

MASTER OF PUBLIC HEALTH
Johns Hopkins Bloomberg School of Public Health & IIHMR
University

PRACTICUM REPORT

By
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MPH – Cohort 9
2021 - 23

Under the Guidance of
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TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr Nahid Alam**, student of Master of Public Health Program offered by IIHMR University, Jaipur in cooperation with Johns Hopkins Bloomberg School of Public Health, Baltimore has undergone Practicum Training at **PATH - NTD VL - LF Project, Uttar Pradesh, India** from **date 26th December'2022 to be contd.**

The Candidate has successfully carried out the study designated to her during practicum training and her approach to the study has been sincere, scientific, and analytical.

The Practicum Training is in fulfillment of the course requirements.

I wish her success in all his future endeavors.

Sd-

Dr Goutam Sadhu
Practicum Advisor

CERTIFICATE BY SCHOLAR

This is to certify that the Practicum Project submitted by me, **Dr Nahid Alam** with IIHMR Enrollment No. **IIHMR-U/07/2021-2023/0053** and Hopkins Id number **EF0EA5** under the supervision of **Dr Goutam Sadhu** **and Dr Shoaib Anwar** for award of **Master of Public Health** carried out from **26th December'2022** to be continued, It is my original work, and neither this Institute nor any other similar institution of higher learning has used it as the basis for the awarding of any degree, diploma, associateship, fellowship, or titles.

Dr Nahid Alam
MPH Cohort -9
2021-23

CERTIFICATE FROM THE ORGANIZATION



Date – 26th April 2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr Nahid Alam**, has successfully completed her practicum training with us at **PATH** in “Technical support to the state government of Uttar Pradesh for elimination of lymphatic filariasis (LF) and visceral leishmaniasis (VL)” project from **date 26th December 2022** to be continued under the guidance of **Dr. Shoaib Anwar, State Lead, NTD, PATH**.

We wish her success in all her future endeavors.

A handwritten signature in black ink that reads "Shoaib Anwar".

Sincerely,



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Acknowledgement

I would like to take this opportunity to thank Johns Hopkins Bloomberg School of Public Health, USA and IIHMR University, India for relentlessly directing me in completing this practicum report. I am extremely thankful to my practicum advisor, Dr Goutam Sadhu of IIHMR University, for his continuous support and invaluable guidance. Only with his blessings, encouragement and zeal, this report was possible. He has played a momentous role by providing constructive feedback in every step of the way. I also want to thank PATH for giving me an opportunity to complete my practicum at their organization. I am highly grateful to my preceptor, Dr Shoaib Anwar, for his time and remarkable efforts to guide me throughout the practicum. This will surely be on the list of one of the great learning experiences in my MPH journey. Last, but not the least, I want to thank my parents and friends for their unending support and motivation. They are indeed the most important pillars of my life and without them, this would not have been possible.

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Abbreviations

PATH	Program Appropriate Technology for Health
LF	Lymphatic Filariasis
VL	Visceral Leishmaniasis
MDA	Mass Drug Administration
MMDP	Morbidity Management and Disability Prevention
WHO	World Health Organization
DALYs	Disability-Adjusted Life Years
GPELF	Global Programme to Eliminate Lymphatic Filariasis
DOT	Direct Observed Therapy
NCVBDC	National Centre for Vector Borne Disease Control
PRI	Panchayati Raj
BPM	Block Program Manager
BCPM	Block Community Process Manager
MOIC	Medical Officer Incharge
ASHA	Accredited Social Health Activist
AWW	Anganwadi Workers
NTD	Neglected Tropical Diseases
ADR	Adverse Drug Reaction
PCI	Population Council of India
UNICEF	United Nations International Children's Emergency Fund
ELF	Eliminate Lymphatic Filariasis
PKDL	Post Kala Azar Dermal Leishmaniasis
SRNA	Sanchari Rog Niyatran Abhiyan

1. About PATH

PATH is a global nonprofit dedicated to achieving health equity. With more than 40 years of experience forging multisector partnerships, and with expertise in science, economics, technology, advocacy, and dozens of other specialties, PATH develops and scales up innovative solutions to the world's most pressing health challenges.

Objectives of the LF - VL project

PATH, with the support of the Bill and Melinda Gates Foundation (BMGF), is providing technical support for the Elimination of VL and LF in Uttar Pradesh, in coordination with other development partners in the state. PATH provides strategic technical support at multiple levels including state, and division. district, block, and villages, through an integrated NTD (Neglected Tropical Diseases) field team, supporting the state government to achieve and sustain VL and LF elimination

2. Project review

Overview

Lymphatic Filariasis (LF): Lymphatic filariasis is a chronic neglected tropical disease associated with a huge proportion of morbidity and disability leading to disfigurement and social stigma, prevalent across multiple states in the country. Uttar Pradesh is one of the high endemic states having 51 Out of 75 districts of Central and Eastern Uttar Pradesh, that are endemic for

Lymphatic Filariasis (LF).

Uttar Pradesh is one of those endemic states where PATH has been providing strategic technical assistance for LF elimination efforts in the state, focused on the eastern region of UP state, where the disease has high incidence and prevalence.

Key strategies to eliminate LF:

Apart from the Mass Drug Administration (MDA), which is being conducted in most of the endemic districts., MMDP (morbidity management and disability prevention) is an integral component of elimination efforts being undertaken in the state.

2.1. Mass Drug Administration compliance review for elimination of lymphatic filariasis in India

Background:

The World Health Organization (WHO) and its Member States committed to eradicating lymphatic filariasis (LF) as a public health issue in 1997 through WHA50.29 of the World Health Assembly. Lymphatic filariasis has already been eradicated from several nations given to targeted initiatives implemented in Japan and a portion of China and better sanitation found in Australia and the United States of America. (1)

A safe, single-dose, two-drug coadministration regimen that can significantly lower microfilaria numbers in the blood for more than 12 months, to levels so low that interruption of mosquito transmission can be anticipated, has become available in the past 20 years, making the

elimination of lymphatic filariasis a realistic goal. (b) basic, effective diagnostic methods for clinical diagnosis (ultrasound detection of the active adult parasite) and field diagnosis (antigen detection in finger-prick blood). Lymphatic filariasis was one of only six diseases that the International Task Force for Disease Eradication (1993) deemed to be "eradicable or potentially eradicable" after considering these methods and the findings of additional investigations. (1)

The parasitic worms *Brugia malayi*, *B. timori*, and *Wuchereria bancrofti* cause lymphatic filariasis, a disease. Many other clinical symptoms, such as lymphoedema and limb elephantiasis, are brought on by these parasite infections.

Scrotal and penile elephantiasis (particularly hydrocoele, chylocoele), as well as acute, recurrent secondary bacterial infections (also known as acute attacks). Most infected individuals are asymptomatic, however almost they all have preclinical lymphatic disease, and up to 40% of them also have renal involvement with proteinuria and hemorrhage.

The larval stage parasites that enter the skin after a blood meal by an infected mosquito move to the lymphatic vessels where they mature into adult worms that damage and enlarge the lymphatic vessels over a period of 6 to 12 months. Millions of microfilariae are released into the blood during the 4–6-year lifespan of fertile adult female worms, which are then ingested by mosquitoes. Before infecting humans, the parasite matures further inside the

mosquitos.

Global Burden

Even while lymphatic filariasis seldom results in death, it frequently results in clinical distress, impairment, and handicap. According to WHO², there are 4 918 000 disability-adjusted life years (DALYs) worth of disease burden. The second-most prevalent tropical disease¹. Additionally, a recent study claims that economic losses from lost man-days of work and decreased productivity in India alone approach US \$1 billion yearly shown in **Figure 1**.

Endemic in 73 countries; 1.34 billion people at risk of infection

Distribution and status of preventive chemotherapy for lymphatic filariasis, worldwide, 2013

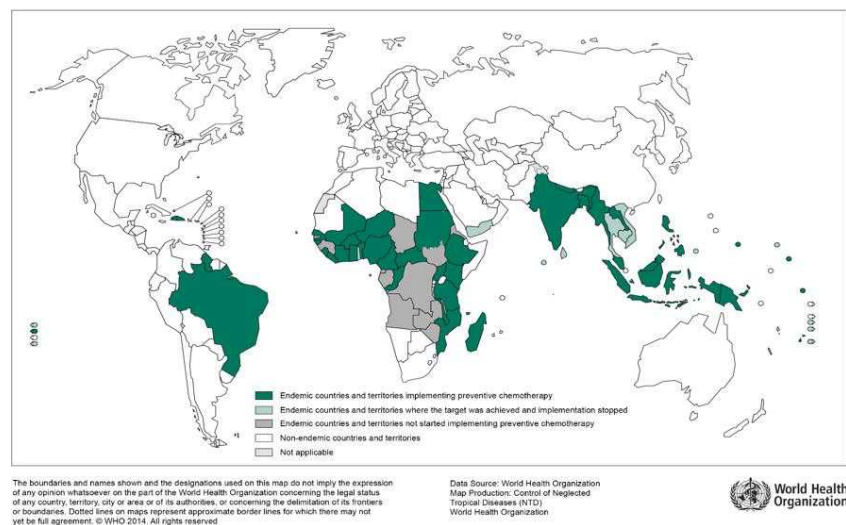


Figure 1: Global Distribution and Status of Lymphatic Filariasis

¹ Sudomo M, Chayabegara S, Duong S, Hernandez L, Wu WP, Bergquist R. Elimination of lymphatic filariasis in Southeast Asia. *Advances in parasitology*. 2010 Jan 1;72:205-33.

Disease burden in India

According to estimates, it causes almost 5 million Disability Adjusted Life Years (DALYs) lost each year, placing it third among diseases in terms of DALYs, behind TB and malaria. Additionally, the social and psychological effects are severe and can endanger marriages and relationships with family members. Although filariasis does not kill, it debilitates the affected people, their family, and the endemic communities and places a heavy social and economic burden on them. (2)

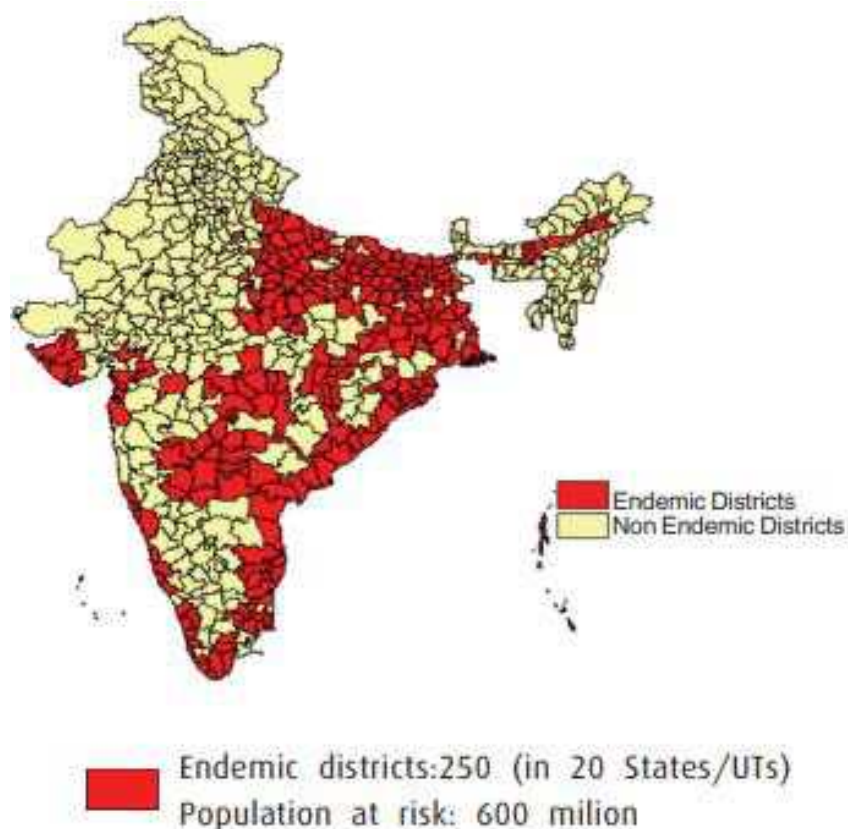
Current Status and Distribution in India

Susruta first detailed the illness in India in the sixth century B.C. in his book "Susruta Samhita," and Madhavakara described the signs and symptoms of the illness in his treatise "Madhava Nidhana" in the seventh century A.D., which are still relevant today. Clarke referred to elephant-like legs in 1709 known as "Malabar legs" in Cochin. Lewis was the first to identify microfilariae (mf) in peripheral blood in Kolkata City in 1872.

India 20 States/UTs, including Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal, Puducherry, Andaman & Nicobar Islands, and Daman, have indigenous lymphatic filariasis cases that have been documented. The North-Eastern States of Sikkim, Arunachal Pradesh, Nagaland, Meghalaya, Mizoram, Manipur, and Tripura are known to be free from locally acquired filarial infection.

The North-Western States/UTs of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh, Rajasthan, Delhi, and Uttaranchal are also known to be free from locally acquired filarial infection. Lakshadweep, Dadra & Nagar Haveli, and Daman & Diu. A total of 250 districts from these States/UTs have been found to be filariasis endemic, with an estimated 600 million people at risk depicted in *Figure - 2*.²

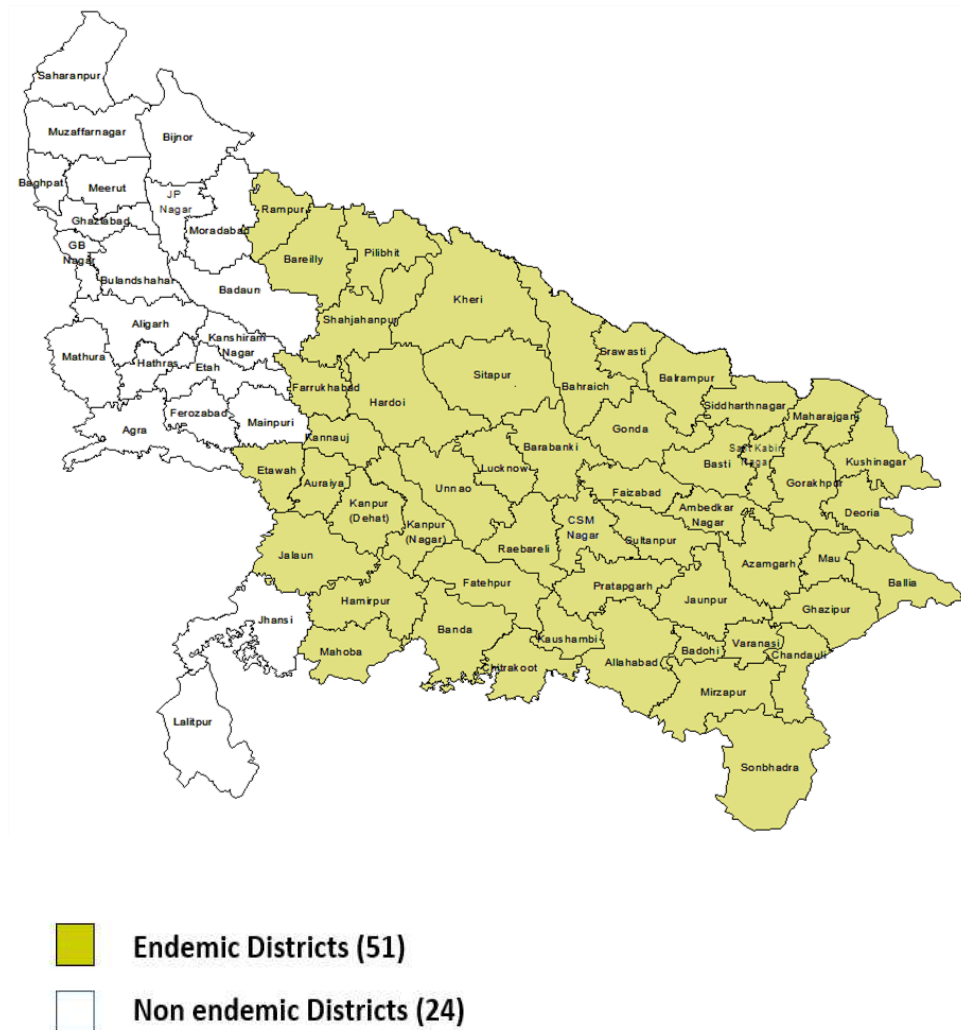
Figure – 2 : Endemic and Non – Endemic districts in India



² Tripathi B, Roy N, Dhingra N. Introduction of triple-drug therapy for accelerating lymphatic filariasis elimination in India: lessons learned. The American Journal of Tropical Medicine and Hygiene. 2022 May;106(5 Suppl):29.

In UP 51 districts were endemic for Lymphatic Filariasis when Mass Drug Administration was launched shown in *Figure – 3*³

Figure – 3 : Endemic and Non – Endemic districts of Uttar Pradesh



³ Tripathi B, Roy N, Dhingra N. Introduction of triple-drug therapy for accelerating lymphatic filariasis elimination in India: lessons learned. The American Journal of Tropical Medicine and Hygiene. 2022 May;106(5 Suppl):29.

Literature review

World Health Organisation (WHO) launched the Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000, about 36 million people were affected by LF, with an estimated one billion individuals from 72 countries are at high risk. (4)

By 2020, the GPELF intends to eradicate LF in all places where the disease is endemic. However, the elimination is proposed to be achieved by 2030 because of the existing transmission of micro filaria in the environment.

India contributes nearly 40% of the global problem, 328 districts affected in 21 states/UTs. Mass drug administration (MDA) of anti-filarial drugs is the main GPELF recommendation for bringing microfilaria (mf) prevalence in endemic communities below 1%. (4)

The recommended Diethylcarbamazine or ivermectin and albendazole are the two anti-filarial medications recommended for India. It is advised that this technique be used for at least 5 years with an effective population treatment coverage of under 65%. This is due to an adult worm's lifespan, which is between 4 and 6 years. As a result, it is anticipated that the disease should stop spreading after five years of effective treatment.

The primary GPELF technique to halt transmission is MDA, which involves administering two anti-filarial medications in combination (albendazole plus either diethylcarbamazine or ivermectin) to all eligible populations in endemic areas once a year. Diethylcarbamazine or ivermectin and

albendazole for a minimum of five years with efficient population treatment coverage (65%) are the recommended regimens in Indian context.

Research Question:

1. Does poor DOT compliance compromise quality of MDA intervention amongst endemic population?

Aim:

To evaluate existing DOT method and contributing factors from stakeholders perspective (drug administrators, health workers and community)

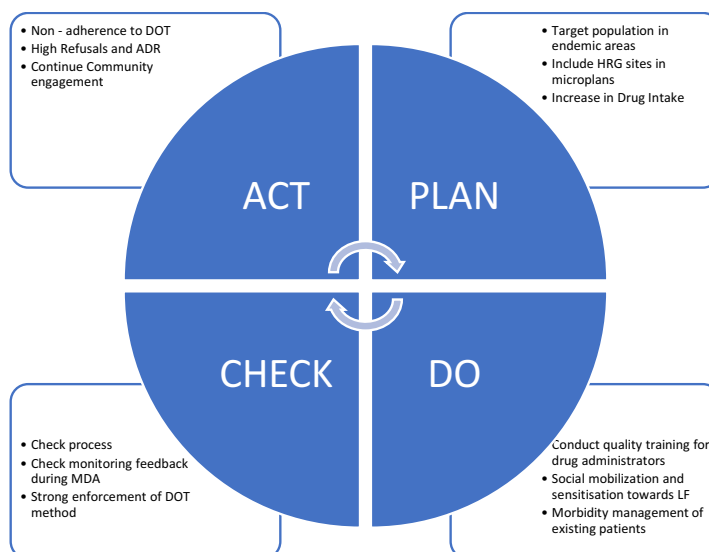
Objective:

1. To assess the pre - post implementation patterns of Direct Observed Therapy in endemic population
2. To measure the gaps in behavioral patterns, LF elimination national health policy to offer recommendations for future action

Study design:

According to National Centre for Vector Borne Disease Control (NCVBDC) guidelines, (4) to interrupt transmission of micro filaria, is to achieve 85 percent coverage of the targeted population for at minimum 5 years are the set standards to achieve elimination. The mapping and disease burden estimation to understand today's endemicity status and monitor and evaluate intervention program in affected districts in India. Research shows that shortcomings in the pre – intervention phase is highly dependent on refusal to drug intake due to many misconceptions about lymphatic filariasis, poor

community mobilization and sensitization, high refusal percentage in the community due to observed adverse drug reaction causing enormous amount of fear, leading to non – adherence to DOT. Hence, A review of the preparatory phase (pre, during and post MDA) intervention will help analyze the implementation patterns and bottle necks of LF MDA program. Based on the previous research studies (4) globally, by adopting the RE-AIM conceptual framework, a tailored context specific evidence-based quality improvement approach can be designed using PDCA approach shown in **Figure – 4** for the state of Uttar Pradesh. This quality improvement intervention can be used to evaluate and monitor involvement of the key stake holders as an adopted strategy.



Overview:

The objective is to persuade program planners and policy makers, to improve

in four identified key strategies based on crucial components such as Incentive based remuneration for drug administrators, mobilisation and sensitization, community participation, monitoring of inter – departmental coordination at the district level and the final drug administration process depicted in **Table - 1**. A sustainable adoption for an increase in DOT compliance to implement evidence-based interventions which may lead to progress towards the elimination of lymphatic filariasis.

Table 1: Key strategies for MDA activity, key personnel, desired actions

<u>SNo.</u>	<u>Strategies</u>	<u>Nodal Responsible</u>	<u>Desired Actions</u>
1.	Training: Drug Administrators ASHAs AWW Volunteers -	District Magistrate, Chief development Officer, NTD Nodal (Chief Medical Officer, District Malaria Officer, Inter departmental Heads like PRI, BSA/ABSA, Block – MOICs, BPM, BCPMs, Monitoring agencies – Strong technical competence	• Adequate Quality training of the drug administrators • Sound knowledge dissemination – awareness for possible ADR, handling refusals, to maintain clear communication • Strict adherence to DOT method
2.	Social mobilisation and sensitization	Health workers – ASHA/AWW/Volunteers/CFAR/PCI/Official Nodals at divisional and Block level	• Multi-channel strategic communication amongst endemic population • create increase level of awareness about disease, causes and effects

3.	Key stake holders' engagement	Community/Key opinion leaders- Religious leaders, Gram Pradhan, Urban bodies health program Nodals (Industrial, markets etc)	To positively influence the community for DOT method and drug intake
4.	Drug distribution approach	Implementation of the program by drug administrators/Divisional VBD Team	- Preparation of robust microplanning - Using skilled HR for urban areas - Strong advertisement and encouragement for DOT method

Table 2: Assessment of the various factors impacting DOT method during MDA program

<u>SNo.</u>	<u>Pre-Intervention</u>	<u>Intervention</u>	<u>Post Intervention</u>
1.	<u>Community level factors</u> - Accessibility - Availability - Social Mobilisation and sensitization - Stakeholders' engagement	<u>DOT Compliance</u> - Drug Ingestion - Refusal to drugs - Absent Beneficiaries - Non – eligible such as pregnant women, very ill person/elderly person, 1-2 years old children are excluded	<u>Reported Coverage</u> - False reporting by drug distributors - Increase in percentage of the reported coverage - Missed population - Migrated population

2.	<u>Health system level factors</u> • Training • Logistics • Workload • Information, Education and Communication	<u>Individual level Factors</u> • Fear of ADR • Prior experience of MDA • Awareness • Availability of beneficiaries • Perception • On medication • Attitude	<u>Evaluated coverage</u> • Cluster selection • Concurrent monitoring • Random sampling • Evaluation of coverage in the endemic population
3.	<u>Drug distributors</u> • Training • Knowledge dissemination • Workload • Supervision • Minimum wages 125 INR/Day for 25 – 30 Houses • Overburdened with other multi programs like TB, Leprosy	<u>Active monitoring and Supervision</u> • Availability of Health staff • Regular rigorous monitoring • Interdepartmental coordination • Availability of ANM deployment in Urban areas	<u>MMDP</u> • Verified line listing for morbidity management and disability prevention • Lymphedema and Hydrocele cases • MMDP kit procurement and distribution • Timely Hydrocelectomies

Research studies (3,4) indicate that the main reason for a continuous transmission of micro filaria in endemic states even after continuous intervention from 2004 are dependent on various factors mentioned in **Table – 2**.

Key Findings

Pre – Intervention

Challenges like high level of refusals in the endemic population to low level of awareness about the disease epidemiology, lack of sensitization, adverse drug reactions like fever, nausea, vomiting impact the program and lead to poor compliance and mainly distribution of the drugs and not ingestion.

Intervention

Lack of supervision and monitoring during the program will impact the DOT method. Active monitoring helps in identifying challenges to the health workers, state VBD Nodals and the community for timely action.

Planning of MDA activities during the preparedness phase is completed through micro planning, drafted during a community-based survey completed by ASHAs/AWW in their allotted areas. Micro plan is an important tool used as inclusion – exclusion criteria for the targeted community during MDA. Hence, it should be followed strictly by the drug administrators to avoid missing any areas, contingent locations, high risk groups, institutions, offices, and schools.

Availability and Access to the beneficiaries during the campaign is an important factor for compliance of DOT method. In such cases the distribution is more as compared to drug intake in the population.

The reported coverage of the endemic districts is generally on a higher side than the evaluated coverage report at the divisional level in Uttar Pradesh which clearly indicates false reporting by the health workers. To address this issue, it is important to ensure that only the trained health workers are a part of the program, as their focus will be on positively influencing the community for DOT method of DEC and Albendazole filarial drug.

Post Intervention

For Monitoring, Learning and Evaluation: Analysis of post MDA evaluation

coverage survey by District Medical college gives an overall evaluation of the DOT during the intervention and is followed by NCVBDC ELF guidelines. (5)

The line listing of lymphedema and hydrocele patients are provided with Morbidity management kit (free of cost) to manage acute lymphangitis attack which is irreversible.

Recommendations

- To ensure robustness of the operations various channels such as social media, print media, Audio – Visual aid with tailored content specific to the local population should be used as pre – preparedness activity at least 2-3 weeks before the program.
- To monitor and supervise health workers in the field, a competent quality implementation team at divisional level to be formed. Their work is to ensure compliance of DOT method in the targeted community
- To share feedback on a regular basis with all key stakeholders at all levels
- Revisit planning by the health workers during other days or in case of missed beneficiaries in their allocated should be rigorously monitored and supervised by the Quality implementation team.
- It is recommended to run MDA solely to avoid any overlap with other

health programs during the intervention. Health workers are overburdened by such overlaps and are unable to focus on MDA. Such overlap leads to inclusion of untrained volunteers because of shortage in human resource to five lac of divisional population +- 50,000 migrated population. Poor monitoring and supervision by ANMs and CHOs. An increase in demand impacting again the DOT method.

- Less incentive for health care workers results in loss of motivation for MDA round. The NHM proposed budget is only 125 INR per day to cover 25-30 houses for drug administrators covering a population of 1000-4000 during the program.
- Non – User friendly applications such as E-Kawach is a challenge for ASHAs used as a data feeding system during MDA. Literacy level of health workers are minimal in case of ASHAs, they are technically handicapped and are unaware of the application updates and tricky computer language. Remuneration for MDA of 125 INR is bifurcated (100 INR for drug distribution and 25 INR for data entry). It results in loss of time, reporting, and impacting DOT method.

MPH Practicum Journey

3.1 Summary of practicum experience

I am happy to successfully complete my practicum with LF-VL NTD Project at PATH, a global non – profit organization. An organization known for its competent technical support to the Government of India

specially in the state of Uttar Pradesh for elimination of Lymphatic Filariasis and Visceral leishmaniasis project in 51 endemic districts. At a divisional level, the exposure is tremendous with great learning experiences, serving seven districts in the past four months for various health programs such as MDA, surveillance activities VL PKDL ACD cases, implementation of SRNA/Dastak in assigned 4 districts has only enhanced my knowledge in Neglected tropical diseases and its management. I was given the opportunity to work along with highly competent professionals in the field of infectious diseases working from the past many years. Under the apt guidance of Dr. Shoaib Anwar, who is the State Lead, NTD at PATH, his association with the project is from the beginning of about 3-4 years. Though with my experience and learning at IIHMR and JHSPH helped me to be well versed with the technical knowledge required, making me able to be part of the public health program at this scale.

As a Consultant, NTD my main responsibilities are: -

- Providing technical support to the Govt. of Uttar Pradesh for Lymphatic Filariasis and Visceral Leishmaniasis
- Supportive supervision and monitoring of different components of LF and VL program

Work at NTD LF-VL Project

Roles and Responsibilities

Coordination and Implementation support to the divisional, district, and sub-district health functionaries for achieving their target of LF & VL Elimination through:

- While providing general technical support to the district VBD programme officers in their respective divisions for implementing activities for LF and VL elimination at the district and sub-district levels, report to the state project officer..
- Be responsible for advocacy in their respective redefined evaluation units, through the strategic engagement of the district-level VBD officials, to implement high quality MDAs
- Supportive supervision and monitoring of different components of LF and VL program
- Planning, coordination, and technical support in organizing LF disease surveillance camps with the help of Filaria Control Units at block headquarters in the districts.
- In conjunction with Medical Colleges in conjunction with WHO counterparts in their respective division for Post MDA assessment; Provide technical support in coordination with WHO for planning and carrying out Pre-Transmission Assessment Survey (Pre-TAS) and TAS.

Scope of Learning Activities

- Planning, coordination, and technical support in organizing LF disease surveillance in the districts.

- Planning, coordination, and technical support in ACD for VL & PKDL in affected villages/blocks.
- Planning and coordination to conduct Cross- Border meetings with neighboring states for VL and PKDL surveillance such as Nepal borders
- Strategic thinking and engagement management with key stakeholders
- Training and conducting high quality workshops for sensitization of Medical Health practitioners at the divisional level
- Analysis of data to identify areas of concern and maintain top-down communication with the divisional officers for timely action

Competency – based Learning Objectives

Project Management Skills

I have developed a deeper understanding of neglected tropical diseases and the bottle neck from health systems point of view in the project. A practical exposure and learning on the field is unmatched as compared to my past experiences in public health especially working in tier 2 – 3 cities in the state.

Communication Skills

My understanding of communication vs effective communication at different levels is improved. I can confidently lead State, Divisional level

meetings for sharing feedback and conducting training workshops to better operations and ensure overall implementation of the program. The MDA program exposure also gave an insight to understand the importance of social behavioral change communications, my ability to strongly encourage the community for DOT compliance. As a result, I was able to convert cluster refusals and decrease the percentage of non – adherence drug intake in the population.

Collaboration with other partners

PATH values collaboration and meeting the objective with partners working on common goals. I have collaborated with organizations like WHO, UNICEF, PCI and CFAR who are also working towards the elimination of LF – VL in the state.

The importance of partnership at the divisional level such as sharing collective monitoring feedback, improving the quality such as Flagship State Health Campaign Dastak/ SRNA targeting AES JE cases during monsoon season in the state. This also contributed to better my understanding in National health policy, the importance of National and State governments involvement, robust policies, financial capability to provide resources for the community.

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