

**January 2021
To
December 2023**

Project Completion Report

**Consolidating Malaria Control Interventions
to Reduce Incidence in High (NFM-III)**



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PROJECT COMPLETION REPORT

January 2021 to December 2023

Project

Consolidating Malaria Control Interventions to Reduce Incidence in High Endemic Districts of Pakistan New Funding Model (NFM-III)

Implemented by

National Rural Support Programme (NRSP)

Financial Support

Directorate of Malaria Control (DoMC),
Islamabad, Pakistan

Project Area

17 Districts of Province of Sindh, 05 Districts of Balouchistan, Pakistan

Technical Support and Collaboration:

Directorate General Health Services Sindh Hyderabad and Balouchistan
, Vector Borne Diseases (VBDs)

Hyderabad RO Team

Mr. Ram Kirshan,
Mr. Kirshan Kumar,
Ms. Murk Ayaz
Mr. Kamran Lashari
Mr. Muhammad Rehan Shaikh

Balouchistan RO Team

Mr. Majid Ali
Mr. Dilshad
Mr. Atta ur Rehman

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Message: Dr. Shahid Ujjan,
Project Manager-Private SR-NRSP-NFM-III

“The Sindh province was highly affected by Malaria since last many years and we were doing our best for the eradication of Malaria in Sindh with the support of Directorate of Malaria Contrail (DoMC) Government of Pakistan with the coordination of Vector Borne Diseases (VBDs) Government of Sindh and District Health Authorities.

We have done our best team efforts for the success of this grant for period 2021 to 2023. Although, it was very hectic period and our team have done a rigorous and committed work regarding effective Coordination with all valued stakeholders, Health Facilities and Supply Chain Management. I sincerely appreciate my Provincial Team, all stakeholders for their contribution and support.”

Message: Ram Kirshan,
Provincial Coordinator, Sindh-Private SR-NRSP-NFM-III

“It was really a challenging grant period from 2021 to 2023 in Malaria project activities in Sindh province. The highest number of cases were reported and our team has smartly managed the situation in the districts. I must recognize the cooperation and support of all District Health Officers, PPHI Management and Other districts authorities.

My heartfelt regards and gratitude for District Coordinators and District Supply Chain Officers, MEAL Officers, DMU In-charges, Medical Officers and Health Facility Focal persons for their utmost and untired efforts for managing Malaria Cases and providing timely Anti-malarial drugs to the needy COMMUNITY”.

In last but not least, I am thankful to Mr. Arafat Majeed (Manager Social Sector Services (SSS), NRSP and Dr. Shahid Ujjan Project Manager and Mr. Ghulam Mustafa Haider Regional General Manager, NRSP-Sindh for their openness and timely guidance in all project related matters for smooth implementation.

Message: Majid Ali
Provincial Coordinator, Balouchistan-Private SR-NRSP-NFM-III

I am thrilled to announce the successful completion of the GFATM-NFM-III project spanning from January 2021 to December 2023. I want to express my deepest appreciation to each and every one of you for your unwavering dedication, hard work, and commitment throughout this project journey. Despite facing challenges such as the surge in Malaria cases due to the 2022 floods, the dedication of our project staff enabled us to overcome these obstacles and achieve success.

I would like to extend sincere thanks to Mr. Arafat Majeed, Manager SSS NRSP HO, Mr. Shahid Ujjan, Project Manager, and Mr. Nabil Ahmed, Regional Program Manager NRSP Balochistan, for their invaluable support during the project implementation. Your outstanding efforts and dedication have been instrumental in the success of this project. I eagerly anticipate our continued collaboration and success as we move forward into the next phase.

Acronyms

API	Annual Parasite Index
BER	Blood Examination Rate
BHU	Basic Health Unit
CMU	Central Management Unit
DoMC	Directorate of Malaria Control
DHO	District Health Office
DHQ	District Headquarter Hospital
GD	Government Dispensary
IHHN	Indus Hospital and Health Network and
LLINs	Long-lasting insecticidal nets
MERF	Medical Emergency Resilience Foundation
NRSP	National Rural Support Programme
NGO	Non-Governmental Organization
PPHI	People's Primary Healthcare Initiative
PF	Plasmodium falciparum
PR	Principle Recipient
RDTs	Rapid Diagnostic Test
THQ	Taluka Headquarter Hospital
RHC	Ruler Health Center
Region Team	NRSP Provincial Coordinator, Logistic Coordinator, Training Coordinator, MIS-Officer,
SRSO	Sindh Rural Support Organization
SR	Sub-recipient
SPR	Slide Positivity Rate
Sft	Square feet
SSS	Social Sector Services
TPR	Test Positivity Rate (rapid diagnostic tests)
VBDs	Vector Borne Diseases

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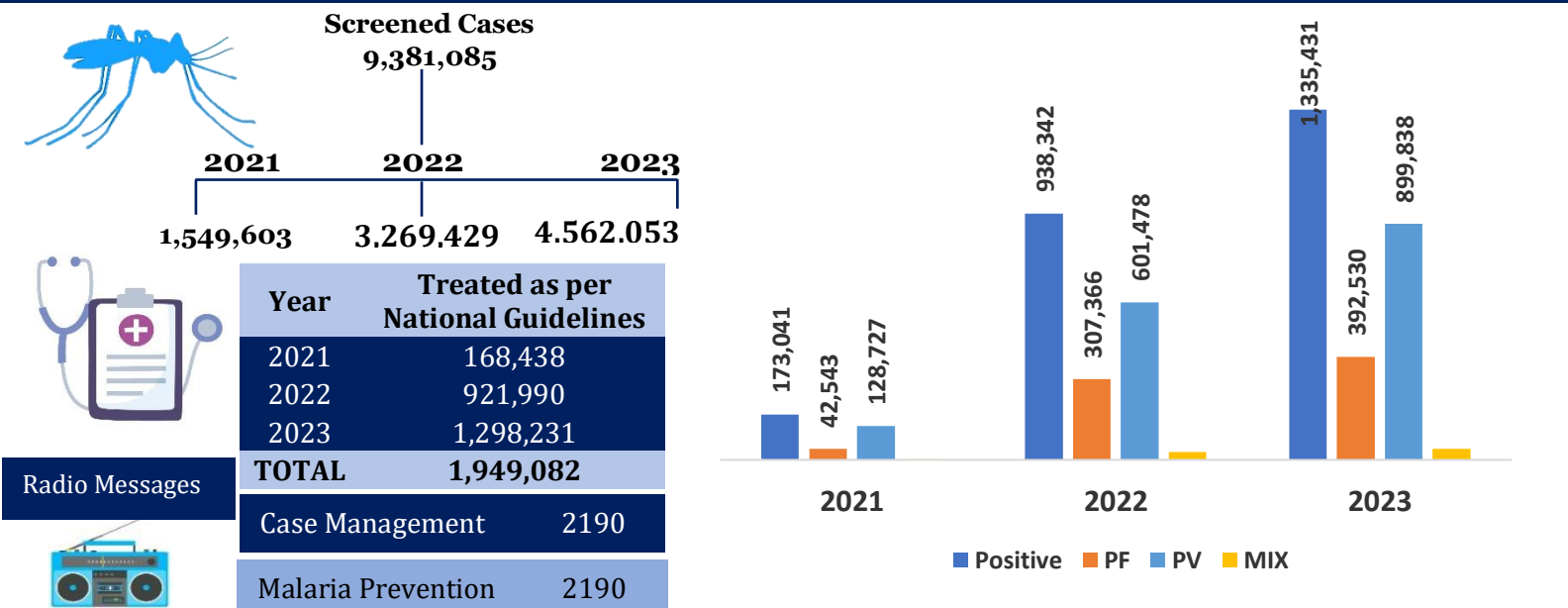
Executive Summary

This page covers overall glance of the project activities including, Health Facilities Details, Number of Cases reported and Treated, Training and Capacity Building of Doctors and Facility Focal Person (paramedics), Medical Camps, Monitoring and Executive visits during the project period.

Project Duration	Geographic Coverage			
JAN 2021 to DEC 2023	2021 and 2022 (8-Districts)	2023 (17 Districts)	Included from July 2023	Balouchistan Districts
Health Facilities Coverage	Badin	Badin	Ghotki	Gawadar
Public 1299	Kamber Shahdadkot	Kamber Shahdadkot	Hyderabad	Kech Turbat
	Larkana	Larkana	Jacobabad	Panjgoor
Private 301	Mirpurkhas	Mirpurkhas	Jamshoro	Lasbella
	Sujawal	Sujawal	Kashmore Khandhkot	Awaran
	Tando Muhammad Khan	Tando Muhammad Khan	Matiari	
	Thatta	Thatta	Shaheed Benazirabad	
	Umerkot	Umerkot	Sanghar	
			Tando Allahyar	



Epidemiological Data 2021, 2022 and 2023 Sindh and Balouchistan



Provision of Antimalarial Drugs and Chemical Reagents to all Selected Health Facilities

Year	ACT Tablets	Chloroquine	Tab Primaquine 7.5mg	Inj Artesunate	Tab Quinine	Clindamycin	RDT Total	Slides
2021	767,196	895,543	2,076,231	1,521	20,452	100	1,185,736	171,132
2022	3,140,874	3,324,046	7,081,518	4,569	33,072	4,761	2,858,481	416,413
2023	5,191,966	2,829,585	7,527,656	3,029	66,767	25,935	3,683,209	690,112
TOTAL:	9,100,036	7,049,174	16,685,405	9,119	120,291	30,796	7,727,426	1,277,657

Quarterly Review Meeting (QRM)

Program Years	No. of Meetings
Y-1 2021	52
Y-2 2022	52
Y-3 2023	70
TOTAL	174

M&E Visits



M&E Visit	District Level	Region Level	CCM & WHO Visit
Y-1, 2021	3920	142	-
Y-1, 2022	4330	163	1
Y-3, 2023	5061	152	1
TOTAL	13,311	457	2

110,723

ANC-LLINs Distributed



About THE GLOBAL FUND

Twenty years ago, AIDS, tuberculosis (TB) and malaria seemed unbeatable. In 2002, in an act of extraordinary global solidarity and leadership, the world came together to create the Global Fund to fight what were then the deadliest infectious diseases confronting humanity.

Over the more than 20 years that followed, the Global Fund partnership has invested more than US\$60 billion, saving 59 million lives and reducing the combined death rate from the three diseases by more than half in the countries where we invest.

About DIRECTORATE OF MALARIA CONTROL (DoMC)

The Directorate of Malaria Control (DoMC) is Principle Recipient (PR) of The Global Fund.

Vision: Pakistan free from malaria by 2035.

Mission: The DoMC of the Ministry of NHSRC of the Government of Pakistan aims to achieve malaria elimination by ensuring equitable and universal access to effective curative and preventive services to everyone at risk of malaria in close coordination with the efforts of all the communities, national and international non-government organizations, private sector stakeholders, United Nations agencies and financial partners. Achieving the vision of “Pakistan free from malaria” will contribute significantly to poverty alleviation as malaria is most prevalent in the poorest segment of the population.

Goals: In line with the WHO Global Technical Strategy for Malaria 2016-2030, the goals of the National Plan for Malaria Elimination in Pakistan, 2021-2030 are as follows:

- Ultimately interrupt transmission of and eliminating indigenous malaria throughout the entire country by 2035.
- Maintain malaria-free status in areas where malaria transmission has been interrupted and prevent re-establishment of local transmission.

About NATIONAL RURAL SUPPORT PROGRAMME (NRSP)

National Rural Support Programme (NRSP) established in 1991, NRSP is the largest Rural Support Programme in the country in terms of outreach, staff, and development activities. It is a not-for-profit Non-Government Organization (NGO) licensed under Section 42 of Companies Ordinance 1984. NRSP's mandate is to alleviate poverty by harnessing people's potential and undertaking development activities in Pakistan.

NRSP has been engaged in promoting community-based health care interventions for the rural poor since its inception in 1991. We have always recognized the need to ensure locally-available health care services for the very poor, who cannot afford to travel to distant centers to receive care. Sometimes care is not available, as health facilities lack staff, medicines and equipment. Since 2004, NRSP has played a key role in community education on malaria prevention and control in areas where the disease is endemic.

NRSP is working as a private sector sub-recipient (SR) for The Global Fund (GF) Malaria grants with the Directorate of Malaria Control (DoMC) Islamabad.

About MALARIA PREVIOUS GRANTS

NRSP has successfully completed the grants with Directorate of Malaria Control (DoMC) and The Global* Fund (TGF). Since 2008, NRSP working together in Sindh and Balouchistan Province as Private Sub-Recipient (SR) and contributed significantly in order to reducing Malaria Cases its infection, improved treatment standards and deaths due to efficient Malaria interventions.

We began this journey from district Thatta in 2008, completing that grant in mid-2013. The next grant, implemented from mid-2013 to mid-2016, expanded to include Thatta, Sujawal, Kech-Turbat, Gawadar and Panjgoor districts. The cycle continued with a new grant approved from mid-

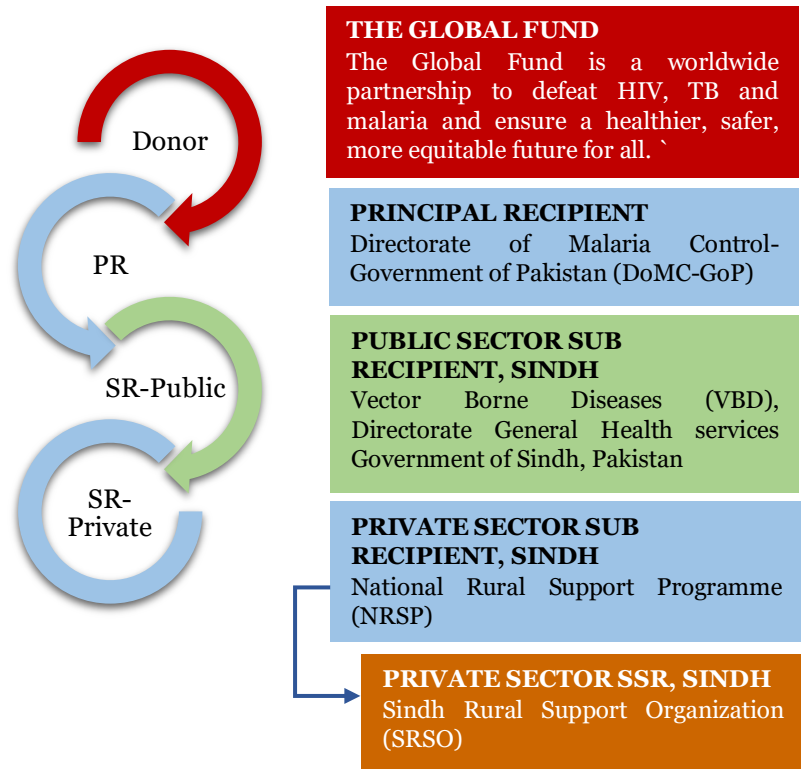
Malarial Project Implementation Flow Chart

2016 to the end of 2017, adding five new districts: Badin, Tando Muhammad Khan, and Umerkot in Sindh and Lasbela and Awaran in Balouchistan. The implementation now covers five districts in Sindh and five in Balouchistan.

After 2017, the program continued with project updates and approval of a new funding model, NFM-II, allocated to NRSP from January 2018 to December 2020 for the same five districts. The efforts to reduce the burden of Malaria Cases have not ceased, and The Global Fund, Directorate of Malaria Control (DoMC), and National Rural Support Programme (NRSP) have signed a new agreement for NFM-III for the same five districts. The grant of the period was January 2021 to December 2023, adding three new districts: Larkana, Kamber Shahdad Kot and Mirpurkhas. In this grant the Malaria services coverage increases in total eight (8) districts of Sindh, Pakistan. After the disaster damages of flood 2022, which hits badly to the districts of Sindh and affects many populations. On the severity of high number of Malaria Cases the additional districts were included in the program. As a result, below nine new districts were included in the program intervention area, bringing the total to 17 districts.

In this grant period the geographical coverage of NRSP as SR were Thatta, Sujawal, Badin, Tando Muhammad Khan, Mirpurkhas, Umerkot, Sanghar, Hyderabad, Jamshoro, Shaheed Benazirabad, Tando Allahyar and Matiari in Sindh and in Balouchistan Kech-Turbat, Gawadar, Panjgoor Lasbela and Awaran.

As private sub-sector recipient SSR, the Sindh Rural Support Organization (SRSO) organization managed the districts, Larkana, Kamber Shahdadkot, Kashmore Kandhkot, Ghotki and Jacobabad.



About PROJECT

PROJECT: Consolidating Malaria Control Interventions to Reduce Incidence in High Endemic Districts of Pakistan New Funding Model (NFM-III):

GOAL: An estimated reduction in the reported malaria incidence of 20% in 60 districts by 2023.

OBJECTIVES:

1. To strengthen malaria programme management, to ensure that it is operating optimally at all levels in all target districts by 2023
2. To assure and sustain > 80% coverage for the provision of prompt and reliable malaria diagnosis and treatment services in public and private health facilities and community level as well in target districts by 2023
3. To ensure universal coverage of preventive measures in particular LLINs, appropriate to local transmission patterns and population characteristics, to reduce malaria transmission, incidence and prevalence by 20% in target districts by 2023
4. To strengthen disease and entomological surveillance, to efficiently gather, use and disseminate data in all target districts by 2023
5. To improve timely alert generation, detection and rapid response capability to cope with emergency situations for malaria epidemics in all target districts by 2023
6. To ensure delivery of an appropriate package of malaria control interventions to hard-to-reach at-risk population groups and communities in all target districts by 2023.

PROJECT ACTIVITIES:

- Collaboration and Coordination with Provincial VBDs/District Health Department (DHO).
- Assessment of Public & Private RDT and Microscopy centers prior to add in the program.
- Training sessions for healthcare professionals on microscopy, RDT Usage, uncomplicated / complicated malaria case management following WHO standards and MIS recording tools & outbreak protocols.
- Establishment of Anti-Malarial Drugs Store at the district level according to established protocols.
- Provision of Antimalarial Drugs (AMDs and Chemical Reagents to all selected RDTs and Microscopy health facilities.
- Establishing a warehouse for LLIN storage according to established protocols and Distributing ANC LLINs through MCH centers.
- Engaging the private sector (Private Health Facilities) in providing diagnosis and treatment services in accordance with national treatment guidelines.
- Monitoring of Health Facilities, Reporting and Record Management (Weekly, Monthly and Quarterly)
- Conducting Monthly Review Meetings, Quarterly Cluster Meetings in districts for the review and validation of surveillance data and continued implementation of DHIS-2 for malaria surveillance.

COORDINATION AND COLLABORATION MECHANISM

In order to achieve the project targets, we remained connected in regular collaboration and coordination with Directorate General of Health Services and Vector borne diseases. Further, enhancing the magnitude of effective coordination, we developed professional coordination with District Health Offices, People's Primary Healthcare Initiative (PPHI) and other stakeholders of both provinces Sindh and Balouchistan.

MONTHLY STAKE HOLDERS MEETING

Achieving shared goals Collaboration and Coordination bring the organizations with different expertise and resources to work towards a common goal. By pooling their resources and knowledge. Stakeholders can achieve more together than they could on their own. In this project the regular coordination mechanism has been established which connected the relevant stakeholders and organization on monthly basis to discuss the monthly performance achieved by the organizations and issues and challenges faced during the implementation of activities. This mechanism works to boost and enhance the efficiency in following dimensions;

- Optimizing resources
- Enhancing impact and reach
- Improving efficiency and effectiveness
- Minimization of issues and challenges



The organization and stakeholder's pool which have been involved during the period of project were;

- District Health Office (DHO)
- People's Primary Healthcare Initiative (PPHI)
- Medical Emergency Resilience Foundation (MERF)
- National Rural Support Programme (NRSP)
- Indus Hospital and Health Network (IHHN)
- Relevant district level groups working on health sector.

NRSP remained responsible for the overall, collaboration and coordination which was essential for the success of the project. The regular monthly stakeholders' meetings held at Director General VBDs Office, DHO Office and sometime on NRSP Office on monthly basis. As per the protocols all the relevant stakeholders must participate in the meetings.

QUARTERLY REVIEW MEETINGS (QRM) DISTRICT LEVEL

The key objectives of quarterly review meeting are;

- Sharing of performance and achievements of health facilities
- Discuss monitoring observations with DHO, DMU, Health Facilities Focal Persons, MEAL for improvement
- Validation and reconciliation of record of Health Facilities
- Reconcile the FM-I, FM-II with stock registers
- Working issues, challenges and their way forward
- On job training on case management and recording tools
- Provision of AMDs and Chemicals Reagents to the Health Facilities

With this purpose, these meetings were organized to enhance the capacity of health facility focal person for Malaria Services, as per shared the WHO guidelines and ensure that they followed proper case management and practiced. Health Facilities Malaria Cases data recording and reporting tools should have updated as per the guidelines too.

The details of meeting held in both provinces in the project duration is mentioned in Table. No. 1.

Table No. 1 Details of Quarterly Meetings

S #.	Description	Project Target	Achievement	Achievement in %
1	Quarterly Cluster Meetings of all 17 Districts (Number of meetings) SINDH Level	114	114	100%
2	Quarterly Cluster Meetings of all 17 Districts (Number of meetings) Balouchistan Level	60	60	100%



MONTHLY REVIEW MEETING

These Monthly Meetings serve as a platform for district level stakeholders to discuss and share their progress, as well as any issues or challenges they are facing in implementing of malaria program at the district level. The program districts team of NRSP organized these meetings in each districts. The details of meeting is mentioned in table no. 2.

Table No. 2 Details of Monthly Review Meetings

S #.	Description	Project Target	Achievement	Achievement in %
1	Monthly Review Meeting (Number of meetings)	333	250	75%

QUARTERLY SUPPLY CHAIN AND QUANTIFICATION REVIEW MEETINGS

The supply chain and quantification review are the regular activity conducted by CMU PSM unit on the quarterly basis. Supply chain review and quantification/forecasting has been conducted for all quarters during reporting period. During these reviews the regional and district level record has been reconciled along with following:

- Quantification & forecasting of medicines and diagnostics for next six months
- Drug reports reconciliations of regional levels and district levels.
- Reconciliation of case management and supply chain data
- Review and verification of Supply chain tools.
- Demand reviews of districts, demand generations and planning of next orders.
- Expiry status and calendars.
- Observations and recommendations for supply chain strengthen

Further at regional level, monthly and quarterly supply chain desk review has been conducted by the district's teams. They shared compiled desk review reports to the region office. The regional logistics coordinator review and providing feedback on all observations to the districts teams for strengthen the supply chain management at district level as well as health facility level. In monthly desk review, districts are focused stocks management, records, demands, issuance, reconciling of FM-2 data with DHIS to ensure remove variances, overall stock management practices at district store level and health facility level such as stock requisition, availability, utilization and future forecasting.

The details of quarterly review conducted in both provinces Sindh and Balouchistan in the project duration is mentioned in Table. No.3.

Table No.3. Quarterly Supply Chain and Quantification Review Meetings

S #	Description	Project Target	Achievement	Achievement in %
1	Quarterly Data and Stock review meetings (Number of meetings) Sindh Level	12	12	100%
2	Quarterly Data and Stock review meetings (Number of meetings) Balouchistan Level	7	7	100%



Assessment of Public, Private RDT and Microscopy Health Facilities

Prior to incorporating them into the program, it is an essential protocol to assess both public and private RDT and Microscopy Health Facility. The assessment of these facilities using approved tools helps gather information on existing practices and details related to malaria services, capacity of doctors and paramedic on malaria services, availability of storage facilities at health facility and availability of equipment and materials. Trained NRSP team members conducted the assessment, collecting Health Facility Wise data from each facility shared by the district Health Office (DHO). After completing the assessment exercise, the total no. of health facilities was selected for the program intervention. The details of selected health facility in both provinces Sindh and Balouchistan in the project duration is mentioned in Table. No. 4.

Total No. 4. Details of Health Facilities District Wise NRSP and SRSO

District	Total Health Facilities	Microscopy Health Facilities	RDT Public Health Facilities	RDT Private Health Facilities	Functional Health Facilities
Thatta	63	9	29	25	63
Badin	116	18	68	30	116
Hyderabad	50	13	37	-	50
Jamshoro	73	2	71	-	73
Matiari	40	5	35	-	40
Mirpurkhas	114	18	72	24	114
Sanghar	101	21	80	0	101
Shaheed Benazirabad	73	25	48	-	73
Sujawal	77	9	35	33	77
Tando Allahyar	54	3	51	-	54
Tando Muhammad Khan	70	5	35	30	70
Umerkot	87	12	55	20	87
Total	918	140	616	162	918
SRSO Districts					
Larkana	101	15	55	31	101
Kamber ShahdadKot	89	8	59	22	89
Ghotki	63	11	52	-	63
Kashmore Khandhkot	48	5	43	-	48
Jacobabad	43	6	37	-	43
Total	344	45	246	53	344
Grand Total	1,262	185	862	215	1,262
Balouchistan Districts					
Awaran	44	3	22	19	39
Gawadar	51	11	26	14	46
Kech	98	14	53	31	95
Lasbela	113	7	76	30	106
Panjgoor	61	5	34	22	57
Total	367	40	211	116	343



TRAINING FOR DOCTORS AND PARAMEDICS

Training are considered the basic knowledge to understand and achieve a certain target. Under this project, the training on the management of complicated and uncomplicated malaria cases, as well as the use of microscopy and RDTs for diagnosis, essential for the effective control and treatment of malaria.

Healthcare professionals and paramedics has attended regular training and updates on malaria case management and diagnostic techniques to ensure the best possible care for patients.



Training for the Best-Case Management Practices as Per National Guidelines

The project target for the years 2021-2023 was set for complicated public sector 731 and 133 for private sectors, achievement was 727, (99%) of public facilities health professionals and 133, (100%) for private facilities health professionals attended training.

The project target of refresher training sessions was 460 for public and 74 for private while, the achievements was 442, (96%) of public and 74, (100%) of private.

The un-complicated training sessions complicated training were 222 achieved 100% all paramedics attended the training.

Training of Quality Assurance for Microscopist was also arranged and all nominated 16 health professionals attended the session achieving 100% success rate.

To enhance the capacity of Healthcare professionals and paramedics region team NRSP with the technical collaboration VBDs arranged different training sessions for testing, complicated, un-complicated case management, usage of MIC and reporting methodologies. The refresher sessions and Training of Quality Assurance for Microscopist were also conducted. In these training sessions the trainers addressed complicated malaria cases require a higher level of care and expertise compared to- uncomplicated cases. Complicated cases may present with severe symptoms such as high fever, organ dysfunction, or neurological complications, which require immediate medical attention. Health care providers should receive adequate training on the management of complicated malaria cases to ensure the best possible outcome for patients.

Trainers' shared uncomplicated malaria cases can be managed effectively at lower levels of the health system with the use of appropriate antimalarial drugs. Health care providers should be trained on the diagnosis and treatment of uncomplicated malaria cases to prevent progression to severe illness.

Microscopy and rapid diagnostic tests (RDTs) are commonly used for the diagnosis of malaria. Microscopy involves the examination of blood smears under a microscope to detect the presence of malaria parasites. Malaria screening through microscopy is called gold standard of screening. However, the screening through RDTs provide a quick and easy way to diagnose malaria by detecting specific antigens in the blood so, through practice exercises trainers conduct with group participants for better clarity and usage of Microscopy and rapid diagnostic tests (RDTs). The details of training sessions were conducted and the health care providers trained in these sessions details is mentioned in Table. No.5.

Table No.5. Details of Training and Trained Health Care Professional

S #	Training Details:	Project Target 2021-2023	Achievement 2021 to 2023	Achievement Trained HF Staff 2021-2023	Percentage (%)
Sindh Data					
1	Training of uncomplicated malaria case management +RDT +MIS (03 days) - Public Sector	731	727	1291	99%
2	Training of uncomplicated malaria case management +RDT +MIS (03 days) – Private Sector	133	133	205	100%
3	Refresher Training of uncomplicated malaria case management +RDT+MIS (02 days) Public	460	442	878	96%
4	Refresher Training of uncomplicated malaria case management +RDT+MIS (02 days) Private	74	74	143	100%
5	Complicated case management training for secondary, teaching hospitals	222	222	222	100%
6	Training of Quality Assurance for Microscopist at provincial level (05 days)	16	16	16	100%
7	Staff Orientation regarding Project Management	2	02	70	100%
Balouchistan Data					
1	Training of uncomplicated malaria case management +RDT +MIS (03 days) - Public Sector	17	17	35	100%
2	Training of uncomplicated malaria case management +RDT +MIS (03 days) – Private Sector	78	78	70	100%
3	Refresher Training of uncomplicated malaria case management +RDT+MIS (02 days) Public	233	230	263	99%
4	Refresher Training of uncomplicated malaria case management +RDT+MIS (02 days) Private	45	45	54	100%
5	Training of Quality Assurance for Microscopist at provincial level (05 days)	10	10	10	100%
6	Staff Orientation regarding Project Management	1	1	13	100%

Table No. 6. Gender Wise Details of Trained Health Care Professional

Public Health Facility	Women	Men	Private Health Facility	Women	Men
Sindh Data					
Doctors	278	901	Doctors	7	181
Paramedics	88	1,036	Paramedics	4	201
Total	366	1,937	Total	11	382
Balouchistan Data					
Doctors	9	38	Doctors	2	11
Paramedics	12	249	Paramedics	1	110
Total	21	287	Total	3	121

ESTABLISHMENT OF ANTI-MALARIAL DRUGS STORE AT THE DISTRICT LEVEL AS PER PROJECT PROTOCOLS

The establishment of an anti-malarial drugs store at the district level as per project protocols. It has utmost importance for safely stored AMDs and Chemical Reagents without compromising their efficacy. The establishment of a dedicated anti-malarial drugs store at the district level ensures that essential drugs are readily available to those in need and can provide these medicines to the health facilities within time. It provides support for timely diagnosis and treatment of malaria cases, which is crucial for preventing the spread of the disease and reducing mortality rates. First and foremost, we have maintained store with proper storage facilities that meet the specific requirements of each drugs, RDT and chemicals. This included maintaining appropriate temperature and humidity levels, as well as implementing systems to prevent contamination and deterioration of the drugs.

District's Team also followed the strict inventory management procedures should be in place to track the movement and storage of drugs, RDT and chemicals within the store. This includes maintaining accurate records of incoming and outgoing shipments, as well as conducting regular reviews and inspections from district and region team to identify any discrepancies or potential risks in stock. The table No.7 represents the number of warehouses and stores present at both the region level and district level for Sindh and Balouchistan NRSP Store and SRSO Stores.

Table No.7. Details of Region and District Level Stores

Sr. No.	Description	NRSP Store		SRSO Store		Total
		Region Level	District Level	Region Level	District Level	
1	Warehouse and Store	01	17	01	05	24



PROVISION OF ANTIMALARIAL DRUGS AND CHEMICAL REAGENTS TO ALL SELECTED HEALTH FACILITIES

The availability of antimalarial drugs and chemical reagents in health facilities is crucial for the testing and diagnosis of malaria. Malaria is a life-threatening disease caused by parasites transmitted through mosquito bites, and early detection and treatment are essential for a successful recovery.

Antimalarial drugs help to kill the parasites in the body, while chemical reagents are used for accurate diagnostic tests to confirm the presence of the disease. Without these crucial resources, many patients would go undiagnosed and untreated, leading to severe complications and even death. Therefore, ensuring that health facilities have a sufficient supply of antimalarial drugs and chemical reagents is vital in the fight against malaria and for the overall well-being of communities at risk especially in rural areas. To provide the medication and chemical reagents on time and ensure the zero stock-out at health facility level.

The team NRSP has followed the approved and structured supply chain management protocols. The DoMC provided essential drugs and RDTs on quarterly and need basis. However, NRSP procured the Slides and Chemical Reagents and other required supplies for Microscopy Health Facilities.

The details of total number of antimalarial drugs and chemical reagents which were supplied during the project period are mentioned in Table. No. 8.

Table No.8. Details of AMDs, RDTs and Chemical Reagents Provided

Year	ACT Tablets	Chloroquine	Tab Primaquine 7.5mg	Inj Artesunate	Tab Quinine	Clindamycin	RDT Total	Slides
2021	767,196	895,543	2,076,231	1,521	20,452	100	1,185,736	171,132
2022	3,140,874	3,324,046	7,081,518	4,569	33,072	4,761	2,858,481	416,413
2023	5,191,966	2,829,585	7,527,656	3,029	66,767	25,935	3,683,209	690,112
TOTAL:	9,100,036	7,049,174	16,685,405	9,119	120,291	30,796	7,727,426	1,277,657

The table no. shows the data for the distribution of various medicines and diagnostic kits in different districts over the years 2021, 2022, and 2023. In 2021, the total number of ACT tablets distributed was 767,196, with 895,543 tablets of Chloroquine 250 mg, 2,076,231 tablets of Primaquine 7.5 mg, 1,521 injections of Artesunate, 20,452 tablets of Quinine, 100 tablets of Clindamycin, 1,185,736 RDT Kits, and 171,132 Slides for Microscopy.

In 2022, the distribution increased significantly with 3,140,874 ACT tablets, 3,324,046 tablets of Chloroquine, 7,081,518 tablets of Primaquine 7.5 mg, 4,569 injections of Artesunate, 33,072 tablets of Quinine, 4,761 tablets of Clindamycin, 2,858,481 RDT Kits, and 416,413 Slides for Microscopy.

In 2023, there was a further increase in distribution with 5,191,966 ACT tablets, 2,829,585 tablets of Chloroquine 250 mg, 7,527,656 tablets of Primaquine 7.5 mg, 3,029 injections of Artesunate, 66,767 tablets of Quinine, 25,935 tablets of Clindamycin, 3,683,209 RDT Kits and 690,112 Slides for Microscopy.

The total distribution over the three years amounted to 2,815,077 ACT doses, 5,727,148 tablets of Chloroquine 250 mg, 13,461,251 tablets of Primaquine 7.5 mg, 8,447 injections of Artesunate, 112,784 tablets of Quinine, 30,090 capsules of Clindamycin, 6,162,094 RDT Kits, and 991,620 Total Slides for Microscopy.

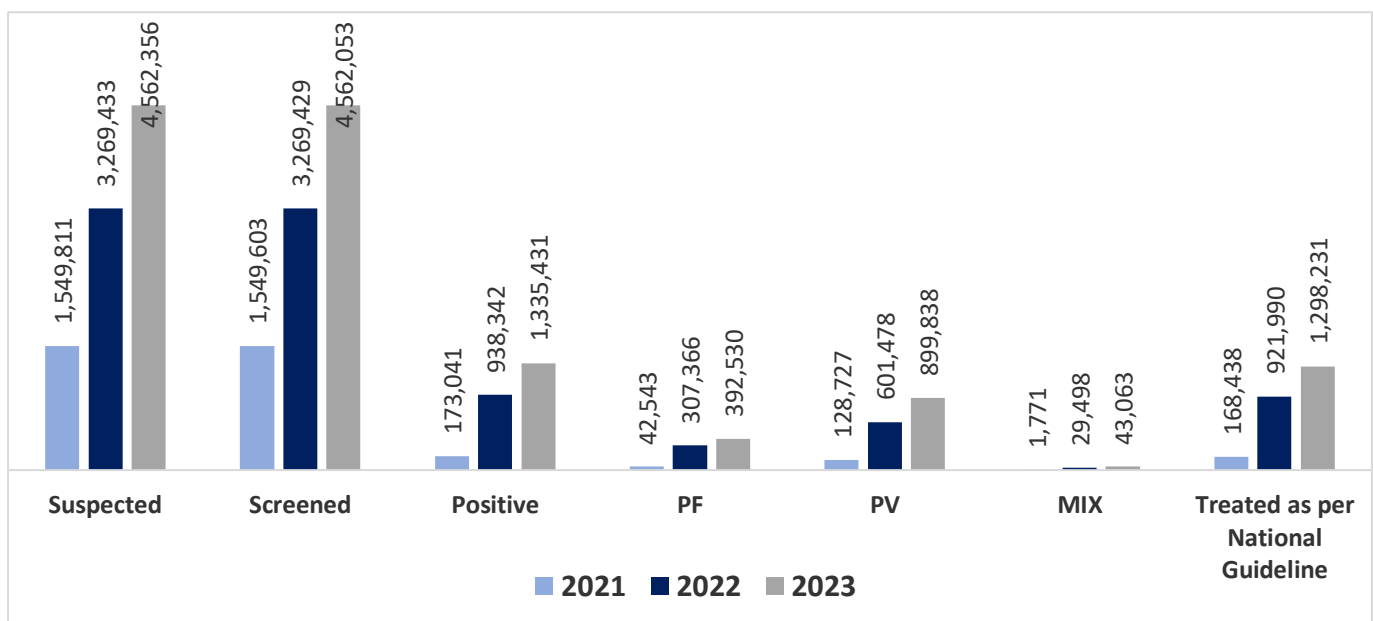
EPIDEMIOLOGICAL DATA 2021, 2022 AND 2023 (NRSP AND SRSO DISTRICTS)

According to the latest World malaria report by WHO, there were 249 million cases of malaria in 2022 compared to 244 million cases in 2021. The estimated number of malaria deaths stood at 608, 000 in 2022 compared to 610, 000 in 2021. Yet the number and comparison of 2023 has not been shared but precautions related to the behavior and survival of the malaria-carrying Anopheles mosquito has been shared.

The 2023 World malaria report delves into the nexus between climate change and malaria. Changes in temperature, humidity and rainfall can influence the behavior and survival of the malaria-carrying Anopheles mosquito. Extreme weather events, such as heatwaves and flooding, can also directly impact transmission and disease burden. Catastrophic flooding in Pakistan in 2022, for example, led to a five-fold increase in malaria cases in the country.

Therefore, the epidemiological data of the project period (NRSP and SRSO districts) shared all the details about overall suspected, screened and positive cases (with types of positive cases) and the details of treated cases as per National Guidelines. The year wise Plasmodium falciparum (pf) ratio, Annual Parasite Index (API), Blood Examination Rate (BER), Slide Positivity Rate (SPR) and Test Positivity Rate (TPR) comparison was also concluded. The details of epidemiological data 2021, 2022 and 2023 is mentioned in Graph No. 1.

Graph No. 1 Epidemiological Data Graph 2021, 2022 And 2023



The table no. provides epidemiological data for the years 2021, 2022, and 2023 for the province of Sindh and Balouchistan. This reflects the details of Suspected, Screened and Positive cases with types i.e. (PF, PV and Mix) and treatment given as per National Guidelines. Further details which were reported the during the program period were in 2021, there were 1,549,811 suspected cases, out of which 1,549,603 were screened. Among the screened cases, 173,041 tested positive for the disease. Out of the positive cases, 42,543 were classified as PF (presumptive cases), 128,727 as PV (presumptive cases confirmed by virology), and 1,771 as MIX (mixed infection). A total of 168,438 cases were treated as per national guidelines.

In 2022, there were 3,269,433 suspected cases, out of which 3,269,429 were screened. Out of the screened cases, 938,342 tested positive for the disease. Among the positive cases, 307,366 were classified as PF, 601,478 as PV, and 29,498 as MIX. A total of 921,990 cases were treated as per national guidelines.

In 2023, there were 4,562,356 suspected cases, out of which 4,562,053 were screened. Among the screened cases, 1,335,431 tested positive for the disease. Out of the positive cases, 392,530 were classified as PF, 899,838 as PV, and 43,063 as MIX. A total of 1,298,231 cases were treated as per national guidelines.

Overall, for the total period of 2021-2023, there were 9,381,600 suspected cases, with 9,381,085 being screened. Among the screened cases, 2,446,814 tested positive for the disease. Out of the positive cases, 742,439 were classified as PF, 1,630,043 as PV, and 74,332 as MIX. A total of 2,388,659 cases were treated as per national guidelines.

Table No.9. COMPARISON OF DATA 2021, 2022 and 2023

Year	PF ratio	SPR/TPR	BER	API
2021	25	11	11	5
2022	33	29	18	34
2023	29	29	14	48

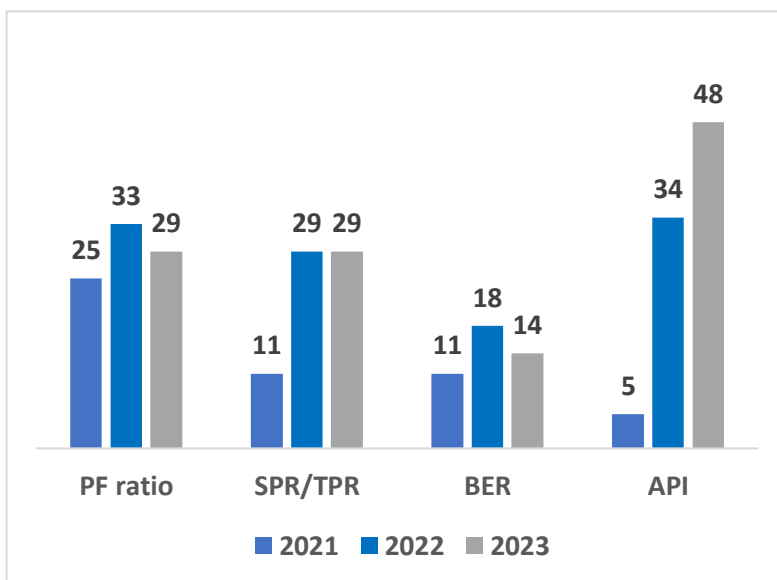
The table mentioned shows the details of malaria cases for the years 2021, 2022, and 2023. The different parameters measured in each year are listed as follows:

PF ratio: Stands for Plasmodium falciparum, which represents the proportion of infected individuals among the total population. The values recorded for PF ratio in the years 2021, 2022, and 2023 are 25, 33, and 29 respectively.

SPR/TPR: Stands for Slide Positivity Rate or Test Positivity Rate, which indicates the percentage of positive malaria cases among individuals tested. The values recorded for SPR/TPR in the years 2021, 2022, and 2023 are 11, 29, and 29 respectively.

BER: Stands for Blood Examination Rate, which represents the percentage of the total population that underwent blood tests for malaria. The values recorded for BER in the years 2021, 2022, and 2023 are 11, 18, and 14 respectively.

API: Stands for Annual Parasite Incidence, which indicates the number of confirmed malaria cases per 1,000 population. The values recorded for API in the years 2021, 2022, and 2023 are 5, 34, and 48 respectively. From the data of the table, it can be observed that there is a significant increase in malaria cases over the years, as indicated by the rising values of PF ratio, SPR/TPR, BER, and API from 2021 to 2023. This suggests to Malaria practitioners and professionals for worsening malaria situation in the reporting region during the mentioned time period.



ESTABLISHING A WAREHOUSE FOR LLIN STORAGE ACCORDING TO ESTABLISHED PROTOCOLS AND DISTRIBUTING ANC LLINS THROUGH MCH CENTERS.

Long-lasting Insecticidal Nets (LLINs)

Long-lasting insecticidal nets (LLINs) have played an important role in the remarkable success in reducing malaria burden over the past decade. They are a core prevention tool, and widely used by people at risk of malaria.

WHO recommends that:

1. Universal coverage remains the goal for all people at risk of malaria.
2. In order to maintain universal coverage, countries should apply a combination of mass free distributions and continuous distributions through multiple channels, in particular antenatal (ANC) and immunization services.

Establishment of Warehouse for LLINs

LLINs are a critical tool in preventing the spread of malaria by providing a physical barrier against mosquitoes that carry the disease.

The DoMC has planned for LLINs Mass Campaign 2022 for District Sujawal, Thatta and Mirpurkhas. DoMC have instructed NRSP GFATM for establishing LLINs warehouses in District Sujawal (for Sujawal & Thatta) and District Mirpurkhas. NRSP has established following LLINs warehouses:

- LLINs warehouse for Sujawal has been established at Silver Rice Mills Sujawal from January 2022 till September 2022. The covered area of warehouse was 7,600 square feet (Sft). and we have stored 951,300 LLINs for mass distribution in Sujawal and Thatta.
- LLINs warehouse for Mirpurkhas has been established at Bhattai Cotton Factory Mirpurkhas from January 2022 till September 2022. The covered area of warehouse was 6,400 Sft. and we have stored 660,550 LLINs for mass distribution in Mirpurkhas.
- Total 1,611,850 LLINs were stored at both warehouses.

Distribution of LLINs through ANC Centers

The distribution process started from the capacity building of staff members so, for that team NRSP has organized an orientation training session for the nominated staff members of selected health facilities by District Health Office (DHO). These training workshop have been organized in eight targeted districts and total number of 157 health care provides were trained in these sessions. The details of number of health care provides attended training session is mentioned in Table No.10



Table No.10. Total No. of Health Professionals Attended Orientation Session for LLINs

District's NRSP		District's SRSO	
Total No. of Health Professional ANC-LLINs Orientation Training Attended			
Thatta	18	Umerkot	11
Sujawal	7	Larkana	21
Badin	32	Kamber Shahdadkot	21
Tando Muhammad Khan	12	53	
Mipurkhas	35		
Total	104		

During the project team NRSP have provided 91,473 LLINs through Antenatal Care (ANCs) visits of Pregnant Women. In overall 13 districts the number of LLINs were distributed among the project period, details are mentioned in Table No.11.

Table No.11. Details of LLINs Distribution

District	LLIN Distribution in 2021 / 22	Achievement as of 2022 / 2023	Total Distributed No.
Sindh Data			
Thatta	12,000	7,612	19,612
Sujawal	7,650	4,899	12,549
Badin	6,700	4,282	10,982
Tando Muhammad Khan	9,100	5,782	14,882
Mirpurkhas	5,850	3,707	9,557
Umerkot	4,500	2,866	7,366
Larkana	3,550	1,600	5,150
Kamber Shahdadkot	6,950	4,425	11,375
Total	56,300	35,173	91,473
Balouchistan Data			
Kech Turbat	8850	-	8850
Gawadar	1300	-	1300
Panjgoor	3050	1850	4900
Lasbela	800	2550	3350
Awaran	200	650	850
Total	14,200	5050	19,250



ENGAGING THE PRIVATE SECTOR (PRIVATE HEALTH FACILITIES) IN PROVIDING DIAGNOSIS AND TREATMENT SERVICES IN ACCORDANCE WITH NATIONAL TREATMENT GUIDELINES

Besides public facilities, the community of semi-urban area visits the private health facilities for malaria treatment as considering that they provide quality treatment and they are available till late night. Further the number of malaria cases are partially treated and recorded at these private centers and cases are accumulated and reported in monthly reports.

Therefore, engaging the private sector health facilities, in providing diagnosis and treatment services in alignment with national treatment guidelines is essential for improving screening and healthcare outcomes, ensuring quality care for all individuals.

That is why the target for private sector health facilities were assigned separately for this project period and NRSP team has successfully established linkages with private sector health facilities in selected 08 districts. Equipped these health facilities with required case management training and capacity building, AMDs.

During period NRSP ensured the availability of Malaria Services in 301 private health facilities of 13 districts. These selected health facilities were responsible to provide the malaria services free of cost.

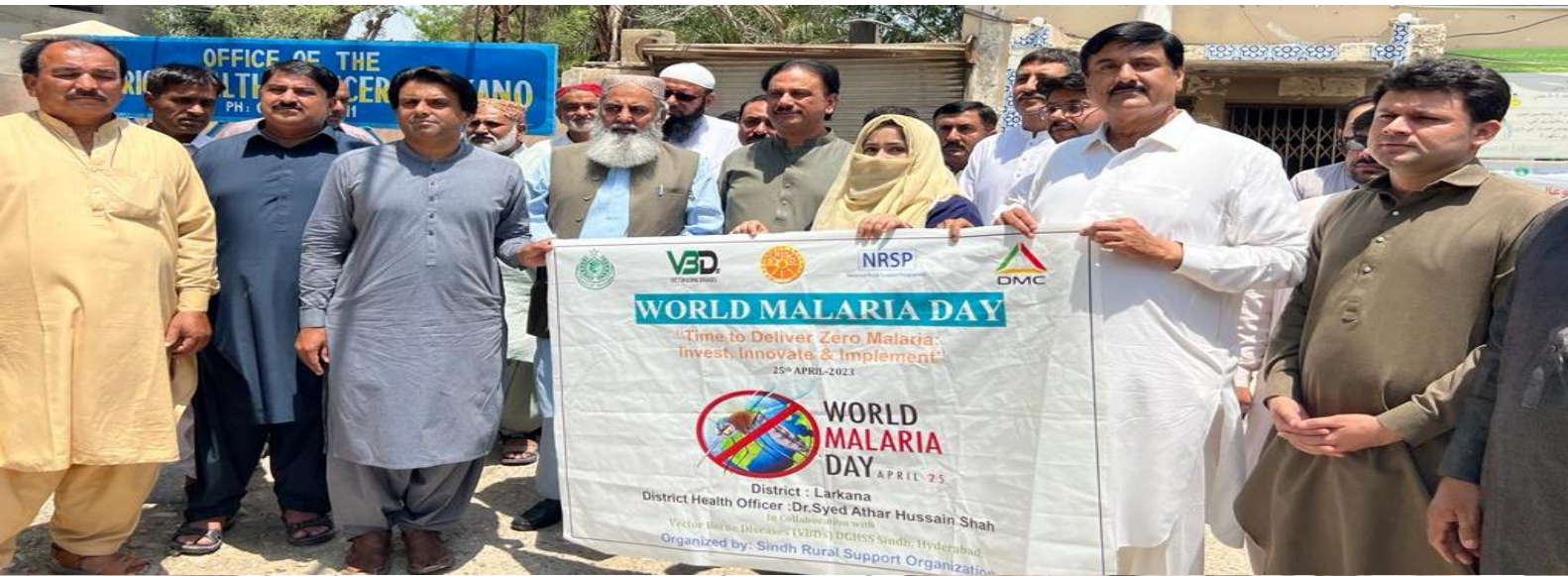


WORLD MALARIA DAY

World Malaria Day is an important international observance that takes place on 25 April every year, highlighting the global efforts being made to control and eradicate malaria. In collaboration with Vector Borne Diseases (VBDs) and District Health Officers (DHO), NRSP teams organized the celebration of World Malaria Day in all project districts as well as at the provincial level. Various activities such as Rallies, Walks, and Awareness Sessions were organized by the district teams in order to raise awareness about the prevention and treatment of malaria during the program implementation period i.e. 2021 to 2023. Through actively participating in these events and spreading awareness about malaria prevention, the aim is to reduce the impact of this disease on the communities and work towards a malaria-free province Sindh. The details of number of celebrations organized is mentioned in Table No. 12.

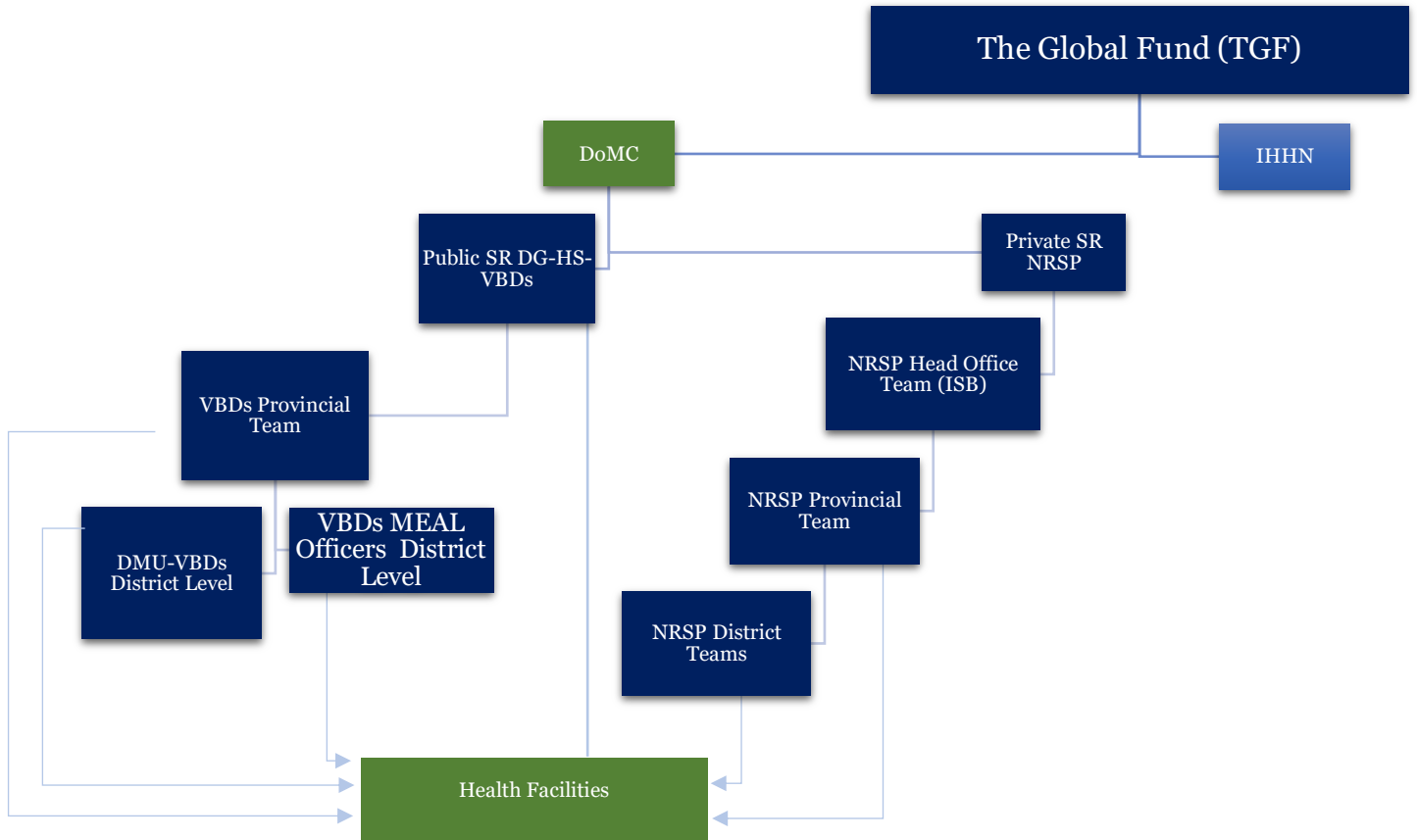
Table No.12 Details of Malaria Day Events

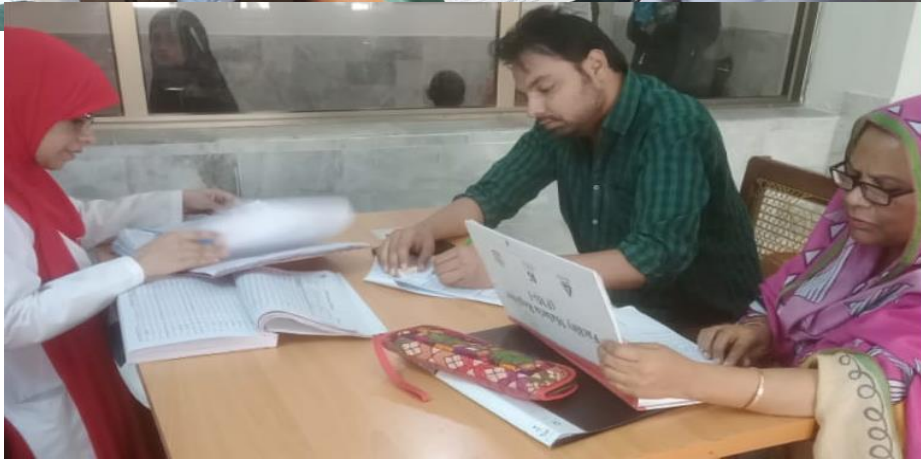
District	Nature of events	Year	Number of events
Hyderabad	Malaria Awareness Walks, Seminar	2023	2
Umerkot	Malaria Awareness Walks, Rallies, awareness session	2021 to 2023	6
Thatta	Rally	2021 to 2023	3
Sujawal	Malaria Awareness Walks	2021 to 2023	3
Badin	Walk, Rallies and awareness session	2021 to 2023	6
Tando Mohammad Khan	Malaria Awareness Walks	2021, 2023	3
Mirpurkhas	Malaria Awareness Walks	2021, 2023	3



MONITORING OF HEALTH FACILITIES, REPORTING AND RECORD MANAGEMENT (WEEKLY, MONTHLY AND QUARTERLY)

Monitoring is key element for the performance evaluation, track progress, issues, challahs and measure outcomes. By comprehensive monitoring framework, we have analyzed all aspects of performance indicators, under malaria project grant. The following health facilities monitoring mechanism has been utilized:





PROJECT STAFF ORIENTATION SESSIONS

A comprehensive project staff orientation session was conducted for teams working in previous districts and newly inducted district team on with participation of new nine districts including district coordinators and district supply chain officers. The session aimed to equip the new members to have a clear understanding of the program objectives, program flow, documentation requirements, and reporting mechanisms.

This also include the knowledge about the capacity building exercise with health professionals on complicated and un-complicated case management, which they have to organize and impart at district level and also its documentation and financial reporting.

The DHIS2 session was also conducted by regional staff member to enhance the understanding and capacity of staff members on DHIS2 online reporting portal.



COUNTRY COORDINATION MECHANISM (CCM)

The Country Coordination Mechanism team members, embarked on a three-day visit dated June 22nd, 2022 to June 24th, 2022. They visited various health facilities in three different districts of Sindh.

In Thatta district, the team visited RHC Gharo, DHQ Thatta, BHU Dhabjeji, Sra clinic Gharo, and Shine Humanity Center. After visiting these health facilities, the CCM team held debriefing meeting with the District Health Officer DHO. Where the team discussed the few stock variances in health facilities and emphasized for proper stock inventory management with support of NRSP.

Afterward, CCM team moved to Mirpurkhas district, and visited RHC Mirwah Gorchani, GD Khalid Je Landhi, BHU Ali Nawaz Shah, SMBB Hospital Mirpurkhas, and Khadija clinic Mirpurkhas. Their observations were related to stock management and patient care.

Lastly, they visited Tando Muhammad Khan district and visited DHQ Hospital (TMK), Bismillah Clinic, BHU Saeed Mato, and CHC Nao Mel, where the team has appreciated good practices and identified areas for further improvement.

They held meetings with DHOs, DMU NRSP, and VBDs teams and discussed regarding trainings and stock management. CCM team also conducted meeting Deputy Director General-VBD Dr. Teerath Das and his team and brief them about the overall progress and issues, Response and seek further support from DG-Health Mohammad Juman Bohoto on importance of coordination, timely monitoring, and policy adherence for ensuring the success and sustainability of Malaria program in the region.



CASE STUDY

Objective: The primary objective of the intervention was to ensure the continuity of essential Malaria services and supplies to health facilities those affected by the flood.

Background: The flood 2022 has affected a large portion of the population in intervention districts of the program, displacing families, destroying homes, and causing significant damage to infrastructure included health facilities. The communities in these areas are in urgent need of assistance and support to recover from the impact of the floods. The quickest support which need was Health Services and rehabilitation of shelters. The difficult areas / villages were in district Mirpurkhas, Kamber Shahdadkot and Larkana where the access to the health facilities and communities were hard to reach.

Implementation: In the wake of a devastating flood in 2022, many health facilities in an affected area were submerged water, making it inaccessible to those in need of medical attention. In response to the flood, NRSP- GFATM teams of all districts have taken the responsibility to provide the essential Malaria Services to the people in need at that time.

The efforts concluded were quickly mobilized their teams to continue the provision of supplies and services to the affected health facility and where the communities have been settled after the displacement. As days spends during the emergency situation the high number of cases observed. NRSP, DHO Office, PPHI also deployed Medical staffs in all districts also collaborated to organize special medical camps in the affected areas. These camps provided medical consultations, vaccinations, and other necessary health services to the communities of affected by the flood.

Despite the challenges posed by the flood, the timely intervention of the district's teams from all districts and especially Mirpurkhas, Larkana, and Kamber Shahdadkot ensured that essential Malaria services continued to be provided to those in need. The special health services (health camps) allowed for the expansion of medical support to residents of nearby areas and helped prevent the spread of viral and waterborne diseases in the aftermath of the disaster.

Lessons Learned: This case study highlights the importance of coordinated efforts between different districts in responding to natural disasters and ensuring the continuity of essential malaria services. The successful provision of health and malaria services during the flood underscores the resilience and adaptability of the good team efforts in the face of emergencies. Going forward, it is crucial for health facilities and teams to be prepared for similar challenges and work together to maintain the health and well-being of communities in times of crisis.

Comments and sharing: “When we distributed RDTs and AMDs to the water-surrounded centers, both staff and patients were thrilled to receive the medication. It was a gratifying moment for us, as stated by Madad Ali Jarwar, District Coordinator of NRSP in Mirpurkhas District.”



SUCCESS AND APPRECIATION REMARKS FOR NRSP-MALARIA SINDH TEAM FROM DG-HEALTH SINDH

The NRSP-Malaria Sindh Team received praise from DG-Health Sindh during the World Malaria Day celebration activities. Director General Health Dr. Muhammad Juman Bohato and Deputy Director General VBD Dr. Syed Mushtaque Shah commended the team for their dedicated efforts in delivering Anti-Malarial Drugs to health facilities in all 8 districts of the project.

They recognized the team's hard work during Flood and Rain Emergencies, ensuring the availability of ADMs for Malaria treatment. The NRSP team, including the Provincial Coordinator, Logistic Coordinator, and Training Coordinator of NRSP-GFATM, were presented with an appreciation shield for their outstanding contributions.



ACHIEVEMENTS, CHALLENGES AND LESSON LEARNT

- Successfully completed the grant period and achieved the set targets of trainings, monitoring visits, cluster meetings and AMDs supplies to the health facilities.
- Successfully implemented the grant in new 9 district after flood in Sindh.
- Successfully collected weekly reports from June 2023 and updated in DHIS-2.
- Efficient Coordination at Provincial level with VBDs office as well District Health Offices *(DHO), PPHI and other stakeholders.
- Timely submission of DHIS-2 Malaria surveillance reports of all project districts.
- Collection of FM-2 from all health facilities on monthly basis without any delay.
- Managed supplies of AMDs at 99% health facilities by deploying all smart efforts by teams.
- All Health facilities has been properly visited and monitored all requisites of project aspects.
- Ensured efficient warehouse management practices at Regional and district store levels.
- Assured Quarterly Stock Reconciliation Review and Reporting by DoMC on regular basis.
- Stock consumption pattern revealed that more than 20% is not sufficient managed stock minimum and maximum positioning at health facilities and it should be increased up-to 50%.

REFERENCES

- <https://www.theglobalfund.org/en/about-the-global-fund/>
- <https://www.cmu.gov.pk/dmc-directorate-of-malaria-control/>
- <https://nrsp.org.pk/what-do-we-do/social-sector-services/health/>
- <https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/integration/linking-with-other-health-interventions/long-lasting-insecticidal-nets>



The Malaria Project Grant year 2021-2023 has successfully implemented and completed with the guidance, supervision and encouragements by all valuable Stakeholders.