



OPERATIONAL MANUAL FOR MALARIA SENTINEL
SURVEILLANCE SITES ACROSS ORISSA

TABLE OF CONTENTS

ACRONYMS	1
EXECUTIVE SUMMARY	3
1. INTRODUCTION	4
2. MALARIA SURVEILLANCE	4
3. MALARIA SENTINEL SURVEILLANCE SITES	7
4. EPIDEMIOLOGICAL INDICATORS	12
5. ROLES AND RESPONSIBILITIES OF SENTINEL SITE PERSONNEL	13
5.1 Sentinel Site Medical Officer (SSMO)	13
5.2 Sentinel Surveillance Laboratory Technician (SSLT)	14
6. CONCLUSION	15
Annexure I: Material Required at Sentinel Sites	16
Annexure II: Coding for Case Recording Forms	17
Annexure III: Sentinel Site Malaria Laboratory Register	18
Annexure IV: Sentinel Site Register for OPD/IPD and Casualty	19
Annexure V: Fortnightly Report of Sentinel Site	20
Annexure VI: Case Record Form or Data Form of Blood Smear MP Positive Case-Patient	21
Annexure VII: Quality Assurance Formats	24
Annexure VIII: Form for Transmission of Case record forms from SSL to State NVBDCP)	26

ACRONYMS

ACT - Artemisinin Combination Therapy

ASHA - Accredited Social Health Activist

BS – Blood Smear

CDMO – Chief District Medical Officer

CFR – Case Finding Report.

CHC - Community Health Centre

DEO – Data Entry Operator

DHH – District Headquarter Hospital

DMO – District Malaria Officer

EQA – External Quality Assessment.

FTD - Fever Treatment Depot

HF – Health Facility

HQ – Head Quarter

HW – Health Worker

IPD – In patient Door

IQA – Institute for Quality Assurance

LT - Lab Technicians

MO – Medical Officer

MPW (M&F) - Multipurpose Workers (male & female)

NMO –Nodal Malaria Officer

NVBDCP - National Vector Borne Disease Control Programme

O&G – Obstetric & Gynecology

OPD – Outpatient Door

PW – Public Work

RDT - Rapid Diagnostic Test

SC – Sub Centre (Health)

SDH – Sub Divisional Hospital

SM – Severe Malaria

SOP - Standard Operative Procedure

SRL - State Reference Laboratory

SSL - Sentinel Site Laboratory

SSLR – Sentinel Site Laboratory Register

SSLTC - Sentinel site Laboratory Technician cum coordinator

SSMO - Surveillance Site Medical Officer

SSMR – Sentinel Site Malaria Register

UM – Uncomplicated Malaria

VBD – Vector Borne Disease

VBDC – Vector Borne Disease Control

EXECUTIVE SUMMARY

Malaria is a major public health problem in Orissa. Out of the 1.5 million cases reported annually in the country, 0.4 million cases are from Orissa. With about 4 % of India's population Orissa accounts for a quarter of the disease burden. Close monitoring of malaria in endemic areas is needed to assess the trend of the disease, attributable risk of disease complication and forecasting outbreaks. Routine malaria surveillance in India helps in deriving the epidemiological trend of the disease and death due to malaria. Infections with *Plasmodium falciparum* may become severe and even fatal if early diagnosis and case management are not timely done.

Disease Surveillance is defined as “ongoing and systematic collection, analysis, interpretation, and dissemination of health data essential to planning about cases of a specific disease; it is used as a basis for planning, implementing, and evaluating disease prevention and control activities. Disease surveillance can be for multiple diseases like IDSP and for specific diseases like malaria.

In simple words this means collection of information for useful action by those who implement and carry out public health action ; and to those who develop local, regional, national and international policies for disease prevention and control.

In active and passive surveillance of malaria, the data generated is insufficient to provide relevant information on uncomplicated and severe malaria, their outcome and trends. Therefore, a specific health facility is selected in a defined geographic area where there is greater inflow of similar cases. The data collected from such health facility provides relevant information about the trend of the disease eg: malaria over a period of time. Such sites are called Malaria **Sentinel Surveillance Sites** and the type of surveillance carried out by these sites is known as **Sentinel Surveillance for Malaria**.

The **Operational manual** has been prepared specifically for easy and day to day reference of the staff employed at sentinel sites This manual highlights the operational and managerial issues, the roles and responsibilities of the staff, identification of patients, documentation including instructions to fill the case record form and blood specimen management at the sentinel sites for efficient implementation of malaria surveillance.

The Operational Manual has been prepared by the NVDCP, Government of Orissa in collaboration with the Technical and Management Support Team and is currently being used for the training of batches of SSMOs (Sentinel Site medical officers) and SSLTs (Sentinel Site Laboratory Technicians).

1. INTRODUCTION

Malaria is a major public health problem in Orissa. Out of the 1.5 million cases reported annually in the country, 0.4 million cases are from Orissa. With about 4 % of India's population Orissa accounts for a quarter of the disease burden.

Out of the four human malaria parasites (*P. vivax*, *P. falciparum*, *P. malariae*, *P. ovale*), *P. falciparum* is the dangerous variety which causes complication leading to death. Proportions of *falciparum* malaria have been constantly increasing since 1970s (10% in 1970 to more than 80% in 2000s). These increasing trends reflect growing drug resistance to *falciparum*. Therapeutic efficacy studies also indicate that resistance to chloroquine in *P. falciparum* cases is widespread in India. Most of the resistant variants have emerged in populations living in regions endemic to malaria as a result of the selection pressure exerted by the parasite. To counter the drug resistance in parasites, the use of Artemisinin Combination Therapy (ACT) has been emphasised in the National Drug Policy - 2010 to be used by health volunteer (ASHA) as it is effective and treatment failures with ACT is are in India.

Both plasmodium infection and malaria disease are influenced by environmental factors. Young children and pregnant women are the most vulnerable groups who need immediate attention and follow up care.

Close monitoring of malaria in endemic areas is needed to assess the trend of the disease and attributable risk of disease complication and forecasting outbreaks. Routine malaria surveillance in India helps in deriving the epidemiological trend of the disease and death due to malaria. Infections with *Plasmodium falciparum* may become severe and even fatal if early diagnosis and case management are not timely done.

Recently a new plasmodium species called Plasmodium Knowlesie has been discovered in Malaysia but not yet found in India.

2. MALARIA SURVEILLANCE

2.1 Disease Surveillance

Disease Surveillance is defined as "ongoing and systematic collection, analysis, interpretation, and dissemination of health data essential to planning about cases of a specific disease; it is used as a basis for planning, implementing, and evaluating disease prevention and control activities. Disease surveillance can be for multiple diseases like IDSP and for specific diseases like malaria.

In simple words this means collection of information for useful action by those who implement and carry out public health action ; and to those who develop local, regional, national and international policies for disease prevention and control.

we will deal here only with **Malaria surveillance**.

2.2 What are the various components of Malaria Surveillance?

The various components of Malaria Surveillance in India are as follows

- a) **Data collection:** The process by which data on malaria cases and deaths etc are collected and recorded in the reporting format.
- b) **Compilation and Analysis:** The above collected data on malaria is arranged and tabulated and analysed. From this useful information is derived about the time, place and person characteristics. Analysis is done at village, Sub-centre, Block, District, State and country level.
- c) **Dissemination and Communication:** Proper and timely dissemination of information is done to key stakeholders who need to take action to implement control and preventive measures.

2.3 What are the types of Malaria Surveillance?

The various types of Malaria Surveillance are as follows:

- **Passive Surveillance:** when the patient presents herself/himself to the health providers like ASHA/FTD, MPW (M&F) and other Health facilities.
- **Active Surveillance:** when the health provider (ASHA/FTD, MPW (M&F) visits the households and detect Malaria cases during his/her routine visit or during outbreak situation.
- **Sentinel Surveillance:** It is a type of passive surveillance done at selected sites where there is inflow of a large number of malaria cases. Sentinel site laboratories of Malaria are usually located in District Head quarters Hospitals/ Sub-divisional Hospitals/CHCs/ Medical college hospitals/ Corporate and private hospitals.

2.4 Why Sentinel Surveillance for Malaria?

In active and passive surveillance of malaria, the data generated is insufficient to provide relevant information on uncomplicated and severe malaria, their outcome and trends. Therefore, a specific health facility is selected in a defined geographic area where there is greater inflow of similar cases. The data collected from such health facility provides relevant information about the trend of the disease eg: malaria over a period of time. Such sites are called Malaria **Sentinel Surveillance Sites** and the type of surveillance carried out by these sites is known as sentinel surveillance for malaria.

The overall purpose of Sentinel surveillance is early diagnosis and reporting, efficient case management at hospital level, tracking the hospitalized severe malaria cases and clinical suspicion for any drug resistance

2.5 What are the laid down Norms for establishing Malaria Sentinel Surveillance sites?

A minimum of two sentinel sites will be established in high burden district initially and will be considered for expansion later on. Medical colleges/District / Sub- district hospitals/CHCs/Corporate and private hospitals with large OPD and inpatient case loads qualify the site as sentinel site.

In summary Sentinel Surveillance site for malaria is meant to:

- Assess the magnitude and pattern of cases and deaths due to malaria in the region
- Analyse the factors responsible for complicated malaria
- Improve the referral of cases from the surveillance site hospitals to higher health care facility
- Improve the capacity of medical and paramedical staff in efficient management of severe malaria cases
- Pre-empting development of any resistance to ACT by Plasmodium falciparum parasite

3. MALARIA SENTINEL SURVEILLANCE SITES

3.1. What is the manpower requirement for establishing the Malaria Sentinel Surveillance Site at an identified site?

Minimum manpower required for establishing a Malaria Sentinel Surveillance site is as follows

- a) Sentinel site Laboratory Technician cum coordinator (SSLTC)
- b) Nodal Medical Officer for the Malaria Sentinel Surveillance Site (SSMO):
Medicine specialist or Pediatric specialist or any Senior Medical officer looking after Medical wards

(In Orissa Sentinel Site Lab Technicians has been designated as Sentinel site Lab Technician – cum – coordinator as she/he has to coordinate with others besides lab technician work)

Other manpower (support staff):

- a) Data entry operator
- b) Support staff

3.2. What are essential laboratory facilities that need to be available at the Malaria Sentinel Surveillance site?

- Blood Smear for examination of malarial parasites including their density
- RDTs to test malaria during emergency hours, absence of electricity, microscope being out of order and of laboratory technician on leave.

Note: The Sentinel site Laboratory must follow the standard NVBDCP guidelines and ensure the quality.

A list of equipment required has been placed at relevant annexure.

3.3. Functioning of the Malaria Sentinel Surveillance Site

Category	Nature of work	Person Responsible	Transportation	Transmission of Results and Reports
Blood test by Microscopy and RDT	<ul style="list-style-type: none"> • BS collection from OPD/IPD during the routine hrs in the morning • RDT and BS collection during emergency hrs and in absence of LT • Recording in malaria registers at OPD/ Causality/IPD(Med, Paed, O&G ward) • Filling of Case record form of positive cases and maintain SSLR • BS examination at SSL • Report transmission 	<ul style="list-style-type: none"> • SSLTC/Staff Nurse • Staff nurse/Pharmacist during emergency hrs and in absence of LT • Staff Nurse/Pharmacist • SSLTC with help of Abstracts from OPD/IPD registers or Staff 	<ul style="list-style-type: none"> • BS: SSLTC and attendant of SSLTC/ ward • SSLTC or attendant on the following day • SSLT to record the abstracts from OPD and IPD registers in SSLR • SSLT • SSLT • SSLT 	<ul style="list-style-type: none"> • SSLTC/ SSMO/Staff Nurse to treating physician • Staff Nurse /Pharmacist to the treating physician • SSLTC to update the abstracts from OPD and IPD registers of the suspected cases of malaria who have undergone RDT/BS • SSLTC • SSLTC • SSLTC • SSLTC • SSLT / DEO/VBDC/DMO

Category	Nature of work	Person Responsible	Transportation	Transmission of Results and Reports
	concerned officers and State HQrs	<p>Nurse/pharmacist</p> <ul style="list-style-type: none"> • SSLTC • SSLTC <p>Person Responsible</p>		
Documentation	Sentinel site malaria Lab Register	SSLT		
	Sentinel site Malaria register at wards, casualty and OPD	Staff Nurse/Pharmacist	Recording of abstracts by SSLTC	Recording of abstracts by SSLT in the SSLR
	Case record forms of all positive cases	SSLTC	SSLTC	SSLTC
	Fortnight report compilation and onward transmission	SSLTC/DEO/VBD		SSLTC/DEO/VBD

3.4. Documentation to be carried out at the Malaria Sentinel Surveillance site

a) Sentinel Site Malaria Register (SSMR for IPD):

All admitted (IPD) cases of suspected malaria who are advised blood test for malaria to be entered in this register. This register will be filled up by the Staff Nurse/ Pharmacist on duty in Med, Paed and O&G ward. The abstract from the SSMR (IPD) is to be taken down by the SSLTC on the following day of his/her visit to the ward in the SSLR

b) Entries on suspected cases of malaria attending OPD who are advised for blood test will also be made in the SSMR for OPD by the Staff Nurse or Pharmacist who are advised for blood test for malaria.

c) Sentinel site Laboratory Register (SSLR):

All the cases of suspected malaria admitted to indoor or advised by service provider at the health facility ie OPD or the cases that come directly to the Sentinel site for malaria parasite from both IPD &OPD is to be entered in to the register. This is to be filled up by the SSLT. In addition the abstract from the SSMR of casualty, OPD and IPD is to be updated in the SSLR to avoid duplication and missing of cases each day.

d) Individual Case history records of confirmed malaria cases of IPD and OPD:

The individual case record forms to be filled up by SSLT at the earliest to avoid loss to follow up.

Note: Relevant formats and instructions regarding filling of the SSLR, SSMR (OPD, IPD and casualty) and individual case history records of confirmed malaria cases have been placed at annexure

3.5. Standard Operating Procedure for onward transmission of reports

Report Transmission-

a) Sentinel site report- A [fortnightly] [OPD cases]

b) Sentinel site report- B [fortnightly] [IPD cases]

The fortnightly reports are generated from data collated from **Sentinel Site Malaria Register (SSMR) and Laboratory Register (SSLR)**. The reports are tabulated by Sentinel Site laboratory Technician –cum – coordinator (SSLTC) and are supervised by Sentinel Site Medical Officer (SSMO). They are then sent to the District Malaria Officer (DMO) and VBDC for analysis, interpretation and further needful action. These fortnightly reports require additional data such

as total number of outpatients, total number of inpatients and total number of inpatient death in the sentinel site health facility. This will be collected fortnightly by SSLT and tabulated for further

Case history records forms are analyzed by the SSMO and the output is sent to DMO and VBDC for action.

An annual summary is prepared from the annual output of sentinel site as a part of annual malaria report.

Summary:

ACTION	INITIATED BY WHOM
Data collection	SSLTC/ Staff Nurse /Pharmacist
Data compilation	SSLTC/DEO/VBDC
Report generation	SSLTC/DEO/VBDC/SSMO
Analysis	SSLTC,SSMO,DMO, VBDC, NMO
Interpretation	SSMO, DMO,VBDC, Nodal Malaria Officer
Feedback	All the above
Action	BMO, DMO, CDMO, State VBD cell

Note:

- i) Report will disseminate to the next higher level by 10th of each month.
- ii) Feedback from the higher level to reach the district by 20th of each month.
- iii) IQA and EQA as per guidelines of Quality assurance

4. EPIDEMIOLOGICAL INDICATORS

The following indicators are to be derived from the data obtained from sentinel site report

SI No	Indicator (age/ sex/block details to be included in confirmed cases)	Description	Break down [with %]	Data Source
1.	Total no of OPD cases during the fortnight/month	Self evident	Age, sex, ,Blcok	OPD register/ Record room
2.	Total number of patients admitted to indoor during the fortnight/month	Self evident	Age (<1,1-4,5-14,>15) Clinically suspected/confirmed M/F, Pv/Pf, PW,SC/Block	Record room register/SSLR
3.	No. of cases of suspected severe malaria admitted to indoor	Self evident	As above	Record room/SSLR
4.	No. of confirmed malaria death(Govt RDT/BS)	Self evident	As above	Record room/SSLR
5.	% OPD cases attributed to malaria	Total no. of confirmed malaria cases of OPD/ total OPD cases X 100	Age(<1,1-4,5-14,>15), sex, PW, Clinically suspected/confirmed, Pv/Pf, SC/Block	Record room/SSLR
6.	%IPD cases attributed to malaria of the total Indoor patients	Total no. of confirmed IPD malaria cases/total IPD cases X 100	Age, sex, pw, SC and Block	Record room/SSLR
7.	% IPD cases attributed to malaria of the suspected malaria admitted	Total no. of confirmed IPD malaria cases/total suspected malaria IPD cases X 100	Age, sex, pw, SC and Block	Record room/SSLR
8.	Proportional Mortality due to malaria	No of deaths due to confirmed (Govt RDT/BS) malaria/ Total deaths in hospital X 100	Age(<1,1-4,5-14,>15), sex, PW, Clinically suspected/confirm	Record room/SSLR

SI No	Indicator (age/ sex/block details to be included in confirmed cases)	Description	Break down [with %]	Data Source
			ed, Pv/Pf, SC/Block	
9.	CFR of Falciparum malaria	No of confirmed Pf (Govt RDT/BS)deaths/ Total no of Pf malaria cases (OPD+IPD) X 100	Age(<1,1-4,5-14,>15), sex, PW, Clinically suspected/confirmed, Pv/Pf, SC/Block	Record room/SSLR
10.	CFR of confirmed severe malaria	No of confirmed severe malaria death (Govt RDT/BS)/ Total no of confirmed severe malaria cases X 100	Age(<1,1-4,5-14,>15), sex, PW, Clinically suspected/confirmed, Pv/Pf, SC/Block	Record room/SSLR

5. ROLES AND RESPONSIBILITIES OF SENTINEL SITE PERSONNEL

5.1 Sentinel Site Medical Officer (SSMO)

1. SSMO is responsible for all arrangements and activities for malaria surveillance at the Sentinel surveillance site. He/she should attend the periodic trainings conducted for surveillance by state NVBDCP
2. Conduct onsite training of the staff involved in surveillance activities. This includes -Medical officers of hospital CHC, SSLT, Staff Nurse, Pharmacist , Ward attendants
3. He/ She should ensure that Standard Operative Procedures (SOPs) are complied with by the staff while collecting, processing ,storing and examining blood slides and conducting RDT
4. SSMO to check the SSMR, SSLR, case record forms or completeness, discuss issues if any with concerned staff and guide them. She/he monitor the progress in blood slide collection on a daily basis
5. Arrange for the collection, transportation and examination of blood slides on daily basis and in emergency hours and ensure that results of blood slide examination are provided immediately to the treating physician
6. Contact the state NVBDCP officials for any clarification/problem regarding staff, availability of the listed consumables, user manuals, flow charts, case record forms and other methodological issues.

5.2 Sentinel Surveillance Laboratory Technician (SSLT)

1. To record the particulars of Blood slides in Sentinel Site Malaria laboratory registers (SSLR) and fill up the case record forms.
2. Collect blood specimen following universal bio-safety measures and guidelines of bio-waste management.
3. Strictly follow the instruction for labelling and ensure appropriate labelling of specimens for routine testing and surveillance and collect blood specimen following universal bio-safety measures and guidelines of bio-waste management.
4. Take all precautionary measures to avoid damage to specimens during transportation and SOP of staining (contamination, poor staining) Follow SOP for staining of slides and conduct examination of slides
5. To inform on daily basis about slides found positive on examination to all concerned officers and to complete daily dairy and get it signed by SSMO-in – charge or DMO/ VBDC
6. To make arrangement to replenish the monthly requirement of Laboratory logistics through the Senior Lab technician of the hospital .To keep up to date information about stocks of anti-malarial (tablets/ injections) and laboratory logistics.
7. To receive necessary abstracts of SSMR of OPD, emergency IPD ,and slides from Staff Nurse / pharmacist after holidays and fill up the register (SSLR)
8. To fill up necessary graphs and charts on malaria morbidity and mortality regularly and display them in the laboratory along with other display materials
9. To send complete and timely reports every fortnight to the district/state NVBDCP
10. To send 5% of Negative slides and all positive slides for cross checking as per Quality Assurance Guide lines
11. To inform DMO/SSMO in case of increase in number of malaria cases from a particular geographical area or age group of patients, groups of patients
12. Informs the site-in charge/facility administrator in a timely manner about all events relevant to data and specimen collection, such as: lack of supplies, staff issues, power failures, labeling errors, missing blood specimens or missing surveillance forms

6. CONCLUSION

The data from sentinel sites will give information on age-specific morbidity and mortality due to malaria, and proportional mortality and morbidity rate due to malaria. Higher case fatality rate indicates delayed referrals, inadequate services at the health facility, entry of new infection in previously non-immune community. If there is a sudden increase in severe malaria cases reported from a specific subcentres that will indicate an outbreak situation which needs immediate action

Annexure I: Material Required at Sentinel Sites

Sl No.	Materials/Consumables
1	Technical guidelines
2	Operational Manual
3	Wall chart/ flow chart
4	Case record forms
5	Patient information check list
6	Sentinel site laboratory register
7	Death investigation format
8.	Sentinel site registers for OPD,IPD and Emergency
Sl No.	Consumables/ Equipment
9.	Apron
10.	Sterile disposable gloves
10	Alcohol swabs , Sterile dry cotton swabs
12	Disposable Lancets
13	Clean Blood slides
14.	One piece of clean cloth
14	Circular band-aids
15	Glass marking pencil
16	Wooden box for transportation
17	Glass rods
18.	JSB stain
19	Desiccant packs
20	Binocular – microscope
21	Distilled water
22	Almirah
23	Puncture proof containers
24	1% Sodium Hypochlorite solution
25	Color coded biomedical waste disposable bags(yellow, blue, black)
26	Logistics for preparation of JSB stain
27	RDT kit

Annexure II: Coding for Case Recording Forms

State	District	Site type	
Orissa - XX	MBJ - XXX	Medical College - 01	
		DHH - 02	
		SDH - 03	
		CHC - 04	
		Private sector - 05	

Annexure III: Sentinel Site Malaria Laboratory Register

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME																					
Sentinel Site - Malaria Register																					
Period From					To																
Sentinel site: District/Sub-district/ CHC/PHC/ Medical College/ Public Sector/ Private sector.....																					
Name of district:																					
S. No.	Date	Name of patient (Father's/ spouse's name)	Address - Subcentre	Village (with landmark)	Age (Yrs)	Sex (M/ F)	Pregnant (Y/ N)	ST/ SC	Date of onset of fever	Date of first contact with Govt health system	Date of Reporting to Sentinel site	Investigations for malaria			Diagnosis	Date of initiation of treatment	Whether Admitted (Yes/ No)	If admitted			
												Place of Investigation	Result of Blood slide (P/ P+)	Result of Pf RDT (Pos/ Neg)				Date of Admission	Final Diagnosis	Outcome (Cured & discharged/ referred/ Left without discharge/ died)	Date of outcome
Coding for Diagnosis/ Final Diagnosis												Coding of Outcomes									
1	Uncomplicated Malaria	UM	A patient with fever without any other obvious cause and confirmation of diagnosis (microscopy showing asexual malaria parasites in the blood and/or rapid diagnostic test (RDT) for malaria antigen in blood positive).									1	Cured and discharged	CD							
2	Severe Malaria	SM	A patient, who requires hospitalization for symptoms and/or signs of severe malaria with laboratory confirmation of diagnosis.									2	Referred	RF							
												3	Died	DD							
												4	Left without discharge	LD							

Annexure IV: Sentinel Site Register for OPD/IPD and Casualty

Sl No	Name & addresses	Age and sex	SC/ST	PW (Y/N)	Date of onset of illnesses	Date of attending SSL/OPD/IPD / casualty	Date of Blood test done if any	At Govt facility (ASHA,SC ,PHC,CHC,SDH/DHH/Other than Govt facility)	Result(Pf or PV)	Provisional diagnosis

Annexure V: Fortnightly Report of Sentinel Site

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME																			
Sentinel Site Report																			
Name of Sentinel site:																			
Month/Year.....										Fortnight.....									
A.																			
Total New D/D Cases	Suspected Malaria Cases	Malaria Cases Confirmed			Pregnant women with malaria	SC/ST	Malaria Cases								Total				
		Pv	Pf	Total			less than 1 year		1-4 years		5-14 years		more than 15 years						
							M	F	M	F	M	F	M	F					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
B.																			
Total inpatients	Total inpatients admitted with severe malaria	Severe Malaria Cases Confirmed			Pregnant women with severe malaria	SC/ST	Severe Malaria Cases								Time lag between onset and reporting to Sentinel Site			Total hospital deaths	Deaths due to confirmed malaria
		Pv	Pf	Total			less than 1 year		1-4 years		5-14 years		more than 15 years						
							M	F	M	F	M	F	M	F	<3 days	3-7 days	>7 days		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Annexure VI: Case Record Form or Data Form of Blood Smear MP Positive Case-Patient

Patient I. D. No -----	Blood slide No.
1. Name	
2. Address	1. BLOCK CHC
	2. Sub- centre
	3. Village
OPD/IPD Registration No	_____
3. Age	Write the completed age of the participants in months and years
4. Gender	1. Male 2. Female
5. Literacy status	Tick mark the appropriate response
	1. Illiterate: Without any formal or non- formal education
	2. Literate (5th std/7th std/ 10th std/graduate)
4. Occupation of Respondent	1. Agricultural workers 2. Non- agricultural Labourer: 3. Skilled/ Semi skilled workers 4. Buisness small shops 5. Large buisness/self employed: 6. Govt Service/Pvt service
5. Marital Status	1. Married 2. Never married 3. Divorcee 4. Separated 5. Widowed
5. Current place of residence	1. Resident 2. Visitor
6. Duration of stay at the current place of residence	1. < 1 months 2. < 2 months 3. 2- 6 mon 4. > 6 months
7. If pregnant	1. Order of pregnancy 2. Weeks of Gestation
8. BPL card holder	Yes/No

9. Distance of his village from the health facility	1. < 5 Kms 2. > 5 kms
10 Date of onset of fever	
11. Date of seeking medical treatment for fever from the provider (ASHA/HW/MO)	
12. If referred; source of referral	ASHA/ HW/MO PHC/CHC/SDH/DHH
13. Time taken by him to reach this Health facility Sentinel site)	_____ hrs
14. Date of reporting to the sentinel site	
15. Date of doing blood slide examination/RDT	
16. Place of doing Blood slide examination/RDT	1. ASHA/ HW 2. Govt Hospital(PHC/CHC/SDH/DHH) 3. Others (Priv Lab/Nursing Home/Priv hospital)
17. Result of Blood slide examination	1. Pf 2. Pv
18. Result of Pf RDT	1. Positive 2. Negative
19. Date of initiation of treatment	
20. Place of initiation of treatment	(ASHA/HW/MO)
21. Whether referred for his illness to higher health facility	1. Yes 2. No
22. Cause of referral to Health facility (To be answered by the patient/ Guardian only)	1. lack of drugs, logistics (antimalarials, IV fluids, oxygen, blood transfusion facility, equipments) 2. Lack of specialist services 3. Not satisfied with the providers services
23. Did he present himself to the institution he was referred?	1. Yes 2. No
24. Whether admitted	1. Yes 2. No
25. If answer to Q 23 is 2 then cause of not attending the referred health facility?	1. Distance of HF was a concern 2. Lack of faith in service providers 3. Lack of funds for mobility

	4. Decision by the family head
26. Date of admission to t 1 st referral Institution	
27. Diagnosis at the 1 st referral Institution	1. Uncomplicated malaria 2. Severe Malaria or Complicated Malaria
28. Was his/her blood tested ?	1. Yes 2. No
29. Outcome	1. cured 2. relieved and discharged 3. LAMA 4. Died
30. Reasons for referral to 2 nd referral Institution	1. Lack of drugs for malaria 2. Lack of Med/Paed spl services 3. Lack of Provision for Blood transfusion 4. Lack of Equipments to manage complication - ventilator, dialysis machine 5. Unsatisfied by the services available 6. Advised by MO for better management of complications
31. Date of admission to 2 nd referral unit	
32. Place of investigation	1. Govt hospital 2. Pvt Lab/ clinic due to lack of facility at Govt. facility
33. Final diagnosis	1. Uncomplicated malaria 2. Complicated malaria
34. Outcome	1. Cured 2. Relieved and discharged 3. LAMA 4. Died
Date :	SSLT/SN/MPW/MPHS/ SS Coordinator
Signature :	

Annexure VII: Quality Assurance Formats**a) Format for Transportation of samples from Sentinel Site Laboratory (SSL) to State Reference Laboratory (SRL)**

(QA sample transport sheet-to be filled in duplicate, one copy to be retained by the SSL after acknowledgement and the other copy for the SRL)

1. Date of sending the samples:-----
2. Name of Sentinel site:-----
3. Period of sample testing: (from----- to-----)
4. Total number of samples:-----
5. Details of samples:-----

i) Malaria positive samples (all positives)

SI No	Date of collection	Blood specimen No.	SI No	Date of collection	Blood specimen No.
1			11		
2			12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

ii) Malaria Negative samples (5% of total Negatives)

SI No	Date of collection	Blood specimen No.	SI No	Date of collection	Blood specimen No.
1			11		
2			12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

iii) Cross checking of tested Blood slides at State reference Laboratory

All positive slides and 5 % of percent of negative slides to be sent to the State Reference laboratories for cross checking and the cross-checking reports to be communicated to the respective laboratories. The Laboratory technicians of SSL laboratories with reported discrepancy reports will undergo refresher training at State reference Laboratory for updating of their knowledge.

Annexure VIII: Form for Transmission of Case record forms from SSL to State NVBDCP)

(Fill in duplicate, one copy to be retained by the SRL and the other copy retained with the sentinel site laboratory)

1. Date of sending the case record forms: -----
2. Name of the SSL: -----
3. Name of the District: -----
5. Total number of case record Forms: -----
6. Case record forms for BS numbers: From ----- to -----

Case record forms sent by: -----

(Name) (Signature)

Case record forms received by: -----