Islamic Republic of Afghanistan

Third Malaria Indicator Survey

In 2014

Ministry of Public Health

General Directorate of Preventive medicine

Communicable Disease Control Directorate

National Malaria and Leishmaniasis Control Program

Contents

Partners

World Health Organization – EMRO
KEMRI-Wellcome Trust Research Programme, Kenya

Abbreviations

API	Annual Parasite Index
AS	Artesunate
BHC	Basic Health Center
BPHS	Basic Package of Health Services
CHC	Comprehensive Health Centre
CHW	Community Health Worker
COMBI	Communication for Behavioural Impact
ELISA	Enzyme-Linked Immunosorbent Assay
EMRO	Eastern Mediterranian Regional Office
EPHS	Essential Package of Hospital Services
EPR	Epidemic Preparedness and Response
EU	European Union
GFATM	Global Fund to fight AIDS, Tubeculosis and Malaria
GFMU	Global Fund Managemnet Unit
HMIS	Health Management Information System
HMM	Home based management of Malaria
HNI	HealthNet International
IEC	Information Education and Communications
IMPD	Institute of Malaria and Parasitic Diseases
IPT	Intermittent Preventive Treatment
ITNs	Insecticide Treated Nets
IVM	Integrated Vector Management
LLINs	Long Lasting Insecticidal Mosquito Nets
M&E	Monitoring and Evaluation
MoPH	Ministry of Public Health
MSH	Management Sciences for Health
NGOs	Non-Governmental Organisations
NIML	National Institute for Malaria and Leishmaniasis
NMLCP	National Malaria and Leishmaniasis Control Programme
NMSP	National Malaria Strategic Plan
NTCC	National Technical Coordination Committee
PCR	Polymerase Chain Reaction
PMLCP	Provincial Malaria and Leishmaniasis Control Programme
PSI	Population Services International
RBM	Roll Back Malaria
REACH	Rural Expansion for Afghanistan Community Health
SP	Sulfadoxine-Pyrimethamine
TB	Tuberculosis
TBA	Traditional Birth Attendant
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization

EXECUTIVE SUMMARY

Main observations and recommendations:

1. There were some sampling selection differences between the MIS 2011 and MIS 2014 which are likely to affect the comparisons of results between regions. A national sampling frame to compute weighted estimates was also not available. There were also budgetary deficiencies and accessibility problems that contributed to an already difficult logistical problem.

   Action: There is an urgent need to develop a reliable national sampling frame for future surveys to allow for an appropriate sampling design and weighting. Future surveys should be sufficiently budgeted to meet the difficult logistical demands in Afghanistan.

2. Ownership of at least one LLIN has increased from about 20% in 2011 to 31% in 2014. Ownership of more than LLIN has also increased from 18% in 2011 to 28% to 2014.

   Action: Although access to LLINs has improved the coverage is still below the NSP goals. Strategic investments in scale up is required.

3. The proportion of people sleeping under an LLIN the night before survey slightly increased from 14% to 17%between 2011 and 2014, and in households with at least one LLIN decreased from 54% to 38%.

   Action: Despite improvements in LLIN ownership, their use seems to have reduced and awareness interventions may be required to improve usage. However, other contextual factors that may have contributed to decreased use should be explored.

4. The rates of fever in the population was generally the same between the two time periods, with a slightly increase of 1% in 2014. Treatment seeking also remained similar at about 76% in 2011 and 74% in 2014.

   Action: Communities with residual problems of access to care should be identified for interventions to improve treatment seeking.

5. The source of treatment for fever was, however, markedly different between surveys. In 2011, the two main sources of treatment was private clinic (29%) and public health facility (44%). In 2014 only 5% and 11% used private and public health facilities respectively with most people either self-medicating (32%) or using medicines from retail drug stores (37%).

   Action: the use of both the private and public formal sector has reduced substantially and this should be a major concern for appropriate treatment of malaria. Urgent investigations into the likely reasons, such as commodity stock-outs or insecurity, for reduced use of the formal sector is required.

6. The prescription of antimalarials also reduced from 29% in 2011 and to18% in 2014 but this was not matched by a reduction in malaria prevalence, which rose from 0.6% in 2011 to 3.4% in 2014.

The majority of the increase is attributable to a rise in *P. vivax* infections. *P. falciparum* prevalence reduced from 12.9% of all cases to 6.9% in 2014.

Action: Despite an increase in malaria prevalence, prescription of antimalarials seems to have reduced. This is likely to be as a result of the reduced use of the formal health sector.

7. Interestingly majority of the sample population in 2014 (80%), did not know which antimalarial they were prescribed making the results between two surveys difficult to compare.

   Action: This is an unusual finding and further investigations are required on the reasons for this outcome.

8. Overall knowledge of malaria risk and symptoms have improved with 60% of population reporting to have receive malaria IEC in 2014 compared to 40% In 2011.

   Action: This is a significant achievement. However, a focus on use of interventions during IEC campaigns is needed to improve use of LLINs in particular.

Further summaries of the survey results from the MIS 2014 and it comparison with those of MIS 2011 are provided here..

	MIS 2011			MIS 2014		
Indicator	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
Number of Households	263	2777	3040	384	2806	3191
Household population by age, sex and residence						
Male	848	8932	9999	705	5028	6097
Female	855	8544	9641	802	5620	6909
Travel within the last two months by household members (%)						
Persons who travelled within	2.0	2.0	1.9	0.5	0.7	0.7
Persons who travelled outside	0.5	0.7	0.7	0.5	0.7	0.3
Household ownership of long lasting insecticidal nets (LLINs) (%)						
With at least one net(LLIN)	44.7	18.0	19.8	30.7	31.1	31.1
With more than one net(LLIN)	41.1	16.3	18.0	26.8	28.4	28.2
Average number of nets per household(LLIN)	1.2	0.5	0.5	0.8	0.8	0.8
Sleeping under LLIN (%)						
Slept under LLIN last night	22.8	13.2	14.0	18.0	16.4	16.7
Slept under LLIN last night in households with at least one net	48.9	52.3	54.4	44.9	37.6	38.2
Slept under LLIN last night- children U5 years of age	27.9	18.4	19.4	44.0	45.8	43.6
Slept under LLIN last night -pregnant woman	12.7	19.2	19.2	26.5	22.7	23.6
The prevalence and duration of fever among all ages (%)						
Fever on the day of survey	3.4	3.3	3.3	2.1	4.1	4.0
Fever 2 weeks prior to the survey	1.2	2.1	2.1	1.9	2.6	2.5
Average Fever duration	14.3	7.9	5.2	4.2	3.1	3.3
Action taken to treat fever among those with fever in last 2 weeks (%)						
Took action	75.0	76.9	76.8	85.7	73.2	74.3
Took action in <24 hrs	51.0	32.1	32.9	42.9	32.2	33.4
Took action in 24-<48 hrs	37.0	25.8	26.4	21.4	26.4	25.4
Took action 48 - 72 hrs	0.0	26.2	25.0	7.1	7.2	8.0
Took action > 72 hrs	12.0	15.9	15.7	17.9	10.5	11.5
First source of treatment for fever patients who took action (%)						
Mullah	48.2	9.3	11.1	0.0	16.7	15.8
Self-medication	0.0	1.8	1.7	0.0	33.3	31.5
Private clinic	29.2	28.6	28.6	0.0	5.6	5.3
Traditional healer	12.0	2.7	3.1	0.0	0.0	0.0
Drug store	4.4	11.8	11.5	100.0	33.3	36.8
Public health facility	6.2	45.8	43.9	0.0	11.1	10.5

	MIS 2011			MIS 2014		
Indicator	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
Type of medications used for the treatment of fever (%)						

None	12.0	1.1	1.7	0.0	0.5	0.4
Antipyretics	20.1	25.4	25.3	37.5	39.6	40.4
Antibiotics	4.5	13.3	12.9	37.5	24.8	25.8
Antimalarial	40.6	29.9	29.3	20.8	16.8	17.5
Don't Know	22.7	30.6	30.3	0.0	14.9	12.5
Type of antimalarials used for the treatment of fever (%)						
AS+SP	0.0	4.4	4.1	0.0	9.1	7.2
SP/Fansidar	0.0	5.9	5.5	0.0	9.1	1.4
Chloroquine	100.0	72.1	74.0	0.0	14.5	11.6
Halofantrin	0.0	12.0	11.0	0.0	0.0	0.0
Quinine	0.0	1.5	1.4	0.0	0.0	0.0
Don't know	0.0	4.4	4.1	100.0	67.3	79.8
Reasons for not taking action for those with fever last 2 weeks (%)						
Mild fever	84.4	77.8	78.0	50.0	70.8	70.4
Fever will resolve	0.0	11.0	10.6	0.0	37.5	37.0
Not malaria	0.0	15.9	15.3	100.0	33.3	40.7
Cannot afford	84.4	30.9	33.0	50.0	29.2	29.6
Facility is far	0.0	39.3	37.5	50.0	29.2	29.6
Long wait	84.4	30.4	32.8	50.0	33.3	33.3
Poor care	84.4	31.7	34.0	50.0	16.7	18.5
Drugs shortage	84.4	31.8	34.1	50.0	16.7	18.5
Inefficient services	84.4	21.3	24.1	50.0	12.5	14.8
Bad behaviour	84.4	5.3	8.8	0.0	4.2	3.7
No workers	84.4	8.3	11.7	50.0	4.2	7.4
Fevers in the last week that had resolved by the day of survey (%)	68.8	83.6	82.9	75.0	73.5	73.9
Travel and waiting time at the nearest health facility (%)						
Average travel time (mins)	69.1	75.8	76.6	35.4	39.2	39.4
Average waiting time (mins)	36.3	67.9	67.3	60.1	36.7	39.1
Reasons for not having mosquito nets among households without nets (%)						
Not heard of nets	35.8	42.7	42.4	26.0	28.8	28.5
Net Price	43.8	29.3	30.0	36.6	45.7	44.5
Net not Available	54.1	52.6	52.6	36.1	41.3	40.6
There are no mosquitoes	39.2	19.0	19.9	21.1	18.2	18.6
There is no malaria	36.1	16.4	17.3	22.1	15.2	16.1
Doesn't stop bites	26.6	13.3	13.9	13.7	15.1	14.9
Doesn't reduce risk	19.9	11.9	12.2	10.1	13.5	13.1
Not practical to use	25.5	12.8	8.9	15.4	13.5	13.8
Mosquitoes still bite	20.4	8.9	9.5	12.8	11.1	11.3
No Space	24.4	8.9	9.7	8.8	12.0	11.5
Insecticide is dangerous	16.3	9.4	9.7	9.7	11.6	11.3

	MIS 2011			MIS 2014		
Indicator	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**

Perceived reasons of using mosquito bed nets among households that own nets (%)						
Prevent mosquito bites	34.9	32.1	33.5	40.3	43.5	43.2
Prevent malaria	12.7	18.5	15.6	22.9	14.8	15.7
Both	52.4	49.0	50.7	36.8	41.7	41.1
Perceived advantages of using mosquito bed nets among households that own nets (%)						
Avoid mosquito bites	87.8	86.2	87.0	86.8	77.2	78.3
Minimize risk of malaria	69.5	73.1	71.3	72.2	60.9	62.2
Sleep better when under a net	38.8	53.9	46.4	59.7	51.5	52.4
Perceived disadvantages of using mosquito bed nets among households that owned nets (%)						
Too Hot	38.9	33.2	34.0	15.3	18.7	18.3
Not enough air	10.3	16.7	15.8	12.5	20.2	19.3
Mosquito still bites	5.0	8.2	7.7	0.0	10.6	9.4
Takes time to hang	26.4	21.4	22.1	13.9	18.2	17.7
Difficult when getting up at night	22.7	24.1	23.9	11.8	17.3	16.7
Self-reported malaria cases and deaths as reported by head of household (%)						
A household has ever had malaria	45.1	47.1	47.0	52.6	38.2	40.6
A household has had malaria in the last 3 months	31.1	29.2	29.3	25.8	19.6	20.5
A household has ever died of malaria	1.4	2.8	2.7	0.6	1.0	0.9
Household members knowledge and perception of malaria risk in their area (%)						
Don't Know	26.7	39.5	38.6	21.7	32.3	31.3
No Risk	2.6	4.2	4.1	2.5	5.7	5.3
Low Risk	22.3	15.2	15.7	26.4	16.3	17.3
High Risk	48.4	41.1	41.6	49.2	45.3	45.9
Household members knowledge and perception of malaria symptoms (%)						
Don't Know	25.4	39.3	38.3	17.4	29.3	28.1
Fever	64.9	45.6	47.0	62.4	57.1	57.6
Colds/Chills	61.6	44.2	45.5	60.0	41.2	43.3
Sweating	11.6	11.0	11.0	31.5	10.6	13.3
Diarrhoea	1.4	2.4	0.2	0.9	6.4	5.6
Body pain	12.0	14.1	14.0	14.6	15.0	14.8
Household members knowledge and perception of causes of malaria transmission in their area (%)						
Don't Know	30.8	44.7	43.7	20.2	32.1	31.0
Contaminated food or drink	5.8	5.5	0.5	1.6	4.1	3.8
Human contact	3.7	2.9	3.0	4.7	2.5	2.8
Mosquito bite	58.4	46.3	47.2	66.5	57.4	58.2
Other insect Bite	3.3	3.5	3.5	2.4	3.2	3.0
Airborne	1.8	0.7	0.8	5.1	0.4	1.0
Birds	0.8	0.4	0.4	0.3	0.1	0.1

	MIS 2011			MIS 2014		
Indicator	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**

Household members knowledge of malaria prevention (%)						
Don't Know	38.6	44.6	44.2	18.8	30.9	29.6
Clean Surrounding	18.7	20.4	20.2	17.7	18.8	18.5
Mosquito Nets	37.7	28.9	29.5	49.5	40.0	41.2
Mosquito Repellents	0.9	0.7	0.7	1.4	1.8	1.7
Use Coils	0.5	1.2	1.1	0.1	0.4	0.4
Screens	6.5	4.1	4.3	16.7	6.8	7.9
Insecticides	3.9	5.4	5.3	4.4	1.4	1.8
Taking antimalarials	0.4	1.1	1.1	1.8	0.6	0.7
Filling Puddles	0.9	0.5	0.6	0.3	0.5	0.5
Household members exposure to and source of malaria information, education and communication (%)						
Received IEC	33.5	26.2	26.8	75.2	57.4	60.0
Did not receive IEC	65.0	72.2	71.8	24.8	42.6	40.0
Source of IEC						
Radio	11.0	10.4	10.4	21.5	18.6	18.9
Newspapers	3.2	2.3	2.4	3.6	3.0	3.1
Health Facility	17.0	12.3	12.7	45.1	16.3	20.1
Work Place	1.5	1.8	1.8	2.2	2.0	2.2
School	4.9	4.7	4.7	12.4	13.2	12.9
Mosque	1.5	1.5	1.5	15.6	6.6	7.9
Educational Materials	4.7	2.9	3.1	2.4	3.3	3.3
Type of malaria information, education and communication received by households members (%)						
No IEC received	66.0	72.8	72.3	26.5	47.9	44.8
IEC was on transmission methods	23.7	15.9	16.5	46.6	22.1	25.3
IEC was on prevention Methods	18.4	17.0	17.0	49.1	24.8	28.0
IEC was on treatment Methods	4.5	6.5	4.7	32.8	13.1	15.3
Household malaria experience (%)						
Have you ever had malaria yourself	30.0	21.3	21.9	43.5	27.9	29.9
Hs another household member ever had malaria	36.4	30.0	30.5	41.8	33.7	34.6
Someone ever died of malaria	5.0	2.9	3.0	0.4	2.2	1.9

	MIS 2011			MIS 2014		
Indicator	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
The prevalence of malaria infection measure using microscopy (%)						
% positive	0.2	0.6	0.6	1.9	3.6	3.4
% Pf	0.0	13.3	12.9	0.0	7.4	6.9
% Pv	100.0	85.5	85.9	100.0	89.4	90.2
% Mixed	0.0	1.2	1.1	0.0	3.2	3.0
Number positive	2	131	133	22	282	305

CHAPTER ONE: INTRODUCTION

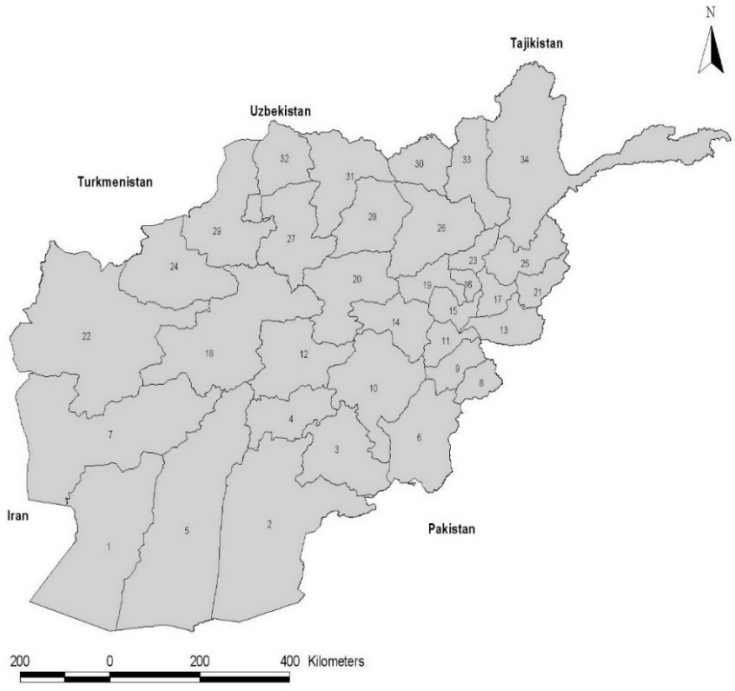
Background

To monitor the progress of malaria control activities and evaluate their impact in terms of coverage and effect on disease, the Afghanistan government implemented its baseline national malaria indicator survey (MIS) in 2008, followed by a second survey in 2011 [MPR 2013]. A third MIS was implemented in September 2014 and the results of this survey are summarised in this report. Comparisons of results are between the MIS 2011 and 2014 across all key indicators to define the progress, gaps and needs for the next two years.

Geography and climate of Afghanistan

The geography and climate in Afghanistan are highly variable and are generally characterized by rugged topography, patchy rainfall and extreme aridity in large parts of the country [Dupree 1973]. Almost half of the countries land surface lies above altitudes of more than 2000 m [http://countrystudies.us/afghanistan/31.htm]. In the northeast, the country is dominated by the Hindu Kush mountain range which is prone to earthquakes and comprises the Wakhan Corridor-Pamir Knot, Badakhshan, Central Mountains, Eastern Mountains, Northern Mountains and Foothills, Southern Mountains and Foothills [Dupree 1973]. The Turkistan Plains, Herat-Farah Lowlands, Sistan Basin-Helmand Valley, Western Stony Desert, and Southwestern Sandy Desert surround the Mountains in the north, west and southwest.

Figure 1 Administrative map of Afghanistan showing provincial boundaries



ID	Province
1	Nimruz
2	Kandahar
3	Zabol (Zabul)
4	Oruzgan (Uruzgan)
5	Helmand
6	Paktika
7	Farah
8	Khowst
9	Paktia
10	Ghazni
11	Lowgar
12	Daykondi
13	Nangarhar
14	Vardak (Wardag)
15	Kabol (Kabul)
16	Kapisa
17	Laghman
18	Ghowr
19	Parvan (Parwan)
20	Bamian
21	Konar (Kunar)
22	Herat
23	Panjshir
24	Badghis
25	Nurestan
26	Baghlan
27	Sar-e Pol
28	Samangan
29	Faryab
30	Kondoz (Kunduz)
31	Balkh
32	Jowzjan
33	Takhar
34	Badakhshan

During the winter, temperatures in the central highlands of the country, the area around Nuristan and the Wakhan corridor, drop to below -15 °C while in the summer in July the low-lying areas of the Sistan Basin of the southwest, the Jalalabad basin in the east, and the Turkistan plains along the Amu River in the north temperatures average over 35 °C. The Sistan Basin is one of the driest areas in the world while much of the south and south west has desert climate. Average rainfall in the country is approximately 210 mm per year with the main rainy season from December to April, although some areas in the south-east receive monsoonal summer rain. The country drainage system is dominated by four main rivers: Amu (Oxus) to the north, the Hari Rud to the west, the Helmand River in the south and the Kabul River in the east. Forests, found mainly in the eastern provinces of Nuristan and Paktiya, cover barely 2.9% of the country's area although these are diminishing [http://countrystudies.us/afghanistan/31.htm]. In the eastern and north eastern provinces, irrigated rice cultivation is widely practiced and is a major contributor to anopheles breeding [Safi et al 2009a].

Malaria epidemiology and control in Afghanistan

Epidemiology

The natural extent of malaria transmission in Afghanistan is limited by the combination of high altitude and the consequent reduced temperatures and aridity which affect both development of the anopheles mosquito and parasite sporogony [Safi et al 2010]. Figure 2a is a map of altitude thresholds in Afghanistan showing areas ≥2000m and those below. In a recent analysis of the temperature suitability to support parasite sporogony, an index ranging from 0 (not suitable) to 1 (most suitable) [Gething et al 2011] showed that the majority of the temperature-suitable areas were coincident with altitude of ≥2000m (Figure 2a and 2b). An analysis of aridity derived from enhanced vegetation index (EVI) constructed from remotely-sensed satellite imagery shows that large areas are under mean annual EVI of <0.1, a threshold of vegetation mass considered indicative of aridity (Figure 2c) [Guerra et al 2007]. Using a combination of case reporting; malariometric surveys and topographic information, provinces in Afghanistan are classified into three main malaria relative risk areas: medium to high risks; low risk; and very low or potentially malaria free areas (Figure 3) [Safi et al 2010].

Figure 2 a) Altitude limits

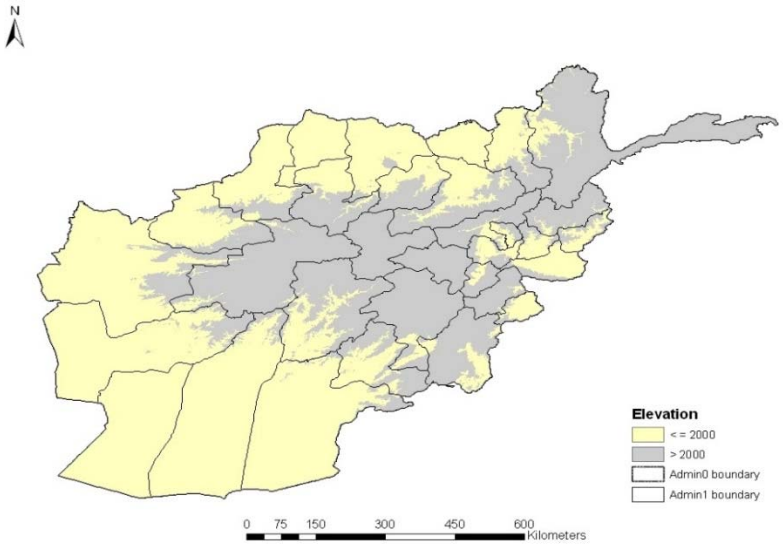
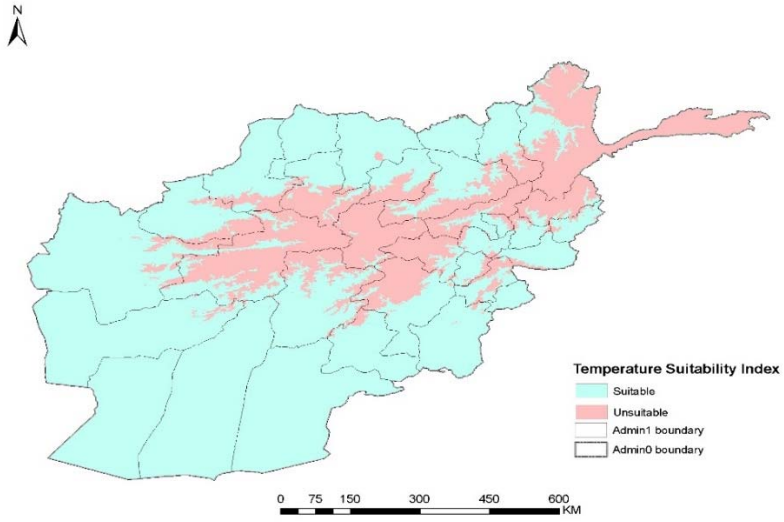


Figure 2b Temperature suitability Index for parasite sporogony



Malaria occurs at altitudes below 2,000 meters above sea level and is most prevalent in snow-fed river valleys and areas used for growing rice. Transmission is seasonal from June to November, with negligible transmission occurring between December and April. However, many *Plasmodium vivax* infections relapse during the spring season and this may give rise to a vivax peak around July. The *P. falciparum* peak is in August to October, a few months after the summer peak of *P. vivax*. The seasonality and relative low prevalence of malaria (e.g. about 10% in the most endemic areas) results in a population only partly immune to malaria, with children and teenagers carrying most of the burden. *P. falciparum* is particularly unstable in this region, at the edge of its range, and can fluctuate markedly from year to year depending on climatic variation and, in recent years, drought (MPR 2013).

Anopheles superpictus, *An. culicifacies*, *An. stephensi*, *An. hycranus*, *An. pulcherimus* and *An. fluviatilis* are the main vectors of malaria in Afghanistan [Eshgy & Nushin 1978; Rowland et al 2002; Safi et al 2009a]. *Plasmodium vivax* and *P. falciparum* are the commonest parasites [Rowland et al 2002; MoPH 2008a]. Malaria transmission is unstable and seasonal peaking during the months of June to November, with negligible transmission occurring between December and April. *P.vivax* infections however relapse during the spring season and this may give rise to a *vivax* peak around July. The *P. falciparum* peak is in October, a few months after the summer peak of *P.vivax*. Due to the seasonality and relative low prevalence of malaria results in a population with low functional immunity to malaria. *P.falciparum* is particularly unstable in this region, at the edge of its range, and can fluctuate markedly from year to year depending on climatic variation and, in recent years, drought. In the last decade, the malaria case burden has decreased dramatically from over 18 cases per 1000 blood examinations to less 1.97 cases per 1000 blood examinations in 2013 as shown in Figure 4 [WHO 2013b].

Figure 2 c) Average Annual Enhance Vegetation Index (EVI). Index <0.1 is an indicator of aridity

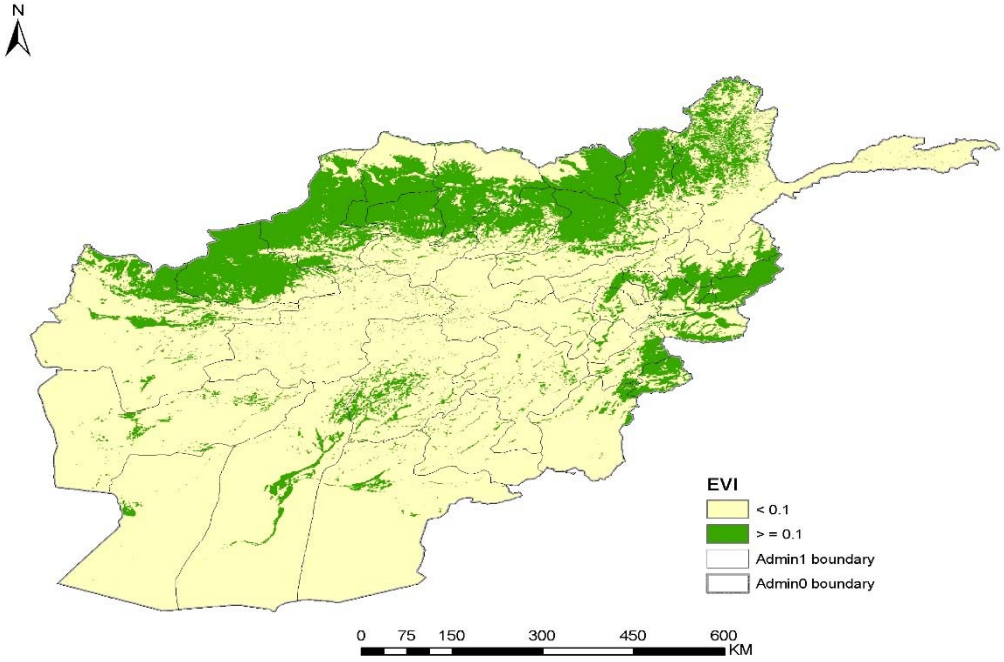
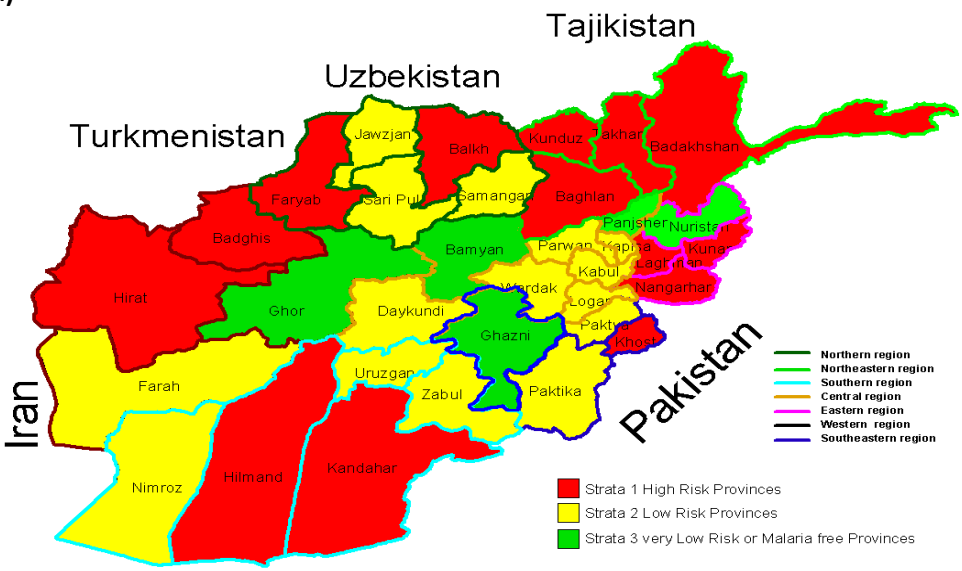
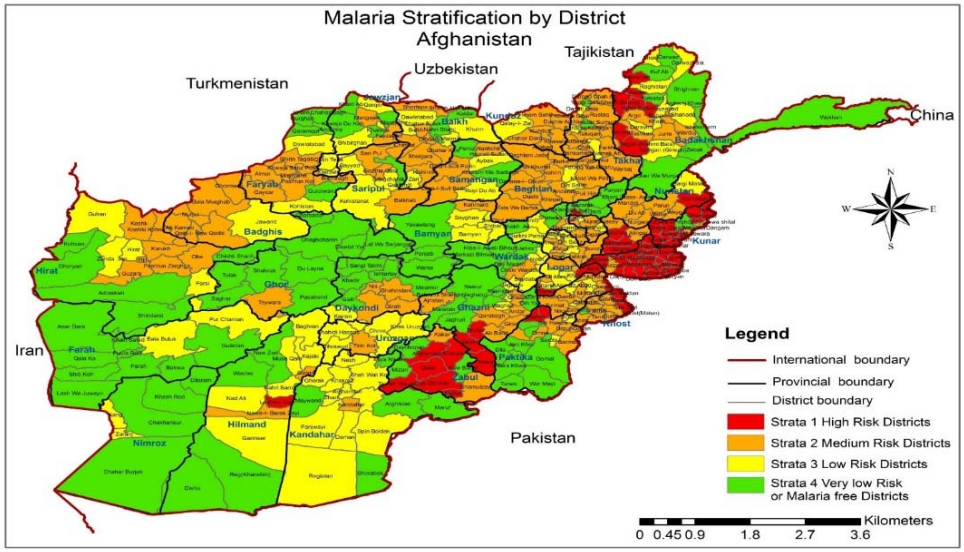


Figure 3 Malaria risk stratification of a) provinces and b) district in Afghanistan

a)



b)



The NMCP and its partner have updated the malaria stratification by province and new districts (Figure 3), based on malaria case data from the routing HMIS in the period 2009 – 2010, altitude and other ecological data. Of the estimated 30 million people in 2014 in Afghanistan, 43% live in areas of relatively medium to high risk, 40% in low risk conditions and 17% in areas of very low or potentially no risk. The MIS of 2008 and 2011 showed generally low malaria prevalence of <1%.

Objectives of the Malaria Indicator Survey of 2014

To collect data to monitor progress and to provide evidence for further investment and implementation of national malaria strategy by collecting information on the coverage of malaria indicators and the prevalence of malaria infection measuring the difference between this MIS and the MIS 2008 and MIS 2011.

Specific objectives:

1. To examine the status of (ITN, ACT and IEC) coverage and use among households and household members of all ages in Afghanistan
2. To assess the treatment seeking patterns for fever/malaria treatment in Afghanistan
3. To measure the prevalence of malaria parasite (*P. falciparum and P. vivax*) in all age groups using rapid diagnostic tests (RDTs) and microscopy.
4. To use the infection prevalence data to improve the precision of malaria stratification in the country
5. To assess Knowledge Attitude and Practice (KAP) related to Malaria
6. To examine the differences in key indicators between the 2008 ,2011and 2014 survey to assess and track the progress in key malaria interventions and changes in malaria prevalence
7. To provide strategic orientation of malaria control programmes using the results of the MIS.

Methodology

The survey covered 21 provinces in most malaria risk strata in Afghanistan and will target a nationally representative sample of households which will provide precise estimates of core malaria control indicators at the national and state levels and for urban and rural populations.

Sample size estimation and sample selection

In developing the sampling strategy a number of key features of Afghanistan were considered. Certain areas were deemed insecure to undertake a national survey; human settlement is extremely unevenly distributed in space and largely congruent with availability of water; malaria risks are likely to be markedly different between and within provinces (Figures 3); and where malaria risks are low and/or very seasonal the spatial description of community-level malaria prevalence are markedly heterogeneous. Consequently, districts were classified by security level and the survey sample was drawn from those that were deemed secure. Of the 391 districts in 28 provinces in the country, 153 were considered secure. Of these 153 districts, about half (n=77) were selected. To estimate the actual number of survey households and clusters (villages) to be visited, recent information on prevalence of key indicators and population distribution are required. The selected key indicator for sampling was the '*proportion of all ages who slept under an ITN the night before survey*' was used. The estimate for this indicator was considered double that of the MIS 2008 and the same as MIS 2011. Population distribution data, particularly the proportion of the population household size were obtained from the MIS survey.

Multi-stage probability sampling

A traditional multi-stage cluster sample survey design (Macro International, 1996) proceeds by an initial random selection of population clusters (weighted by population where appropriate) and the subsequent random selection of households within each sampled cluster. Decisions on the sample size (the number of clusters, and households within each cluster, to sample) were based on a desired level of precision in summary indicator estimates, generally at a prescribed level of spatial aggregation defined by administrative units. Stratifications, such as between urban and rural areas, can also be introduced to ensure areas with known distinct characteristics are captured.

The sampling approach for the Afghanistan MIS 2014 will have two stages. In the first stage, the traditional household cluster sample design (equation 1) will be used to define the overall sample size as follows:

$$n = [4\,(r)\,(1 - r)\,(f)\,(1.1)] / [(e*r)^2\,(p)\,(n_h)] \quad \text{.....equation 1}$$

where:

n = the required sample size for the KEY indicator,

4 = a factor to achieve the 95 percent level of confidence,

r = the predicted or anticipated prevalence (coverage rate) for the key indicator, in this case the proportion of children sleeping under ITN the night before survey which was estimated at 8.6%, almost double what was observed during the MIS 2011.

1.1 = the factor necessary to raise the sample size by 10 percent for non-response,

f = the design effect *(deff)*, 1.5 was selected for the purposes of this survey

e = the margin of error to be tolerated (0.12 as advised in the MIS sampling manual)

p = the proportion of the total population that the smallest group comprises (19% of the population were children under the age of five years from the MIS 2011)

n_h = the average household size (this was 7 from the MIS 2011)

Based on this sampling approach, a total of 3,220 households wre required to provide precise estimates of the key indicator at the national and state levels and for urban and rural populations. At an average of 20 households per cluster, therefore, 164 clusters were selected for the 2014 MIS (Table 4). These clusters were then allocated into urban and rural categories proportionately within each district. Once the clusters are classified into urban and rural, a list of districts provided by the NMLCP was used to randomly select the districts in which survey clusters will be located. The districts in each province were selected randomly. Then within each selected district, a cluster was selected also using probability proportional to size method. An additional cluster was added to Parwan province (Chahariakr district) because only one cluster was randomly assigned to this province in the original design. A total 164 clusters were therefore selected for the MIS 2014.

Survey planning

The period June to August 2014 was used to prepare for survey and implement the survey in September which is the one peak months of transmission of both malaria (Pv and Pf). Activities that were undertaken during this period included the drafting of the survey protocol and meetings by the NMLCP and partners to harness focus towards survey activities; development of tools; identification of field workers and budgeting.

Questionnaires

The development of the survey questionnaires and manuals and the process began in June 2014 to end of July 2014. Two survey questionnaires were developed first in English and then translated to Dari and Pashto, using the templates developed during the MIS 2011 as the basis and used the same questionnaires of MIS2011. These questionnaires were the household questionnaire (HH) and the household member's questionnaire (Individual). The household questionnaire was used to list all usual members and visitors of the selected households. For each household member the following data was collected: age, sex, education, and relationship to the head of the household. The household questionnaire was used to collect data on household head's education level and household assets to assess household socio-economic status. Information on the household ownership of mosquito nets and their use by household members was recorded. Data on household exposure to indoor insecticide spraying (IRS) and information-education-communication (IEC) activities will be collected. Household coordinate will be recorded using Global Positioning Systems (GPS) (Annex 1A).

The household members' questionnaire will record information on all consenting household members including whether individual had fever in the last 14 days and whether they sought treatment for the fever in that time; sources of treatment and drugs used (Annex 2B). Exposure to IEC through the COMBI strategy will also be recorded for all individuals 12 years or more. All individuals had their temperatures measured to ascertain fever at the time of interview. This was followed by a section detailing recent travel history and net use while travelling and the final section was captured information on malaria infection status for each assenting individual who will examined for parasitaemia first using RDTs; thick and thin blood smears. Individuals who tested positive for parasite infection using the RDT test were treated with nationally recommended antimalarial drugs. Likely severe malaria cases or individuals assessed by health worker to need additional medical attention were immediately referred to the nearest health facility.

Training and Pre-test activities

Survey teams were selected in each province from the provincial malaria control program department. Interviewers were required to speak in both Pashto and Dari languages. Training of trainers (TOT) of NMLCP at provincial level was conducted in August at NMLCP, Kabul. Training was organized for delegates from

the central level selected to assist program managers at provincial level. The ToTs were trained surveyors and laboratory technicians in their respective province, to enable trainees to supervise all aspect of survey implementation and to ensure the quality of data collected as well as to get a feedback on questionnaire and translation for possible improvement. Methods of training included interactive lectures, discussion, role play as well as practice. Questionnaires were pre-tested and necessary adjustment will be made before using them in the study. Training was undertaken on general interviewing skills, administration of consent forms, filling of questionnaires, collection of blood samples and the appropriate treatment of individuals found positive for malaria. A set of clusters in that were excluded from the survey were selected for testing of the survey tools. All filled questionnaires were then evaluated again by the trainers and correction of mistakes made during pre-testing and any necessary adjustments to the survey tools resulting from the pre-test were undertaken.

Composition of survey management and field team

Overall, the survey management team was composed of one national coordinator; and 35 field team supervisors.

The role of the National coordinator was, in collaboration with the NMLCP, responsible for general survey oversight; developing a scientifically sound survey protocol; designing the survey sample; developing survey tools; field manuals; budget; electronic data entry forms; provide training to trainers of trainees; supervise data entry; undertake data analysis and writing of survey report. The national consultant worked closely with the international consultant to achieve the aforementioned tasks; ensure of overall successful implementation of survey; participate in data analysis and report writing.

The national coordinators were drawn primarily from the NMLCP for all aspects of survey preparation and management; they were in charge of the actual survey implementation; management of survey budget; hiring of survey teams; procurement of survey materials; storage of survey questionnaires and samples; management of data entry; and participated in the data analysis and report writing. The national coordinators were primarily responsible for the dissemination of survey results.

The provincial coordinators selected at the national level acted as trainers of the survey field teams and were in-charge of day to day management of the survey. They also acted as the bridge between the field teams and the national level management team. They were responsible for daily checking of questionnaires and proper storage of survey materials; briefing of survey teams each day prior to start of survey and to ensure appropriate inventory and registration of survey questionnaires; RDTs and slides before they handed over to the relevant teams for analysis and provide daily feedback to survey team.

Each field team consisted of 3 persons comprising 1 interviewer; 1 laboratory technician and 1 team supervisor and 1 fixed laboratory technician at the center of malaria unite to examine microscopically the collected samples. Survey teams visted a selected cluster a day and completed interviews at the sampled households. The team supervisor ensured that all survey procedures are followed and field teams conducted household interviews appropriately. The supervisor also checked that all questionnaires have been correctly coded and filled before departing the cluster. The supervisor was responsible for ensuring that call-backs are attended to. He/she was responsible for handing over the questionnaires and other survey materials to the provincial coordinators. A complete registry of these materials was maintained by the supervisor; the provincial coordinators and the national coordinators.

5.5 Parasite prevalence

All consenting individuals were tested first using a malaria rapid dagnsotci test (RDT). All RDT positive cases detected during the household survey were given a referral note to the nearest health facility. Using the same finger prick all sampled individuals had a thick and thin blood smear prepared and examined from for an independent assessment of infection. The smears were stained in 4% Giemsa solution for 30 minutes and labeled slides transported to each state headquarters. Thick blood films were read using a light microscope with x 100 oil-immersion lens and x 10 eyepiece. One hundred high power fields were examined before a slide was considered negative. For all positive blood slides, the asexual stage of Plasmodium parasites was counted against 200 leukocytes and expressed as parasites/µl of blood by multiplying this number by a factor of 40 assuming a mean white blood cell count of 8000 cells/µl. Slides were read by two independent microscopists and any discrepancies were further reviewed by a third independent expert parasitologist. The first reading of the slides was undertaken at the state by qualified microscopists and transported to Kabul for a second and third reading by a selected set of independent expert microscopists.

5.6 Field work and quality control

The survey will begin on the September 2014 and will continue for a period of 30 days until 20 October 2014. For some of the large and sparsely populated provinces extra survey days will be allocated as necessary.

Each survey team will visit a cluster per day (10 households). At the end of each survey day, all questionnaires, RDTs and blood slides will be submitted to the provincial coordinators or their representative for review and storage. The provincial coordinators will review the survey team's daily submissions and suggest corrections where necessary. The NMLCP national coordinators will also visit the provinces and observe each survey team as they perform interviews for a few selected households and advise on appropriate corrections. At the end of every week, the provincial coordinators will submit completed questionnaires to the NMLCP office in Kabul where a central data entry system will be established. The slides will be retained at the provincial for initial analysis and will be submitted to the national level for a second reading and general quality control.

To avoid minimize the inconvenience and pain caused during the collection blood samples, only a single finger prick will be used for the collection of the different blood samples during malaria testing. The first drop will wiped off from the finger using a swab dipped in methylated spirit, the second drop will be applied to the RDT; the third sets of drops will be used to prepare a thick and thin blood films and the fourth set will be collected on filter papers. All leftover materials used for the collection of blood samples, such as lancets and swabs will be carried from the household in a special biohazard box and appropriately disposed of at the end of the survey day.

5.7 Data entry and analysis

Trained data entry personnel will be used to capture information from the survey questionnaires using customized data entry screens developed in Microsoft Access 2007. Double entry of the data will be undertaken in a central place at the NMLCP offices in Kabul. Once entered data will be checked for consistencies by the data manager and necessary corrections will be made. The results of the blood slides and filter papers will be recorded in customized forms with members ID in. Analysis of the survey data will be undertaken by the national coordinator with the help of a consultant from WHO/EMRO and a final report will be published by the end of December 2014. Sampling weights could not be reliably generated due to the lack of an updated national sampling frame and data were analysed without weights.

5.8 Dissemination strategy

Data was disseminated in terms of a published report which will be put online on the MoPH web page. A public launch of the survey results will also be done nationally and in each province. Where relevant, some of the survey results could be disseminated via peer-reviewed journal publications. The NMLCP will be fully responsible for the dissemination exercise.

5.9 Ethical considerations & ethical review

Initially, the research protocol was reviewed and approved by Institutional Review Board of the Afghan Ministry of Public Health. At the initial phase formal approval was taken from the Institutional Review Board (IRB) of the Afghan Public Health Institute. Later on administrative approval was sought from local authority in each province. Finally, the purpose of the study was explained to potential study participants and written informed consent was taken from them. Strict aseptic precautions were followed to collect blood specimen to obviate the risk of infection to both participants and laboratory technicians. Confidentiality of the collected information has been maintained through all phases of the study. All specimens have a unique identifier to match the databases following sample analysis but no names or other identifiers. All malaria positive cases was referred to nearest health facility. Pregnant women with fever (axillary temperature ≥ 99.5^{o}F) and clinical signs suggestive of malaria was referred to the district hospital for confirmation of diagnosis and treatment. Cases of fever among which malaria is not observed will also be referred to the nearest health facility for further investigation and management. All referred cases was given a “referral note” stating the reason for referral.

CHAPTER TWO: CHARACTERISTICS OF SURVEY SAMPLE

13006 persons were enumerated in 2014 MIS survey. 53.1% of the respondents were female while 46.9% were male. The distribution of de jure household population by age showed that 16% were under-fives and only 0.4% were above 80 years of age. (Table 2.1). Table 2.2 shows the 3191 households that were surveyed composition. 82.6% had male household head and 17.3% had female heads. Overall, the household size was 4-7 members. Households in rural areas had more members (9+) as compared to urban areas. Principal component analysis was used to construct the wealth index quintiles for the households. Household assets and heads of household education level were used in the analysis. The wealth quintiles have been used in evaluating the variation in malaria control indicators in the following chapters.

Table 2.1 Household population by age, sex and residence

Percent distribution of de jure household population by age, sex and residence, Afghanistan MIS 2014

	Rural			Urban			Total		
Age (years)	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
0 - 4	17.9	14.6	16.2	16.3	13.0	14.5	17.9	14.4	16.0
5 - 9	19.3	15.0	17.0	20.9	14.6	17.5	19.5	14.8	17.0
10 - 14	12.8	12.5	12.7	13.9	15.1	14.5	12.8	12.7	12.7
15 - 19	9.8	11.0	10.4	11.3	10.6	10.9	10.0	10.8	10.4
20 - 24	6.7	8.9	7.9	6.4	10.1	8.4	6.6	9.4	8.1
25 - 29	5.8	7.8	6.9	5.2	6.7	6.0	5.8	7.7	6.8
30 - 34	4.6	7.2	6.0	5.4	8.0	6.8	4.7	7.2	6.0
35 - 39	4.1	6.2	5.2	4.5	6.1	5.4	4.2	6.3	5.3
40 - 44	4.8	5.5	5.2	4.5	6.9	5.8	4.7	5.7	5.2
45 - 49	3.4	3.5	3.5	3.4	1.9	2.6	3.4	3.2	3.3
50 - 54	3.8	3.2	3.5	2.7	2.1	2.4	3.6	3.1	3.4
55 - 59	1.8	1.5	1.6	1.7	1.0	1.3	1.8	1.3	1.5
60 - 64	2.1	1.6	1.9	1.4	2.4	1.9	2.1	1.7	1.9
65 - 69	0.8	0.4	0.6	0.7	0.5	0.6	0.8	0.4	0.6
70 - 74	1.2	0.8	1.0	1.0	0.7	0.9	1.2	0.8	1.0
75 - 79	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2
80 +	0.5	0.3	0.4	0.3	0.2	0.3	0.5	0.3	0.4
Don't know/missing	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total	47.2	52.8	100.0	46.8	53.2	100.0	46.9	53.1	100.0
Number	5028	5620	10648	705	802	1507	6097	6909	13006

Table 2.2 Household composition

Percent distribution of household by head and de jure household population by residence and mean household size, Afghanistan MIS 2014

	Urban	Rural	Total
Gender of household head			
Male	84.4	82.4	82.6
Female	15.6	17.5	17.3
Number of usual members			
1	0.3	0.1	0.1
2	3.4	3.1	3.1
3	9.9	7.2	7.5
4	15.6	16.3	16.2
5	22.7	19.9	20.2
6	11.5	17.2	16.5
7	15.1	13.3	13.5
8	10.9	9.8	10
9+	10.7	13.1	12.8
Number of households	384	2806	3191

Table 2.3 Household drinking water

Percent distribution of households by source of drinking water and sanitation, according to urban-rural residence, Afghanistan MIS 2014

	Urban	Rural	Total
Household drinking water			
Piped water into dwelling	8.3	6.9	7.1
Piped nearby	13.8	11.6	11.9
Well	53.4	65.6	64.1
Rainwater	0.0	1.8	1.6
Tanker Truck	0.0	1.6	1.4
Pond	26.8	18.0	19.1
Bottled water	5.7	2.2	2.6
Other	2.3	4.7	4.4
Household sanitation			
Flush	3.8	2.3	3.7
pit latrine	9.7	12.0	10.0
Bucket toilet	76.8	77.9	76.9
No toilet/use bushes	21.0	20.6	20.9
Other	0.1	0.0	0.1

The main sources of drinking water in Afghanistan were wells (64.1%), ponds (19.1%) and shared piped nearby water (11.9%.) Less than 10% of households had water piped into dwelling, rainwater, tanker and bottled water as their sources of drinking water. More households in urban settings had piped water than rural ones. (Table 2.3). Analysis on household sanitation data showed that bucket toilet was the most common facility (76.9%). About 21% of the households used bushes, 10% pit latrines and

only 3.7% had flush toilet facility. There were minimal differences in household sanitation in urban and rural residences.

Table 2.4 summarizes the possession of durable goods and means of transport in households. 73.5% of households owned a mobile phone, 52.6% had a radio and 36.5% possessed a television. Ownership of refrigerator, fan and air conditioner stood at 7.2%, 16.1% and 1.3% respectively. There was minimal variation in ownership of telephone, radio and fan in between rural and urban areas. The most commonly used means of transport by Afghanis was motorcycle.

Table 2.4 Household durable goods and means of transportation

Percent distribution of households by type of durable goods and means of transportation according to urban-rural residence, Afghanistan MIS 2014

	Urban	Rural	Total
Household effects			
Radio	54.4	52.6	52.8
Television	46.7	35.0	36.5
Telephone	73.4	73.6	73.5
Refrigerator	10.1	6.7	7.2
Air con	1.0	1.3	1.3
Fan	27.1	14.6	16.1
Means of transport			
Bicycle	11.5	21.7	20.4
Motorcycle	21.9	25.6	25.2
Car/Truck	9.9	8.6	8.7

Table 2.5 Characteristics of women respondents

Percent distribution of women aged 15-49 by age, residence, Afghanistan MIS 2014

	Percent	Number
Age (years)		
15 - 19	18.7	749
20 - 24	16.3	652
25 - 29	13.2	531
30 - 34	12.5	500
35 - 39	10.8	435
40 +	28.5	1144
Residence		
Urban	11.5	460
Rural	81.1	3251
Total	**54.3**	**4011**

Female population distribution by age and residence is shown on Table 2.5. Only 54.3% women of reproductive age 15-49 were considered and were the respondents for pregnancy related question in the survey. There were more female participants in rural areas (81.1%) than urban (11.5%).

Travel history of household members within the last two months was taken into account (Table 2.6). 252 members mentioned to have travelled within the country and 39 outside the country.

Table 2.6 Travel within the last two months by household members, Afghanistan MIS 2011

	%	Number of persons who travelled with country	%	Number of persons who travelled outside the country
Residence				
Urban	4.3	27	0.5	5
Rural	4.8	207	0.7	32
Malaria strata				
High risk	2.3	177	0.3	28
Low risk	1.2	52	0.2	8
No risk	1.7	5	0.2	1
Total	**1.9**	**252**	**0.3**	**39**

CHAPTER THREE: COVERAGE OF KEY MALARIA INTERVENTIONS

Table 3.1 Household ownership of any nets; insecticide-treated nets (ITN); and long lasting insecticidal nets (LLINs), Afghanistan MIS 2011.

	Any type of mosquito net			ITN			LLIN				
	%with at least one net	%with more than one net	Average number of nets per household	%with at least one net	%with more than one net	Average number of nets per household	%with at least one net	%with more than one net	Average number of nets per household	Percentage of households with at least one ITN for every 2 persons	Number of Households surveyed
Residence											
Urban	37.5	31.0	1.0	1.6	1.3	0.0	30.7	26.8	0.8	17.7	384
Rural	40.3	34.3	1.1	6.6	5.0	0.2	31.1	28.4	0.8	16.4	2806
Region											
Badakhshan	27.1	14.2	0.5	15.0	12.1	0.3	0.9	0.6	0.0	6.5	339
Baghdis	8.3	4.1	0.2	0.8	0.0	0.0	7.4	4.1	0.2	2.5	121
Baghlan	49.7	48.7	1.7	0.5	0.5	0.0	49.7	49.2	1.7	15.2	197
Balkh	76.7	51.5	1.6	41.7	27.0	0.9	30.1	20.2	0.5	23.9	163
Bamyan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95
Daykondi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	140
Jawzjan	24.6	4.9	0.3	6.6	1.6	0.1	3.3	0.0	0.0	3.3	61
Kabul	45.1	40.4	1.2	0.9	0.4	0.0	42.1	38.3	1.1	10.2	235
Kanduz	72.3	62.1	1.7	0.0	0.0	0.0	71.9	61.7	1.7	34.0	235
Kapisa	39.7	39.7	1.1	3.8	3.8	0.1	35.9	35.9	1.1	24.4	78
Khost	89.7	87.2	3.1	10.3	10.3	0.4	61.5	59.0	2.1	67.9	78
Kunar	33.9	28.1	0.7	2.6	2.4	0.6	32.2	27.3	0.6	1.7	121
Laghman	93.3	93.3	3.1	0.0	0.0	0.0	92.4	92.4	2.7	31.9	119
Logar	62.3	61.0	2.0	1.3	0.0	0.0	59.7	59.7	1.9	49.4	77
Nangarhar	6.8	5.4	0.2	0.0	0.0	0.0	5.1	4.4	0.1	1.5	410
Paktya	83.8	75.8	2.4	5.1	5.1	0.2	83.8	75.8	2.4	44.4	99
Parwan	48.8	46.3	1.7	7.3	7.3	0.2	39.0	36.6	1.4	34.1	41
Samangan	37.6	26.8	0.9	3.8	3.8	0.1	5.1	2.5	0.1	22.9	157
Saripul	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	183
Takhar	82.1	77.6	2.2	0.0	0.0	0.0	81.1	76.6	2.1	38.3	201
Wardak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41
Household head											
Male	35.0	29.0	0.9	6.8	5.2	0.2	31.1	28.6	0.8	16.9	2637
Female	41.0	34.9	1.1	2.4	1.5	0.1	30.9	26.7	0.8	14.7	551
Malaria strata											
High risk	45.9	38.8	1.2	8.5	6.4	0.2	35.7	32.4	0.9	17.6	1984
Low risk	32.8	28.1	0.9	2.2	1.7	0.1	25.4	23.2	0.7	15.9	1112
No risk											95
Household Wealth											
Most Poor	41.7	36.0	1.2	3.6	2.8	0.1	34.7	31.3	1.0	15.8	386
Very poor	36.2	29.4	0.9	7.0	5.1	0.2	27.2	24.6	0.7	13.9	1812
Poor	48.7	43.9	1.4	4.4	2.9	0.1	40.1	37.2	1.2	22.5	688
Less Poor	40.4	37.2	1.2	6.4	5.6	0.1	30.0	26.8	0.9	20.4	250
Least Poor	40.4	28.8	1.0	9.6	3.8	0.2	25.0	23.1	0.7	13.5	52
Total	**40.0**	**33.9**	**1.1**	**6.0**	**4.5**	**0.1**	**31.1**	**28.2**	**0.8**	**16.5**	**3191**

Table 3.1 gives a description of the national household ownership of any nets 40%, insecticide-treated nets (ITN) 6% and long lasting insecticidal nets (LLINs) 31.1%. Overall net ownership was higher in rural residences and high risk malaria stratum. Female headed had higher ownership of ITN and LLIN. Balkh and Khost Provinces had the highest ownership of ITN 41.7% and 10.3% respectively. High ownership of LLIN was recorded in Laghman (92.4%) and Paktya (83.8%).

Table 3.2 Percentage sleeping under any net; insecticide-treated nets (ITN); and long lasting insecticidal nets (LLINs) the night prior to the survey, Afghanistan MIS 2014.

	Slept under a net last night	Slept under ITN last night	Slept under LLIN last night	Number of persons
Member				
Male	21.3	1.4	17.3	6909
Female	19.9	1.4	16.2	6097
Residence				
Urban	28.4	4.7	18.0	1507
Rural	19.6	1.0	16.4	10648
Province				
Badakhshan	3.5	2.3	0.0	1244
Baghdis	0.3	0.0	0.8	400
Baghlan	11.2	0.2	10.4	1020
Balkh	0.0	0.4	0.0	709
Bamyan	0.0	0.0	0.0	272
Daykondi	0.0	0.0	0.0	266
Jawzjan	21.3	6.8	0.8	249
Kabul	35.7	0.6	35.3	1105
Kanduz	36.4	0.9	34.4	343
Kapisa	15.2	2.2	13.6	184
Khost	89.4	4.0	60.8	199
Kunar	12.2	0.0	12.6	744
Laghman	83.3	0.6	79.6	700
Logar	61.6	0.3	60.7	359
Nangarhar	5.1	0.1	4.4	1853
Paktya	18.7	0.3	18.1	364
Parwan	49.4	44.6	3.6	168
Samangan	29.7	2.9	0.6	690
Saripul	0.7	0.0	0.0	673
Takhar	58.3	0.5	58.5	386
Wardak	0.0	0.0	0.0	232
Malaria strata				
High risk	19.1	0.7	17.2	7598
Low risk	24.7	2.9	16.6	4290
No risk				272
Age category				
0 - 4	22.8	1.0	19.9	2085
5 - 9	22.1	1.4	18.6	2213
10 - 14	19.7	1.6	15.6	1657
15 - 19	19.6	1.8	14.4	1357
20 - 44	19.9	1.3	16.0	4095
> 44	19.0	1.6	14.9	1587
Household Wealth				
Most Poor	22.0	0.4	19.5	1423
Very poor	16.0	1.2	13.0	6944
Poor	30.9	1.7	24.9	2606
Less Poor	24.3	3.4	16.4	949
Least Poor	23.0	4.9	13.3	226
Total	**20.6**	**1.4**	**16.8**	**13006**

Householdin Bamyan, Daykondi and Wardak provinces reported not to won any nets. The overall ownership of more than one net was 33.9%, 4.5% and 28.2% for any net, ITN and LLIN respectively. On

average each household owned 1.1 any nets, 0.1 ITNs and 0.8 LLINs. The households that achieved universal net coverage of 2 persons or less per net were 16.5%.Khost province had the highest percentage of households with at least one ITN for every 2 persons. Urban areas and high malaria risk stratum had higher complete ITN coverage.

Table 3.3 Percentage sleeping under any net; insecticide-treated nets (ITN); and long lasting insecticidal nets (LLINs) the night prior to the survey in households with at least one net, Afghanistan MIS 2014.

	Slept under a net last night	Slept under ITN last night	Slept under LLIN last night	Number of persons
Member				
Male	50.0	3.5	39.8	2307
Female	46.2	3.6	36.8	2573
Residence				
Urban	71.7	12.3	44.9	555
Rural	45.3	2.5	37.6	4242
Province				
Badakhshan	13.2	8.9	0.0	326
Baghdis	0.0	0.0	7.4	27
Baghlan	10.2	0.2	9.6	539
Balkh	0.0	0.5	0.0	580
Jawzjan	84.1	27.0	3.2	63
Kabul	64.2	1.3	63.3	556
Kanduz	57.7	1.4	54.4	215
Kapisa	38.4	5.5	34.2	73
Khost	97.3	4.4	66.1	183
Kunar	31.9	0.0	33.5	254
Laghman	83.5	0.6	80.0	649
Logar	95.8	0.5	94.3	212
Nangarhar	65.4	0.8	61.7	133
Paktya	21.3	0.3	20.7	305
Parwan	96.4	86.9	6.0	84
Samangan	75.0	7.0	1.5	272
Saripul	38.5	0.0	0.0	13
Takhar	68.1	0.6	68.4	313
Malaria strata				
High risk	41.1	1.6	37.0	3219
Low risk	63.1	7.7	41.3	1578
No risk	0.0	0.0	0.0	83
Age category				
0 - 4	50.2	2.5	43.6	816
5 - 9	51.3	3.7	42.5	848
10 - 14	42.9	4.0	33.8	681
15 - 19	47.7	4.8	34.1	505
20 - 44	48.6	3.3	38.1	1427
> 44	45.2	4.0	34.3	597
Household Wealth				
Most Poor	44.5	1.0	39.6	598
Very poor	40.7	3.3	32.7	2497
Poor	61.6	3.6	49.3	1233
Less Poor	60.1	8.0	40.5	373
Least Poor	58.4	12.4	33.7	89
Total	**48.0**	**3.5**	**38.2**	**4880**

Net utilisation summary shows that 20.6% of household members slept under any net the night before the survey, 1.4% slept under ITN and 16.8% slept under LLIN. (Table 3.2). Younger household members (under-fives) and from urban residences recorded a higher percentage that slept under any net and LLIN the night prior to the survey whereas the wealthiest households had the highest usage of ITN the previous night. There were minimal variations in the utilisation by gender. Interestingly, persons from low risk malaria stratum had a higher percentage in usage of any net and ITN than persons from high risk malaria stratum. More than 50% of persons in Khost, Laghman, Logar and Takhar slept under LLIN.

A summary of net usage the night prior to the survey restricted to households with one net or more (Table 3.3) rose to 48% sleeping under any net, 3.5% slept under ITN and 38.2% slept under LLIN. All provinces except Badakhshan, Baghdis, Kapisa, Kunar, Paktya and Saripul had more than 50% of the persons that slept under any net the night before the survey.

Table 3.4 shows a restricted analysis by age (under five years old). About 50% of children below five years slept under any net, 2.5% under ITN, and 43.6% under LLIN the night before the survey. Among pregnant women 25.8%, 1.1% and 23.6% pregnant women slept under any net, ITN and LLIN night before. A higher no of pregnant women from high risk malaria stratum reprted to have slept under net before the night of survey compared to the low risk stratum (Table 3.5).

Table 3.4 Percentage of children under the age of five years sleeping under any net; insecticide-treated nets (ITN); and long lasting insecticidal nets (LLINs) the night prior to the survey, Afghanistan MIS 2014.

	Slept under net last night	Slept under ITN last night	Slept under LLIN last night	Number of persons
Residence				
Urban	63.5	8.3	44.0	96
Rural	49.2	1.7	45.8	705
Malaria strata				
High risk	43.0	1.1	39.7	547
Low risk	68.1	5.5	53.9	254
No risk				
Total	**50.2**	**2.5**	**43.6**	**816**

Table 3.5 Percentage of pregnant women sleeping under any net; insecticide-treated nets (ITN); and long lasting insecticidal nets (LLINs) the night prior to the survey, Afghanistan MIS 2014.

	Slept under net last night	Slept under ITN last night	Slept under LLIN last night	Number of persons
Residence				
Urban	34.7	6.1	26.5	49
Rural	24.1		22.7	286
Malaria strata				
High risk	28.5	0.5	26.6	207
Low risk	21.3	1.6	18.1	127
Nor risk				2
Total	**25.8**	**1.1**	**23.6**	**356**

Most nets owned by households were LLIN (79.7%), followed by ITN (13 %) (Table 3.6). It is unclear whether these were conventional ITNs or they were LLINs reported as ITNs by household members.

Residents in urban areas owned a higher percentage of LLIN than rural residents. Net condition was defined as follows: Fair= no holes larger that fit a normal torch battery; Poor= 1 to 4 holes that fit a torch battery; Unsafe =>5 holes that fit a torch battery; Unused= net still in package. About 51% of nets were fair condition, 30.9% had no holes, 11.6% had not been used, 5.8% were poor and only less than 1% were unsafe. Baghlan and Takhar provinces had the highest percentage of unused nets. More than 10% of the nets in Balkh, Jawzjan, Kanduz and Kunar provinces were in a poor condition. Kunar province recorded most nets that were unsafe.

Table 3.6 The type, number and percentage of nets owned by households, Afghanistan MIS 2014.

	Total untreated nets	% Total untreated nets	Total ITN	% Total ITN	Total LLIN	% Total LLIN	Total local nets	% Total local nets	Total nets
Residence									
Urban	24	6.3	11	2.9	307	81.2	38	10.1	378
Rural	213	7.1	427	14.3	2373	79.5	79	2.6	2984
Province									
Badakhshan	41	24.3	118	69.8	6	3.6	1	0.6	169
Baghdis		0.0	1	5.0	19	95.0		0.0	20
Baghlan		0.0	4	1.2	328	98.8		0.0	332
Balkh	2	0.8	145	56.0	89	34.4	22	8.5	259
Jawzjan		0.0	5	27.8	2	11.1	11	61.1	18
Kabul	6	2.2	4	1.4	260	93.2	2	0.7	279
Kanduz		0.0		0.0	397	99.3		0.0	400
Kapisa	2	2.2	7	7.9	82	92.1		0.0	89
Khost	66	27.0	33	13.5	165	67.6	2	0.8	244
Kunar		0.0	77	95.1	77	95.1		0.0	81
Laghman	25	6.8		0.0	324	87.6	23	6.2	370
Logar	4	2.6	1	0.7	149	97.4		0.0	153
Nangarhar	15	23.1		0.0	52	80.0	1	1.5	65
Paktya		0.0	20	8.6	233	100.0	5	2.1	233
Parwan	3	4.3	7	10.1	59	85.5		0.0	69
Samangan	63	43.8	16	11.1	17	11.8	46	31.9	144
Saripul	1	33.3		0.0		0.0	2	66.7	3
Takhar	9	2.1		0.0	421	97.0	2	0.5	434
Total	**237**	**7.0**	**438**	**13.0**	**2680**	**79.7**	**117**	**3.5**	**3362**

Table 3.8 shows a summary of nets owned by households according to the source of nets. NGOs were the main source of nets, followed by Government campaigns at 29.2%, private shop purchases were 10.2%, and public clinics 8.1%. About 83% and 73% of nets in Samangan and Jawzjan province were from a private shop. All the nets in Saripul and Kanduz provinces were from other sources and campaigns respectively. 51% were obtained within the last 6 months, 22.2% within 13 to 36 months, 13.8% within 7 to 12 months and about 11% were more than 3 years old (Table 3.9).

Table 3.7 The condition of nets owned by households, Afghanistan MIS 2014.

	No holes	Fair	Poor	Unsafe	Unused
Region					
Badakhshan	76.3	22.0	0.0	0.0	1.7
Baghdis	10.0	90.0	0.0	0.0	0.0
Baghlan	9.4	42.7	0.0	0.0	47.9
Balkh	31.7	42.9	23.8	1.6	0.0
Jawzjan	20.0	66.7	13.3	0.0	0.0
Kabul	43.9	52.0	2.0	2.0	0.0
Kanduz	7.2	79.5	13.3	0.0	0.0
Kapisa	38.7	48.4	6.5	0.0	6.5
Khost	13.0	85.5	1.4	0.0	0.0
Kunar	0.0	78.4	10.8	10.8	0.0
Laghman	32.4	62.2	2.7	0.9	1.8
Logar	55.0	40.0	5.0	0.0	0.0
Nangarhar	3.8	88.5	0.0	7.7	0.0
Paktya	46.3	50.0	0.0	0.0	3.7
Parwan	15.0	85.0	0.0	0.0	0.0
Samangan	100.0	0.0	0.0	0.0	0.0
Saripul	33.3	66.7	0.0	0.0	0.0
Takhar	24.7	21.0	1.2	0.0	53.1
Total	**30.9**	**50.8**	**5.8**	**0.9**	**11.6**

Table 3.8 The source of nets owned by households, Afghanistan MIS 2014.

	Don't know	Private shop	Public Clinic	NGO	EPI	ANC	Campaign	Other
Region								
Badakhshan	11.9	22.0	49.2	1.7	0.0	0.0	15.3	0.0
Baghdis	10.0	0.0	10.0	80.0	0.0	0.0	0.0	0.0
Baghlan	1.0	1.0	0.0	0.0	0.0	2.1	95.8	0.0
Balkh	0.0	12.7	11.1	15.9	0.0	0.0	60.3	0.0
Jawzjan	0.0	73.3	0.0	26.7	0.0	0.0	0.0	0.0
Kabul	6.1	3.0	13.1	43.4	0.0	0.0	0.0	34.3
Kanduz	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Kapisa	0.0	0.0	0.0	93.5	0.0	0.0	6.5	0.0
Khost	0.0	30.0	0.0	70.0	0.0	0.0	0.0	0.0
Kunar	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Laghman	0.9	4.5	0.9	90.1	3.6	0.0	0.0	0.0
Logar	0.0	2.5	2.5	92.5	0.0	0.0	2.5	0.0
Nangarhar	0.0	11.1	7.4	66.7	0.0	0.0	14.8	0.0
Paktya	0.0	0.0	26.8	73.2	0.0	0.0	0.0	0.0
Parwan	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Samangan	0.0	83.1	8.5	0.0	0.0	0.0	0.0	8.5
Saripul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Takhar	0.0	0.6	6.2	89.5	0.6	0.0	2.5	0.6
Total	**1.3**	**10.2**	**8.1**	**47.1**	**0.4**	**0.2**	**29.2**	**3.5**

Table 3.9 The age of nets owned by households Afghanistan MIS 2014.					
	0-6 months	**7-12 months**	**13-36 months**	**>36 months**	**Don't know**
Region					
Badakhshan	81.7	13.3	0.0	0.0	5.0
Baghdis	0.0	0.0	0.0	90.0	10.0
Baghlan	77.1	21.9	1.0	0.0	0.0
Balkh	56.3	2.4	23.0	18.3	0.0
Jawzjan	20.0	33.3	26.7	20.0	0.0
Kabul	91.0	1.0	0.0	2.0	6.0
Kanduz	0.0	45.8	28.3	25.9	0.0
Kapisa	93.5	0.0	0.0	0.0	6.5
Khost	0.0	8.6	54.3	37.1	0.0
Kunar	2.7	94.6	2.7	0.0	0.0
Laghman	0.9	3.6	85.6	9.0	0.9
Logar	95.0	0.0	5.0	0.0	0.0
Nangarhar	11.1	3.7	63.0	22.2	0.0
Paktya	95.1	0.0	0.0	0.0	4.9
Parwan	95.0	5.0	0.0	0.0	0.0
Samangan	13.6	11.9	59.3	15.3	0.0
Saripul	33.3	0.0	0.0	66.7	0.0
Takhar	96.9	0.0	0.6	2.5	0.0
Total	**51.3**	**13.8**	**22.2**	**11.3**	**1.4**

CHAPTER FOUR: TREATMENT SEEKING FOR FEVER

Table 4.1 The prevalence and duration of fever among all ages, Afghanistan MIS 2014.

	Fever on the day of survey (%)	Fever 2 weeks prior to the survey (%)	Average Fever duration	Number of persons examined
Member				
Male	3.3	2.2	3.0	6097
Female	4.5	2.7	3.5	6909
Residence				
Urban	2.1	1.9	4.2	1507
Rural	4.1	2.6	3.1	10648
Province				
Badakhshan	0.2	0.2	12.0	1244
Baghdis	9.0	0.8	0.6	400
Baghlan	0.4	0.2	2.5	1020
Balkh	0.3	0.4	6.5	709
Bamyan	23.9	5.5	2.6	272
Daykondi	1.5	3.0	2.8	266
Jawzjan	0.4	0.0	0.0	249
Kabul	9.4	6.3	3.1	1105
Kanduz	0.0	2.3	0.0	343
Kapisa	1.1	0.5	3.5	184
Khost	0.5	0.0	0.0	199
Kunar	7.1	13.3	6.2	744
Laghman	4.6	5.9	3.6	700
Logar	0.6	0.0	0.0	359
Nangarhar	2.5	0.3	0.4	1853
Paktya	23.4	3.6	0.4	364
Parwan	1.2	1.2	1.0	168
Samangan	0.9	0.4	5.0	690
Saripul	0.4	0.4	2.3	673
Takhar	1.0	4.9	16.8	386
Wardak	7.8	3.0	3.3	232
Malaria strata				
High risk	2.4	2.4	3.6	1244
Low risk	5.3	2.5	3.0	400
No risk	5.9	5.5	2.6	1020
Age category				
0 - 4	3.5	0.9	1.3	2085
5 - 9	3.5	1.8	1.7	2213
10 - 14	3.8	1.9	1.9	1657
15 - 19	4.0	3.2	3.3	1357
20 - 44	4.0	3.1	5.7	4095
> 44	5.5	4.0	2.6	1587
Household Wealth				
Most Poor	5.1	2.5	4.4	1423
Very poor	3.8	2.7	3.1	6944
Poor	4.1	2.3	2.5	2606
Less Poor	2.7	1.8	3.3	949
Least Poor	1.8	0.4	1.5	226
Total	**4.0**	**2.5**	**3.3**	**13006**

Prevalence of fever among 13,006 household members was 4% on the survey day and 2.5% the two weeks before the survey. On average fever lasted for 3.3 days. Females and household members from most poor households took more days for their fever to resolve. Female respondents recorded more fever cases than males on the day of the survey. The same trend continues for fevers 2 weeks prior to the survey and average fever duration. More rural residents mentioned to have fever the day of the

survey and 2 weeks before the survey than urban residents. However, fever lasted longer in urban areas than rural. Prevalence of fever was higher in no risk areas (5.9%) but took the shortest time to resolve (2.6 days). Only Kunar province had a prevalence of above 10% fevers 2 weeks to the survey (Table 4.1).

Of the 323 persons reported to have had fever two weeks before the survey, 91.6% mentioned the fever was accompanied by other symptoms (Table 4.2). 68.1% fevers also had a headache, 51.4% had muscle ache, 48.9% sweating and 24.5% nausea. Other symptoms mentioned were diarrhoea, abdominal pain, running nose, pain in the throat, cough, difficulty in breathing and convulsion with less than 20% occurrence.

Table 4.2 The symptoms accompanying fevers among those who had fever in the last two weeks, Afghanistan MIS 2014.

Symptom	**Percentage (n=323)**
Any symptoms	91.6
Headache	68.1
Sweating	48.9
Muscle ache	51.4
Nausea	24.5
Diarrhoea	9.3
Abdominal pain	6.8
Running nose	8.0
Pain in the throat	13.6
Cough	18.6
Difficulty breathing	5.3
Convulsion	5.3

74.3% persons who had fever two weeks prior to the survey took action to treat the fever (Table 4.3). 33.4% took action on the same day, 25.4% within 48 hrs, 8% within 72 hrs and about 12% took more than 3 days to take action for fever. Generally, treatment seeking behaviour was higher in high risk malaria stratum and urban areas. The main first source of treatment for the fever patient was the drug store with 26.8% (Table 4.4) followed by self-medication at 31.5%.All urban centre patients and most poor households sought treatment for fever from drug stores. For those who took a second fever action a majority of patients sought action from the drug store and 21.4% from public health facilities.

Table 4.5 summarizes the type of medication received for fever treatment. Most persons were given antipyretics (40.4%), 25.8% fevers were treated with antibiotics and 17.5% antimalarial. About 13% of respondents didn't know the type of medication given to them. High number of persons from high risk malaria areas were treated with antimalarial than no risk areas.

Only 9 persons out of the 69 that were treated with antimalarial mentioned the type of antimalarial used for fever treatment (Table 4.6). 11.6% were given chloroquine, 7.2% with SP and 1.4% with Fansidar. Blood test prevalence for persons that took action for fever stands at 47.7%. 2.1% reported positive blood test. (Table 4.7). The testing rate was significantly different when children under five were compared to persons above 5 years of age. Stratum 1 testing rate (64.1%) were higher than stratum 2 rates (15.9%). Table 4.8 shows the source of these antimalarial, all chloroquine antimalarial prescriptions were from health facilities, all Fansidars from drug stores a while 40% of SP came from health facility and 37.5% home medication. Only 5.6% of the chloroquine and SP were given on a positive malaria test basis.

The most common reason mentioned by individual that had fever two weeks prior to the survey for not seeking treatment was mild fever (70.4%) followed by the fever, was not a symptom of malaria(40.7%) fever will resolve(37.0%), long wait at the health facility contributed to 29.6% persons not taking action for fever. About 30% respondents claimed that they could not afford the cost. No person from richer household that did not seek treatment for fever. (Table 4.9).Table 4.1 shows that by the survey day 73.9% of the fevers had healed. High risk malaria risk stratum recorded higher recovery rate that the low risk stratum.

For the sampled population, the average cost of consultation, blood test and antimalarial was 34.5, 3.4 and 52.5 respectively. (Table 4.11). In high risk areas, the mean consultation fee was 12.5, blood test fee 0.4 and antimalarial cost 27.5. The average travel time and waiting time in minutes to the nearest public health facility, private clinic or drug store was 39.4 and 39.1 respectively. There was minimal difference in waiting time by gender. However, malaria stratum 1 respondents and poorer household members took longer time to get to get to the facilities. (Table 4.12).

Table 4.3 Action taken to treat fever among those who had fever in the two weeks prior to survey, Afghanistan MIS 2014.

	Action	<24 hrs	24-<48 hrs	48 – 72 hrs	> 72 hrs	Number of fevers
Member						
Male	77.9	35.3	27.2	6.6	11.0	136
Female	71.7	32.1	24.1	9.1	11.8	187
Residence						
Urban	85.7	42.9	21.4	7.1	17.9	28
Rural	73.2	32.2	26.4	7.2	10.5	276
Age category						
0 - 4	68.4	21.1	26.3	5.3	5.3	19
5 - 9	69.2	43.6	25.6	5.1	5.1	39
10 - 14	77.4	32.3	35.5	6.5	3.2	31
15 - 19	79.1	41.9	18.6	9.3	11.6	43
20 - 44	75.8	26.6	26.6	10.9	17.2	128
> 44	71.4	39.7	22.2	4.8	9.5	63
Malaria strata						
High risk	83.0	42.9	29.1	5.5	8.2	182
Low risk	62.6	18.7	23.4	10.3	15.9	107
No risk	53.3	20.0	6.7	6.7	13.3	15
Household Wealth						
Most Poor	69.4	25.0	11.1	16.7	16.7	36
Very poor	78.8	37.6	30.2	4.2	9.5	189
Poor	68.9	26.2	23.0	13.1	11.5	61
Less Poor	52.9	23.5	23.5	0.0	17.6	17
Least Poor	100.0	0.0	0.0	0.0	0.0	1
Total	**74.3**	**33.4**	**25.4**	**8.0**	**11.5**	**323**

Table 4.4 Source of treatment for fever patients who took action, Afghanistan MIS 2014.																
	First action						Second action						Third action			
	mullah	Self medication	Private clinic	Traditional healer	Drug sore	Public health facility	Mullah	Self medication	Private clinic	Traditional healer	Drug sore	Public health facility	Mullah	Self medication	Private clinic	Traditional healer
Member																
Male	16.7	50.0	8.3		16.7	8.3	0.0	50.0	12.5		0.0	37.5	0.0	100.0	0.0	
Female	14.3	0.0	0.0		71.4	14.3	33.3	66.7	0.0		0.0	0.0	9.1	81.8	0.0	
Residence																
Urban	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	100.0	0.0	
Rural	16.7	33.3	5.6		33.3	11.1	14.3	57.1	7.14		0.0	21.4	7.14	85.7	0.0	
Malaria strata																
High risk	11.1	33.3	5.6		38.9	11.1	10.0	50.0	10.0		0.0	60.0	16.7	83.3	0.0	
Low risk	100.0	0.0	0.0		0.0	0.0	7.14	21.4	0.0		0.0	21.4	0.0	88.9	0.0	
No risk	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Age category																
0 - 4	50.0	0.0	50.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
5 – 9	0.0	50.0	0.0		25.0	25.0	0.0	33.3	0.0		0.0	66.7	0.0	0.0	0.0	
10 - 14	0.0	40.0	0.0		60.0	0.0	0.0	66.7	0.0		0.0	33.3	00.0	0.0	100.0	
15 - 19	0.0	100.0	0.0		0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	75.0	
20 - 44	25.0	0.0	0.0		50.0	25.0	20.0	80.0	0.0		0.0	0.0	0.0	0.0	10.0	
>44	50.0	0.0	50.0		0.0	0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0	100.0	
Household Wealth																
Most Poor	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	
Very Poor	12.5	50.0	12.5		0.0	25.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	88.9	
Poor	12.5	25.0	0.0		62.5	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	100.0	
Less Poor	50.0	0.0	0.0		50.0	0.0	18.2	54.5	0.0		0.0	27.3	33.3	0.0	66.7	
Least Poor	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total	**15.8**	**31.5**	**5.3**	**0.0**	**36.8**	**10.5**	**14.3**	**57.1**	**7.1**	**0.0**	**0.0**	**21.4**	**6.25**	**87.5**	**6.25**	**0.0**

Table 4.5 Type of medications used for the treatment of fever, Afghanistan MIS 2014.					
	None	**Antipyretics**	**Antibiotics**	**Anti-malarial**	**Don't Know**
Member					
Male	0.0	43.4	29.2	18.9	5.7
Female	0.7	38.1	23.1	16.4	17.9
Residence					
Urban	0.0	37.5	37.5	20.8	0.0
Rural	0.5	39.6	24.8	16.8	14.9
Malaria strata					
High risk	0.0	43.7	25.2	25.2	4.0
Low risk	1.5	28.4	26.9	1.5	35.8
No risk	0.0	50.0	37.5	0.0	0.0
Household Wealth					
Most Poor	0.0	16.0	44.0	8.0	24.0
Very poor	0.7	44.3	16.8	22.1	12.1
Poor	0.0	35.7	45.2	9.5	9.5
Less Poor	0.0	44.4	33.3	0.0	22.2
Least Poor	0.0	0.0	100.0	0.0	0.0
Age category					
0 - 4	0.0	15.4	53.8	0.0	7.7
5 - 9	0.0	37.0	25.9	29.6	7.4
10 - 14	0.0	45.8	29.2	12.5	4.2
15 - 19	2.9	44.1	26.5	8.8	17.6
20 - 44	0.0	44.3	23.7	16.5	14.4
> 44	0.0	35.6	20.0	26.7	13.3
Total	**0.4**	**40.4**	**25.8**	**17.5**	**12.5**

	Table 4.6 Type of antimalarials used for the treatment of fever, Afghanistan MIS 2014.				
	AS+SP	**SP/Fansidar**	**Chloroquine**	**Don't know**	**Number who received antimalarials**
Member					
Male	11.8	2.9	14.7	70.6	34
Female	2.9	0.0	8.6	88.5	35
Residence					
Urban	0.0	0.0	0.0	100.0	11
Rural	9.1	9.1	14.5	67.3	55
Malaria strata					
High risk	7.7	1.5	10.8	80.0	65
Low risk	0.0	0.0	100.00	0.0	1
No risk	0.0	0.0		100.0	3
Age category					
0 - 4	0.0	0.0	0.0	100.0	0.0
5 - 9	0.0	0.0	0.0	100.0	12
10 -14	0.0	0.0	0.0	100.0	5
15 - 19	0.0	0.0	20.0	80.0	5
20 - 44	7.4	0.0	7.4	85.2	27
>44	15.0	5.0	25.0	55.0	20
Household Wealth					

Most Poor	100.0	0.0	0.0	0.0	2
Very Poor	5.0	0.0	8.3	86.7	60
Poor	0.0	25.0	75.0	0.0	4
Less Poor	0.0	0.0	0.0	100.0	0
Least Poor	0.0	0.0	0.0	100.0	0
Total	**7.2**	**1.4**	**11.6**	**79.8**	**69**

Table 4.7 Prevalence of blood tests among those who took action to treat a fever within the last two weeks prior to survey, Afghanistan MIS 2011.

	Percentage reporting having a blood test	Percentage reporting a positive blood test	Number of persons
Age			
0 - 4	14.3	0	7
5+	49.7	43.6	171
Malaria strata			
High risk	64.1	60.7	117
Low risk	15.9	2.3	44
No risk			6
Total	47.7	42.1	178

Table 4.8 Type of antimalarials used for the treatment of fever by source and treatment with antimalarial by reported result of blood test among those who took action to treat a fever within the last two weeks prior to survey, Afghanistan MIS 2011.

	AS+SP	SP/Fansidar	Chloroquine
Source			
Health facility	40.0	0.0	0.0
Drug store	0.0	100.0	0.0
Home	37.5	0.0	100.0
Blood test done			
No	0.0	0.0	0.0
Negative	0.0	0.0	0.0
Positive	5.7	0.0	5.7
Total	**7.2**	**1.4**	**11.6**

Table 4.9 Reasons for not taking action among those who did not take action for a fever in the last two weeks, Afghanistan MIS 2014.

	Mild fever	Fever will resolve	Not malaria	Cannot afford	Facility is far	Long wait	Poor care	Drugs shortage	inefficient	Bad behaviour	No workers
Member											
Male	75.0	12.5	25.0	37.5	25.0	25.0	25.0	12.5	0.0	0.0	0.0
Female	68.4	47.4	47.4	26.3	31.6	36.8	15.8	21.1	21.1	5.3	10.5
Residence											
Urban	50.0	0.0	100.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	50.0
Rural	70.8	37.5	33.3	29.2	29.2	33.3	16.7	16.7	12.5	4.2	4.2

Malaria strata											
High risk	40.0	0.0	40.0	20.0	0.0	20.0	20.0	20.0	0.0	0.0	0.0
Low risk	70.6	47.1	41.2	29.4	23.5	23.5	23.5	17.6	23.5	5.9	11.8
No risk	100.0	25.0	25.0	50.0	100.0	100.0	0.0	25.0	0.0	0.0	0.0
Household Wealth											
Most Poor	75.0	25.0	25.0	0.0	25.0	25.0	25.0	25.0	0.0	0.0	0.0
Very Poor	63.6	36.4	45.5	45.5	45.5	45.5	27.3	27.3	27.3	9.1	18.2
Poor	71.4	57.1	42.9	14.3	14.3	28.6	0.0	14.3	14.3	0.0	0.0
Less Poor	75.0	0.0	25.0	50.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0
Least Poor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**70.4**	**37.0**	**40.7**	**29.6**	**29.6**	**33.3**	**18.5**	**18.5**	**14.8**	**3.7**	**7.4**

Table 4.10 The percentage of fevers in the last week that had resolved by the day of survey, Afghanistan MIS 2014.

Residence	
Urban	75.0
Rural	73.5
Age (years)	
0 - 4	63.2
5 - 9	66.7
10 - 14	83.9
15 - 19	67.4
20 - 44	77.3
> 44	73.0
Malaria strata	
High risk	77.5
Low risk	72.9
No risk	33.3
Household wealth	
Most Poor	63.9
Very poor	78.3
Poor	72.1
Less Poor	47.1
Least Poor	100.0
Total	**73.9**

Table 4.11 Average cost of blood test, antimalarials and consultation paid by those who took action for a fever in the last two weeks, Afghanistan MIS 2014.

	Facility type	Cost of blood test	Cost of antimalarial	Cost of consultation
Overall	Health post	13.3	0.0	125.0
	Comprehensive HealthCare	0.0	0.0	6.0
	District Hospital	0.0		20.6
	Provincial Hospital	0.0		0.0
	Regional Hospital	0.0		77.5
	Private Clinic	30.0	66.7	144.7
	Private Hospital	100.0		150.0
	Drug Store		120.0	42.9
	Total	**3.4**	**52.5**	**34.5**
High Risk	Health post	0.0		75.0
	Comprehensive Health Care	0.0	0.0	2.2
	District Hospital	0.0	0.0	0.0
	Provincial Hospital	0.0		0.0
	Regional Hospital			
	Private Clinic	30.0	20.0	110.0

	Private Hospital			
	Drug Store	0.0	120.0	50.0
	Total	**0.4**	**27.5**	**12.5**
Low Risk	Health post	100.0		200.0
	Comprehensive Health Care	0.0	0.0	125.0
	District Hospital	0.0	0.0	68.8
	Provincial Hospital	0.0		
	Regional Hospital	0.0	0.0	200.0
	Private Clinic	0.0	0.0	160.0
	Private Hospital	100.0	0.0	150.0
	Drug Store			
	Total	28.6		131.3
No Risk	Comprehensive Health Care	0.0	0.0	0.0
	District Hospital	0.0	0.0	100.0
	Total	**0.0**	**0.0**	**25.0**

Table 4.12 Travel time to and waiting time at the nearest public health facility, private clinic or drug store, Afghanistan MIS 2014.

	Average travel time (mins)	Average waiting time (mins)
Member		
Male	39.0	38.2
Female	39.7	39.9
Residence		
Urban	35.4	60.1
Rural	39.2	36.7
Malaria strata		
High risk	37.9	44.2
Low Risk	34.7	25.5
No risk		
Household Wealth		
Most Poor	41.7	45.1
Very Poor	41.2	42.7
Poor	31.4	19.7
Less Poor	28.3	21.5
Least Poor	20	22.5
Age category		
0 - 4	26.3	13.5
5 - 9	35.6	39.8
10 -14	31.9	37.9
15 - 19	45.4	36.3
20 - 44	40.0	39.2
>44	45	41.1
Total	**39.4**	**39.1**

CHAPTER FIVE: MALARIA KNOWLEDGE, ATTITUDE AND PRACTICE

In households without nets, the main reasons for not having a mosquito net was the net price was unaffordable(44.5) followed by the net unavailability(40.6) (Table 5.1).However, net price was more of a problem in most poor households and net unavailability in least poor households. Both main reasons for not having a mosquito net were common in rural areas than urban areas. 19 percent of the households responded that the reason they did not have net was there were no mosquitoes in the area which was higher in urban (21.1) than rural areas (18.2). Nets don't stop or reduce insect bites as a reason for not having a net was most common (14.9) amongst the responses that suggest lack of proper knowledge on the benefits of mosquito nets. About 11% households thought the insecticide was dangerous to their health.

Table 5.1 Reasons for not having mosquito nets among households without nets, Afghanistan MIS 2014.

	Not heard of nets	Net Price	Net not Available	There are no mosquitoes	There is no malaria	Doesn't stop bites	Doesn't reduce risk	Not practical to use	Mosquitoes still bite	No Space	Insecticide is dangerous
Household head											
Male	29.4	45.1	39.3	18.6	16.8	14.2	12.8	13.9	11.1	11.8	11.6
Female	24.1	41.3	47.2	18.8	11.4	18.5	14.2	13.2	12.2	10.2	9.9
Residence											
Urban	26.0	36.6	36.1	21.1	22.1	13.7	10.1	15.4	12.8	8.8	9.7
Rural	28.8	45.7	41.3	18.2	15.2	15.1	13.5	13.5	11.1	12.0	11.6
Province											
Badakhshan	25.5	19.1	24.7	8.5	12.6	2.1	1.3	3.4	0.0	0.9	0.9
Baghdis	5.7	46.2	50.9	16.0	12.8	3.8	1.9	2.8	2.8	1.9	2.8
Baghlan	81.8	63.6	45.5	36.4	75.7	27.3	27.3	27.3	9.1	18.2	18.2
Balkh	88.2	91.2	88.2	88.2	84.9	88.2	88.2	88.2	88.2	88.2	91.2
Bamyan	80.8	74.4	73.1	38.5	40.6	33.3	28.2	30.8	20.5	26.9	20.5
Daykondi	50.7	44.9	50.0	44.9	45	44.2	41.3	43.5	42.0	36.2	37.0
Jawzjan	0.0	23.9	93.5	8.7	11.8	34.8	0.0	4.3	2.2	2.2	2.2
Kabul	8.7	60.0	10.4	0.9	0	0.9	0.9	0.9	0.0	0.9	0.0
Kanduz	87.9	96.6	74.1	62.1	71.3	48.3	50.0	13.8	31.0	20.7	5.2
Kapisa	18.2	27.3	43.2	0.0	5.7	0.0	0.0	4.5	0.0	4.5	4.5
Khost	28.6	85.7	85.7	14.3	33.3	14.3	14.3	14.3	14.3	14.3	14.3
Kunar	1.3	66.2	27.3	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Laghman	0.0	0.0	100.0	100.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Logar	32.0	48.0	56.0	20.0	17.7	16.0	16.0	4.0	0.0	4.0	4.0
Nangarhar	16.9	32.2	31.9	16.6	12.4	10.2	8.6	10.2	9.1	9.1	7.8
Paktya	38.5	38.5	38.5	30.8	9.1	15.4	15.4	7.7	15.4	15.4	15.4
Parwan	61.9	38.1	28.6	9.5	4.8	9.5	4.8	9.5	9.5	9.5	9.5
Samangan	17.7	11.5	13.5	26.0	32.8	26.0	16.7	15.6	14.6	12.5	12.5
Saripul	31.6	76.8	49.2	4.0	4.5	4.5	11.3	16.9	7.3	10.2	18.6
Takhar	4.8	4.8	57.1	4.8	0	0.0	0.0	0.0	0.0	0.0	0.0
Wardak	38.5	33.3	59.0	17.9	17.3	5.1	2.6	17.9	2.6	12.8	7.7
Household Wealth											
Most Poor	32.0	53.1	37.1	19.4	11.6	14.9	13.1	17.1	11.4	10.9	10.3
Very poor	25.2	43.1	37.0	16.5	12.2	11.5	11.2	12.3	10.4	11.2	10.9
Poor	34.8	49.7	48.8	21.1	22.4	20.2	15.5	12.4	11.2	11.2	10.6
Less Poor	34.8	35.5	48.9	25.5	24.1	27.7	19.9	22.0	16.3	14.9	14.9
Least Poor	23.3	26.7	63.3	26.7	10.2	20.0	20.0	20.0	20.0	16.7	23.3
Total	**28.5**	**44.5**	**40.6**	**18.6**	**16.1**	**14.9**	**13.1**	**13.8**	**11.3**	**11.5**	**11.3**

In households that owned nets, the most common reason for using net was to prevent mosquito bites (43.2).Interestingly, least poor household mentioned both prevention of mosquito bites and

prevention of malaria as the reason for using a net. (Table 5.2).Moreover, the advantage of nets that was most mentioned was to avoid mosquito bites (78.3) followed by to minimize malaria risk (62.2).

Table 5.2 Perceived advantages of using mosquito bed nets among households that own nets, Afghanistan MIS 2014.

	Reason for using a net				Advantages of nets		
	Prevent mosquito bites	**Prevent malaria**	**Both**	**Others**	**Avoid mosquito bites**	**Minimize risk of malaria**	**Sleep better when under a net**
Household head							
Male	43.4	15.7	40.9		77.6	61.8	50.9
Female	41.5	15.9	42.6		82.1	64.1	61.0
Residence							
Urban	40.3	22.9	36.8		86.8	72.2	59.7
Rural	43.5	14.8	41.7		77.2	60.9	51.5
Province							
Badakhshan	67.4	15.2	17.4		46.7	31.5	26.1
Baghdis	10.0	20.0	70.0		60.0	50.0	40.0
Baghlan	34.7	8.2	57.1		70.4	67.3	64.3
Balkh	52.3	6.3	41.4		55.5	47.7	46.1
Bamyan	60.0	6.7	33.3		93.3	26.7	13.3
Daykondi	68.9	6.6	24.5		68.9	29.2	16.0
Jawzjan	32.4	24.7	42.9		96.5	97.6	90.6
Kabul	29.0	64.5	6.5		61.3	19.4	38.7
Kanduz	2.8	14.1	83.1		98.6	97.2	98.6
Kapisa	12.2	41.5	46.3		22.0	80.5	2.4
Khost	29.7	2.7	67.6		98.2	70.3	36.0
Kunar	47.9	10.4	41.7		77.1	77.1	66.7
Laghman	14.3	42.9	42.9		75.0	42.9	32.1
Logar	18.1	9.6	72.3		85.5	86.7	78.3
Nangarhar	85.0	5.0	10.0		40.0	25.0	30.0
Paktya	5.1	49.2	45.8		100.0	94.9	83.1
Parwan	100.0	0.0	0.0		100.0	0.0	0.0
Samangan	83.0	8.5	8.5		93.9	39.4	38.2
Saripul	31.6	76.8	49.2		4.0	4.5	4.5
Takhar	4.8	4.8	57.1		4.8	0.0	0.0
Wardak	38.5	33.3	59.0		17.9	17.3	5.1
Household Wealth							
Most Poor	42.6	9.3	38.1		83.3	61.1	54.3
Very poor	50.7	13.2	36.1		73.1	55.4	46.0
Poor	36.3	23.5	40.2		83.6	70.8	60.4
Less Poor	22.5	15.7	61.8		85.3	76.5	65.7
Least Poor	19.0	19.0	61.9		81.0	71.4	47.6
Total	**43.2**	**15.7**	**41.1**		**78.3**	**62.2**	**52.4**

Amongst the same households that owned nets, the highly perceived disadvantage of using mosquito nets was that they felt there was no enough air (19.3), the sleeping place gets too hot(18.3), they experienced difficulty when getting up at night(16.7) and the mosquito net took time to hang every night(17.7). The responses were significantly higher amongst households with male heads than females. (Table 5.3)

Table 5.3 Perceived disadvantages of using mosquito bed nets among households that owned nets, Afghanistan MIS 2014.

	Too Hot	Not enough air	Mosquito still bites	Takes time to hang	Difficult when getting up at night
Household head					
Male	20.4	21.7	10.4	19.9	18.6
Female	6.7	6.2	3.6	5.6	6.2
Residence					
Urban	15.3	12.5	0.0	13.9	11.8
Rural	18.7	20.2	10.6	18.2	17.3
Province					
Badakhshan	2.2	2.2	0.0	3.3	1.1
Baghdis	10.0	0.0	10.0	10.0	30.0
Baghlan	4.1	5.1	5.1	4.1	7.1
Balkh	28.9	28.9	28.9	30.5	28.1
Bamyan	6.7	6.7	0.0	0.0	0.0
Daykondi	1.9	3.8	1.9	0.9	4.7
Jawzjan	4.7	5.3	3.5	3.5	3.5
Kabul	38.7	16.1	0.0	0.0	3.2
Kanduz	64.8	93.0	57.7	88.7	74.6
Kapisa	29.3	26.8	2.4	2.4	0.0
Khost	52.3	64.9	0.9	64.0	62.2
Kunar	33.3	18.8	12.5	22.9	16.7
Laghman	17.9	25.0	10.7	7.1	10.7
Logar	21.7	12.0	8.4	15.7	8.4
Nangarhar	5.0	0.0	0.0	0.0	0.0
Paktya	0.0	1.7	0.0	0.0	0.0
Parwan	0.0	0.0	0.0	0.0	33.3
Samangan	6.7	4.8	6.1	7.3	7.9
Saripul	31.6	76.8	49.2		4.0
Takhar	4.8	4.8	57.1		4.8
Wardak	38.5	33.3	59.0		17.9
Household Wealth					
Most Poor	20.4	21.0	11.7	21.6	19.8
Very poor	15.7	16.9	8.2	14.8	15.1
Poor	20.2	19.6	8.6	19.0	15.2
Less Poor	23.5	28.4	13.7	25.5	24.5
Least Poor	28.6	33.3	19.0	23.8	28.6
Total	18.3	19.3	9.4	17.7	16.7

The household head in (47.6) households reported a member to have ever had malaria. (Table 5.4). About 18 households reported a member to have had malaria in the last three months. Only 0.9% households mentioned a member to have ever died from malaria. The responses were higher in households in urban areas than rural areas for these questions. In Baghdis, Kanduz,Kunar,Laghman,Nangarhar,Takhar and Wardak province more than 50 percent households reported to someone to ever had malaria. Balkh and Saripul province households reported less than 1 percent incidence of malaria in the last three months. Laghman recorded the highest number of households with members who died from malaria.

Table 5.4 Self-reported malaria cases and deaths as reported by head of household, Afghanistan MIS 2014.

	A household has ever had malaria	A household has had malaria in the last 3 months	A household has ever died of malaria
Household head			
Male	40.3	21.6	1.0
Female	38.1	12.8	0.4
Residence			
Urban	52.6	25.8	0.6
Rural	38.2	19.6	1.0
Province			
Badakhshan	32.2	8.8	1.2
Baghdis	67.3	2.0	1.3
Baghlan	23.6	2.0	
Balkh	7.6	0.9	
Bamyan	10.3	1.7	
Daykondi	9.1	2.6	0.8
Jawzjan	27.3	2.0	
Kabul	26.9	8.9	1.1
Kanduz	74.6	21.8	
Kapisa	13.7	12.0	
Khost	41.6	16.8	
Kunar	91.9	79.1	0.8
Laghman	98.2	74.3	6.7
Logar	18.3	18.3	
Nangarhar	51.0	40.6	1.0
Paktya	7.4	3.2	
Parwan	11.3	6.9	
Samangan	31.2	7.2	
Saripul	1.2	0.6	0.5
Takhar	80.7	4.4	
Wardak	65.5	14.6	2.2
Household Wealth			
Most Poor	39.2	21.8	1.4
Very Poor	42.2	22.1	0.7
Poor	40.1	17.0	1.0
Less Poor	38.1	21.2	0.1
Least Poor	29.0	16.5	2.5
Total	**40.6**	**20.5**	**0.9**

Household members of age 12 years and above were asked a sequence of questions on the perception and knowledge on malaria. In the question touching on malaria risk in the area, (45.6) mentioned that they were in a high risk area, (17.3) responded they were in a low risk area, (5.3) in low no risk area, (31.3) didn't have knowledge on malaria risk. (Table 5.5) Women, rural resident's, members from most poor households and no risk malaria strata didn't have knowledge on the level of malaria risk in their areas. More than 50% respondents from Daykondi, Baghlan, Badakshan and Saripul provinces did not have knowledge on malaria risk levels. The common symptom associated with malaria was fever in (57.6) respondents. About 43% believed that malaria is manifested by colds, 15% by body pains. 28% members mentioned they didn't know symptoms associated with malaria with most of these responses coming from the most poor household, rural residents and women.

Table 5.5 Household members' knowledge and perception of malaria risk in their area and symptoms, Afghanistan MIS 2014.

	Malaria risk in your area				Malaria symptoms					
	Don't Know	No Risk	Low Risk	High Risk	Don't Know	Fever	Colds/Chills	Sweating	Diarrhoea	Body Pain
Member										
Male	21.8	5.3	18	54.5	19.3	66.4	50.8	17	6.7	17
Female	38.6	5.2	16.7	39.2	34.7	51	37.6	10.6	4.7	13.1
Residence										
Urban	21.7	2.5	26.4	49.2	17.4	62.4	60	31.5	0.9	14.6
Rural	32.3	5.7	16.3	45.3	29.3	57.1	41.2	10.6	6.4	15
Province										
Badakhshan	51.7	0.6	8.2	39.4	48.1	19.4	30.1	5.9	0.6	0.6
Baghdis	34.9	0.9	6	58.2	36.2	40.9	41.4	3	0.4	5.6
Baghlan	63	3.4	4.9	28.1	58.1	39.9	30.7	4.4	0.2	2.2
Balkh	41.6	24.8	14.6	18.6	37.3	56.4	45.3	4.7	3.5	5.3
Bamyan	40	0	1.7	57.2	39.4	46.1	50	13.3	1.1	9.4
Daykondi	62.8	8.2	18.2	10.8	61	18.2	16.5	3.9	9.5	10
Jawzjan	8.5	0	43.9	47.6	6.7	65.2	42.1	18.3	17.1	66.5
Kabul	34	3	24.6	38.3	31.3	57	37.7	2.9	0	8.2
Kanduz	12.5	0.5	10.9	76	9.9	76	40.6	39.1	0.5	8.9
Kapisa	31	10.1	27.9	28.7	31	55	41.1	5.4	1.6	7.8
Khost	7.2	0.7	10.1	82	3.6	92.1	50.4	33.8	25.9	49.6
Kunar	10.8	30.4	30.4	28.5	2.5	95.9	94.9	21.5	0.3	24.7
Laghman	21.3	1.4	16.2	61.1	0.7	96.6	76	5.4	0	70.3
Logar	17.9	2.9	24.9	54.3	16.8	79.8	43.9	9.2	10.4	46.2
Nangarhar	6.3	3.7	16.2	73	5.7	76.8	46.4	14.5	21.5	23.1
Paktya	15.8	7.1	26.9	49.4	13.8	75.5	41.9	15	9.5	26.1
Parwan	23.6	1.9	6.6	67	10.4	37.7	71.7	2.8	0.9	1.9
Samangan	2.1	0.8	42.7	54.4	0.6	86	81	69	1.9	2.1
Saripul	76.3	1.1	13.4	9.2	77.9	12.3	8.3	1.1	2.2	1.5
Takhar	15.4	0.6	8	75.7	15.7	75.4	23.4	2.8	1.8	9.2
Wardak	17.6	9.6	34.6	38.2	14	61	45.6	18.4	8.1	21.3
Malaria strata										
High risk	29.8	6.6	12.6	50.7	25.8	60.3	44.6	10.6	6.6	15.8
Low risk	32.3	3.6	26.7	37.2	30.5	54.4	41.5	17.3	4.5	14
No risk	40	0	1.7	57.2	39.4	46.1	50	13.3	1.1	9.4
Household Wealth										
Most Poor	37.1	3	15.3	44.3	34.7	54.9	40.3	9.8	4.3	15.3
Very poor	34.5	5.3	17.9	41.9	31.6	53.2	41.7	12.4	5.3	12.1
Poor	24.4	5.7	17	52.5	20.8	64.8	48.1	14.4	5.5	17.4
Less Poor	20.9	6.7	16.7	55.3	16.7	70.5	46.8	18	8.3	24.2
Least Poor	8.8	10.1	29.7	51.4	6.1	75	51.4	20.9	15.5	29.7
Total	**31.3**	**5.3**	**17.3**	**45.9**	**28.1**	**57.6**	**43.3**	**13.3**	**5.6**	**14.8**

About 31% of individuals did not know the cause of malaria transmission in their area. 58.2% mentioned that malaria was transmitted through mosquito bite. Less than 4% of the individuals recorded that malaria transmission was through any other means (Table 5.6).

Table 5.7 summarizes best measures in prevention of malaria of which (41.2) highlighted use of mosquito nets followed by keeping the surrounding clean (18.5). About 30% of the individuals didn't have knowledge on the best preventive method. 7.9% of the individuals mentioned screening of the window s while 1.8% considered spring of insecticides as best malaria preventive measure.

60% household members admitted to have been exposed to health education on malaria (Table 5.8) most of these came from urban areas, least poor households and high malaria risk strata. 40% respondents did not receive any malaria education, information or education mostly females, rural residents and respondents from most poor households. Health facility was recorded as the most common source of information (20.1%) followed by radio (18.9%).

Amongst those that received IEC, the message addressed malaria prevention methods (28.0%), (Table 5.9) 25.3% received information on malaria transmission and 15.3% on malaria treatment.

Table 5.10 summarizes individual responses on whether they have had malaria or knew someone who had, and or died of malaria in the past. About 30% mentioned to have had malaria, 34.5% reported an incidence of malaria in the household while 1.9% admitted to have known someone who had died of malaria in the past.

Table 5.6 Household members' knowledge and perception of causes of malaria transmission in their area, Afghanistan MIS 2014.							
	Don't Know	**Contaminated food or drink**	**Human contact**	**Mosquito bite**	**Other insect Bite**	**Airborne**	**Birds**
Member							
Male	21.1	3.6	3.3	67.7	3.2	1.2	0.1
Female	38.5	4.0	2.4	51.0	2.8	0.8	0.1
Residence							
Urban	20.2	1.6	4.7	66.5	2.4	5.1	0.3
Rural	32.1	4.1	2.5	57.4	3.2	0.4	0.1
Province							
Badakhshan	50.6	4.2	0.9	40.5	0.5	0.0	0.0
Baghdis	41.4	9.1	6.0	45.7	0.4	0.0	0.0
Baghlan	60.6	1.4	2.2	32.2	2.7	0.7	0.0
Balkh	38.9	0.8	3.1	55.7	0.4	0.0	0.0
Bamyan	38.9	0.0	0.0	60.0	0.0	0.0	0.0
Daykondi	61.5	20.3	1.7	18.2	0.4	0.9	0.9
Jawzjan	6.1	26.2	6.1	61.0	0.6	3.0	0.6
Kabul	34.5	0.5	0.3	44.8	19.5	0.2	0.0
Kanduz	13.0	2.1	4.2	81.3	0.0	0.0	0.0
Kapisa	46.5	11.6	1.6	36.4	1.6	0.8	0.0
Khost	4.3	6.5	1.4	89.2	0.7	0.0	0.0
Kunar	6.0	0.0	0.0	94.0	0.0	0.0	0.0
Laghman	3.0	0.7	6.8	92.2	1.7	0.3	0.0
Logar	17.9	2.3	1.7	72.3	4.0	1.2	0.0
Nangarhar	7.7	2.0	0.9	83.4	2.7	0.3	0.1
Paktya	20.2	3.2	0.4	71.5	5.1	1.6	0.0
Parwan	41.5	2.8	9.4	45.3	0.9	0.0	0.0
Samangan	0.6	0.6	3.1	83.5	2.9	9.8	0.6
Saripul	78.7	0.0	0.2	19.5	0.7	0.0	0.0
Takhar	17.5	12.9	15.4	57.2	0.3	0.6	0.3
Wardak	15.4	7.4	14.0	63.2	1.5	0.7	0.0
Malaria strata							
High risk	28.2	3.2	3.1	63.3	1.3	0.2	0.0
Low risk	34.0	4.9	2.4	50.8	6.2	2.3	0.2
No risk	38.9	0.0	0.0	60.0	0.0	0.0	0.0
Household wealth							
Most Poor	36.2	2.7	3.3	53.7	2.9	0.7	0.0
Very poor	34.6	3.5	2.8	55.0	2.8	1.0	0.1
Poor	23.8	3.8	2.1	65.9	3.6	0.5	0.1
Less Poor	19.5	5.9	3.6	65.5	4.4	2.0	0.2
Least Poor	6.1	10.1	4.7	74.3	1.4	4.1	0.7
Total	**31.0**	**3.8**	**2.8**	**58.2**	**3.0**	**1.0**	**0.1**

Table 5.7 Household member's knowledge of malaria prevention, Afghanistan MIS 2014.

	Don't Know	Clean Surrounding	Mosquito Nets	Mosquito Repellents	Use Coils	Screens	Insecticides	Taking antimalarials	Filling Puddles
Member									
Male	20.7	18.5	50.5	1.9	0.4	8.0	1.9	0.9	0.8
Female	36.4	18.5	34.1	1.5	0.4	7.9	1.7	0.5	0.2
Residence									
Urban	18.8	17.7	49.5	1.4	0.1	16.7	4.4	1.8	0.3
Rural	30.9	18.8	40.0	1.8	0.4	6.8	1.4	0.6	0.5
Province									
Badakhshan	51.5	37.5	3.9	0.4	0.1	2.1	0.7	0.0	0.1
Baghdis	44.4	40.5	16.8	0.4	0.0	4.3	3.4	3.0	2.2
Baghlan	57.6	11.9	27.4	0.5	0.0	3.1	0.2	0.0	0.0
Balkh	38.5	4.5	53.5	0.8	0.0	0.6	0.0	0.0	0.6
Bamyan	43.3	22.8	14.4	0.0	0.0	17.2	0.0	0.0	0.0
Daykondi	70.1	6.5	15.6	0.0	0.4	5.2	0.4	0.4	1.7
Jawzjan	4.9	44.5	42.1	0.0	0.0	7.3	4.3	1.2	0.6
Kabul	31.5	22.0	36.0	0.5	0.3	10.9	1.1	0.2	0.3
Kanduz	3.6	10.4	80.2	2.1	0.0	2.1	4.7	0.5	1.0
Kapisa	29.5	24.0	38.0	0.8	0.0	4.7	1.6	0.8	0.0
Khost	4.3	7.2	90.6	2.9	0.0	0.0	2.9	0.7	0.0
Kunar	5.7	2.8	85.8	0.3	0.0	5.1	0.0	3.2	0.0
Laghman	1.4	18.2	63.9	2.0	0.0	5.1	20.9	4.1	0.3
Logar	16.8	5.8	69.4	0.6	0.0	6.9	0.0	0.0	0.0
Nangarhar	7.6	15.9	51.9	8.1	2.1	9.3	0.7	0.3	0.3
Paktya	18.2	10.7	36.0	0.4	0.4	27.3	4.7	0.0	2.0
Parwan	11.3	51.9	45.3	2.8	0.0	35.8	3.8	0.0	0.0
Samangan	0.2	3.5	72.9	1.5	0.0	23.5	0.0	0.0	0.4
Saripul	78.1	10.1	9.4	0.2	0.0	0.7	0.2	0.2	0.4
Takhar	19.7	42.8	45.2	0.6	0.3	2.8	0.0	3.4	0.0
Wardak	12.5	25.0	35.3	0.0	0.7	26.5	0.0	1.5	4.4
Malaria stata									
High risk	27.7	20.0	43.4	2.5	0.5	4.3	2.2	1.0	0.3
Low risk	31.4	16.3	39.2	0.6	0.2	13.4	1.2	0.3	0.8
No risk	43.3	22.8	14.4	0.0	0.0	17.2	0.0	0.0	0.0
Household Wealth									
Most Poor	34.4	19.4	36.8	1.4	0.1	7.7	1.8	0.7	0.5
Very poor	33.4	18.3	38.7	2.0	0.4	6.8	1.3	0.7	0.4
Poor	22.3	18.9	46.7	1.5	0.4	9.1	2.4	1.0	0.7
Less Poor	19.6	19.0	45.2	2.0	0.5	12.4	2.9	0.5	0.3
Least Poor	8.1	16.2	60.1	0.0	0.7	13.5	3.4	0.0	1.4
Total	**29.6**	**18.5**	**41.2**	**1.7**	**0.4**	**7.9**	**1.8**	**0.7**	**0.5**

Table 5.8 Household members exposure to and source of malaria information, education and communication, Afghanistan MIS 2014

	Received IEC	Did not receive IEC	Radio	Newspapers	Health Facility	Work Place	School	Mosque	Educational Materials
Member									
Male	68.5	31.5	25.2	4.9	21.9	3.9	18.6	14.9	5.2
Female	53.5	46.5	14.1	1.8	18.7	0.8	8.6	2.5	1.9
Residence									
Urban	75.2	24.8	21.5	3.6	45.1	2.2	12.4	15.6	2.4
Rural	57.4	42.6	18.6	3.0	16.3	2.0	13.2	6.6	3.3
Province									
Badakhshan	33.9	66.1	18.0	1.5	10.1	0.5	3.9	2.8	0.0
Baghdis	35.3	64.7	4.7	5.6	3.0	0.4	9.5	8.2	6.0
Baghlan	67.5	32.5	18.7	0.7	7.0	1.0	17.7	1.9	0.2
Balkh	39.1	60.9	19.3	1.6	7.6	0.4	18.2	3.9	6.6
Bamyan	33.9	66.1	16.7	6.1	13.3	3.9	8.3	1.7	16.1
Daykondi	15.6	84.4	5.6	1.3	6.1	4.3	0.9	6.9	0.4
Jawzjan	59.8	40.2	40.9	0.6	37.2	10.4	10.4	19.5	1.8
Kabul	50.9	49.1	22.8	1.2	5.3	2.0	13.1	9.0	1.4
Kanduz	95.3	4.7	3.6	0.5	74.5	10.4	12.0	12.0	5.7
Kapisa	41.9	58.1	21.7	3.1	24.0	3.9	5.4	7.0	0.0
Khost	72.7	27.3	37.4	17.3	15.8	0.0	20.9	6.5	7.9
Kunar	84.5	15.5	69.9	6.6	55.4	0.9	28.2	24.7	4.7
Laghman	98.3	1.7	15.9	4.7	34.1	2.4	11.8	2.7	11.1
Logar	34.1	65.9	17.9	6.9	11.0	1.2	12.7	7.5	0.6
Nangarhar	76.7	23.3	10.0	5.0	11.6	2.1	12.6	6.5	2.5
Paktya	96.0	4.0	15.4	0.8	18.2	0.4	17.0	0.4	9.1
Parwan	90.6	9.4	73.6	0.9	16.0	0.9	9.4	2.8	0.0
Samangan	99.6	0.4	18.5	5.2	78.8	2.1	9.4	29.6	0.8
Saripul	20.8	79.2	1.3	0.7	7.9	1.3	11.0	3.7	1.5
Takhar	57.8	42.2	4.9	1.5	19.7	4.3	23.4	4.9	3.4
Wardak	58.1	41.9	44.9	4.4	14.0	1.5	27.2	2.2	3.7
Malaria Strata									
High risk	62.5	37.5	18.2	3.5	17.8	1.8	14.2	6.2	3.5
Low risk	56.5	43.5	20.2	2.3	23.5	2.4	11.5	10.6	1.9
No risk	33.9	66.1	16.7	6.1	13.3	3.9	8.3	1.7	16.1
Household Wealth									
Most Poor	56.9	43.1	16.0	3.2	15.1	1.4	14.5	5.0	4.2
Very poor	56.6	43.4	18.3	2.9	19.3	1.8	11.6	7.6	2.2
Poor	66.0	34.0	21.1	3.5	21.9	2.5	14.9	7.3	4.1
Less Poor	66.1	33.9	20.0	3.6	23.9	2.8	16.2	12.4	5.6
Least Poor	62.8	37.2	21.6	2.0	25.0	4.7	13.5	12.2	7.4
Total	60.0	40.0	18.9	3.1	20.1	2.2	12.9	7.9	3.3

Table 5.9 Type of malaria information, education and communication received by households members, Afghanistan MIS 2014

	No IEC received	IEC was on transmission methods	IEC was on prevention Methods	IEC was on treatment Methods
Member				
Male	51.8	19.6	21.5	11.1
Female	35.6	32.8	36.6	20.8
Residence				
Urban	26.5	46.6	49.1	32.8
Rural	47.9	22.1	24.8	13.1
Province				
Badakhshan	66.7	8.2	14.6	15.7
Baghdis	65.1	5.2	22.0	5.2
Baghlan	33.7	18.6	23.0	2.0
Balkh	62.1	28.3	25.4	12.5
Bamyan	67.8	23.9	16.1	3.9
Daykondi	89.2	10.0	4.3	5.2
Jawzjan	40.9	14.6	52.4	7.3
Kabul	72.3	10.6	14.7	3.8
Kanduz	6.3	59.4	38.5	4.2
Kapisa	62.0	3.9	32.6	3.1
Khost	27.3	58.3	49.6	38.8
Kunar	15.8	64.9	37.3	82.0
Laghman	2.7	58.1	49.7	16.9
Logar	65.9	16.8	29.5	3.5
Nangarhar	24.3	12.4	23.9	11.6
Paktya	48.6	27.3	26.1	8.3
Parwan	39.6	7.5	45.3	7.5
Samangan	0.4	82.9	75.2	59.4
Saripul	79.4	12.9	6.1	3.7
Takhar	42.8	21.2	38.5	2.8
Wardak	40.4	26.5	22.8	27.9
Malaria				
Strata				
High risk	38.3	24.7	27.3	16.1
Low risk	54.8	25.9	29.4	15.4
No risk	67.8	23.9	16.1	3.9
Household				
Wealth				
Most Poor	47.7	27.2	24.4	7.5
Very poor	47.5	22.8	25.6	16.4
Poor	41.1	28.4	31.8	17.7
Less Poor	38.3	30.1	34.7	15.4
Least Poor	38.5	23.6	39.9	12.8
Total	44.8	25.3	28.0	15.3

Table 5.10 Household members responses to whether they have had malaria before or knew someone who died of malaria, Afghanistan MIS 2014

	Have you ever had malaria yourself	Hs another household member ever had malaria	Someone ever died of malaria	Number of persons interviewed
Member				
Male	29.8	33.4	1.8	3449
Female	30.0	35.6	2.0	4521
Residence				
Urban	43.5	41.8	0.4	922
Rural	27.9	33.7	2.2	6514
Province				
Badakhshan	22.5	28.5	1.1	815
Baghdis	48.7	24.6	0.0	232
Baghlan	26.6	41.7	0.3	587
Balkh	1.0	5.7	0.0	512
Bamyan	3.3	7.2	0.0	180
Daykondi	2.2	5.2	0.4	231
Jawzjan	7.9	17.1	2.4	164
Kabul	7.1	15.0	0.6	658
Kanduz	77.6	55.7	0.0	192
Kapisa	15.5	14.0	0.0	129
Khost	35.3	25.9	0.0	139
Kunar	89.2	94.6	12.3	316
Laghman	84.5	98.6	15.2	296
Logar	11.0	17.9	0.0	173
Nangarhar	50.8	54.6	1.3	1061
Paktya	6.3	12.6	2.0	253
Parwan	19.8	21.7	1.9	106
Samangan	22.3	24.4	4.0	480
Saripul	0.0	0.0	0.0	456
Takhar	59.7	76.0	0.6	325
Wardak	34.6	63.2	0.0	136
Malaria Strata				
High risk	42.9	47.4	2.5	4475
Low risk	10.6	16.0	1.3	2786
No risk	3.3	7.2	0.0	180
Household Wealth				
Most Poor	27.5	34.8	2.7	854
Very poor	31.2	35.8	1.8	4213
Poor	30.5	35.3	2.1	1608
Less Poor	25.4	29.1	2.0	611
Least Poor	12.8	16.9	0.7	148
Total	29.9	34.6	1.9	7970

CHAPTER SIX: MALARIA INFECTION PREVALENCE

9,099 individuals were tested for malaria using microscopy of which 305 (3.4%) were positives (Table 6.2). The national prevalence of malaria was higher in rural areas and in the high malaria risk strata. There were no reports of malaria infections in the 'No risk' malaria strata. Among the positive individuals, the percentage of *Plasmodium vivax* was 90.2% while *Plasmodium falciparum* was 6.9%. Urban areas had only *P. vivax* cases. About 9.2% of all positive cases were reported from Kunar province and 8.6% from Khost province.

Table 6.1 The prevalence of malaria infection measured using microscopy, Afghanistan MIS 2014.

				Positive for malaria		
	% positive	**Number positive**	**Number of people tested**	**% Pv**	**% Pf**	**% Mixed**
Residence						
Urban	1.9	22	1180	100.0	0.0	
Rural	3.6	282	7735	89.4	7.4	3.2
Malaria strata						
High risk	4.9	268	5507	89.2	7.5	3.4
Low risk	1.1	36	3244		2.8	
No risk	0	0	167			
Province						
Badakhshan	0.9	6	695	100.0		
Baghdis	0.0	2	223	100.0		
Baghlan	0.1	1	794	100.0		
Balkh	3.8	26	680	100.0		
Bamyan			167			
Daykondi			155			
Jawzjan			200			
Kabul	1.2	9	754	100.0		
Kanduz*	1.6	5	318	80.0	20.0	
Kapisa	0.8	1	132	100.0		
Khost	8.6	13	152	100.0		
Kunar	9.2	68	737	88.2	11.8	
Laghman	7.8	48	612	75.0	12.5	12.5
Logar	0	0	337			
Nangarhar	8.8	99	1128	91.9	5.1	3.0
Paktya	1.2	3	249	100.0		
Parwan	7.6	11	144	100.0		
Samangan			571			
Saripul	0.2	1	511	100.0		
Takhar			167			
Wardak*	5.8	11	191	90.9	9.1	
Total	**3.4**	**305**	**9099**	**90.2**	**6.9**	**3.0**

*One Pf case in Kunduz and one Wardak province were imported cases from Nangarhar

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Annex 1 General description of data used in the report

Chapter 2	
2.1	Total number of individuals: **13006;** Individuals linked with HH: **12160;** Individuals not linked with the HH: **846**
2.2 to 2.4	Total number of HH: **3191**
2.5	Women aged 15-49 years**:4011;** Women aged 15-49 years linked with HH**:3712:** Women aged 15-49 years not linked with the HH**: 299**
2.6	Members who travelled:2**83;** Members who travelled linked with HH:**263**;Members who travelled not linked with the HH: **20;** Some members travelled both within and outside
Chapter 3	
3.1	HH with net data**: 3284;** HH with net data linked with main HH file**:2995;** HH with net data not linked with the HH**: 289**
3.2	Number of individuals**: 13006;** Individuals linked with net data**: 11453;** Members slept under net last night not linked with HH file**:1553**
3.3	Number of individuals**: 13006;** Individuals linked with net data**: 11453;** Members slept under net last night not linked with HH file**:1553**
3.4	Children under 5**: 816;** Children under 5 linked with HH**: 801;** Children under 5 not linked with HH**: 15**
3.5	Pregnant women**: 356;** Pregnant women linked with HH**: 335;** Pregnant women not linked with HH**: 21**
3.6 to 3.9	HH with net data**: 3284;** HH with net data linked with main HH file**: 2995;** HH with net data not linked with the HH**: 290**
Chapter 4	
4.1	Total number of individuals**: 13006;** Individuals linked with HH**: 12160;** Individuals not linked with the HH**: 846**
4.2	Total Individuals with fever in the last 2 weeks**:323**
4.3	Total Individuals with fever in the last 2 weeks linked with HH**: 304;** Total Individuals with fever in the last 2 weeks not linked with HH**: 19**
4.4 and 4.5	Individuals who took action: **240**; Individuals who took action linked with HH: **226**; Individuals who took action not linked with HH: **14**
4.6	Individuals who took action: **240**; Individuals who took action and were given antimalarial: **69**; Individuals who took action and were given antimalarial and mentioned type of antimalarial: **9**
4.7	Individuals who took action: **240**; Individuals who took action Linked with HH: **226**; Individuals who took action not linked with HH: **14**

4.8	Individuals who took action: **240**; Individuals who took action and were given antimalarial: **69**; Individuals who took action and were given antimalarial and mentioned type of antimalarial: **9**
4.9	Individuals who didn't take action: **67**; Individuals who didn't take action linked with HH: **65**; Individuals who didn't take action not linked with HH: **2**
4.10	Total Individuals resolved fever: **238**; Total Individuals resolved linked with HH: **224**; Total Individuals resolved fever not linked with HH: **14**
4.11 and 4.12	Individuals who took action: **240**; Individuals who took action Linked with HH: **226**; Individuals who took action not linked with HH: **14**
Chapter 5	
5.1	Main HH linked with net data**: 2995;** HH not using net linked with main HH**: 1715**
5.2 and 5.3	Main HH linked with net data**: 2995;** HH using nets linked with main HH file**: 1279**
5.4	Main HH linked with net data**: 2995;** HH using nets not linked with main HH file**: 127**
5.5 to 5.9	Individuals with knowledge**: 7970;** Individuals with knowledge linked with HH**: 7441;** Individuals with knowledge not linked with HH**: 529;** Only for members of at least 12 years
Chapter 6	
6.2	Individuals linked with microscopy data **9099**; Individuals measured using microscopy Linked with HH: **8914**; Individuals measured using microscopy not linked with HH: **185**

Annex 2 Questionnaires

THE THIRD MALARIA INDICATORS SURVEY – AFGHANISTAN, 2014

HOUSEHOLD QUESTIONNAIRE (FORM – H)

1. **HOUSEHOLD UNIQUE ID** = |___|___| |___|___| |___|___| |___|___|___|**

This form is to collect information on household members, household characteristics and bed nets

Survey team and field supervisor Date of interview **|___|___|**
|___|___|

Name of interviewers 1. |_____| 2.
|_____|
Name of Lab. technicians 1. |_____| 2.
|_____|
Name of supervisor 1. |_____| 2.
|_____|

Name(s) of person who revised the questionnaire 1. |_____| 2.
|_____|
Name(s) of the person who coded the format 1. |_____| 2.
|_____|
Name(s) of the person who revised the coding 1. |_____| 2.
|_____|
Name(s) of the person who entered the data 1. |_____| 2.
|_____|

Important notes **

1. Make sure to write the unique ID (no.1) as instructed (Province code /village code/ household number)
2. While collecting data, don't write in the box in front of each question
3. All questions bear one possible answer except those marked with *

Number of slides returned |_____|_____|

Members who refused blood testing |_____||_____||_____||_____||_____||_____|

Members who were not present at time of survey
|_____||_____||_____||_____||_____||_____|

	2. Province |_____|
	3. District |_____|
	4. Village |_____|
	4.1 (1)Urban (2) Rural
	5. Household number |___|___|___|
	6. Number of permanent residents of the household **|___|___|**
	7. Number of permanent residents who spent the previous night in the household. **|___|___|**
	8. Latitude |_____||_____||_____|.|_____||_____||_____||_____||_____|
	9. Longitude |_____||_____||_____|.|_____||_____||_____||_____||_____|

Ask about household members. Provide information on all permanent residents/visitors of this household

61	A	B	C	D	E	F	G	H	I	J
No. of household member	Name	Father's name	Visitor No.....1 Yes ……..2	Age in (years) (0 if <1)	Age in months if<1year (0 if >1)	Sex Male.1 Female …2	**If female 15-49 years**, ask if Pregnant the time of survey No.....1 Yes ……..2 Don't know….3	Sleep in household last night No ……..1 Yes ……..2	**If Yes to G,** Did you Sleep under bed net last night No.....1 Untreated……..2 ITN.....3 LLIN.....4	Present in household at the time of survey No ……..1 Yes ……..2
01										
02										
03										
04										
05										
06										
07										
08										
09										
10										

Member of the household providing the information (specify number) |___|___|

	A	B	C	D	E	F	G	H	I	J
No. of household member	Name	Father's name		Age in (years) (0 if <1)	Age in months if <1 year (0 if >1)	Sex Male .....1 Female .2	**If female 15-49 years**, ask if Pregnant the time of survey No.....1 Yes .....2 Don't know....3	Sleep in household last night No .....1 Yes 2	**If Yes to G,** Did you Sleep under bed net last night No.....1 Untreated.....2 ITN.....3 LLIN.....4	Present in household at the time of survey No .....1 Yes 2
11										
12										
13										
14										
15										
16										
17										
18										
19										

20										

Member of the household providing the information (specify number) |___|___|

Information about the head of the household and the house

17. Sex of the head of the household (1) Man (2) Woman
18. Is the head of the household able to (1) Read & Write (2) Read only (3)Neither
19. Education attainment of the head of the household (completed)
    (0) Never been to school (1) Madrasa /Religious education (2) <6 years (3) Primary - 6 years
    (4) Middle school -9 years (5) High school-12 years (6) University or higher

Household construction type (1) Mud (2) Bricks (3) Cement (4) Stone

Which type of window have your HH (1)Window with glasses (2) Window with screen (3) Window with curtain (4)Window without glass

20. The number of rooms or quarters in the household |____|____|
21. How many sleeping rooms in the household |____|____|
21. What is the source of water in the household ** *(tick all that apply)*
    (1) Piped Inside Dwelling (2) Piped to a Nearby Spot (3) Well/Spring (4) Rain Water/Dam
    (5) Tanker Truck (6) Pond/River (7) Bottled Water (8) Others mention |_____|
22. What is the type of toilet in the household ** *(check all what apply)*
    (1) Flush (2) Pit Latrine (3) Trench/Bucket (4) Bush; (5) Others mention |_____|

Does the household have

23. Electricity	(1) No	(2) Yes
24. Radio	(1) No	(2) Yes
25. Television	(1) No	(2) Yes
26. Telephone /mobile telephone	(1) No	(2) Yes
27. Refrigerator	(1) No	(2) Yes
28. Fan	(1) No	(2) Yes
29. Air Conditioner	(1) No	(2) Yes

Does any member of your household have

30. Bicycle	(1) No	(2) Yes
31. Motorcycle or motor scooter	(1) No	(2) Yes
32. Car or truck	(1) No	(2) Yes

Livestock possessed by family

33. Does the family possess any livestock (1) no (2) yes
34. Goats (specify the number of heads) |____|____|____|____| (-1) don't have livestock
35. Sheep (specify the number of heads |____|____|____|____| (-1) don't have livestock
36. Cows (specify the number of heads) |____|____|____|____| (-1) don't have livestock
37. Donkeys (specify the number of head) |____|____|____|____| (-1) don't have livestock

Preventive measures around the household

38. Does the family possess bed nets (1) no (2) yes

<u>If Q38 yes proceed</u> **<u>if no ask question 52,53&57</u>**

39. How many mosquito nets does the household have |___|___| (999) don't have net
40. Number of untreated nets |___| (999) don't have net
41. Number of ITN |___| (999) don't have net

	42. Number of LLITN	**|___|**	**(** 999) don't have net
	43. Number of locally made nets	**|___|**	**(** 999) don't have net

Please provide information about the bed nets available for household members

	Net number	Net 1	Net 2	Net 3	Net 4	Net 5	Net 6	Net 7
44 A-G	Ask to see the net available	Not observed ....1 Observed 2	Not observed ....1 Observed 2	Not observed ....1 Observed 2	Not observed ....1 Observed 2	Not observed ....1 Observed 2	Not observed ....1 Observed 2	Not observed ....1 Observed 2
45 A-G	Net condition* ***See coding details at the end of table***	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused	1-No holes 2-Fair 3-Poor 4-Unsafe 5-Unused
46 A-G	Source of net	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........6 Others ....7. |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........6 Others ....7 |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........6 Others ....7 |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........6 Others ....7 |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........6 Others ....7 |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........7 Others ....6 |______________|	Don't know ....0 Private shop ......1 Clinic ....2 NGO ....3 EPI.......................4 ANC....................5 Campaign...........7 Others ....6 |______________|
47 A-G	Since how long do you have this bed net	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]	Don't know ....0 0-6 months [__] 7-12 months [__] 12-36 months[__] >36 months [__]
48 A-G	Type of the bed net available	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4	Non-treated ......1 ITN ....2 LLIN ....3 Locally made.....4

49 A-G	No. of those who slept under the net last night	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|	None……………..0 Member 1 ID|__| Member 2 ID|__| Member 3 ID|__|

*__Fair__= no holes larger that fit a normal torch battery; **Poor**= 1 to 4 holes that fit a torch battery; **Unsafe** =>5 holes that fit a torch battery; **Unused**= net still in package

<u>Skip questions 51 & 52 then Complete question on bed nets by asking question 53to 56</u>

BED NETS – KNOWLEDGE, ATTITUDES AND PRACTICES

IF NO BED NETS ARE AVAILABLE IN HOUSEHOLD ASK Q. 50 & 51

50. What is the reason for not having a net in the household

	52.1. Never heard of bed nets	(1) Not mentioned	(2) mentioned
	52.2. Price of bed net is not affordable	(1) Not mentioned	(2) mentioned
	52.3. No one is selling bed nets in the area	(1) Not mentioned	(2) mentioned
	52.4. Mosquito is not a problem in the area	(1) Not mentioned	(2) mentioned
	52.5. Malaria is not a problem in the area	(1) Not mentioned	(2) mentioned
	52.6. Nets don't reduce or eliminate the risk of mosquito bite	(1) Not mentioned	(2) mentioned
	52.7. Nets don't reduce or eliminate the risk of malaria	(1) Not mentioned	(2) mentioned
	52.8. Not practical to sleep under bed net	(1) Not mentioned	(2) mentioned
	52.9. Mosquito still bite even when sleeping under net	(1) Not mentioned	(2) mentioned
	52.10. Not enough space to hang the net	(1) Not mentioned	(2) mentioned
	52.11. Insecticide included is dangerous for health	(1) Not mentioned	(2) mentioned
	52.12. Others |_____|	(1) Not mentioned	(2) mentioned
	52.13. Others |_____|	(1) Not mentioned	(2) mentioned

51 If a bed net is provided will you use it

	(1) No at all	(2) Yes some nights	(3) Yes every night

IF BED NETS ARE AVAILABLE IN THE HOUSEHOLD ASK Q 52 TO 54

52. What is the main reason for using bed net

	(1) Protection from mosquito/insect bite	(2) Preventing malaria	(3) Both
	(4) others (specify) |_____|		

53. Advantages of sleeping under bed net **(0) Has no advantage**

	54.1. Avoid the painful bite of mosquito/other insects	(1) Not mentioned	(2) mentioned
	54.2. Minimize/eliminate the risk of Malaria	(1) Not mentioned	(2) mentioned
	54.3. Sleep better when sleeping under net	(1) Not mentioned	(2) mentioned
	54.4. Others |_____|	(1) Not mentioned	(2) mentioned
	54.5. Others |_____|	(1) Not mentioned	(2) mentioned

54. Disadvantages of sleeping under bed net **(0) Has no disadvantage**

	55.1. Sleeping place get too warm /hot	(1) Not mentioned	(2) mentioned
	55.2. Feel that there is no enough air	(1) Not mentioned	(2) mentioned
	55.3. Mosquito still bite	(1) Not mentioned	(2) mentioned
	55.4. Takes time to tuck it in every night	(1) Not mentioned	(2) mentioned
	55.5. Difficult when getting up in the might	(1) Not mentioned	(2) mentioned

	55.6. Others |_____|	(1) Not mentioned	(2) mentioned
	55.7. Others |_____|	(1) Not mentioned	(2) mentioned

55. Malaria in the household (for all participants)

	57.1. Any member of the household ever had malaria	(1)No	(2) Yes
	57.2. Any member of household had malaria in last 3 months	(1)No	(2) Yes
	57.3. Any member of the household died from malaria	(1)No	(2) Yes

END HOUSEHOLD INTERVIEW AND PROCEED WITH INDIVIDUAL INTERVIEW

THE THIRD MALARIA INDICATORS SURVEY – AFGHANISTAN, 2014

INDIVIDUAL QUESTIONNAIRE (FORM – I)

1. **Member unique ID |___|___| |___|___| |___|___| |___|___|___| |___|___|**

2. **Member Name _____**

Information on malaria morbidity and health seeking behavior among ALL AGES

Rapid Diagnostic Test	(1) REFUSE BLOOD TEST	(2) TEST DONE
Blood film	(1) REFUSED BLOOD TEST	(2) TEST DONE

5. Age |__|__| Years completed [0] if < 1 year

6. Age |__|__| Months completed [0] if ≥ 1 year

7. Sex (1) male (2) female [if male skip to Q 9]

8. Total number of previous pregnancies |___|___| (0) None

9. Pregnancy at the time of interview (1) No (2) Yes

10. Are you able to read and write
(1) read (2) read & write (0) neither (-1) Below education age [under 6 year]

11. Educational attainment (completed)
(0) Never been to school (1) Madrasa/ Religious education (2) <6 years (3) Primary - 6 years
(4) Middle school-9 years (5) High school-12 years (6) University or higher (-1) Below education age

12. Are you still studying (1) No (2) Yes (0) Never been to school (-1) Below education age

13. Are you employed or in a self-employed job (1) No (2) Yes

14. Type of job (mention)
|_____|
(1) Professional (2) Semi-Professional (3) Skilled (4) Semiskilled (4) business owner
(5) Farmer (6) Driver (0) not employed

15. Employed for (1) Cash (2) Food (0) not employed

Sleeping under bed net (this question can also be a check for net roster table)

16. Did you sleep under a bed net every night last month
(1) No (2) Yes (0) Don't have a net

17. Did you sleep under bed net last night (0) don't have bed net (1) No (2) yes
18. If yes; which type of bed net (1) Untreated (2) ITN (3) LLIN (4) Locally made

Fever at the time of the survey

19. Do you have fever now (1) No (2) Yes
20. Recorded temperature **[___|___|. [___| ^{0}C** (0) Refused taking temperature

Fever in the two weeks prior to the survey

21. Did you have fever in the 2 weeks prior to the survey
(1) No **If [NO] _____ GO TO QUESTION 43**
(2) Yes **If [YES] _____ PROCEED TO QUESTION 22**

22. When did the fever start (day/month)? |___|___|.|___|___|
23. Has the fever been resolved? (1) No (2) Yes
24When the fever was resolved (day/month)? |___|___|.|___|___|

Please - Recheck with participant and provide a summary of fever in the previous two weeks

Summary of fever in the two weeks prior to the survey

25. Fever in the previous two weeks (1) Had a fever and resolved
(2) Had a fever and still continuous

26. Duration of the fever |___|___| Days (write 01 if the fever resolved in the same day)
(Even if not resolved)

27. Was the fever associated with other symptoms? (1) No (2) Yes

28. **If YES to 27**, what were these symptoms

28.1.	Headache & malaise	(1) No	(2) yes
28.2.	Sweating and /or chills	(1) No	(2) yes
28.3.	Muscle/body/joints aches	(1) No	(2) yes
28.4.	Nausea/vomiting	(1) No	(2) yes
28.5.	Diarrhea / loose stool	(1) No	(2) yes
28.6.	Abdominal pain	(1) No	(2) yes
28.7.	Running nose	(1) No	(2) yes
28.8.	Sore throat	(1) No	(2) yes
28.9.	Cough	(1) No	(2) yes
28.10.	Difficulty breathing	(1) No	(2) yes
28.11.	Convulsions	(1) No	(2) yes
28.12.	Others (mention)	(1) No	(2) yes |_____|

☐ 29. Did you take any action to treat the **FEVER** ?

(1) No **If [NO] _____ go to Q 43 & ask why no action was taken**
(2) Yes **If [YES] _____ proceed to Q 30**

Health seeking behaviour for fever **(0) No action taken**

☐ **30. What did you do to treat the fever **(select all actions taken to treat the fever and indicate whether first action, second, third etc)**

Source	**Order of visit,** i.e. First, Second etc…
(1) Consulted a Mullah	
(2) Decided self management	
(3) Private Clinic	
(4) Consulted traditional healer	
(5) Visited a drug store	
(6) Visited health care facility	
(7) Others, specify |_____|	

If drug store or health facility were visited complete Q. 33to 38

☐ **31. Time of the action taken**
(1) < 24 hrs (2) 24 –< 48 hrs
(3) 48 – 72 hrs (4) > 72 hrs

☐ **32. Medications received**
(9) Don't know (3) Antipyretics
(1) None (4) Antibiotics
(2) Herbs/traditional medicine (5) **Anti-malarial**
(6) Others mention
|_____|

If anti-malaria drugs were received complete Q. 38 to 40

☐ **33. Outcome of treatment**
(1) Cure (2) Improvement
(3) No improvement (4) Worsen

Information on health facility **(-1) Health facility or drug store not visited**

☐ **34. Type of health facility**
Public sector (1) Health post (2)health sub center (3) Basic health care
(4) Comprehensive health care (5) District hospital (6) Provincial hospital
(8) Regional hospital

_____

Private sector (9) Private clinic (10) Private hospital (11) Drug store

	35. Travel time from home to facility	|__|__|__| minutes
	36. Waiting time at facility	|__|__|__| minutes
	37. Blood tested for malaria (1) No ; Yes and results were (2) Negative (3) Positive (9) Don't know	
	38. Cost of medical consultation (not including medications)	|__|__|__| AFG
	39. Cost of blood test (999) not tested	|__|__|__| AFG

<u>Information on anti-malaria drugs</u> **(-1) Anti-malaria drugs not received**

	40. Type of antimalarial drugs	
	(1) AS + SP (ACT)	(5) Amodiaquine
	(2) SP/Fansidar	(6) Primaquine
	(3) Chloroquine	(7) Quinine
	(4) Halofantrin	(9) Don't know
	(8) Others mention	
	|_____|	
	41. Source of antimalarial drugs	
	(1) supplied by the facility (2) bought from a drug store (3) was available at home	
	42. Cost of antimalarial drugs	|__|__|__| AFG

ASK WHY: **If participant had a fever in the two weeks prior to the survey**

Did not take any action **or** **Did not visit a health facility or drug store**

(0) Action taken & health facility sought in first action

43. A. Disease related reasons

	43A (1) Fever was mild	(1) Not mentioned	(2) Mentioned
	43A (2) Fever will resolve spontaneously	(1) Not mentioned	(2) Mentioned
	43A (3) Fever was not attributed to malaria	(1) Not mentioned	(2) Mentioned

43 B. Cost of care

	43B (1) Cannot afford the cost of consultation/medications	(1) Not mentioned	(2) Mentioned

43C. Health facility

	43C (1) Health facility is far (long travel distance)	(1) Not mentioned	(2) Mentioned
	43C (2) long waiting time at the facility	(1) Not mentioned	(2) Mentioned

43 D. Quality of health service

	43 D (1) Care at the health facility is poor/inadequate	(1) Not mentioned	(2) Mentioned
	43 D (2) Shortage of diagnostic and drugs at the health facility	(1) Not mentioned	(2) Mentioned
	43 D (3) Workers at the health facility are not efficient	(1) Not mentioned	(2) Mentioned
	43 D (4) Workers behavior at the health facility was not good	(1) Not mentioned	(2) Mentioned
	43 D (5) Workers at the health facility are not available	(1) Not mentioned	(2) Mentioned

43 E. Other mention |_____|

MALARIA RELATED HEALTH KNOWLEDGE (Unprompted then prompted)
Applicable to household members aged 12 years and above (-1) Below the age of 12 years

44. Is malaria a risk in your area? (0) Don't know (1) No risk at all
(2) Low risk (3) High risk

45. Malaria is manifested by** (0) Don't know (1) Fever (2) feeling cold/chills
(3) Sweating (4) Diarrhea (5) body pain
(6) Others |_____|

46. Malaria is transmitted by (0) Don't know (1) contaminated food and drinks
(2) contact with infected person (3) Mosquito bite
(4) bite of other insects other than mosquito
(5) air borne and droplet from infected persons
(6) Contact with birds

47. <u>Best</u> measure to prevent malaria is (0) Don't know (1) Keep the surroundings clean
(2) Use of mosquito nets (3) use of mosquito repellant
(4) Use of coils (5) screening windows
(6) spraying insecticides indoor & outdoor
(7) Taking anti-malaria drugs in the transmission season
(8) Filling up water puddles

48. Have you ever been exposed to health education about malaria (1) No (2) Yes

49. Source of education message was** (0) Did not receive education about malaria
(1) Radio /Television (2) newspapers
(3) Health facility (4) work place (5) school
(6) mosque (7) Family/friends
(8) educational materials (posters/notice)

50. Education messages addressed ** (0) Did not receive education about malaria
(1) transmission methods (2) Prevention
(3) Treatment

	51. Have you ever had malaria yourself	(1) No	(2) Yes
	52. A household member had malaria in the past	(1) No	(2) Yes
	53. Do you know someone who died from malaria	(1) No	(2) Yes

TRAVEL HISTORY SECTION

	54. Have you travelled inside or outside the country in the last two months?	(1) No (2) Yes
	55. If inside the country where did you travel?	…… …… ……
	56. When did you travel (mm/yy)?	|__|__|/|__||__|
	57. How long did you stay (days)	|__|__|__|
	58. If outside the country where did you travel?	…… …… ……
	59. When did you travel (mm/yy)?	|__|__|/|__||__|
	60. How long did you stay (days)?	|__|__|__|

RDT RESULTS

	61. What was the result of the RDT?	1. Positive; 2. Negative; 3. Invalid
	62. If Positive which parasite specie?	1. Falciparum; 2. Vivax; 3. Mixed