malaria. Malaria is typically unstable (seasonal), with peaks around September for vivax malaria and around October for falciparum malaria. Proportion of *P falciparum* also varies widely with a range of 2.5% - 44.3% respectively. The figure below shows the country wide malaria endemicity during 2012.

Figure 1: District wise malaria endemicity in 2012

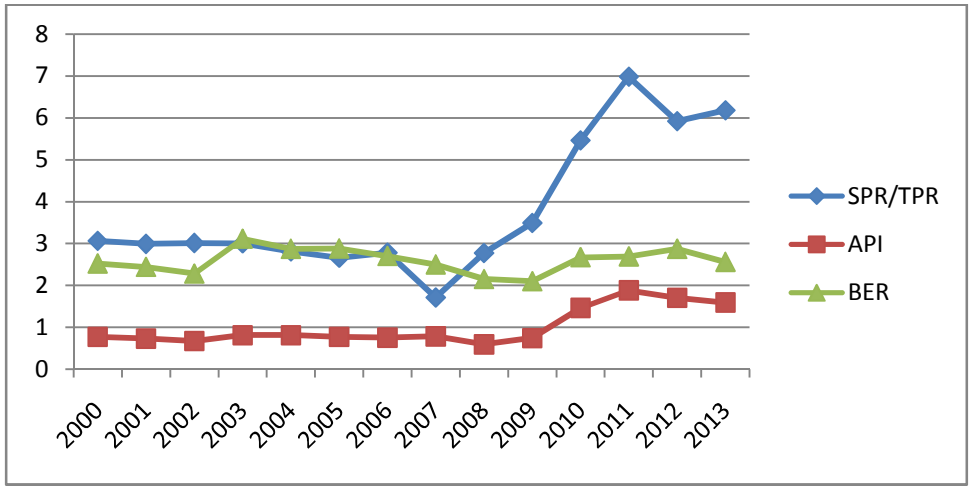


Source: WHO report, 2012.

In 2013, 281,755 confirmed malaria cases were reported through national malaria disease surveillance system. However, during the same period 3.1 million cases were clinically diagnosed and treated at public sector outpatient facilities (DHIS-2013), whereas 244 death are due to malaria were also reported in DHIS 2013. The number of reported malaria cases almost doubled from 2009 to 2012 with an equivalent rise in API. Similar trends were observed in low

transmission areas of Punjab mainly due to the recurring floods in 2010 & 2011. In Pakistan and almost all age groups are at risk of acquiring infection. However, the Government of Pakistan recognizes children below age 5 years and pregnant women as high-risk population groups. The figure below presents the epidemiological trends based on malaria indicators since 2000-2013.

Figure 2: Malaria epidemiological trend (2000-2013)



Source: DoMC Islamabad,2013

The reported blood examination rate is quite low 2.87, whereas there is was a low API in initial years but has increased since 2010.

The table below shows the MIS data reported from four provinces and FATA region during 2013.

Table 4: Malaria Data – MIS Pakistan 2013

Province	Population	TOTAL					Indicators		
		Slides/RDT	Positive	P.V	PF	Mix	TPR	API	% P.F
Punjab	93579797	1668817	9295	8585	680	30	0.56	0.10	7.64
Sindh	42922727	1275543	70269	51094	14273	4902	5.51	1.64	27.29
KPK	23295610	698176	98137	90606	5438	2093	14.06	4.21	7.67
FATA	3,869,841	232083	34116	26614	6071	1431	14.70	8.82	21.99
Balochistan	9761994	546418	69678	46504	19602	3572	12.75	7.14	33.26
AJK	4261129	140788	260	257	3	0	0.18	0.06	1.15
TOTAL	**177691098**	**4561825**	**281,755**	**223660**	**46067**	**12028**	**6.18**	**1.59**	**20.62**

Source: Reported by DoMC Islamabad, MIS 2013

There is a marked variation in API by province/regions. In 2013, there is very high API observed in most of the provinces/region i.e. > 8 in FATA, > 7 in Balochistan and >4 in KP. In 2012, the picture was almost similar where most of the districts with high malaria endemicity belongs to FATA, Balochistan, KP and Sindh province. However, in south of province of Punjab a moderate zone of malaria endemicity was also observed.

The table below shows the DHIS data related to confirmed and clinical malaria cases in 2013.

Table 5: Malaria caseload (Confirmed and Clinical) DHIS 2013

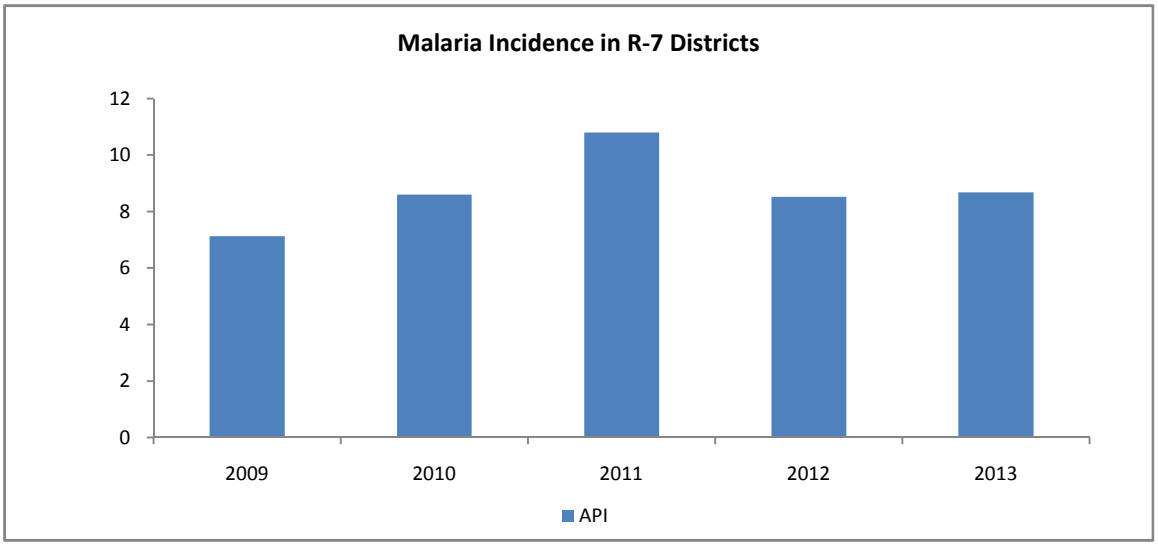
Province	Clinical cases		Suspected/Tested cases		Confirmed cases		P.Falciparum		Indoor cases		Deaths	
	PHC	SHC	PHC	SHC	PHC	SHC	PHC	SHC	PHC	SHC	PHC	SHC
Punjab	637,724	154,548	563871	405595	5,796	5,877	408	534	5530	25217	0	131
Sindh	1490723	306610	350564	253823	56675	16490	7259	2978	2490	7296	0	60
KPK	219,409	133970	88290	162,869	13526	21689	1258	1983	754	4268	49	4
FATA	63922	36539	-	-	3228	13573	684	1407	-	-	-	-
Balochistan	133953	13574	22714	18047	3390	1699	1223	777	165	293	-	-
TOTAL	2545731	645241	1025439	840334	82615	59328	10832	7679	8939	37074	49	195

There is wide variation between the malaria confirmed cases reported in MIS 281,755 and DHIS 141,943. Moreover, still a very high number of clinical malaria cases 3,190,972 have been reported in DHIS during 2013. The mortality reported in DHIS due to malaria was 244.

2.1.2. Impact on malaria incidence (2009-2013)

The routine data from the 19 districts from GF R-7 which initiated programme interventions in 2009 has shows an increase in API in the initial years followed by gradual reduction in malaria incidence.

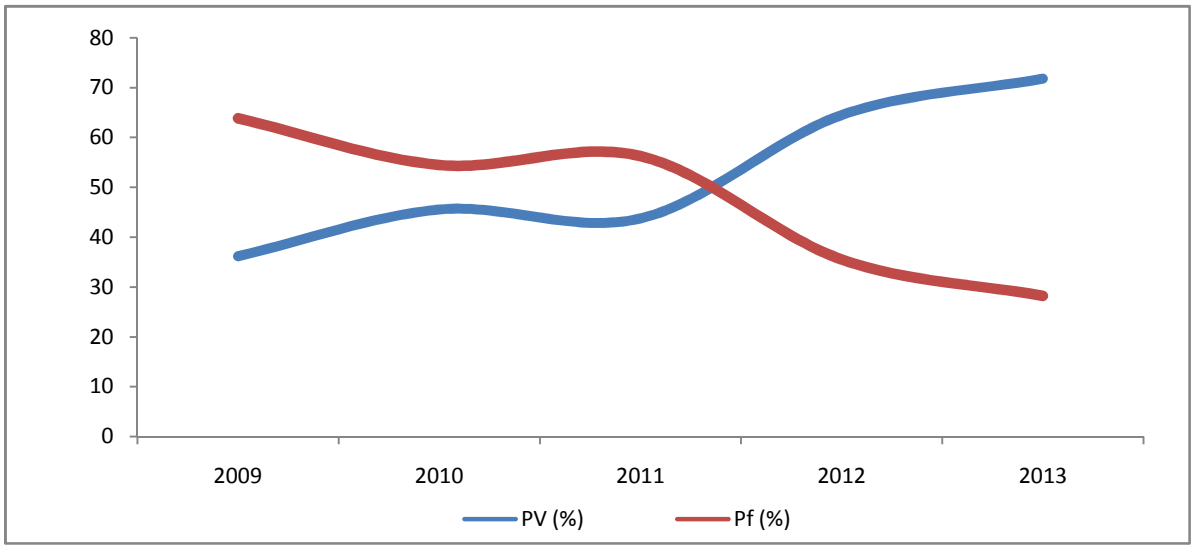
Figure 3: Malaria incidence trend (2009-2013) in 19 high risk districts of Pakistan



The figure above shows that in 2008-09 the overall malaria in these districts was 7.13 cases/1000 population with predominantly *P vivax.* In the initial years there was an increase in API observed (10.8/1000) mainly due to improved surveillance after establishment of new malaria microscopy centres at RHCs and hospitals RDT centers at BHUs and putting standardized recording and reporting tools. With the introduction of comprehensive control interventions including vector control i.e. 15% highly endemic population got 2 rounds of IRS and 30% rural population was covered with LLINs, malaria levels came to 8.5, 8.7 respectively in 2012 and 2013.

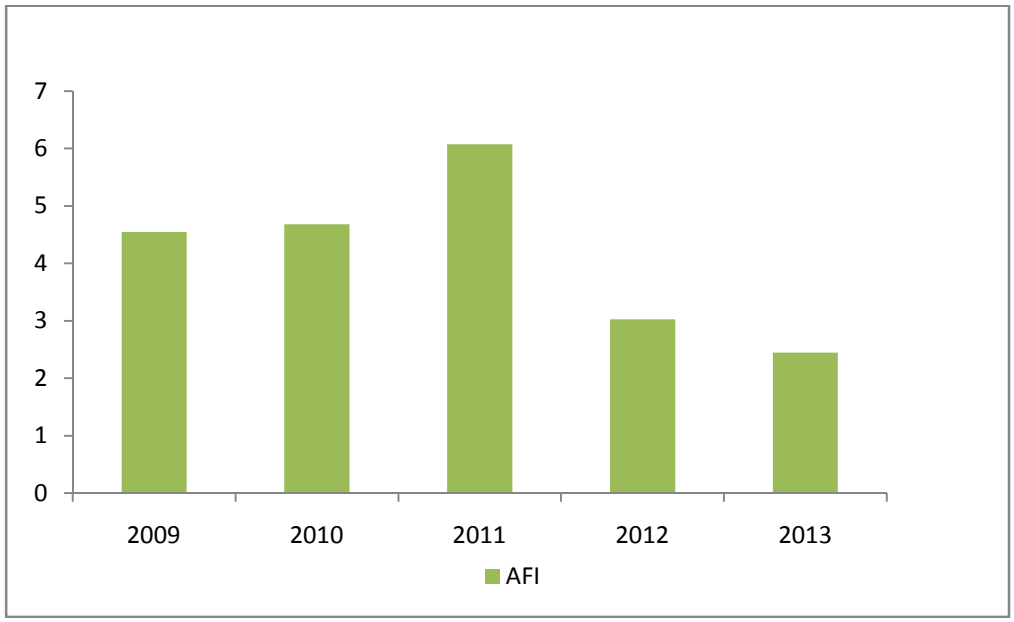
In initial years of GF R-7 implementation the diagnosis and treatment of *P.Vivax* at the peripheral level was a challenge due to absence of RDTs which helps diagnosing *P.Vivax* and primaquine for radical treatment which were later introduced in 2013. The figure below shoes that there has been a reduction in *P.falciparum*incidence and increase in *P.vivax* observed in last few years with a change in the PV:PF proportion. The proportion has almost reversed in the recent years compared to that in 2009 when the percentage of *P.falciparum* was very high, up to 60%. Currently the proportion of PV to PF is 72:28, in these districts.

Figure 4: PV: PF ratio (2009-2013) in 19 GF district



Since most of programmatic efforts were focused on reduction in *P.falciparum* thus Impact on morbidity due to *P.falciparum* is more marked as compared to *P.vivax,* as shown in the figure below.

Figure 5: Impact on *P.falciparum* incidence in R-7 district



In 2009, P.falciparum incidence was 4.55 cases/1000 population which increased to 6.1 cases per 1000 population when case detection improved due to full coverage of surveillance. The analysis of 2013 malaria incidence data suggests that there has been 59% reduction in *P.falciparum* morbidity since 2011, AFI dropped from 6.1 to 2.45 cases per 1000 population. This reduction is planned to be further sustained by rolling the coverage of proven effective interventions to >80% of the high risk districts population in phase-2 of the grant.

The 2013 malaria indicator survey further confirms this reduction in falciparum and suggests that *P.falciparum* in some districts has gone below 10% of the district case load. The survey showed that the prevalence was highest in FATA (27.5/1000 population) among the provinces surveyed. Highest falciparum prevalence was found in FATA (4.5/1000 population). The survey also showed that out of total 113 Union Councils surveyed, 35 UCs in FATA were served. 4 UCs showed positivity rate of less than 1 percent, whereas 13 had SPR between 1-5% and 6 UCs had the SPR more than 5% (hot spot), out of which four are from North Waziristan. In the remaining 12 Union Councils the slide positivity rate was zero.

2.1.3. Stratification of endemicity

The districts and agencies in four provinces of Pakistan and FATA region were stratified based on the API index from last three years average i.e. 2011-13. For the stratum 1, SPR >5 was also considered to demonstrate the future change in stratification of districts based on interventions.

The API > 5 and its other ranges have been taken to stratify the districts to show there malaria transmission potential thus a way to structure the strategic approaches and interventions and to demonstrate the impact of future investments. However, there will be possibilities in future which may result in selecting the districts by order of priority and developing sub-stratums for priority interventions. The priority many be given to those districts which have been highlighted in recent malaria program review reports as high endemic districts with very high API>10, findings of malaria indicator survey which shows an in-depth coverage level of interventions and their impact up to the level of UC which is the smallest administrative unit, attaining more than 80% coverage by case management and vector control in districts with on-going interventions by public sector and donor agencies.

Table 6: Stratification of districts and agencies

Stratum-I (High Transmission) District/Agency: API/SPR >5		Stratum-II(Moderate Transmission) District: API between 1-5		Stratum-III(Low Transmission) District: API<1	
Province/Region	**API/SPR**	**Province**	**API**	**Province**	**API**
FATA		**Sindh**		**Sindh**	
1. FR Bannu/Laki	117.96	1. Benazirabad	3.14	1. Jamshoro	0.83
2. N. Waziristan	25.09	2. Shikarpur	2.83	2. Hyderabad	0.62
3. FR D.I.Khan / Tank	13.27	3. Matiari	1.87	3. Karachi	0.15
				Punjab	
4. Kurram	11.34	4. Kashmore	1.71	4. Bhakkar	0.72
5. Khyber	10.77	5. Ghotki	1.63	5. Rajanpur	0.51
6. FR Peshawar / Kohat	10.47	6. Jacobabad	1.57	6. Layyah	0.51
7. Bajor	6.35	7. Sanghar	1.44	7. Nankana Sahib	0.26
8. Mohmand	15.01	8. Dadu	1.35	8. Khushab	0.25
		Punjab		9. Bahawalnagar	0.24
9. Orakzai	6.27	9. Muzaffargarh	1.56	10. Lodhran	0.23
		Balochistan		11. Sheikhupura	0.23
10. S. Waziristan	5.68	10. Kalat	1.39	12. Mianwali	0.14
Sindh				13. Sargodha	0.11
11. Mithi/Tharparker	11.77			14. Hafizabad	0.11
12. Khairpur	9.78			15. Kasur	0.09
13. Umerkot	7.7			16. Chakwal	0.08
14. Thatta	5.21			17. Bahawalpur	0.08
15. Mirpurkhas	11.36			18. Mandi Bahauddin	0.07
16. T.M.Khan	8.17			19. Sahiwal	0.06
17. Sukkur	7.57			20. Jhelum	0.05
18. Larkana	6.32			21. Jhang	0.05
19. T.Allahyar	6.29			22. Rahimyar Khan	0.05
20. Kamber	5.46			23. Chiniot	0.04
21. Badin	5.29			24. Attock	0.04
22. N.Feroz	5.02			25. Okara	0.04
Balochistan				26. Sialkot	0.04
23. Zhoab	27.21			27. Vehari	0.04
24. Gawadar	25.83			28. Faisalabad	0.03
25. Kharan	20.92			29. Pakpattan	0.02
26. Bolan / Kachi	18.65			30. Khanewal	0.02
27. Kech	17.63			31. Gujrat	0.02
28. Nasirabad	15.71			32. Multan	0.02
29. Sibi	13			33. Rawalpindi	0.02
30. Jaffarabad	12.59			34. T-T-Singh	0.01
31. Harnai	11.7			35. Gujranwala	0.01
32. Dera Bugti	11.66			36. Lahore	0.01

Stratum-I (High Transmission) District/Agency: API/SPR >5		Stratum-II(Moderate Transmission) District: API between 1-5		Stratum-III(Low Transmission) District: API<1	
33. Loralai	10.37			37. Narowal	0
				KP	
34. Noushki	10.27			38. Malakand	0.68
35. Jalmagsi	9.51			39. Peshawer	0.57
36. Awaran	8.96			40. Chitral	0.42
37. Killa Saifullah	8.9			41. Swabi	0.2
38. Washuk	7.44			42. Batgram	0.16
39. Ziarat	6.04			43. Dir Upper	0.15
40. Shirani	5.69			44. Haripur	0.03
41. Killa Abdullah	5.52			45. Abbottabad	0.02
42. Chagi	9.61			46. Mansehra	0
43. Kohlu	19.43			47. Kohistan	0
44. Mastung	10.18				
45. Pishin	8.25				
46. Musakhel	11.92				
47. Barkhan	7.39				
48. Khuzdar	13.39				
49. Punjgur	7				
50. Lasbella	6.81				
51. Quetta	6.44				
KP					
52. Bannu	31.96				
53. L. Marwat	13.22				
54. Charsada	7.26				
55. Hangu	6.55				
56. Buner	5.77				
57. Tank	5.34				
58. Mardan	11.01				
59. D.I. Khan	13.66				
60. Kohat	8.47				
61. Dir Lower	20.79				
62. Shangla	7.98				
63. Karak	7.18				
64. Nowshera	7.1				
65. Swat	5.68				
Punjab					
66. D.G.Khan	9.71				

2.2. Malaria case management

2.2.1. Diagnostic arrangements

Public Sector involvement:

The malaria diagnosis has been integrated within health care services so that continuous care can be provided close to the patient's home. The RHC's and hospitals are working as microscopy centers where as the BHU's and CDs (in selected districts) are working as RDT centers. The malaria control program in Pakistan (except province of Punjab being low endemic) is following the strategy of passive malaria case detection (PCD) and treatment.

There are currently 446 public sector microscopic centers and 943 RDT centers which are strengthen in public sector in 38 malaria high risk districts of Pakistan supported mainly through GF to provide standardized malaria case management services as per the national guidelines. The table below presents the province/region wise distribution of these centers. There are some microscopy centers which are also established at well functioning Basic Health Units. However, not all the hospitals/RHC and BHUs in the districts/agencies in Pakistan are strengthen as MC and RDT centers. The public sector health facilities in districts/agencies where Global Fund has provided support are also not covered 100% due to several reasons including shortage of resources, staff unavailability in many facilities are non-functional facilities due to structure damage.

Table 7: Province/Region wise strengthened MC and RDT centers through GF support (2012-13)

Province Regions	No. of districts/ agencies strengthen		Microscopy center		RDT centers	
	Covered	Uncovered	Strengthened	Not strengthened	Strengthened	Not strengthened
KPK	7	17	101	105	244	200
FATA	7(6 FR)	-	100	-	185	252
Balochistan	15	15	133	14	300	459
Sindh	6	17	112	83	214	500
***Punjab**	-	36	-	466	-	121
TOTAL	38	85	446	668	943	1532

***Note**: The centers which are covered will be sustained and the centers which are functional and are not strengthen as MC or RDT will be involved in phased manner*

**The districts (mainly in province of Punjab) with API<1 will be entering into elimination so RDT centers will not be established*

Table 8: List of human resource trained in MC and RDT in 38 high risk districts/agencies (2012-13).

Province/ region	# of districts/ agencies	Microscopy	RDT
KPK	7	79	225
FATA	7(6 FR)	77	154
Balochistan	15	116	298
Sindh	6	101	211
Total	38	373	888

Almost all the training has been carried out through GF support, as there are almost no funds allocated by the public sector for training.

Private Sector involvement:

The private sector has been involved through GF support in malaria case management in selected 9 districts/agencies among 38 malaria high risk districts of Pakistan. There were 119 GP/private provider involved in the selected districts supported by GF and reported 12,063 malaria case in 2013.

Table 9: Private sector case notification (9 pilot districts/agencies 2013)

Total number of pilot Districts	9
Total number of centers reporting.	119
cases screened/month/center	121
Total screened cases	94,514
Total Positive cases	12,063
Average cases/month/center	14
Total PV cases	7,991
Total PF cases	2,599
Total Mix cases	1,451

The table above shows that there is huge district wise variation among the number of cases screened ranging from 40 to 120 cases per month. Similarly, the in-depth analysis of each of the

private providers reveled that there is also a wide-range of cases being reported from each private care provider.

Considering the big private sector in the country, the role of private sector in malaria management should not be undermined. It is important to review the current experience/model of involving the private sector in malaria case management and should be improved for scale-up.

Quality Assurance System

There is no national and very few fully functional provincial reference laboratories for doing quality assurance for malaria microscopy and RDT services. In last few years there is hardly any information available to demonstrate the quality assurance systems at district/agency level in malaria high risk districts.

Quality assurance system at national provincial/ regional and district/agency level hardly exits

2.2.2. Treatment arrangements

The doctors and paramedics in 1,389 diagnostic centers (MC and RDT centers) are trained on national case management guidelines. A total of 1,542 doctors and related staff from these health facilities have been trained on treating un-complicated and complicated malaria in 38 high risk districts.

Table 10: List of human resource trained in treatment in 38 high risk districts (2012-13).

Province/ region	# of districts/ agencies covered	Un-complicated and Complicated malaria case management
KPK	7	347
FATA	7(6 FR)	263
Balochistan	15	559
Sindh	6	373
Total	38	1,542

Almost all the training has been carried out through GF support, as there are almost no funds allocated by the public sector for training.

Guidelines on case management were developed and the latest being developed by DoMC in collaboration with Save the Children with technical support of WHO. The protocols provide the details on treating the clinical, uncomplicated vivax, uncomplicated and complicated falciparum and mixed infections of malaria.

All the essential anti-malaria drugs for the treatment of uncomplicated and complicated malaria have been provided from public sector and through GF support. The anti-malarials is included in the essential drug list (EDL) and also a part of essential health service package (EHSP) of the provinces. However, there are still interruptions in the availability of drugs such as primaquine (not manufactured locally), Inj Arthemeter/artesunate is due to non availability in local market.

Still monotherapy is used for treatment of Falciparum cases in public sector facilities which are not strengthen in case management as per the national guidelines and also in private sector facilities due to limited involvement.

The findings of the MIS survey shows that the treatment protocols are not completely followed due to several reasons including high attrition of trained staff in the facilities.

2.3. Malaria prevention

2.3.1. Long lasting insecticide treated nets (LLINs)

The regular use of LLINs in moderate and low endemic situations is considered as one of the most effective malaria prevention interventions. The MCP has recently developed LLINs distribution strategy which focuses on universal coverage for the entire population at risk of malaria in areas not covered by IRS. The implementing partner follows the guidelines and till date has supplied LLIN's through the voucher system through trained staff. The MCP recommends the purchase of LLINs that are approved by WHOPES.

Mainly through Global Fund support in 2012-13 a large number of LLINs has been distributes in various districts/ agencies in three provinces and FATA region. In addition, LLINs were also distributed in flood affected districts of Punjab, KP and Sindh during 2011-2013. The table below shows the number of LLINs procured/distributed through various funding sources.

Table 11: LLINs distributed (2012-13)

Province/region	District/Agencies covered (All from GF grant)	LLINs distributed		
		Public Sector	GF	Total
KPK	7	-	484,541	484,541
FATA	10 (3 FR)	6,121	287,540	293,661
Balochistan	15	-	313,646	313,646

Sindh	6	-	565,682	565,682
Total	38	6,121	1,651,409	1,657,530

Source: Provincial and Federal DoMC and Save the Children data, 2013

The distribution of LLINs from the public sector resources is negligible

The recent Pakistan Demographic and Health Survey (PDHS) 2013 shows that 13% of households in sampled districts are in possession of mosquito nets which is almost double than that reported in the previous PDHS 2007-08. Yet, only 1% of households possess at least one insecticide treated bednet (ITN), which was almost negligible (0.1%) in the previous survey.

The MIS survey 2013 shows that among the survey households in the 38 districts, 34% households had at least one LLIN. The highest coverage was in FATA (54%) whereas the lowest was in KP (15%). The households possessing LLINs, 21% children of age < 5 years and 28% of the pregnant women slept under LLIN previous night.

There is still very low coverage of LLINs i.e. at least 2 LLINs per HH in the high risk districts. Moreover, the use of LLINs in the high risk group i.e. children under 5 and pregnant women are also very low. The procurement and distribution of LLINs is > 90% is also highly dependent on donor support.

The LLINs were distributed in the community following a LLINs distribution strategy which was based on voucher system to have more accountability. The table below shows the training carried out on LLINs distribution strategy in three provinces and FATA region.

Table 12: Trainings on LLINs distribution strategy GF supported (2013)

Province/region	District covered	LLINs distribution strategy
KPK	**7**	213
FATA	**10 (3 FR)**	225
Balochistan	**15**	226
Sindh	**6**	121
Total	**38**	**785**

Source: Provincial and Federal DoMC and Save the Children data, 2013

2.3.2. Indoor residual spraying (IRS)

The use of IRS is a vital malaria prevention strategy in areas where there is high malaria prevalence which needs to be mapped up to the level of Union Council for effective implementation. However, currently no regular system is in place to analyse and generate the desired information. Directorate of Malaria Control (DoMC) through its provincial/regional partners discourage the; indiscriminate use of insecticides. This could be only possible through careful planning of using IRS in target areas. No provincial/regional level insecticide susceptibility survey has been carried out and sentinel sites are non-functional.

Currently 15% of the rural UCs (HOT SPOTS) in the districts/ agencies of high risk districts having API/SPR > 5 are targeted with IRS twice a year (one round where transmission season is short) supported by public sector and GF support. The DoMC at federal and provincial level uses WHOPES approved insecticides and spray pumps. The MCP purchases Alpha-Cypermathrine and Permathrine. Currently the program is planning to conduct insecticide resistance survey the finding of which in 2015 will inform the change in insecticide selection for IRS.

The public procurement of IRS need to be in line with national guidelines and should be registered with Drug Regularity Authority Pakistan (DRAP).The spray is done through spray men hired for the purpose and trained by district malaria supervisor with limited quality assurance system in place.

The IRS commodities are purchased at federal and also provincial malaria directorate level and sent to the districts/agencies. There is low quality of insecticides available in the market because of loose and unmonitored regulatory system. The quality of IRS purchased through public sector is usually checked during purchase time. The table below shows the IRS coverage in 2013 in 38 targeted districts.

Table 13: Province/district wise coverage of IRS (Household covered in 2012-13)

Province / Region	Household covered with IRS
KP	82,895
FATA	46,673
Balochistan	66,855
Sindh	75,721
TOTAL	272,144

Most of the household sprayed with IRS are in the 38 high risk districts and mainly supported by the GF support. The IRS contribution from public sector is inadequate.

The MIS survey 2013 showed that overall 11% households in 38 high risk districts were sprayed with IRS. Maximum IRS coverage was found in FATA region (18% of households were sprayed) followed by Sindh (14%) with a lowest coverage in Balochistan (7%).

Still many households in the high risk union councils are uncovered through IRS

Table 14: List of IRS equipment in provinces/regions supported by GF (2013)

Province/ regions	Districts/Agencies covered	Spray pumps (2010-12)
Sindh	6	120
KPK	7	140
FATA	10 (3FR)	200
Balochistan	15	300
Total	38	760

Most of the IRS equipment is provided through the GF support in the 38 high risk districts. There are very few pumps provided by the public sector in these districts which are mostly non-functional due to repair issues or are very old.

2.3.3. Larvicidal

There is limited larviciding carried out in the country during 2012-13 for the prevention of malaria. There are very few locations in the high risk districts where larvicidal is practiced. No proper planning is done to optimize the implementation of Larval Source Management (LSM). No mapping is done to identify potential breeding sites for larviciding.

2.4. Behaviour change communication

Behavior Change Communication (BCC) is an important component of the Malaria Control Program. The federal and provincial/ regional DoMC has limited capacity and resources available for advocacy, information, education, communication and community mobilization. In 2012, BCC strategy was developed through GF support and was implemented in selected districts. The table below reflects the BCC activities conducted in selected 38 districts of Pakistan through GF support (2012-13)

Table 15: Advocacy, BCC activities and Beneficiaries Reached

District	Advocacy events and community based activists involving LHWs, CBOs, NGOs, religious leaders, local elders, elected representatives(for community awareness to enhance preventive and curative services utilization in 38 districts)		Community awareness session at community and facility level in 38 districts by LHWs		Community awareness sessions at community and facility level in 38 districts by CBOs/NGOs	
	Beneficiaries reached	Sessions	Beneficiaries reached	Sessions	Beneficiaries reached	Sessions
Kharan	105	7	4659	186	2375	79
Panjgoor	55	4	7780	311	4640	155
Washuk	130	9	4979	199	1994	66
Chaggai	80	5	4222	169	1679	56
Kech	75	5	4997	200	2766	92
Gawadr	109	7	6339	254	2960	99
Thatta	202	13	5304	212	3003	100
Dadu	743	50	6699	268	6412	214
Khaipur	1061	71	18951	758	20768	692
Tharparker	599	40	7430	297	7483	249
Charsadda	949	63	5835	233	8401	280
Nowshera	744	50	6408	256	7221	241
Mirpurkhas	577	38	7028	281	7141	238
Tandoallayar	789	53	7156	286	10082	336
FR Peshawar	76	5	510	20	1657	55
FR Kohat	97	6	510	20	1650	55
Fr Bannu	125	8	500	20	2407	80
FR Lakki	82	5	400	16	2537	85
FR DIK	109	7	450	18	1594	53
FR Tank	90	6	500	20	1062	35
Tank	253	17	5877	235	3320	111
DIK	321	21	8536	341	3419	114
Khyber	155	10	1444	58	3817	127
Lakki	276	18	4911	196	3303	110
Bannu	279	19	3973	159	3571	119
Pishin	268	18	8036	321	2550	85
Musa Khel	328	22	8839	354	2406	80
Zhob	203	14	6279	251	1106	37
Noshki	202	13	5105	204	1574	52
Sibbi	229	15	5920	237	1660	55

Harnai	145	10	3067	123	1420	47
Loralai	214	14	5215	209	1766	59
KilaSaifullah	221	15	4075	163	1536	51
Naseer Abad	253	17	6605	264	1500	50
sherani	40	3	600	24	0	0
Bajaur	304	20	11209	448	3789	126
Kurram	309	21	7253	290	4158	139
Mardan	362	24	3790	152	4138	138
Mohmand	201	13	8692	348	4537	151
Orakzai	349	23	3794	152	3625	121
SWA	269	18	3300	132	4715	157
	11978	**799**	**217177**	**8687**	**155742**	**5191**

In addition there are other BCC activities by involving print and electronic media

- Printed materials (posters, charts, pamphlets, banners and newspaper)
- TV spots
- Radio spots

World Malaria Day is commemorated every year at the agency headquarter which helps awareness creation on malaria issues. The Lady Health workers, school teachers, religious scholar and health facility are involved in delivering key health messages on malaria control and prevention. They conduct health awareness session with community members and are given incentive of Rs 50 for interacting with each person. There are no health education sessions at health facility level with malaria messages.

The MIS survey 2013 showed that about 87% of the respondents have heard about malaria. Whereas the source of information was mainly from health facility (48%) followed by family member (33%). Television was also found out to be major source of information (22%). Maximum people (79%) relay on allopathic medicine for the treatment of malaria.

However, BCC strategy is not yet implemented in holistic way to have major impact. There is no BCC training guidelines at national and provincial level.

There is earmarked funding for IEC/BCC and social mobilization in the PC-1. However, the amount is dependent on funds availability. The funding level is not adequate to cover all the BCC components at directorate and agency level.

2.5. Technical & managerial capacity in planning, implementation, management of malaria control interventions

2.5.1. Program management

The federal and provincial/regional directorate of malaria control manages the program activities in Pakistan. However, few provinces/regions are also planning to introduce Vector Born Disease (VBD) program. After the 18th constitutional amendment the federal and provincial/regional roles as far as malaria control interventions is concern mainly includes:

Federal Level:

1. Preparation of proposals and liaising with International agencies for securing support of partner agencies
2. Providing technical & material resources to the provinces/regions for successful implementation of disease control strategies, and disease surveillance.
3. Act as Principal Recipient for Global Fund support

The activities which the federal DoMC has to perform includes:

i. To coordinate malaria-related curative and prevention efforts between provinces, Planning Commission (PC), UN partners, donors and other stakeholders.

ii. To consolidate and support efforts of Provincial Malaria Control Programs (MCPs) of the country through a coordinated response.

iii. To act as the primary coordinating, technical support, monitoring and evaluation (M&E) and Central Data Coordinating Unit (CDCU) for prevention and control of malaria in Pakistan.

iv. To provide technical support to Provincial counter-partners i.e. Malaria Control Programs (MCPs), non-governmental organizations, community based organizations and other stakeholders working for prevention and control of malaria as a one of the major public health problem in Pakistan.

v. To support provinces/districts in the prevention and control of malaria in epidemic situation and complex emergencies.

vi. To serve as the Principal Recipient (PR) for Global Fund Round Grants (Malaria) for Pakistan and provide support as Project Management Unit and Partners (PMU).

Provincial/Regional Level:

1. Coordinate with Federal DoMC in Malaria control activities
2. Secure public sector funding
3. Implement malaria control interventions as per strategic plan
4. Capacity building
5. Coordinate and supervise districts including public and private sector
6. Monitoring and Evaluation & Surveillance
7. Manage the drug supply and logistics
8. Manage Provincial/Regional Reference Laboratory

District/Agency Level:

1. Coordinate with provincial directorate of malaria control
2. Service delivery (case management, vector control and surveillance)
3. Capacity building
4. Monitor and supervise
5. Procure malaria control supplies through district budget
6. Store and Consume Logistics
7. Maintain Quality Lab Services and implement EQA
8. Prepare and submit reports

To carry out the roles at federal, provincial and district level very limited staff is available from public sector support. The malaria control activities cannot be implemented effectively with such a limited staff. There is a dire need to fill the gaps of technical human resource at federal, provincial and district staff keeping in view the changing role of the program.

2.5.2. Program funding

At the federal level there is a Directorate of malaria control under the administrative control of Ministry of national Health Services, Regulation and coordination since 2013. The Programme is provided two types budget i.e. non-development budget that is for salaries of regular staff, maintenance etc and the development budget for the developmental activities of the programme through PSDP. The non-development costs are enormous, whereas the development budget is mainly through federal and provincial PC-Is.

Table 16: Federal DoMC development budget from 2001-2013

Year	Phasing as per PC-1	PSDP allocation	Releases	Expenditure
2001-02	146.665	146.00	146.00	97.514
2002-03	30.820	31.000	31.000	25.972
2003-04	33.182	29.000	29.000	27.336
2004-05	29.509	34.000	34.000	27.199
2005-06	32.861	33.000	33.000	33.000
Total	273.037	273	273	211.021
2006-07	- -	60.000	60.000	48.850
2007-08	- -	100.00	5.00	4.7
Total		160.00	65	53.55
2008-09	233.69	100.00	30.0	14.966
2009-10	140.57	100.00	71.7	70.7
2010-11	99.46	100.00	31.5	30.5
2011-12	92.82	Nil	Nil	Nil
2012-13	92.08	Nil		Nil
Total	658.62	300	133.2	116.166

In last 5 years the allocations remain low and so were the releases. Same phenomena have been observed in the case of provinces and regions.

During last few years through the provincial and regional PC-1s about Pak Rs 1093 million has been allocated from which about 45% has been released. In addition to the public sector commitment the programme has been successful in securing the donor commitment through increased funding to address the gaps. The main source of funding is the Global Fund and to some extent WHO.

Through Global Fund (SSF), the Malaria Control in Pakistan has secured about US $ 52 million from which about 31 million was for phase 1. The purpose was to deliver comprehensive malaria control intervention including early diagnosis and treatment, vector control BCC, etc in 38 high risk-districts in the three provinces of Pakistan (Balochistan, KP and Sindh) and FATA region.

At provincial and regional level the allocation of public sector support is very low (see the details in the provincial/regional strategic plans).

2.6. Quality assured strategic information (epidemiological, entomological and operational)

The malaria related information has been reported from the provinces/ regions through various data generation systems. This includes;

1. District Health Information System (DHIS)
2. Malaria Information System (MIS)
3. Disease Early Warning System (DEWS)
4. Facility Monthly Report (FM) 1-3

The routine data is reported through the DHIS reports system from the primary and secondary health care facilities for the year 2013 shows that 3,190,972 patients were diagnosed as clinical malaria cases. A total of 1,865,773 slides/RDTs were examined of which 141,943 were MP positive. There were 46,013 admissions while 244 deaths were reported due to malaria.

The MIS data shows that 4,561,825 slides/RDTs were examined from which 281,755 were positive with PV 223,660, PF 46,067 and Mix 12,028.

In addition there are new forms FM1-3 which are also introduced in the GF supported 38 malaria high risk districts which are in-depth and also provide age disaggregated information. During 2013 from this system 247,958 confirmed malaria cases were reported.

There are several trainings carried out in the high risk districts on MIS during 2012-13. The table below shows the details of trainings carried out.

Table 17: Trainings on MIS (2012-13)

Province/region	District covered	MIS
KPK	**7**	345
FATA	**10 (3FR)**	225
Balochistan	**15**	439
Sindh	**6**	309
Total	**38**	**1318**

Source: Provincial and Federal DoMC and Save the Children data, 2013

None of the above training has been supported financially through public sector

The suspected malaria is also reported through DEWS supported by WHO.

There are variations in the type of information received from the three sources. Moreover, all the facilities are not reporting in MIS and new FM1-3 forms. Efforts are required to standardize the data collection and reporting system from health facilities which are diagnosing and treating malaria cases so that the complete malaria situation in Pakistan can be reflected.

2.7. Malaria treatment and prevention services in humanitarian crises, emergencies and cross boarder

Many provinces/regions in the country are prone to natural disasters and emergencies. Currently few districts/agencies in the country (mainly in KP and FATA region) are also going through a phase of insurgency which has created a large number of internally displaced population (IDP). Large population movements are putting additional burdens on already resource stretched administration and service providers. Malaria is often not considered a priority health problem in an acute phase of a crisis. All such situations can make the country very significant in terms of malaria situation and can result to an epidemic at any stage. There are national guidelines for malaria in case of emergencies. However, there are no arrangements available to implement this guideline effectively.

There are several districts/agencies in Balochistan and FATA region which have borders with neighboring countries like Afghanistan and Iran from where movement of people across borders is quite frequent for work purposes. Daily thousands of Afghan move into Pakistan via Torkham in Khyber, Ghulam Khan in NWA, Nawa pass in Mohmand & Azam Warsak in SWA. Huge number also cross border from Parachinar in Kurram Agency, similarly Chaman border. No

mechanism and guidelines in place to address the issue of imported malaria cases through cross border movement.

3. SWOT ANALYSIS

STRENGTHS	WEAKNESS	OPPORTUNITIES	THREATS
3.1. Malaria case management and treatment			
-Up-dated Case management guidelines available -446 MC and 943 RDTs centers strengthen -4,561,825 slides/RDTs prepared in 2013 and reported in MIS -281,755 malaria cases confirmed in 2013 -Availability of first-line co-formulated treatment -Antimalarial drugs and malaria diagnosis provided free of charge at public health facilities -Expansion of diagnostic coverage using RDT -Doctors, Microscopist and technicians trained on national guidelines -Private sector getting involved in malaria care (12,000 confirmed case reported in 2013) -Updated guidelines on malaria in pregnancy	-Clinical diagnosis still a common practice (3,190,972 clinical cases reported in DHIS in 2013) -About 668 MC and 1,532 RDTs centers still not strengthen -Limited adherence to the treatment guidelines -Negligible private sector involvement in malaria control -Shortage of laboratory technicians in health facilities mainly PHC -Rapid turnover of trained staff and inconsistent supervision of laboratory technicians. -Non existence of supervision of case management activities -Lack of QA system for microscopic diagnosis and RDT at national, provincial and district levels -Use of oral artemisinin monotherapy in the private sector -No focal points working on case management -Acute shortage of electricity which hampers MC	-Devolution has happened and strategic planning is an opportunity to express demand -VBD program is gaining priority -Additional financial resources available through the GF -Expansion of diagnostic capacity of HF including MCH centers in GF funded and non-GF supported districts/agencies -Collaboration with other departments such as MNCH on IMNCI and PCPNC on in-service training and supervision	-Lack of public sector funding through PC-1 -Inadequate knowledge regarding the management of the malaria -Inadequate resources for the management of cases and supervision of health workers -Short shelf life of the first line treatment and few drugs not available in the open market -Inappropriate prescription/ use of drugs -Incorrect use of antimalarial drugs by patients -Self-medication with antimalarial drugs

STRENGTHS	WEAKNESS	OPPORTUNITIES	THREATS;
3.2. Malaria prevention (LLINs, IRS and Larvicidal)			
-LLINs distribution strategy available - 1.6 million LLINs distributed in 2012-13 -IRS use in place in targeted areas, 272,144 HH sprayed -Larvicidal/LSM experience	-Inadequate vector control personnel in the provinces/districts -LLINs program donor and partner dependent -Inadequate transport and storage facilities at provincial/regional and district/agency level -No regular staff to supervise IRS activities -Lack of a logistics management system for RDTs -Larvicidal/LSM not implemented effectively	-Government regular annual budget for IRS -Funding from GF -Effective insecticides against local vectors	-Natural disasters e.g. floods can create a shortage -Insecticide resistance -Sustainability of quality IRS -LLINs program donor and partner dependence
3.3. BCC, IEC and advocacy			
-BCC strategy available -BCC activities implemented in the provinces/region -Commemoration of World Malaria day including a press conference	-No focal point at federal/provincial directorate level to deal with BCC -Lack of funds to carry out BCC activities -Limited experience with implementing BCC -Impact assessment not done	-The current plan will express the demand for effective BCC -Opinion makers at local level exists which can be involved in BCC -NGO, donors, private sector have shown interest.	-Lack of funding -Lack of interest at district level

3.4. Programme Management			
-Federal and provincial/regional malaria directorates functional -Full-time program managers in-place	-Shortage of technical and administrative staff at provincial/regional and district/ agency level -Inadequate supplies -Inadequate collaboration between MCP and other DoH Units -Lack of evidence based planning	-Devolution has provided an opportunity to strengthen program -Current plan will document the need for human resource -VMD program gaining importance -Support from major funding agencies expected	-Poor staff motivation due to low salaries. -Issues related to sustainability of the program -PC-1 and not in regular budget -Frequent changes in management of the program -Political involvement

STRENGTHS	WEAKNESS	OPPORTUNITIES	THREATS
3.5. Surveillance and monitoring and evaluation			
MIS provides routine malaria program data on monthly basis from MC and RDT centers	-MIS not capturing the entire provincial/regional situation -FM1-4 not implemented across the board -Lack of skills in monitoring and evaluation by managers in malaria control activities -Limited experience of existing staff to implement monitoring and evaluation activities -Low quality data from routine systems.	-Program sensitized to implement standardized MIS in selected districts	Districts/agencies have more than one reporting system which can increase work load
3.6. Procurement and supply management			
Procurement policies available	-Small storage capacity at provincial/regional and district/agency level -Inadequate systems for quantification of LLINs and RDT's	New strategic plan will address the Gap	-Inadequate funding for malaria -Procurement process is long

	-Inadequate logistics for transportation of malaria commodities		
3.7. Epidemiology and entomological data			
Existence of an epidemiological surveillance system that provides monthly data on malaria burden	-No standardization of data -No data on entomology -Quality of data is a big issue -Lack of plan for studies required on malaria	-Current plan will address the Gap -PC-1 and donor support would help address the issue of comprehensive and quality data reporting	-Staff are not motivated -Poor coordination between program and partners
3.8. Epidemic preparedness & response and Cross border situation			
Malaria surveillance in place at provincial/regional level	-Malaria surveillance system not yet involving use of epidemic thresholds for early detection of malaria epidemics. -Absence of an early warning system for prevention of malaria epidemics. -No arrangement to address malaria in cross-border situation -Unavailability of buffer stock	-Current plan will address the Gap -PC-1 and donor support would help address the intervention related to epidemic preparedness and response and malaria in cross-border situation	-Poor coordination between program and partners

4. GAP ANALYSIS

4.1. Inadequate malaria diagnostic service network

4.1.1. 4,561,825 slides prepared in 2013 among which 281,755 were confirmed as malaria cases reported in MIS whereas the FM1 information from 38 districts shows 247,958 confirmed malaria cases.

4.1.2. The cases reported in MIS and FM1-3 are not reflecting the total malaria picture of the country as all the health facilities are not strengthen

4.1.3. 38 malaria high endemic districts are not comprehensively involved in standardized malaria case management

4.1.4. 28 malaria high endemic districts (API/SPR >5), 10 malaria moderate risk districts (API between 1-5) and 47 malaria low risk districts (API< 1) are not strengthen for malaria case management

4.1.5. 668 MC centers and 1532 RDT are not strengthen in diagnosing malaria cases as per the national guidelines in the country

4.1.6. 446 MC and 943 RDTs centers strengthen through GF grant in 38 high risk districts are working sub-optimal due to lack of quality assurance system and high attrition of staff.

4.1.7. The MC and RDT centers hardly perform 2-3 tests per day. BER is very low.

4.1.8. DHIS still reports 3,190,972 diagnosed as clinical malaria (many public sector facilities either not fully strengthened or involved as diagnostic centers)

4.1.9. Lack of Knowledge and skills of microscopists and health staff conducting RDTs to diagnose malaria (mainly due to rapid turnover of trained microscopist and trained technicians)

4.1.10. Negligible private sector involvement in malaria control. Only 119 private providers involved in 9 high risk districts

4.1.11. Shortage of laboratory technicians in health facilities mainly PHC

4.1.12. Lack of regular supply of electricity which highly effect the microscopy services

4.1.13. Radical treatment for P.*vivax* as per national guidelines has not been followed in centers which are not currently strengthen as per national guidelines

4.1.14. Supervision of case management not performed

4.1.15. National case management guidelines, training manual and tools needs to be up-dated

4.1.16. WHO T3 (Test, Treat and Track) strategy not fully operational

4.2. Treatment services not as per the protocols

4.2.1. Knowledge of physicians on management of uncomplicated, severe malaria and malaria in pregnancy at PHC level is inadequate due to un-trained and rapid turnover of trained health care providers.

4.2.2. No mechanism and guidelines for ensuring patient treatment compliance (DOT)

4.2.3. Availability of drugs such as primaquine, Inj Artesunate in un-regulated local market. Primaquine not manufactured locally.

4.2.4. In many instances, physicians prescribe anti malaria drugs without laboratory support, resulting in relapses and recrudescence and potentially posing life threat to the patient

4.2.5. Lack of proper drug testing system to ensure the quality of the products, information on bio availability is lacking. Currently the drugs are tested at few laboratories

4.2.6. Lack of linkages between Federal and provincial/regional Drug Controller Offices.

4.2.7. Private sector hardly involved in malaria care provision hence not following the national treatment guidelines

4.2.8. Guidelines for treatment of malaria needs to be up-dated

4.2.9. Shortage of anti-malarial drugs expected to address enhanced case finding and demand of additional diagnostic centers

4.3. Quality assurance arrangement sub-optimal

4.3.1. There is hardly any functional reference labs in the country (Sindh province has a reference laboratory but not properly linked with districts)

4.3.2. Current QA system is not satisfactory

4.3.3. There is no dedicated staff available at reference labs at national and provincial level

4.3.4. There is limited equipment and logistic facilities available for QA

4.3.5. At the district/agency level there is currently limited capacity/arrangement for QA. (capacity building, including logistic support)

4.3.6. RDT quality assessment capacity not available

4.3.7. No guidelines on RDT quality assurance mechanism

4.4. Universal coverage of LLINs not achieved

4.4.1. Requirement of LLINs is based on assumptions.

4.4.2. 1.6 million LLINs (10% of the country need) have been distributed in the selected districts of the country during 2012-13. About 95% of the overall LLINs were arranged through donor support i.e. GF. This implies that the LLINs supplies are heavily dependent on donor support.

4.4.3. It is estimated that there is a gap of about 21.0 million LLINs are required by 2020 to have a universal coverage (including replacement) in all 66 high malaria endemic districts/ agencies in the country along with the needs of the people living in moderate/low risk 57 district of the country with malaria foci and prone to natural disasters. -

4.4.4. LLINs not fully distributed as per the National LLINs distribution strategy

4.4.5. Storage capacity and practices for LLINs is inadequate. Rental warehouses are not following the good storage standards. At provincial/regional level there is only one store for all health items. Limited arrangements available at district/ agency level.

4.4.6. Sub-optimal use of LLINs at household level especially high risk population (almost 80% children under 5 years and 70% pregnant women not slept under LLINs last night)

4.5. IRS coverage is low in high malaria prevalent UCs:

4.5.1. The IRS coverage is only 11% currently in high malaria prevalent UCs in high risk districts

4.5.2. Proper estimation not done to cover the highly endemic agencies, UC and number of structures to be sprayed

4.5.3. Requirement of IRS calculation is based on assumptions.

4.5.4. No proper IRS quantification system and guidelines at regional level exits.

4.5.5. Micro-planning is done at the agency level by Malaria Superintendent, but there are limitation in planning and supply of IRS

4.5.6. Few provinces/regions have entomologist available to address technical issues related to calculation and proper use of IRS in the targeted areas.

4.5.7. Sentinel sites for monitoring vector resistance to insecticides does not exists

4.5.8. No arrangement for quality testing of active ingredient/ formulation and bi products of IRS

4.5.9. Human resource for spraying not available. It is required on daily wage basis, but the required number of HR for spray and supervisory support staff at district/ agency level is not always available

4.5.10. Limited equipment is available at district/agency level for IRS spraying and major repairs are required to make available spray pumps operational

4.5.11. There is usually shortage of insecticides in the district/agency

4.6. Larvicidal not implemented effectively

4.6.1. No proper mechanism in place for the larvicidal control

4.6.2. No guidelines and arrangements at national, provincial and regional level to address LSM

4.6.3. Mapping of the permanent breeding sites missing

4.6.4. Quantification and frequency of larviciding for each district/agency (high risk) is not available

4.7. Community mobilization not effective

4.7.1. Many patients are still not using the public sector health facilities for the treatment of malaria

4.7.2. Huge gaps exits in term of providing information and mobilizing the house hold using LLINs including high risk populations (only 21% children < 5 years and 28% pregnant women slept under LLINs last night)

4.7.3. BCC tools and materials either not up-dated and if available are not implemented effectively

4.7.4. Involvement of LHWs in suspect identification and referral almost non-existing.

4.7.5. The impact of exiting BCC activities has not been assessed

4.7.6. WHO COMBI strategy for BCC not fully implemented

4.8. Funding mainly depending on external support

4.8.1. Not enough public sector funds are allocated at federal, provincial and regional level for malaria control interventions in the current PC-1

4.8.2. In the available budgets there is almost no money for capacity building

4.8.3. PC-1 releases are not timely and inadequate

4.8.4. Amount for LLINs and IRS is inadequate

4.8.5. No funding available to hire technical and administrative human resource

4.8.6. Many components of malaria are depending on international funding.

4.9. Program management

4.9.1. The malaria program has limited monitoring and evaluation system.

4.9.2. Monitoring guidelines and tools are not adequate and not available across the board.

4.9.3. There are no M&E officers through public sector support

4.9.4. VBD program not initiated

4.9.5. No dedicated focal point for malaria at district/agency

4.9.6. Inadequate logistic support to monitor malaria control activities in districts/agencies

4.10. Malaria control problems are not addressed through operational research

4.10.1. Data collected from malaria control, not fully analyzed to hypothesize for issues to be addressed through operational research

4.10.2. No up-dated agenda for operational research at federal, provincial and regional level

4.11. Storage capacity for drugs and supplies not as per standards

4.11.1. Currently no separate stores available at provincial, regional and district/ agency level to store anti-malarial drugs, LLINs and IRS

4.11.2. Good storage practices are not completely implemented in the districts/agencies (space, inventory system, temperature, etc)

4.12. Significant issues in training in malaria control

4.12.1. There is almost no public sector funding currently available to conduct trainings on various malaria control interventions through public sector support

4.12.2. The training agendas are often not well established

4.12.3. Planning of training activities is not pro-actively shared with the districts/ agencies and is not always based on bottom-up approach.

4.12.4. No core of provincial/regional trainers has been established. The trainers that need to be involved in training activities are identified on ad hoc basis.

4.12.5. No feedback system exiting to access the impact of trainings and to plan refresher courses

4.12.6. At district/agency level (high and moderate risk districts/agencies) there is more than 50% staff which needs to be trained on various malaria control interventions such as malaria case management, prevention and surveillance activities.

4.13. Epidemiological and entomological information inadequate

4.13.1. There is no standardize recording and reporting system exits to report malaria diagnosis and treatment activities in health facilities currently not implementing malaria control interventions.

4.13.2. The current three reporting systems have no uniformity of information

4.13.3. No uniform case definitions exit for the three parallel disease reporting systems (DHIS, MIS, and DEWS).

4.13.4. There is wide variation in suspected and confirmed malaria cases reported in three parallel systems

4.13.5. There is no standardize regular system exists to monitor the distribution and use of LLINs at the household level and IRS coverage (more based on project specific tools)

4.13.6. The sentinel sites for vector bionomics do not exist

4.13.7. No information exists on breeding, biting and resting habits of mosquito

4.13.8. Regular reporting on vector density, susceptibility, entomological inoculation rates, sporozoite rates and human blood index is not done

4.13.9. No soft ware system/GIS introduced to capture malaria related information in the facilities/community

4.13.10. Weak use of data for decision making and inadequate training and human resource in malaria surveillance, monitoring and evaluation.

4.13.11. There are also delays in data submission at all level.

4.13.12. Data is not readily available for the managers for their use and the quality of the data is low

4.13.13. Third party evaluation system not in place

4.14. Weak system for malaria control services in humanitarian crises, emergencies and cross border situation

4.14.1. No national guidelines and training material available on malaria emergency preparedness and response in humanitarian crises and natural disasters

4.14.2. No policy exists to address malaria control services in population that moves across the border of Afghanistan and Iran on regular basis

4.14.3. No contingency plans exits to address supplies needed for response (buffer stock) to malaria emergencies at provincial, regional or agency level

4.14.4. No organization or focal point exists at provincial, regional or agency level to lead malaria emergency preparedness and response

4.14.5. No training in emergency preparedness and response has been conducted related to malaria

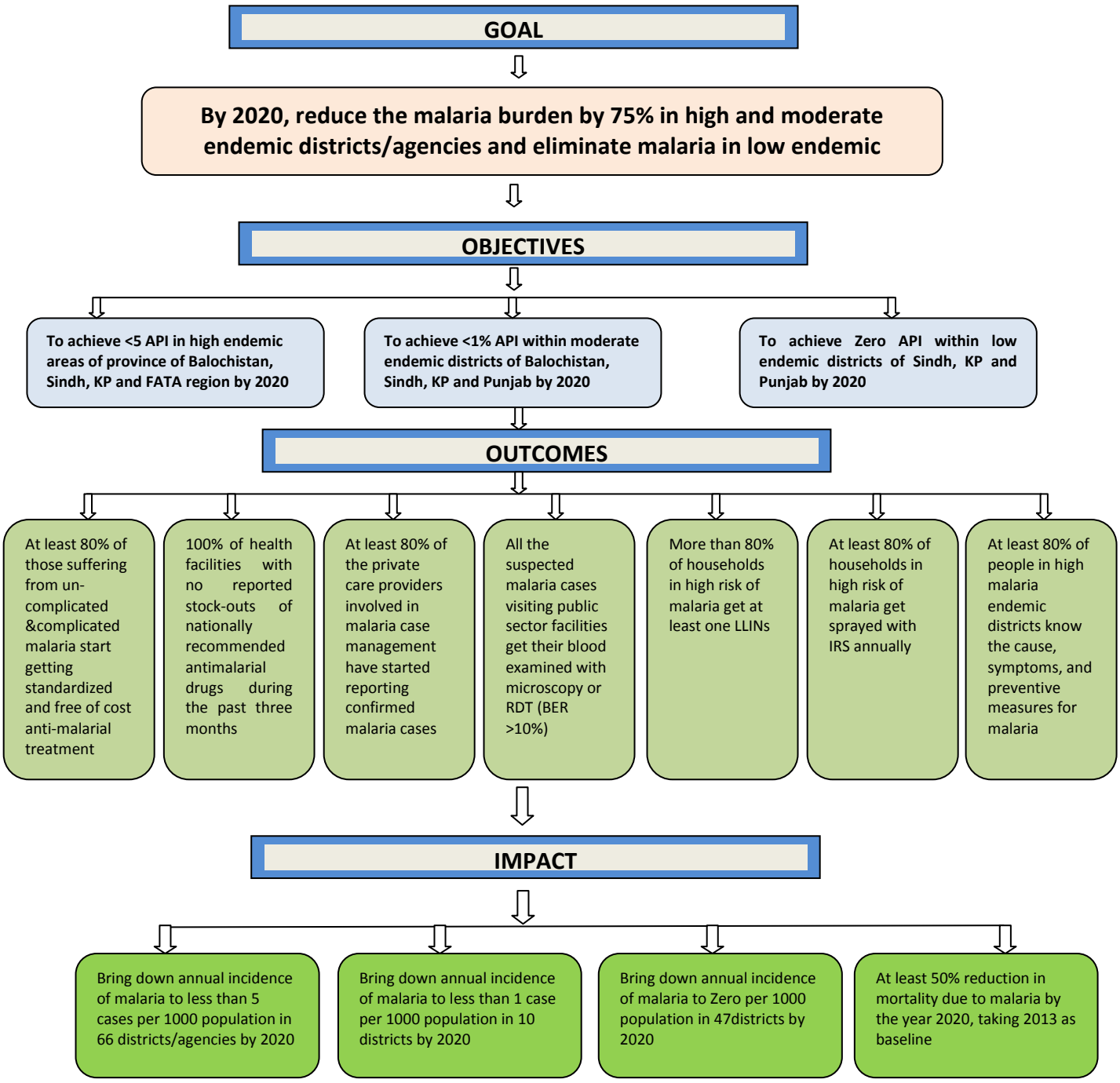
4.14.6. Lack of linkages with currently organization such as National Disaster Management Agency (NDMA)

4.14.7. The present PC-1 have no allocation to address emergencies and IDP

5. MALARIA CONTROL PROGRAM PAKISTAN: VISION, GOAL AND OBJECTIVES

The strategic interventions and activities are organized under the six program objectives. Addressing these objectives through specific strategic interventions and activities would help to achieve the national goal.

Malaria Control Strategic Plan Pakistan 2015-2020- AT A GLANCE



5.1. Vision

Malaria free Pakistan

5.2. Goal

By 2020, reduce the malaria burden by 75% in high and moderate endemic districts/agencies and eliminate malaria in low endemic districts of Pakistan

5.3. Objectives

1. To achieve <5 API in high endemic areas of province of Balochistan, Sindh, KP and FATA region by 2020
2. To achieve <1% API within moderate endemic districts of Balochistan, Sindh, KP and Punjab by 2020
3. To achieve Zero API within low endemic districts of Sindh, KP and Punjab by 2020

SPECIFIC OBJECTIVES:

1) To ensure and sustain the provision of quality assured early diagnosis and prompt treatment services to >80% at risk population by 2020
2) To ensure and sustain coverage of multiple prevention interventions (IRS, LLINs & and other innovative tools and technologies) to 100% in the target high risk population as per national guidelines and coverage in foci in moderate and low risk districts by 2020
3) To increase community awareness up to 80% on the benefits of early diagnosis and prompt treatment and malaria prevention measures using health promotion, advocacy and BCC intervention by 2020
4) To enhance technical and managerial capacity in planning, implementation, management and MEAL (Monitoring, Evaluation, Accountability and Learning) of malaria prevention and control intervention by 2016
5) To ensure availability of quality assured strategic information (epidemiological, entomological and operational) for informed decision making and; functional, passive and active case based weekly surveillance system in all low risk districts by 2017
6) To ensure provision of malaria prevention, treatment and control services in humanitarian crises, emergencies and cross-border situation

5.4. Outcome Indicators

5.4.1. At least 80% of those suffering from un-complicated and complicated malaria start getting standardized and free of cost anti-malarial treatment from public sector facilities, by the year 2016

5.4.2. 100% of health facilities with no reported stock-outs of nationally recommended antimalarial drugs lasting more than one week at any time during the past three months

5.4.3. At least 80% of the private care providers involved in malaria case management have started reporting confirmed malaria cases, by the year 2016

5.4.4. All the suspected malaria cases visiting public sector facilities get their blood examined with microscopy or RDT (BER >10%)

5.4.5. More than 80% of households in high risk of malaria get at least one LLIN, by the year 2016

5.4.6. At least 80% of households in high risk of malaria get sprayed with IRS annually by 2017

5.4.7. At least 80% of people in high malaria endemic districts know the cause of, symptoms of, and preventive measures for malaria in target districts of Pakistan.

5.5. Impact Indictors

5.5.1. To bring down annual incidence of malaria to less than 5 cases per 1000 population in 66 districts/agencies by 2018

5.5.2. To bring down annual incidence of malaria to less than 1 case per 1000 population in 10 districts by 2018

5.5.3. To bring down annual incidence of malaria to Zero per 1000 population in 47districts by 2018

5.5.4. At least 50% reduction in mortality due to malaria by the year 2018, taking 2013 as baseline

5.6. Target

To achieve by the end of 2020, API<1 per 1000 population in entire country

5.7. Strategic approach and interventions

The malaria control interventions are developed and will be implemented following the strategic approach based on key interventions outlined in the two tables below:

Table 18: Strategic approach

Stratum	Definition	Strategies (Program areas)
Stratum 1	Districts/Agencies with API/SPR > 5	• Epidemiological surveillance and disease management i.e. uncomplicated malaria (T3—Test, Treat and Track). • DOT for radical treatment • Management of severe malaria cases by strengthening of district and sub-district hospitals and quality referral services. • IVM by IRS and LLIN distribution supplemented by LSM, so as to ensure universal coverage of the entire high risk population. • Entomological Surveillance • Supportive interventions including BCC activities through community and NGO involvement. • Involvement of private health care providers • Inter sectoral/departmental linkages
Stratum 2	Districts/Agencies having API between 1-5	• Epidemiological surveillance and disease management (T3—Test, Treat and Track). • DOT for radical treatment • Management of severe malaria cases by strengthening of district and sub-district hospitals and quality referral services • Screening of migrants. • IVM by source reduction through environmental management (mechanical and source reduction) and LLINs and IRS to address epidemic/emergency. • Entomological Surveillance • Supportive interventions including BCC activities through community involvement and NGOs. • Involvement of private health care providers • Community and NGO involvement. • Inter sectoral/departmental linkages
Stratum 3	Districts API < 1	• Epidemiological surveillance and disease management (T3—Test, Treat and Track). • DOT for radical treatment • Active, passive and sentinel surveillance with focus on quality surveillance • Entomological Surveillance • Screening of migrants. • Vector control through community involvement • Supportive interventions including BCC activities through community involvement and NGOs. • Inter sectoral/departmental linkages

Table 19: Malaria program intervention outline

Item	Control Programme	Pre-elimination Programme	Elimination Programme
Goal	Reduction of burden in morbidity and mortality	Halt the local transmission	Halt the local transmission
Purpose	Reduce Malaria disease burden to a level where malaria is not a public health problem	Reduction of parasite reservoir and halting of local transmission to point where transmission occurs in localized foci, enabling a targeted elimination programme aimed at foci	Reduce number of active foci to zero Reduce number of locally acquired cased to zero
Transmission Objective	Reduce transmission intensity	Reduce transmission from existing cases	Reduce transmission from existing cases
Unit of intervention	Community at Union Council level	Foci	Locally acquired and imported cases
Milestone for transition to next programme type	SPR <5% in suspected malaria cases	<1 cases per 1000 population at risk per year	Zero locally acquired cases
Reporting (Surveillance) Data source	-Standardized monthly malaria reporting proxy data: health facility data -Confirmatory data: population based surveys -Quality control along reporting chain	-Standardized weekly malaria reporting (electronic means) proxy data: health facility data notification reports -Confirmatory data: population based surveys -Quality control along reporting chain	-Standardized weekly malaria reporting (electronic means) -Notification reports, Individual case investigation Genotyping Quality control along reporting chain
Case-Finding (Surveillance)	Passive system of surveillance based on people presenting at health facilities	Passive surveillance plus active case detection to trace additional infections in the community (symptomatic & asymptomatic)	Passive surveillance plus active case detection to trace additional infections the community (symptomatic & asymptomatic)
Case Management	-Free-of-charge diagnosis and treatment for all malaria cases -Strengthening and scaling of services to universal coverage -QA/QC of laboratory diagnosis	-Free-of-charge diagnosis and treatment for all malaria cases -Universal Coverage -Updating National Implement guidelines for radical treatment of P. falciparum 100% cases	-Free-of-charge diagnosis and treatment for all malaria cases -Implementation of new drug policy; -Routine QA/QC expert microscopy; -Active case detection; -Monitoring anti-malarial drug resistance

Item	Control Programme	Pre-elimination Programme	Elimination Programme
	(microscopy/RDT) -Clinical diagnosis (where MC/RDT not available) -Monitoring anti-malarial drug resistance - DOT by LHW	confirmation by microscopy, -Microscopy QA/QC: -Monitoring anti-malarial drug resistance - DOT by LHW	-Radical treatment/ DOT by LHW
Vector control and malaria prevention	-Ensure and sustain 80% coverage of multiple prevention interventions (IRS, LLINs under IVM framework. -Entomological surveillance; -Epidemic preparedness and response	-Geographical reconnaissance; -Total IRS coverage in foci; IVM and universal coverage of LLINs as complementary measures in specific situations; -Epidemic preparedness and response -Entomological surveillance	-Geographical reconnaissance; -Vector control to reduce transmission in residual active and new active foci -Vector control to reduce receptivity in recent foci; -Outbreak preparedness and response; -Entomological surveillance; -Prevention of malaria in travelers
Monitoring and evaluation	-Improve surveillance and national coverage Country profiles -Malaria indicator surveys (MIS,PDHS)	-GIS-based database on cases and vectors -Elimination database central records bank - Malaria surveys	-Case investigation and classification -Foci investigation and classification -Genotyping, isolate bank
Health system	-100% access to services -Health system strengthening (coverage, private and public sectors, QA)	-100% access to services engaging private sector -Control of OTC sale of anti malarial mono therapies) -Parallel reporting and service delivery (e.g dedicated malaria surveillance, community health workers) at provincial/regional and district level for period of elimination.	-100% access to services -Full cooperation of private sector (case reporting plus management No NTS sale of anti malaria medicines -Parallel reporting and service delivery (e.g. dedicated malaria surveillance, community health workers) at provincial/regional and district level for period of elimination.
Programmatic issue	-Integration with other health programme for delivery of interventions and BCC -Domestic/external funding	-Development of Elimination programme Legislation, Regional issue -Mobilization of domestic funding -Establish malaria elimination committee -Reorientation of health	-Implementation of elimination programme implementation of updated drug policy, vector control, active detection of cases malaria elimination committee: -Manage malaria elimination data base Repository of information

Item	Control Programme	Pre-elimination Programme	Elimination Programme
		facility staff	Periodic review Oversight -Reorientation of health facility staff
Imported Cases	-Limited cross-border communication with neighboring provinces/Countries, -No operational collaboration.	-Cross-border initiative to maximize control operations in neighboring provinces/ countries, -Limiting transmission and risk of importation in border regions	-Cross-border initiative to maximize control operations in neighboring provinces/ countries, -Limiting transmission and risk of importation in border regions

6. STRATEGIES, INTERVENTIONS AND LIST OF ACTIVITIES

The section below documents the key strategies and intervention in line with the six specific objectives. Moreover, it provides a list of activities which are required to address the intervention. The quantification and phasing of all the activities is given in the work plan.

Objective 1: Ensure and sustain the provision of quality assured early diagnosis and prompt treatment services to >80% at risk population by 2020

Strategy

6.1. Sustain and expand quality assured diagnosis of all suspected malaria cases in high, moderate and low risk districts

Table 20: API projection 2015-2020

		Baseline 2013	2015	2016	2017	2018	2019	2020
Annual Parasite Incidence (API)	Stratum-I	5.74	7.48	9.72	7.8	5.00	4.00	3.00
	Stratum-II	1.28	1.7	2.20	1.7	1.38	0.83	0.50
	Stratum-III	0.09	0.12	0.16	0.12	0.10	0.08	0.06

Intervention

6.1.1. Strengthen the existing 446 microscopy centers and 943 RDTs centers for quality assured microscopy and RDTs in currently 38 high risk districts to increase case findings

List of Activities:

6.1.1.1. Actively screen fever cases visiting the public sector health facilities for suspected malaria

6.1.1.2. Basic and Refresher training of doctors on case management guidelines

6.1.1.3. Basic and Refresher training of microscopists and technicians on examining slides and conducting and reading RDTs

6.1.1.4. Arrange solar microscopes for the MC centers (at least 50% of the peripheral MC centers)

Intervention

6.1.2. Establish new diagnostic centers in the districts/agencies i.e. 668 MC centers and new 1,523 RDTs centers in health facilities (only in high and moderate risk districts)of public sector by 2016-17 including facilities managed by PPHI

Table 21: RDTs required (2015-2020)

		2015	2016	2017	2018	2019	2020
		No of RDT	**No of RDT**	**No of RDT**	**No of RDT**	**No of RDT**	**No of RDT**
Stratum I	Punjab	62,550	82,559	74,576	73,020	59,334	45,198
	Sindh	552,846	660,906	710,194	470,343	423,930	375,930
	KPK	505,351	594,341	656,410	405,072	373,230	340,287
	Balochistan	343,466	411,097	440,848	293,436	264,078	233,745
	FATA	179,178	198,685	241,668	112,950	114,732	116,541
Stratum II	Punjab	62,360	82,420	80,460	114,072	105,952	97,488
	Sindh	178,120	235,400	229,800	325,794	302,560	278,352
	KPK	-	-	-	-	-	-
	Balochistan	4,820	6,370	6,216	8,820	8,192	7,536
	FATA	-	-	-	-	-	-
Stratum III	Punjab	-	-	-	-	-	-
	Sindh	-	-	-	-	-	-
	KPK	-	-	-	-	-	-
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	124,910	164,979	155,036	187,092	165,286	142,686
	Sindh	730,966	896,306	939,994	796,137	726,490	654,282
	KPK	505,351	594,341	656,410	405,072	373,230	340,287
	Balochistan	348,286	417,467	447,064	302,256	272,270	241,281
	FATA	179,178	198,685	241,668	112,950	114,732	116,541
		1,888,692	**2,271,778**	**2,440,172**	**1,803,507**	**1,652,008**	**1,495,077**

List of Activities:

6.1.2.1. Assess the health facilities for their scope to work as potential Microscopy Centers or RDTs centers

6.1.2.2. Establish new MC centers in at least 50% (334) of the remaining health facilities in districts

6.1.2.3. Establish new RDTs centers in at least 50% (760) of the remaining health facilities in the districts

6.1.2.4. Provide MC and reagents and also RDTs to the selected health facilities to functions as diagnostic centers

6.1.2.5. Train doctors on case management guidelines

6.1.2.6. Train microscopists and technicians on MC and RDTs

6.1.2.7. Train paramedics on recording and reporting (using FM 1-FM3)

Intervention

6.1.3. Establish diagnostic centers in selected private sector providers (General Practitioners and Private Hospitals) in high and moderate malaria risk districts

Table 22: Private sector involvement (2015-2016)

		2015	2016
		No of Participants	No of Participants
Stratum I	Punjab	10	10
	Sindh	60	60
	KPK	70	70
	Balochistan	145	145
	FATA	50	50

List of Activities:

6.1.3.1. Map the GPs and private hospitals in all the 76 districts/agencies

6.1.3.2. Assess the GPs and private as potential malaria diagnostic centers

6.1.3.3. Establish new MC or RDTs centers in selected at least 50-100 GPs/Private hospitals per districts

6.1.3.4. Provide solar microscopes and reagents/chemicals to the selected Microscopy Centers

6.1.3.5. Provide RDTs to the selected health facilities to functions as RDT centers

6.1.3.6. Establish referral linkages between community to PHC up to secondary and tertiary care hospital

6.1.3.7. Train doctors on case management guidelines including complicated and uncomplicated malaria

6.1.3.8. Train microscopists on doing blood slides examination for MP

6.1.3.9. Train technicians on RDTs

6.1.3.10. Train paramedics on recording and reporting (using FM 1-FM3)

6.1.3.11. Provide anti-malarial drugs for severe/complicated malaria and uncomplicated malaria (depending on type of health facility)

6.1.3.12. Replenish drugs and supplies on regular basis

6.1.3.13. Refresher trainings for doctors, microscopist, technicians

Strategy

6.2. Strengthen anti-malarial supply at the district/agency level and improve treatment practices

Intervention

6.2.1. Strengthen the current storage and distribution capacity of national, provincial, regional and district level stores to manage uninterrupted supply of anti-malarial drugs and injections, LLINs and IRS

List of Activities:

6.2.1.1. Assess the current capacity of national, provincial, regional and district stores for capacity and good practices for anti-malarial drug, LLINs and IRS storage

6.2.1.2. Enhance the capacity of stores for storing anti-malarial drugs, LLINs and IRS

6.2.1.3. Establish structured mechanism to distribute the drug and supplies distribution mechanism between stores and health facilities

6.2.1.4. Establish linkages with the drug testing organizations

6.2.1.5. Arrange adequate supply of anti-malarial drugs to address the future demand of confirmed malaria cases

6.2.1.6. Establish electronic system for the managing the drug supplies system

Intervention

6.2.2. Strengthen the existing MC and RDTs centers for treating the malaria cases as per the national treatment guidelines and ensure treatment compliance

List of Activities:

6.2.2.1. Refresher training of doctors on treatment guidelines

6.2.2.2. Ensure that the doctors are prescribing the drugs as per the national treatment guidelines by reducing the number of clinically diagnosed malaria cases

6.2.2.3. Develop mechanism to ensure patient compliance to treatment (DOT)

Intervention

6.2.3. Involve LHWs in DOT in malaria and ACSM activities in high and moderate malaria risk districts

List of Activities:

6.2.3.1. Train at least 50% LHWs in DOT and ACSM related to malaria

6.2.3.2. LHW for DOT where available and family member where no LHW present or not involved)

6.2.3.3. Provide ACSM materials

6.2.3.4. Monitor progress of LHWs on DOT and ACSM

Strategy

6.3. Strengthen quality assurance system for diagnostic services at national, provincial/regional and at district level

Intervention

6.3.1. Strengthen the current QA system at national and provincial/regional head quarter reference laboratories

List of Activities:

6.3.1.1. Arrange staff for reference laboratories include; Incharge reference lab i.e. Medical technologist supported by 2 microscopist

6.3.1.2. Arrange premises for QA reference laboratories

6.3.1.3. Arrange vehicle for field visits, 3 microscopes, 1 teaching microscope, reagents, slides cabinets, reference slides, infection prevention practices (IPP), waste disposal, etc) for each reference laboratory

6.3.1.4. Establish system for QA arrangements at province/regional level at MC and RDTs centers

6.3.1.5. Establish proper feedback system for the province/ regional MC and RDTs center

Intervention

6.3.2. Strengthen the QA system at district/ agency level

List of Activities:

6.3.2.1. Assign focal person at district/ agency head quarter for QA of diagnostic services

6.3.2.2. Train the focal person in QA

6.3.2.3. Arrange equipment and supplies for QA system

6.3.2.4. Arrange mobility support (motor cycle) for the focal person to manage QA operations at facility level

Objective 2: Ensure and sustain 80% coverage of multiple prevention interventions (IRS, LLINs & and other innovative tools and technologies under IVM framework) in the target population as per national guidelines by 2020

Strategy

6.4. Universal coverage with LLINs in 66 districts with API/SPR > 5 (mass distribution) and in foci and emergencies in 57 districts with API between 1-5 and API <1

Table 23: LLINs requirements for universal coverage (2015-2020)

		2015	2016	2017	2018	2019	2020
		No of LLINs	No of LLINs	No of LLINs	No of LLINs	No of LLINs	No of LLINs
Stratum I	Punjab	493,613	509,112	18,521	18,812	167,191	121,229
	Sindh	2,648,847	3,438,496	332,567	235,057	923,701	818,772
	KPK	2,100,980	2,992,329	351,255	236,749	742,597	712,531
	Balochistan	1,557,100	2,143,666	235,889	161,406	547,582	510,448
	FATA	424,489	875,004	160,225	99,167	160,186	208,355
Stratum II	Punjab	79,832	82,339	2,995	3,042	27,040	19,606
	Sindh	5,247	235,169	79,209	45,469	7,252	55,998
	KPK	-	-	-	-	-	-

	Balochistan	6,167	6,360	231	235	2,089	1,515
	FATA	-	-	-	-	-	-
Stratum III	Punjab	576,693	594,801	21,638	21,978	195,331	141,634
	Sindh	118,058	121,765	4,430	4,499	39,987	28,995
	KPK	66,172	68,250	2,483	2,522	22,413	16,252
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	1,150,137	1,186,252	43,154	43,832	389,561	282,470
	Sindh	2,761,658	3,795,430	416,205	285,025	970,940	903,765
	KPK	2,167,153	3,060,579	353,738	239,270	765,010	728,783
	Balochistan	1,563,267	2,150,027	236,120	161,641	549,671	511,963
	FATA	424,489	875,004	160,225	99,167	160,186	208,355
		8,066,705	**11,067,292**	**1,209,443**	**828,936**	**2,835,368**	**2,635,336**

Intervention

6.4.1. Arrange LLINs for uncovered households in districts with API/SPR > 5 in stratum I and foci in stratum II and III and for potential epidemics

List of Activities:

6.4.1.1. Calculation of LLINs requirement for the households in high risk areas

6.4.1.2. Calculation of LLINs for the moderate and low risk districts and emergency response

6.4.1.3. Arrange LLINs as per the required number

6.4.1.4. Enhance storage capacity for LLINs at provincial/regional and district level

6.4.1.4. Involve all the stakeholders in LLINs distribution

6.4.1.5. Implement LLINs distribution strategy ‘Mass distribution’ in stratum I

6.4.1.6. Distribute LLINs through ANC clinic in foci in stratum II and III

6.4.1.7. Calculation of LLINs replacement requirement for the already covered house holds

6.4.1.8. Periodic replacement of already distributed LLINs in households

Strategy

6.5. Implement IRs in 66 high risk districts with API/SPR >5 (15% Household) and selective spraying in foci and emergency supplies of IRS for 57 moderate and low risk districts

Table 24: Households to be covered through IRS (2015-17)

		2015	2016	2017	Total 6 yrs
		No of HH	No of HH	No of HH	No of HH
Stratum I	Punjab	49,776	50,558	51,351	151,685
	Sindh	379,561	341,461	346,822	1,067,844
	KPK	292,561	297,154	301,820	891,535
	Balochistan	209,587	212,878	216,220	638,684
	FATA	66,538	86,893	88,257	241,688
;2Stratum II	Punjab	9,089	8,177	8,305	25,571
	Sindh	25,959	23,353	23,720	73,033
	KPK	-	-	-	-
	Balochistan	702	632	642	1,975
	FATA	-	-	-	-
Stratum III	Punjab	65,658	59,067	59,994	184,719
	Sindh	13,441	12,092	12,282	37,815
	KPK	7,534	6,778	6,884	21,195
	Balochistan	-	-	-	-
	FATA	-	-	-	-
Total	Punjab	124,523	117,801	119,651	361,974
	Sindh	418,962	376,906	382,824	1,178,692
	KPK	300,095	303,932	308,704	912,730
	Balochistan	210,289	213,509	216,861	640,659
	FATA	66,538	86,893	88,257	241,688
		1,120,407	**1,099,041**	**1,116,296**	**3,335,744**

Intervention

6.5.1. 15% UCs will be targeted through a single round of post monsoon IRS aiming at 100% spray coverage within the target UC. The coverage will be sustained for consecutive 3 years to maintain the pressure for high impact.

2 rounds of IRS to be implemented where disease transmission is extended.

List of Activities:

6.5.1.1. Calculation of IRS requirement (using facility based data for hotspots) for the households (15% of the lowest administrative units i.e. union councils inhibited by 10-15,000 population are faced with seasonal P.falciparum outbreaks)

6.5.1.2. Enhance storage capacity for IRS at district/ agency level

6.5.1.3. Arrange equipment for IRS and Map the areas to be sprayed

6.5.1.4. Formulate IRS teams at district/ agency (one month before the transmission seasons)

6.5.1.5. Implement IRS i.e. 1 rounds per year in post monsoon in areas with short disease transmission period and 2 rounds in areas with long disease transmission

6.5.1.6. Sustain coverage for consecutive 3 years to maintain the pressure for high impact.

6.5.1.7. Involve all the stakeholders in IRS implementation

6.5.1.8. Establish IRS supervisory system

6.5.1.9. Establish sentinel sites for vector resistance to insecticide

6.5.1.10. Monitor the resistance level of local vector species to all four classes of insecticides

6.5.1.11. Follow the global plan for insecticide resistance management (GPIRM)

6.5.1.12. Conduct IRS resistance studies and decide the choice of insecticide based on the results in 2015

6.5.1.11. Arrange human resource and train on monitoring vector resistance

Strategy

6.6. Implement LSM targeted to eliminate malaria foci in districts and to support urban malaria control & elimination, and general nuisance mosquito control.

Intervention

6.6.1. Effective implementation of larvicidal (LSM) in selected areas

List of Activities:

6.6.1.1. Map the areas where larvicidal need to be implemented

6.6.1.2. Calculation of larvicidal requirement as per the sites

6.6.1.3. Enhance storage capacity for larvicidal at provincial/regional and district level

6.6.1.4. Plan larvicidal implementation

6.6.1.5. Arrange larvicidal

6.6.1.6. Formulate larvicidal implementation teams at district/ agency level

6.6.1.7. Involve all the stakeholders in larvicidal implementation

6.6.1.8. Establish larvicidal supervisory system

6.6.1.9. Implement larvicidal in the selected locations

Intervention

6.6.2. Establish effective entomological surveillance

List of Activities:

6.6.2.1. Ensure availability of entomologist

6.6.2.2. Train entomologist

6.6.2.3. Ensure effective implementation of legislative measures for vector control as part of IVM

6.6.2.4. Establish vector sentinel surveillance sites in different eco-epidemiological settings with standard guidelines

Objective 3: Increase community awareness up to 80% on the benefits of early diagnosis and prompt treatment and malaria prevention measures using health promotion, advocacy and BCC intervention by 2020

Strategy

6.7. Comprehensive implementation of BCC interventions in all 66 high risk districts

Intervention

6.7.1. Develop and monitor BCC interventions as per the community needs and COMBI approach

List of Activities:

6.7.1.1. Review the current BCC intervention in context of provinces/regions with districts and agencies having API/SPR > 5

6.7.1.2. Refine current BCC strategy and materials

6.7.1.3. Develop message and materials in local context in-line with recent behavior change theories

6.7.1.4. Pilot test the new model and materials for BCC interventions

6.7.1.5. Evaluate and scale-up the interventions

Intervention

6.7.2. Implement BCC interventions in all high risk districts/agencies

Table 25: Advocacy with CBO, NGO s and LHWs

		2015	2016	2017	2018	2019	2020	
		No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	Cost
Stratum I	Punjab	650	650	650	650	650	650	18,474
	Sindh	8,930	8,930	8,930	8,930	8,930	8,930	253,800
	KPK	7,190	7,190	7,190	7,190	7,190	7,190	204,347
	Balochistan	13,450	13,450	13,450	13,450	13,450	13,450	382,263
	FATA	8,790	8,790	8,790	8,790	8,790	8,790	249,821
Stratum II	Punjab	870	870	870	870	870	870	24,726
	Sindh	4,760	4,760	4,760	4,760	4,760	4,760	135,284
	KPK	-	-	-	-	-	-	-
	Balochistan	630	630	630	630	630	630	17,905
	FATA	-	-	-	-	-	-	-
Stratum III	Punjab	27,840	27,840	27,840	27,840	27,840	27,840	791,242
	Sindh	1,810	1,810	1,810	1,810	1,810	1,810	51,442
	KPK	6,960	6,960	6,960	6,960	6,960	6,960	197,811
	Balochistan	-	-	-	-	-	-	-
	FATA	-	-	-	-	-	-	-
Total	Punjab	29,360	29,360	29,360	29,360	29,360	29,360	834,442

	Sindh	15,500	15,500	15,500	15,500	15,500	15,500	440,526
	KPK	14,150	14,150	14,150	14,150	14,150	14,150	402,158
	Balochistan	14,080	14,080	14,080	14,080	14,080	14,080	400,168
	FATA	8,790	8,790	8,790	8,790	8,790	8,790	249,821
		81,880	**81,880**	**81,880**	**81,880**	**81,880**	**81,880**	**2,327,116**

Table 26: Community awareness sessions at facility level 2015-2020

		2015	2016	2017	2018	2019	2020
		No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries
Stratum I	Punjab	240	240	240	240	240	240
	Sindh	2,880	2,880	2,880	2,880	2,880	2,880
	KPK	3,360	3,360	3,360	3,360	3,360	3,360
	Balochistan	6,960	6,960	6,960	6,960	6,960	6,960
	FATA	2,400	2,400	2,400	2,400	2,400	2,400
Stratum II	Punjab	240	240	240	240	240	240
	Sindh	1,920	1,920	1,920	1,920	1,920	1,920
	KPK	-	-	-	-	-	-
	Balochistan	240	240	240	240	240	240
	FATA	-	-	-	-	-	-
Stratum III	Punjab	8,160	8,160	8,160	8,160	8,160	8,160
	Sindh	720	720	720	720	720	720
	KPK	2,400	2,400	2,400	2,400	2,400	2,400
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	8,640	8,640	8,640	8,640	8,640	8,640
	Sindh	5,520	5,520	5,520	5,520	5,520	5,520
	KPK	5,760	5,760	5,760	5,760	5,760	5,760
	Balochistan	7,200	7,200	7,200	7,200	7,200	7,200
	FATA	2,400	2,400	2,400	2,400	2,400	2,400
		29,520	**29,520**	**29,520**	**29,520**	**29,520**	**29,520**

Table 27: Community awareness session CBOs/NGOs (2015-2020

		2015	2016	2017	2018	2019	2020
		No of Beneficiaries	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**

Stratum I	Punjab	39,000	39,000	39,000	39,000	39,000	39,000
	Sindh	535,800	535,800	535,800	535,800	535,800	535,800
	KPK	431,400	431,400	431,400	431,400	431,400	431,400
	Balochistan	807,000	807,000	807,000	807,000	807,000	807,000
	FATA	527,400	527,400	527,400	527,400	527,400	527,400
Stratum II	Punjab	52,200	52,200	52,200	52,200	52,200	52,200
	Sindh	285,600	285,600	285,600	285,600	285,600	285,600
	KPK	-	-	-	-	-	-
	Balochistan	37,800	37,800	37,800	37,800	37,800	37,800
	FATA	-	-	-	-	-	-
Stratum III	Punjab	1,670,400	1,670,400	1,670,400	1,670,400	1,670,400	1,670,400
	Sindh	108,600	108,600	108,600	108,600	108,600	108,600
	KPK	417,600	417,600	417,600	417,600	417,600	417,600
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	1,761,600	1,761,600	1,761,600	1,761,600	1,761,600	1,761,600
	Sindh	930,000	930,000	930,000	930,000	930,000	930,000
	KPK	849,000	849,000	849,000	849,000	849,000	849,000
	Balochistan	844,800	844,800	844,800	844,800	844,800	844,800
	FATA	527,400	527,400	527,400	527,400	527,400	527,400
		4,912,800	**4,912,800**	**4,912,800**	**4,912,800**	**4,912,800**	**4,912,800**

Table 28: BCC by facility staff (2015-2020)

		2015	2016	2017	2018	2019	2020
		No of Beneficiaries	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**
Stratum I	Punjab	325	325	325	325	325	325
	Sindh	4,465	4,465	4,465	4,465	4,465	4,465
	KPK	3,595	3,595	3,595	3,595	3,595	3,595
	Balochistan	6,725	6,725	6,725	6,725	6,725	6,725
	FATA	4,395	4,395	4,395	4,395	4,395	4,395
Stratum II	Punjab	435	435	435	435	435	435
	Sindh	2,380	2,380	2,380	2,380	2,380	2,380

	KPK	-	-	-	-	-	-
	Balochistan	315	315	315	315	315	315
	FATA	-	-	-	-	-	-
Stratum III	Punjab	13,920	13,920	13,920	13,920	13,920	13,920
	Sindh	905	905	905	905	905	905
	KPK	3,480	3,480	3,480	3,480	3,480	3,480
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	14,680	14,680	14,680	14,680	14,680	14,680
	Sindh	7,750	7,750	7,750	7,750	7,750	7,750
	KPK	7,075	7,075	7,075	7,075	7,075	7,075
	Balochistan	7,040	7,040	7,040	7,040	7,040	7,040
	FATA	4,395	4,395	4,395	4,395	4,395	4,395
		40,940	**40,940**	**40,940**	**40,940**	**40,940**	**40,940**

Table 29: BCC- Street Theater

		2015	2016	2017	2018	2019	2020
		No of Events	No of Events	No of Events	No of Events	No of Events	No of Events
Stratum I	Punjab	65	-	65	-	65	-
	Sindh	893	-	893	-	893	-
	KPK	719	-	719	-	719	-
	Balochistan	1,345	-	1,345	-	1,345	-
	FATA	879	-	879	-	879	-
Stratum II	Punjab	87	-	87	-	87	-
	Sindh	476	-	476	-	476	-
	KPK	-	-	-	-	-	-
	Balochistan	63	-	63	-	63	-
	FATA	-	-	-	-	-	-
Stratum III	Punjab	2,784	-	2,784	-	2,784	-
	Sindh	181	-	181	-	181	-
	KPK	696	-	696	-	696	-
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	2,936	-	2,936	-	2,936	-
	Sindh	1,550	-	1,550	-	1,550	-
	KPK	1,415	-	1,415	-	1,415	-
	Balochistan	1,408	-	1,408	-	1,408	-
	FATA	879	-	879	-	879	-
		8,188	**-**	**8,188**	**-**	**8,188**	**-**

Table 30: World Malaria day events (2015-2020)

		2015	2016	2017	2018	2019	2020
		No of Events	No of Events	No of Events	No of Events	No of Events	No of Events
Stratum I	Punjab	1	1	1	1	1	1
	Sindh	12	12	12	12	12	12
	KPK	14	14	14	14	14	14
	Balochistan	29	29	29	29	29	29
	FATA	10	10	10	10	10	10

Stratum II	Punjab	1	1	1	1	1	1
	Sindh	8	8	8	8	8	8
	KPK	-	-	-	-	-	-
	Balochistan	1	1	1	1	1	1
	FATA	-	-	-	-	-	-
Stratum III	Punjab	34	34	34	34	34	34
	Sindh	3	3	3	3	3	3
	KPK	10	10	10	10	10	10
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	36	36	36	36	36	36
	Sindh	23	23	23	23	23	23
	KPK	24	24	24	24	24	24
	Balochistan	30	30	30	30	30	30
	FATA	10	10	10	10	10	10
		123	**123**	**123**	**123**	**123**	**123**

Table 31: BCC- Branding of facilities

		2015	2016	2017	2018	2019	2020
		No of Beneficiaries	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**	**No of Beneficiaries**
Stratum I	Punjab	65	-	65	-	65	-
	Sindh	893	-	893	-	893	-
	KPK	719	-	719	-	719	-
	Balochistan	1,345	-	1,345	-	1,345	-
	FATA	879	-	879	-	879	-

Stratum II	Punjab	87	-	87	-	87	-
	Sindh	476	-	476	-	476	-
	KPK	-	-	-	-	-	-
	Balochistan	63	-	63	-	63	-
	FATA	-	-	-	-	-	-
Stratum III	Punjab	2,784	-	2,784	-	2,784	-
	Sindh	181	-	181	-	181	-
	KPK	696	-	696	-	696	-
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	2,936	-	2,936	-	2,936	-
	Sindh	1,550	-	1,550	-	1,550	-
	KPK	1,415	-	1,415	-	1,415	-
	Balochistan	1,408	-	1,408	-	1,408	-
	FATA	879	-	879	-	879	-
		8,188	**-**	**8,188**	**-**	**8,188**	**-**

Table 32: BCC- Broadcast radio message (2015-2020)

		2015	2016	2017	2018	2019	2020
		No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries	No of Beneficiaries
Stratum I	Punjab	1,460	1,460	730	730	365	365
	Sindh	17,520	17,520	8,760	8,760	4,380	4,380
	KPK	20,440	20,440	10,220	10,220	5,110	5,110
	Balochistan	42,340	42,340	21,170	21,170	10,585	10,585
	FATA	14,600	14,600	7,300	7,300	3,650	3,650
Stratum II	Punjab	730	730	730	730	365	365
	Sindh	5,840	5,840	5,840	5,840	2,920	2,920
	KPK	-	-	-	-	-	-

	Balochistan	730	730	730	730	365	365
	FATA	-	-	-	-	-	-
Stratum III	Punjab	12,410	12,410	12,410	12,410	-	-
	Sindh	1,095	1,095	1,095	1,095	-	-
	KPK	3,650	3,650	3,650	3,650	-	-
	Balochistan	-	-	-	-	-	-
	FATA	-	-	-	-	-	-
Total	Punjab	14,600	14,600	13,870	13,870	730	730
	Sindh	24,455	24,455	15,695	15,695	7,300	7,300
	KPK	24,090	24,090	13,870	13,870	5,110	5,110
	Balochistan	43,070	43,070	21,900	21,900	10,950	10,950
	FATA	14,600	14,600	7,300	7,300	3,650	3,650
		120,815	**120,815**	**72,635**	**72,635**	**27,740**	**27,740**

List of Activities:

6.7.2.1. Implement focused BCC intervention for suspected malaria cases through interpersonal communication

6.7.2.2. Involve electronic and print media in advocacy

6.7.2.3. Community events in mobilizing households to use LLINs and access health facilities in case of fever

6.7.2.4. Provincial/Regional and district level events: high-level discussions around malaria

6.7.2.5. Field visits for high-level officials or journalists

6.7.2.6. Production of IEC materials to improve knowledge of malaria and prevention in the general population

6.7.2.7. Mass media campaigns involving electronic and print media: Broadcast materials (Public Service Announcement)

6.7.2.8. Training of care providers in using IEC materials to educate patients

6.7.2.9. Training of LHWs and volunteers: Community involvement

Objective 4: Enhance technical and managerial capacity in planning, implementation, management and MEAL (Monitoring, Evaluation, Accountability and Learning) of malaria prevention and control intervention by 2016

Strategy

6.8. Increase public sector funding for malaria control interventions

Intervention

6.8.1. Revise PC-1s all provinces and regions to secure funding from 2015 and onward

List of Activities:

6.8.1.1. Develop PC-1 to sustain and expand malaria control and prevention activities

6.8.1.2. Advocacy with key stakeholders to sensitize for the approval and release of PC-1 funds

6.8.1.3. Effective implementation of operational plan through PC-1 support

Intervention

6.8.2. Enhance contribution of district/ agency health authorities in malaria control activities in their respective areas

List of Activities:

6.8.2.1. Secure adequate funding support from the total budgetary allocation for procurement of laboratory supplies such as slides, reagents and chemicals, IRS, and anti-malarial drugs

6.8.2.2. Adequate support for the district/agency malaria control team (DoH/DDoH/Malaria Superintendent, Microscopist, etc) for monitoring and quality control activities

Intervention

6.8.3. Increase donor commitments to address comprehensively malaria control needs in provinces/ regions

List of Activities:

6.8.3.1. Coordinate with international technical and donor agencies such as WHO, Global Fund, USAID, DFID, etc (IACC)

6.8.3.2. Increase international technical and donor assistance to meet the financial gaps for malaria control and prevention activities

Strategy

6.9. Strengthen national and provincial/regional and district set-up with technical and administrative human resource

Intervention

6.9.1. Arrange adequate technical and administrative human resource at national and provincial/ regional malaria control program and at district/ agency level to address malaria control interventions

List of Activities:

6.9.1.1. Recruitment of technical and administrative staff at national and provincial/regional and district and agency level to carry out M&E, QA, Surveillance, Malaria Prevention and Management functions , etc

6.9.1.2. Train human resource to carry out surveillance activities

6.9.1.3. Train human resource to carry out financial management

6.9.1.4. Train human resource to plan, store and implement effectively LLINs and IRS in the targeted areas

Intervention

6.9.2. Implement effective M&E system at national, provincial/regional and district level

6.9.2.1. Arrange technical human resource and logistics to carry out M&E functions

6.9.2.2. Train human resource to carry out M&E functions

6.9.2.3. Standardize the reporting of core malaria indictors to avoid variation with DHIS/DEWS

6.9.2.4. Collect and manage on malaria inpatients and mortality from hospital (secondary and tertiary) DHIS reporting.

6.9.2.5. Establish GIS and malaria mapping capacity within the region to guide malaria epidemiological analysis and target interventions at districts level.

6.9.2.6. Establishing Sentinel Surveillance Sites (SSS) at districts and prominent hospitals to monitor the trends of disease morbidity and mortality;

6.9.2.7. Implement periodic population and facility based surveys

Intervention

6.9.3. Establish coordinating committee and ensure their effectiveness

List of Activities:

6.9.3.1. Establish and operationalize Technical Advisory Committee on malaria (TACOM)

6.9.3.2. Establish and operationalize regional coordinating committee

6.9.3.3. Establish and operationalize inter-sectoral coordination committee (department of education, agriculture, information, local bodies, etc)

Strategy

6.10. Operational research to inform policy and decision making

Intervention

6.10.1. Enhance capacity to carry out operational research

List of Activities:

6.10.1.1. Develop and implement operational research projects

6.10.1.2. Establish partnerships with research academic at provincial/ regional level and in Islamabad

6.10.1.3. National Malaria Prevalence Survey

6.10.1.4. Insecticide Resistant Survey

6.10.1.5. Drug Resistant Survey

6.10.1.6. Operational research on treatment compliance and efficacy

6.10.1.7. Operational research on malaria case management in private sector

Strategy

6.11. Procurement and good storage practices at national and provincial/regional and district for anti-malarial drugs, LLINs and IRS

Intervention

6.11.1. Enhance capacity of provincial/regional and district stores to follow good practice standards for the storage of anti-malarial drugs, LLINs and IRS

List of Activities:

6.11.1.1. Anti-malarial drugs, LLINs and IRS procurement

6.11.1.2. Refurbish provincial/regional and district stores to implement good practice for the storage of anti-malarial, LLINs and IRS

6.11.1.3. Training of provincial/regional and district coordinators on drugs, LLINs and IRS management

6.11.1.4. Implement the logistics management information system

Strategy

6.12. Establish core of master trainers at provincial/regional level

Intervention

6.12.1. Enhance capacity of provincial/regional level to implement quality trainings

List of Activities:

6.12.1.1. Develop a core of master trainers on malaria case management, LLINs, IRS, M&E and surveillance

6.12.1.2. Develop training plans based on the local needs

6.12.1.3. Arrange resources i.e. materials, etc to carry out trainings

Objective 5: Ensure availability of quality assured strategic information (epidemiological, entomological and operational) for informed decision making

Strategy

6.13. Standardized recording and reporting system for malaria case management and prevention and entomological information

Intervention

6.13.1. Implement MIS for malaria at MC and RDT centers

List of Activities:

6.13.1.1. Provide standardize MIS recording and reporting forms and registers at all malaria diagnostic MC and RDTs centers in districts/ agencies and facility level

6.13.1.2. Establish mechanism for regular collection of data from the facilities by establish entomological surveillance sites

6.13.1.3. Establish system for timely and quality assured data collection

6.13.1.4. Implement data collection system for vector bionomics, information on breeding, biting and resting habits and other vector related information from the targeted sites in the districts/agencies

6.13.1.5. Establish system at provincial/regional level to review data on regular basis and make decision accordingly

6.13.1.6. Establish a regular system of third party review of the program activities

6.13.1.7. Establish entomological surveillance sites

6.13.1.8. Establish sentinel sites

6.13.1.9. Design and implement longitudinal studies

Objective 6: Ensure provision of malaria prevention, treatment and control services in humanitarian crises, emergencies and cross-border situation

Strategy

6.14. Capacity at provincial/regional and district level to address malaria control and prevention in humanitarian crises, emergencies and cross-border situation

Intervention

6.14.1. Establish provincial/ regional and district/agency capacity to address emergency situation including epidemics and cross-border situation

List of Activities:

6.14.1.1. Prepare capacity development plan including roles and responsibilities at provincial/regional and district/agency level to address emergency situations and malaria in cross-border situation

6.14.1.2. Strengthening and scale-up of early warning system for detection of potential epidemics (DEWS, DHIS, etc)

6.14.1.3. Development and strengthening of rapid response teams to address malaria epidemic in agencies

6.14.1.4. Arrange materials and supplies as a buffer stock to address emergencies

6.14.1.5. Establish system to ensure timely response to emergencies and epidemics

6.14.1.6. Establish linkages with various organizations at district level to address emergencies

Intervention

6.14.2. Establish provincial/regional and district capacity to address cross-border situation and movement of nomadic population

Activities

6.14.2.1. For nomadic population, provide services through static centers and mobile units

6.14.2.2. Strengthen border health posts to manage uncomplicated and complicated malaria

6.14.2.3. Arrange and conduct cross border coordination including exchange visits, policy dialogue, joint interventions, etc

B-BUDGET SUMMARY

		Federal	Punjab	Sindh	KPK	Balochistan	FATA	National
		Amount in USD						
1	LLIN	866,818	10,090,127	30,220,370	23,461,289	16,621,868	6,080,532	**87,341,004**
2	IRS	0	685,638	2,232,585	1,728,910	1,213,550	457,856	**6,318,539**
3	Training	1,211,211	1,751,382	1,350,754	1,297,780	1,739,154	765,381	**8,115,661**
4	Microscopy Centres	0	510,717	185,677	196,758	116,101	32,076	**1,041,328**
5	RDT Centres	0	68,200	581,279	249,479	598,709	386,367	**1,884,033**
6	Diagnosis	0	603,607	3,179,210	2,069,291	1,672,311	671,780	**8,196,199**
7	AMDs	0	713,170	2,443,172	1,739,686	1,311,712	422,486	**6,630,227**
8	BCC	1,962,731	24,247,584	17,999,902	16,408,452	21,703,902	9,971,630	**92,294,201**
9	Monitoring & Evaluation	2,945,374	7,568,152	4,973,970	4,546,392	5,227,168	2,802,184	**28,063,240**
10	Chemical Reagents	-	4,474,691	2,721,600	2,743,200	2,203,200	1,112,400	**13,255,091**
11	Human Resource	-	7,741,813	5,276,635	5,466,264	6,604,039	2,811,457	**27,900,210**
13	Microscopes		400,760	120,400	131,580	61,060	2,580	**716,380**
14	Technical Assistance	281,697						**281,697**
								-
	Program Management @ 10 %	726,783	5,885,584	7,128,555	6,003,908	5,907,277	2,551,673	**28,203,781**
		7,994,613	**64,741,425**	**78,414,109**	**66,042,988**	**64,980,052**	**28,068,403**	**310,241,591**

Note: The budget break ups are available in respective provincial and regional strategic plans.

BUDGET: YEARLY BREAK-UP

	2015	2016	2017	2018	2019	2020	Total
	Amount in USD						
LLIN	26,432,926	35,868,372	4,429,109	2,970,990	9,056,100	8,583,508	**87,341,004**
IRS	2,119,555	2,081,797	2,117,187	-	-	-	**6,318,539**
Training	3,760,475	1,070,178	774,709	1,421,158	1,089,140	-	**8,115,661**
Microscopy Centres	734,497	61,366	61,366	61,366	61,366	61,366	**1,041,328**
RDT Centres	971,458	182,515	182,515	182,515	182,515	182,515	**1,884,033**
Diagnosis	1,089,494	1,298,229	1,351,598	1,780,346	1,626,933	1,049,599	**8,196,199**
AMDs	1,270,611	1,873,342	1,065,627	782,628	883,270	754,749	**6,630,227**
BCC	22,707,828	15,707,239	18,753,540	11,813,906	15,125,662	8,186,027	**92,294,201**
Monitoring & Evaluation	7,274,826	4,319,546	4,162,035	4,268,157	4,268,157	3,770,520	**28,063,240**
Chemical Reagents	2,209,182	2,209,182	2,209,182	2,209,182	2,209,182	2,209,182	**13,255,091**
Human Resource	4,101,818	4,306,909	4,522,255	4,748,367	4,985,786	5,235,075	**27,900,210**
Microscopes	716,380	-	-	-	-	-	**716,380**
Technical Assistance	46,949	46,949	46,949	46,949	46,949	46,949	**281,697**
							-
Program Management @ 10 %	7,343,600	6,902,562	3,967,607	3,028,557	3,953,506	3,007,949	**28,203,781**
Total Budget	**80,779,599**	**75,928,187**	**43,643,679**	**33,314,122**	**43,488,565**	**33,087,440**	**310,241,591**

C- M&E FRAMEWORK

Program goals and impact indicators

Goals:

By 2020, reduce the malaria burden in high and moderate endemic districts/agencies and eliminate malaria in low endemic districts of Pakistan

Impact indicator		Baseline			Targets													
		value	Year	Source	Year 1 2015	Report due date	Year 2 2016	Report due date	Year 3 2017	Report due date	Year 4 2018	Report due date	Year 5 2019	Report due date	Year 6 2020	Report due date	Source	Resposibility
Percentage of all deaths due to malaria (according to confirmed malaria diagnosis)		244	2013	DHIS 2013	5% deccrease in baseline	31/Dec/15	15% deccrease in baseline	31/Dec/16	30% deccrease in baseline	31/Dec/17	50% deccrease in baseline	31/Dec/18	70% deccrease in baseline	31/Dec/19	90% deccrease in baseline	31/Dec/20	DHIS. Routine MIS	DoMC
Annual Parasite Incidence (API): Number of confirmed malaria cases detected per 1000 persons during 01 year of targeted population in all target districts of Pakistan.	Stratum-I	5.74	2013	Surveillance systems: Routine MIS (Malaria Information Systems)	7.48	31-Dec-15	9.72	31-Dec-16	7.8	31-Dec-17	5.00	31-Dec-18	4.00	31-Dec-19	3.00	31-Dec-20	DHIS. Routine MIS	DoMC
	Stratum-II	1.28	2013		1.7		2.20		1.7		1.38		0.83		0.50			
	Stratum-III	0.09	2013		0.12		0.16		0.12		0.10		0.08		0.06			

Program objectives and outcome indicators
Objectives:
To ensure and sustain the provision of quality assured early diagnosis and prompt treatment services to >80% at risk population by 2020
To ensure and sustain 80% coverage of multiple prevention interventions (IRS, LLINs & and other innovative tools and technologies) in the target high risk population as per national guidelines and coverage in foci in moderate and low risk districts by 2020
To increase community awareness up to 80% on the benefits of early diagnosis and prompt treatment and malaria prevention measures using health promotion, advocacy and BCC intervention by 2020
To enhance technical and managerial capacity in planning, implementation, management and MEAL (Monitoring, Evaluation, Accountability and Learning) of malaria prevention and control intervention by 2016
To ensure availability of quality assured strategic information (epidemiological, entomological and operational) for informed decision making and; functional, passive and active case based weekly surveillance system in all low risk districts by 2017
To ensure provision of malaria prevention, treatment and control services in humanitarian crises, emergencies and cross-border situation

Outcome indicator	Stratum	Baseline			Targets													
		value	Year	Source	Year 1	Report due date	Year 2	Report due date	Year 3	Report due date	Year 4	Report due date	Year 5	Report due date	Year 6	Report due date	Source	Resposibility
					2015		2016		2017		2018		2019		2020			
Percentage of House Hold in target areas sprayed with indoor residual spraying in the last 12 months in all the target districts of Pakistan.	Stratum-I	NA	Will be established through the sub-national baseline malaria survey	PDHS. Malariometric Survey	80%	31-Dec-15	90%	31-Dec-16	90%	31-Dec-17		NA		NA		NA	DHIS. Routine MIS	DoMC
	Stratum-II				80%	31-Dec-15	80%	31-Dec-16	80%	31-Dec-17		NA		NA		NA		
	Stratum-III				80%	31-Dec-15	80%	31-Dec-16	80%	31-Dec-17		NA		NA		NA		
Percentage of households with at least one LLIN in target districts (Stratum-1)/Ares (Stratum II&III) of Pakistan.	Stratum-I	NA	Will be established through the sub-national baseline malaria survey	PDHS. Malariometric Survey	30%	31-Dec-15	80%	31-Dec-16	90%	31-Dec-17	90%	31-Dec-18	90%	31-Dec-19	90%	31-Dec-20	DHIS. Routine MIS	DoMC
	Stratum-II				30%	31-Dec-15	80%	31-Dec-16	90%	31-Dec-17	90%	31-Dec-18	90%	31-Dec-19	90%	31-Dec-20		
	Stratum-III				30%	31-Dec-15	80%	31-Dec-16	90%	31-Dec-17	90%	31-Dec-18	90%	31-Dec-19	90%	31-Dec-20		

Percentage of people with uncomplicated or severe malaria receiving antimalarial treatment according to national guidelines in all the target districts of Pakistan.	Stratum-I	NA	Will be established through the sub-national baseline malaria survey	DHIS. Routine MIS	40%	31-Dec-15	60%	31-Dec-16	80%	31-Dec-17	90%	31-Dec-18	90%	31-Dec-19	90%	31-Dec-20	DHIS. Routine MIS	DoMC
	Stratum-II				20%	31-Dec-15	30%	31-Dec-16	60%	31-Dec-17	80%	31-Dec-18	80%	31-Dec-19	90%	31-Dec-20		
	Stratum-III				15%	31-Dec-15	25%	31-Dec-16	50%	31-Dec-17	70%	31-Dec-18	80%	31-Dec-19	90%	31-Dec-20		
Percentage of people who know the cause of, symptoms of, and preventive measures for malaria in target districts of Pakistan.	Stratum-I	NA	Will be established through the sub-national baseline malaria survey	PDHS. Malariometric Survey	5% increase over baseline	31-Dec-15	10% increase over baseline	31-Dec-16	10% increase over baseline	31-Dec-17	10% increase over baseline	31-Dec-18	10% increase over baseline	31-Dec-19	10% increase over baseline	31-Dec-20	DHIS. Routine MIS	DoMC
	Stratum-II				5% increase over baseline	31-Dec-15	10% increase over baseline		10% increase over baseline	31-Dec-17	10% increase over baseline	31-Dec-18	10% increase over baseline	31-Dec-19	10% increase over baseline	31-Dec-20		
	Stratum-III				2% increase over baseline	31-Dec-15	5% increase over baseline		5% increase over baseline	31-Dec-17	5% increase over baseline	31-Dec-18	5% increase over baseline	31-Dec-19	5% increase over baseline	31-Dec-20		
Proportion of health facilities with no reported stock-outs of nationally recommended antimalarial drugs lasting more than one week at any time during the past three months		NA	Will be established through the sub-national baseline malaria survey	Malariometric Survey	20% deccrease in baseline	31-Dec-15	50% deccrease in baseline	31-Dec-16	70% deccrease in baseline	31-Dec-17	90% deccrease in baseline	31-Dec-18	95% deccrease in baseline	31-Dec-19	95% deccrease in baseline	31-Dec-20	DHIS. Routine MIS	DoMC