

MASTER OF PUBLIC HEALTH

Johns Hopkins Bloomberg School of Public Health & IIHMR University

PRACTICUM REPORT

By

Dr. Jyashmi Rabha

Cohort-10

(2022 – 2024)

Under the Guidance of

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CERTIFICATE FROM FACULTY ADVISOR

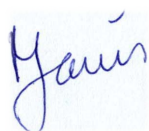
TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Jyashmi Rabha**, 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 the **Indian Council of Medical Research- National Institute of Epidemiology (ICMR-NIE), Chennai, Tamil Nadu, India** from **20th November 2023 to 22nd December 2023**.

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 her future endeavors.



Dr. Nutan P. Jain

Practicum Advisor

Professor, IIHMR University, Jaipur

CERTIFICATE BY SCHOLAR

This is to certify that the Practicum Project submitted by me, **Dr. Jyashmi Rabha**, with Enrolment No. IIHMR-U/07/2022-2024/0060 and Hopkins ID: CFAC32, under the supervision of **Dr. Nutan P. Jain** (my practicum advisor) and **Dr. Ganeshkumar Parasuraman** (my preceptor) for the award of **Master of Public Health** carried out during the period 20th November 2023 to 22nd December 2023 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Dr. Jyashmi Rabha
MPH Cohort- 10
(2022-2024)

Certificate from the organization



icmr
INDIAN COUNCIL OF
MEDICAL RESEARCH

NIE
NATIONAL INSTITUTE OF
EPIDEMIOLOGY

INTERNSHIP CERTIFICATE

This is to certify that

JYASHMI RABHA

CMPH., JHUBSPA & IIHMR, JAIPUR

has successfully completed the ICMR-NIE Internship program

in PUBLIC HEALTH & EPIDEMIOLOGY

between 20-11-23 and 22-12-23

Coordinator

Internship program, ICMR - NIE, Chennai

Director

ICMR - NIE, Chennai

ACKNOWLEDGEMENT

This practicum report was done under the guidance of Dr Nutan P. Jain (Professor, S D Gupta School of Public Health, IIHMR University, Jaipur, India) and Dr P. Ganeshkumar (Scientist-E, ICMR-NIE, Chennai, India).

I would like to express my sincere gratitude to my mentor and professor, Dr Nutan P. Jain for her unwavering support and guidance throughout my journey as an MPH student. I am deeply grateful for the time and effort that she has invested in me throughout the course.

My sincere thanks to Dr Manoj Murhekar (Director, ICMR-NIE) and my practicum preceptor Dr Ganeshkumar Parasuraman for giving me the opportunity to work under this organization. I am thankful for the supportive and enabling environment given by the team of the project to whom I am eternally grateful for guiding me and answering all my queries.

Special thanks to Dr Seema Mehta (Professor, IIHMR University, Jaipur) for her words of wisdom and encouragement throughout the course.

I am thankful to my dear colleagues at IIHMR University who helped me make my MPH journey a memorable one.

Last, but not least, I would like to take this opportunity to thank my parents, who have always given me infinite support for all of my academic endeavors and personal life. I have the deepest gratitude to them for trusting me as I build my career path.

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ABBREVIATION:

ASHA = Accredited Social Health Activist

CHW = Community Health Worker

CVD= Cardiovascular Disease

DM = Diabetes

GACD = Global Alliance for Chronic Diseases

HTN = Hypertension

ICMR = Indian Council of Medical Research

K-DPP= Kerala Diabetes Prevention Program

MLHP = Mid-level Health Provider

NCD = Non-Communicable Disease

NPCDCS = National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke

PDSA = Plan-Do-Study-Act

RE-AIM = Reach, Effectiveness, Adoption, Implementation, and Maintenance

SLM = Structured Lifestyle Modification

TFA = Theoretical Framework of Acceptability

VHN = Village Health Nurses

PRACTICUM DETAILS:

1. Duration: 20th November 2023 to 22nd December 2023
2. Hours: 160 hours
3. Name of the Institute: Indian Council of Medical Research- National Institute of Epidemiology (ICMR-NIE), Chennai, Tamil Nadu
4. Name of the Division of Internship: Public Health and Epidemiology
5. Supervisor: Dr. Ganeshkumar Parasuraman, Scientist- E, Indian Council of Medical Research- National Institute of Epidemiology (ICMR-NIE), Chennai, Tamil Nadu
6. Faculty Advisor: Dr. Nutan Prabha Jain, Professor, S D Gupta School of Public Health, IIHMR University, Jaipur, Rajasthan.

Learning Objectives:

1. To gain experience by getting involved in ongoing projects related to public health with coordination with government national health programs and schemes.
2. To develop communication skills by engaging with various stakeholders.
3. To familiarise with the epidemiological surveys, planning process, monitoring and evaluation etc.

About the organization:

The Indian Council of Medical Research - National Institute of Epidemiology is a premiere institute located in Chennai, India which was established on July 2, 1999 (1). The objectives of the institute are to conduct epidemiological studies, development of human resources in epidemiology and biostatistics, network with various ICMR and non-ICMR institutes at the national level for epidemiological purposes and consultancy (1). Interventional studies, health systems research, evaluation of health schemes and disease control programs, statistical methodology, epidemiological investigations, and outbreak science are some of the fields that the institute works on (1).

Vision- “To be a catalyst for a vibrant national health system through responsive research, education and training in epidemiology and public health.” (1)

Mission- “To effectively contribute in enhancing the quality of life of Indian citizens and influencing public health practice and policies through research, education, and training. The institution strives to accomplish the mission by:

- Working with national and international partners in health research with effective use of innovative state-of-art technologies
- Aligning our research with all key stakeholders to generate and implement evidence-based strategies for an effective and efficient national health system.
- Setting standards in public health education that would emphasize professionalism as a core competency.

- Strengthening human resource for national public health services through education and training and building bridges between educational and research institutions.” (1)

Core values-

NIE adheres to the following set of core values that form the foundation on which they perform their work and conduct themselves

- Excellence – The institution strives to reach the highest standards in research, education, and training activities. It executes institutional duties with integrity, discipline, dedication, and meticulousness.
- Accountability – It recognize and respond to the health needs of the stakeholders including the community and act responsibly while carrying out institutional activities.
- Team spirit – It encourage and maintain camaraderie and complement each other’s strengths.
- Transparency – They are open and transparent in all aspects of institutional work and disseminate research findings through all possible media of communication.
- Respect – The institution is committed to institutional regulations, cultural values and social norms and maintain mutual respect for partners in research, education and service and also appreciate and cultivate inter-personal relationships.
- Ethics – The institution promises to protect human subjects in research and promote and uphold ethical values in personal and professional conduct (1).

Ongoing projects undertaken by ICMR-NIE are as follows:

1. Annual HIV Sentinel Surveillance For ANC
2. HIV Sentinel Surveillance for High-Risk Groups
3. Behavioural Sentinel Surveillance (BSS) - Lite
4. Assessment of Health Impacts among the Nearby Residents of Thermal Power Stations at Ennore, North-Chennai, Tamil Nadu
5. Developing an Online Data Management System for Behavioral Surveillance Survey (BSS) Lite
6. Cohorts for Zika Epidemiology in India (COZEI)

7. Local Evaluation Of RT-PCR Vs NGS for Early Detection, Surveillance, and Prevention of Communicable Viral Diseases in Central India
8. Cohorts for HIV Resistance and Progression in Indian Children and Adults (CoHRPICA)
9. Ayapakkam Cohort Study
10. Operational Research on Implementing Public Health Surveillance for Mass Gatherings
11. Health System Research Study Programme of Tamil Nadu Directorate of Public Health and Preventive Medicine-ICMR-NIE
12. Systematic Reviews of Specific Public Health Problems to Synthesize Evidence Based on Published and Unpublished Studies.
13. Simplifying Leprosy Treatment Regimens: WHO/TDR Chemotherapeutic Trials (WHO/TDR)
14. Integrated Road Traffic Injuries Surveillance (IRIS), India: Chennai, Tamil Nadu
15. Estimating Risks of Human Nipah Infection in West Bengal, India: Cross-Sectional Study (ICMR-NIE-West Bengal Health Services)
16. E-Course on NleCer 10X: 'Prescribing Skills'-Rational Use of Medicine Centres (RUMC)
17. India Hypertension Control Initiative,
18. Model District for Public Health Preparedness, Surveillance and Response: Multi-Strategic Integrated Approach in Tiruvallur District, Tamil Nadu, India.
19. Concurrent Evaluation of Human Papilloma Virus (HPV) Vaccine Program and Vaccine Acceptance Among Adolescent Girls in Punjab, 2018-19.
20. Demographic Surveillance and Non-Communicable Diseases and Risk Factors in Ayapakkam Cohort Study
21. A Longitudinal Study of Risk Factors Associated with Decline in EGFR in Prakasam District, Andhra Pradesh, India. Collaborative Project with GIATM University, Visakhapatnam.
22. Rotavirus Vaccine Impact Assessment Study
23. Multi-Centric Prospective Hospital Based Sentinel Surveillance to Determine the Aetiology Of Acute Bacterial Meningitis in Children with Conventional and Molecular Methods

24. Antimicrobial Resistance in a Community and Hospitals with Specific Reference to Extended-Spectrum Cephalosporin, Carbapenem and Colistin Resistance among Enterobacteriaceae
25. Molecular Epidemiological Study on Drug Resistance of Diarrheagenic Gram-Negative Bacteria in Chennai, India.
26. Molecular Characterization of Leptospire Isolates from Fever-Case-Patients (By Direct Culture) from Suburbs of Chennai, Antimicrobial Resistance Characteristics and Comparative Genome Analyses.
27. To Develop a Low-Cost, Rapid Diagnostic Prototype Test Kit Based on Lateral Flow Immunoassay for Dengue Detection and Serotype Identification”
28. Prevalence and Severity Of Hemoglobin Disorders (Haemoglobinopathies and G6Pd Deficiency) and The Measures of Multimorbidity Burden of Selected Hemoglobinopathies Among Tribal Populations of Tamil Nadu
29. Model District for Public Health Preparedness, Surveillance, and Response: Multi-Strategic Integrated Approach in Tiruvallur District, Tamil Nadu, India
30. Scaling Up Interventions to Improve The Control Of Hypertension and Diabetes in Partnership with the Governments Of Kerala And Tamil Nadu: Leveraging India’s National NCD Program
31. A Systematic Assessment of Acute Viral Hepatitis and Chronic Liver Diseases in Northeast India with Special Reference to Strengthening of Laboratories in the region
32. Validation of Prognostic Models for Prediction of Outcomes in Traumatic Brain Injury Patients for Indian Subcontinent
33. Impact of Measles Rubella (MR) Vaccination Campaign on Population Immunity in India

Involvement of the Intern in the ongoing Project/ Study at ICMR-NIE:

Based on the discussion with the practicum preceptor Dr. Ganeshkumar, it was decided that the intern will work on the project/study entitled “Scaling up interventions to improve the control of hypertension and diabetes in partnership with the Government of Kerala and Tamil Nadu: Leveraging India’s national NCD program”. The project/study is supported by the GACD (Global Alliance for Chronic Disease) for the duration from the year 2019 to 2024.

Practicum report:

Title of the project: Scaling up interventions to improve the control of hypertension and diabetes in partnership with the government of Kerala and Tamil Nadu: Leveraging India's national NCD program.

About the project:

This report is based on the ongoing GACD (Global Alliance for Chronic Diseases) project, entitled "Scaling up Interventions to Improve the Control of Hypertension and Diabetes in Partnership with the Government of Kerala and Tamil Nadu: Leveraging India's National NCD Program," which aims to create and implement an extensible Structured Lifestyle Modification (SLM) program in collaboration with the two governments of the states of Kerala and Tamil Nadu (2). The focus of the project is to build better outcomes for diabetes and hypertension.

The model for intervention is broad, comprising a combination of a screening process and a program for lifestyle modification. The main components include peer-group participation, community engagement, and utilization of technology (2). The main goal is to increase awareness about controlling cardiovascular disease (CVD) and to provide essential support for people who have diabetes and hypertension (2). The various stages of the project are aimed at assessing the feasibility of implementing and expanding the model among people who have already been screened by the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease, and Stroke (NPCDCS) in Kerala and Tamil Nadu (2).

Objectives of the project

The objectives of the project are as follows:

1. To evaluate the implementation outcomes of a peer support program and community mobilization strategy to improve the prevention and control of diabetes and hypertension (using RE-AIM Framework & Theoretical Framework of Acceptability).
2. To identify and address contextual factors within the community and health systems that act as enablers and barriers to scale up (using Normalisation Process Theory).

3. To determine the value and return on investment of the program by assessing program cost and cost-effectiveness (2).

Review of Literature:

Non-communicable diseases or NCDs have become the leading cause of death globally and it exceeds the number of cases of deaths of all communicable diseases combined (3). The NCDs include heart disease, chronic respiratory disease, cancer, diabetes, etc. Of all NCD deaths, 77% are in low- and middle-income countries (4). There have been an increasing number of cases of NCDs in India as well. A recent INDIAB study showed that the prevalence of DM in 15 states is 7.3% and of pre-diabetes is 10.3% (5)

The southern states of India, which are Kerala and Tamil Nadu, have been shown to have a high burden of NCDs due to the advanced socioeconomic development and longer life expectancy in the people (2) (6). It is also seen that the incidence of DM and other NCDs are becoming more common in rural areas (7) and the prevalence of hypertension has seemingly gotten higher in the rural sectors in the past decades (7) (8). In Tamil Nadu, the prevalence of DM and HTN¹ were found to be 7.8% and 26.2% respectively (5) (7) and in Kerala, according to the state-wide representative survey, the prevalence of DM and HTN were found to be 19.8% and 30.6% respectively with approximately half of these being on some treatment (2) (9).

Observing the rapid rise of NCD cases in the country, National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched by, the government of India in 2010 intending to prevent and control NCD cases in the country, including screening, detection, disease control and primary prevention activities such as health promotion and health education. Despite it being a significant move by the government, there are certain drawbacks related to the execution of the program. The program's major drawback was the lack of resources which arose due to lack of funding, infrastructure, and human resources which are essential for the effective implementation of the program (10). Inadequate funding may limit the NPCDCS's effectiveness and reach. Secondly, despite initiative to raise awareness, the general public is unaware about NCDs (10). The burden of NCDs is increased when people are unaware of risk factors, symptoms, and preventive actions, which can delay diagnosis and

¹ DM = Diabetes
HTN = Hypertension

treatment (10). Thirdly, no proper data management system is present (10). Problems with data collection, quality and analysis can make it difficult to monitor progress and identify problem areas (10). Additionally, supervision and monitoring process is also lacking which are necessary to determine the progress of the program's implementation (10).

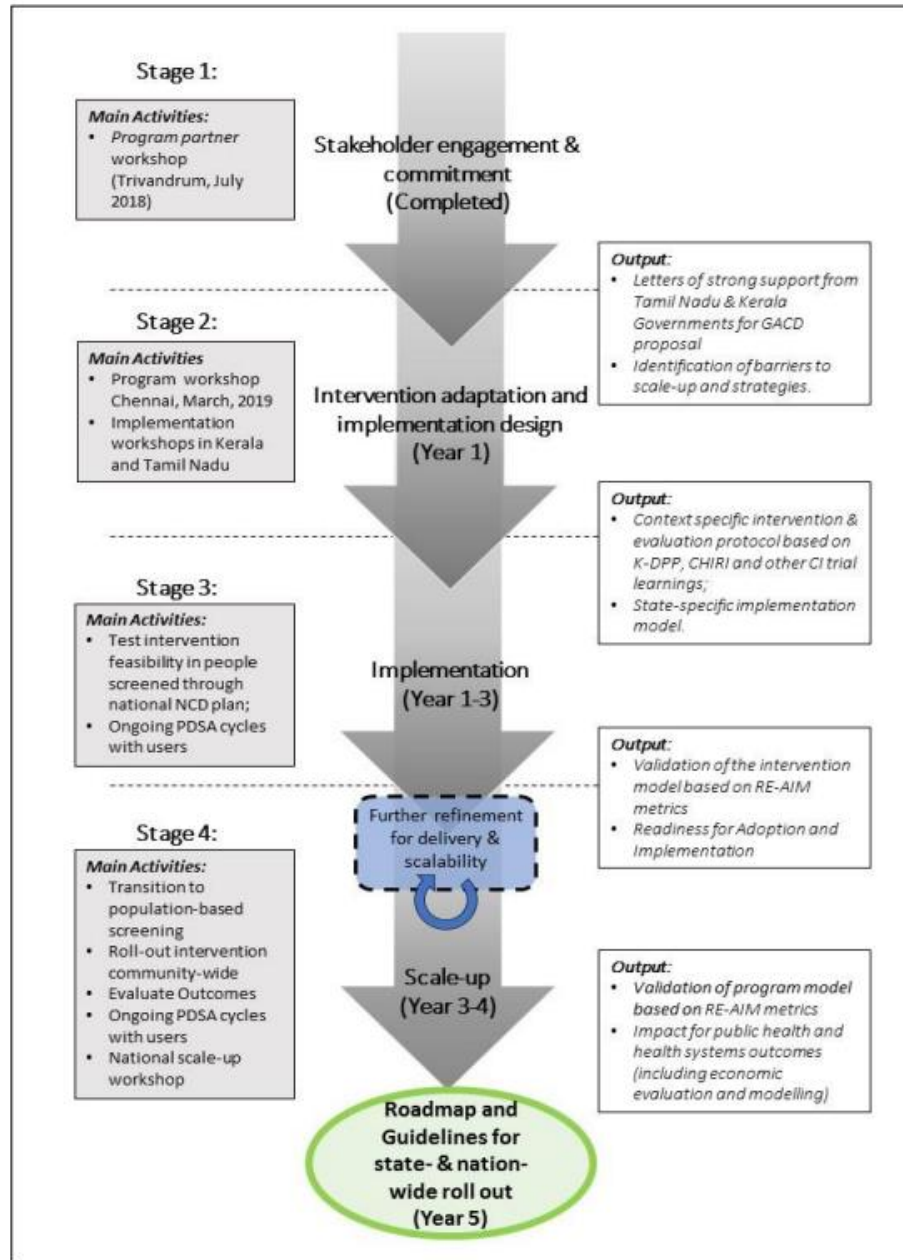
In an effort for better management of DM and HTN in Kerala and Tamil Nadu, it is crucial to adopt and expand a comprehensive model that combines screening, secondary prevention, and disease management strategies. This integrated approach will strengthen the current healthcare workforce and enhance the capacity of health systems in both states, thereby ensuring the sustainable implementation of new strategies at both community and state levels over the long term (2).

Project Plan and Evaluation Methodology:

The model for intervention consists of an integrated screening and lifestyle modification program with peer-group and community mobilization elements, as well as technology support, to raise awareness of the control of cardiovascular disease (CVD) and to offer assistance to people with diabetes and/or hypertension, and high levels of cardiometabolic risk (2). The role of implementation by the CHWs, ASHAs, and other health workers or community actors (in Tamil Nadu) is co-designed with health services and community stakeholders in both states to be integrated into the NPCDCS (2).

Based on the discussions with the project staff and reading the project-related documents provided by the Coordinator, the Intern could get an understanding of the project and its progress.

The project is planned to be implemented in a phased manner.



(Figure 1 showing the four stages of implementation of the project)

Stage 1: Stakeholders Engagement & Commitment

Stakeholder and user involvement continues throughout the project. A planning workshop was conducted on July 16, 2018, with 4 key partners in India – the Indian National Institute of Epidemiology (Research Partner for Tamil Nadu), Sree Chitra Tirunal Institute of Medical Sciences and Technology (Research Partner for Kerala), and the governments of both Tamil Nadu

and Kerala – as well as senior researchers from the University of Melbourne and Nanyang Technical University, Singapore.

The key learnings were:

- a. There are important population, health system, and workforce differences between the two states; these will provide a unique opportunity to identify how to take similar strategies to scale across differently resourced systems
- b. There is a very strong government commitment to improve the NPCDCS roll-out
- c. There is a strong commitment to adapt and implement the evidence-based strategies proposed by the (inter)national team to improve hypertension and diabetes outcomes and to use implementation science methods to achieve these improvements
- d. Context-specific barriers to scale-up of the identified strategies and strategies for overcoming these were identified, which were also informed by trials

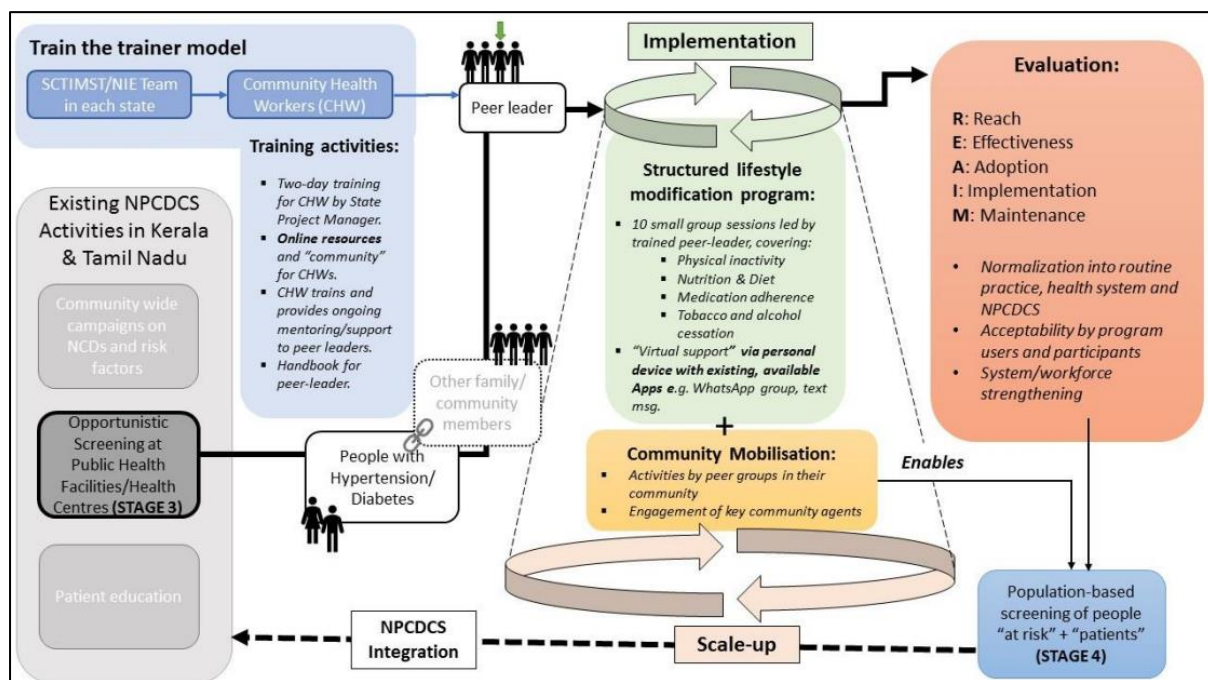
Stage 2: Intervention adaptation and implementation design for NPCDCS

A second stakeholder forum was held in March 2019 to finalize the design of the model that integrates the new strategies with disease management, screening, and secondary prevention to strengthen health system capacity in both states. The strategies and implementation were co-developed with the program user groups- CHWs, ASHAs, and other relevant community actors – with participatory workshops following Plan-Do-Study-Act (PDSA) cycles. During this stage, the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework helped the planning, implementation and assessment of the adapted program; these evaluation indicators were used in Stage 3 to guide the model development, and in Stage 4 to maximize its reach in communities and its public health benefits.

Stage 3: Implementation- Feasibility of the scale-up model among those already screened by NPCDCS in Kerala and Tamil Nadu

The feasibility of the adapted intervention model is being evaluated in 300 communities in both Tamil Nadu and Kerala, where screening and detection of hypertension and diabetes have already been conducted by sub-centres which are the smallest unit of the primary care system and cater to 3000-5000 population. These sub-centres are supervised by a Junior Public Health Nurse or

Auxiliary Nurse Midwife and may have additional CHWs such as ASHAs (only in Kerala) or Village Health Nurses (VHN, Tamil Nadu) to assist implementation of various programmes. Sub-centres in Kerala are also run by an additional male health worker (Junior Health Inspectors). In each sub-centre, recruitment of minimum of 100 male/female participants with hypertension/diabetes will be done to form at least 6 peer support groups with the help of frontline CHW/ASHAs. The trial is supposed to benefit over 60,000 individuals. The team estimates that in each sub-centre area the population above 30 years (NPCDCS targets people >30 years) is ~2500, and the number of individuals with hypertension or diabetes is ~1000 (40% prevalence). Among individuals with hypertension or diabetes, only 50% are aware of their condition and from those, 50% are on treatment and only 30-40% of them are seeking treatment as part of NPCDCS. These individuals will be the target population for this stage of implementation. A train-the-trainer model will be utilized where CHWs will train ASHAs or VHNs, who will then train lay community members. Customized existing technology, like tablets, will be provided to CHWs, for screening and implementation. Communication will be facilitated through text messaging and WhatsApp (an online messaging app). Regular workshops and feedback sessions will ensure effective program delivery, incorporating face-to-face and problem-based learning approaches, along with quality assurance measures.



(Figure 2: Multilevel program delivery and iterative evaluation model for structured lifestyle modification to improve hypertension and diabetes outcomes in rural communities in Kerala and Tamil Nadu)

Evaluation of Implementation: - A mixed-methods approach will be employed to assess the REACH, Effectiveness, Adoption, and Implementation of the program (2). To assess REACH, the team will analyse the proportion and representativeness of individuals identified through NPCDCS opportunistic screening who are willing to participate in the intervention (2). Effectiveness will be evaluated using a quasi-experimental pre-post design, comparing findings with previous trial results (2). Cardiometabolic risk measures, including key lifestyle behaviours, weight, waist size, blood pressure, and fasting blood sugar level, will be collected from approximately 4100 participants across 40 randomly selected sub-centres at baseline and after 12 months of the intervention in each state (2). Key mediators for Effectiveness, such as the acceptability of the intervention and understanding of key principles, will also be assessed among program participants from these selected sub-centres (2). Adoption will be evaluated by collecting and analysing data on stakeholder and training workshop participation, also the percentage and representativeness of settings, CHWs, and other relevant community actors willing to implement the program. To assess the accuracy of Implementation, the team will use quality assurance measures including data from the operational and decision support system for CHWs, a mobile-delivered checklist for peer leaders after each session, and an observation-based checklist completed by independent observers during the initial batch of peer group sessions, with at least 10 checklists completed for each session (2).

Stage 4: Scale-up – Transition to population-based screening and implementation

During this stage, which will be in the Year 3-5, the intervention will be scaled up to cover all individuals having hypertension or diabetes in selected areas of sub-centres, as well as those with a moderate to high level of CVD risk using a self-administered risk score derived from our K-DPP trial. Based on the evaluation findings from Stage 3, the strategies will be refined (2). Frontline CHWs will be involved in conducting home-to-home screening and case detection as part of NPCDCS (2). Capacity-building activities, including PDSA cycles, training programs, and quality assurance measures, will also focus on refining screening procedures to enhance implementation fidelity (2). However, during the intervention stage, these activities will largely continue as they did during the implementation phase (2). Each sub-center will oversee a minimum of 40-50 peer groups, with CHWs providing supervision (2).

Evaluation:- When assessing Reach, the main question revolves around determining the additional value of population-based screening compared to opportunistic screening (Stage 3), putting importance on the proportion and representativeness of those identified and ready to participate in intervention (2). For Effectiveness, Stage 3 findings will serve as a benchmark. Evaluation of Adoption and Implementation during this phase will primarily involve process indicators such as the formation of groups, participation rates, and the number of conducted sessions (2). Evaluation will draw from mixed-methods data gathered through PDSA cycles involving stakeholders, incorporating survey questionnaires with adapted TFA measures, focus groups, content analysis of PDSA outputs, and detailed semi-structured discussions with CHWs and health workers (2). Qualitative analysis will yield comprehensive insights into the perceived barriers and facilitators of scale-up and adoption across study stakeholders from both states (2). Qualitative data collection in each category and at each time point will continue until data saturation is achieved, signifying that no new information is being shared by participants (2). Recruitment efforts will aim to identify information-rich individuals representing diverse groups, including both men and women, across all categories (2).

The Intern joined at Stage 3 “Implementation- Feasibility of the scale-up model among those already screened by NPCDCS in Kerala and Tamil Nadu” of the project.

Roles and Responsibilities During Internship

A baseline trial survey was conducted in two districts namely Cuddalore and Villupuram simultaneously in the month of November 2023. The Intern participated in the survey activities in the Villupuram district for 3 days along with the project consultant and research assistant.

The objectives of the visit were:

- a. To conduct a baseline trial survey on known cases of diabetes or hypertensive patients, screened by Mid-Level Health Providers (MLHP) and nursing students.
- b. To conduct a few re-surveys on randomly selected patients to cross-check the accuracy of the data collected by the health workers.
- c. To record the performance of nursing students based on the questions given in the questionnaire.
- d. To guide the MLHPs and nursing students, if needed.

The Intern along with the team visited the villages namely Asoor, Ayyuragaram, Nagar, Muttathur, Thenpair, Erichanapalayam of Radhapuram block of Villupuram district.

This field visit served as a preparatory process for the baseline survey to assess the feasibility of the adapted intervention and identify any potential gaps for improvement, laying the groundwork for its future large-scale implementation. Initially, healthcare workers like the MLHPs and the nursing students engaged with patients who were previously diagnosed with diabetes and/or hypertension. They administered a set of questions to establish their understanding of their health status. Subsequently, a subset of approximately 50% of the patients was randomly selected for a follow-up survey to ensure the accuracy of the gathered information. Concurrently, the proficiency of the participating nursing students and MLHPs in conducting interviews and recording data was supervised. In case of identified areas for improvement, the nursing students were provided constructive feedback and demonstration to enhance their skills. This structured approach aimed to ensure the precision of health data collection, assess the competence of students, and facilitate continuous improvement within the team.

The roles and responsibilities of the intern during this visit were as follows:

- I. Re-survey- On all days, the Intern conducted 5-6 surveys on randomly selected patients which were earlier done by the MLHPs and nursing students, along with the project consultant to check the efficiency of the implementation. Along with asking a set of questions, physical examinations like measurement of height, weight, waist size, blood pressure, and blood sugar level were also taken with the help of standard equipment. Data were saved in an online application uploaded to the mobile phones of the project consultant and other team leaders. Consent was taken before doing any of the mentioned procedures. After the collection of data, the patients and the family members were counselled about their health status and diet according to their health needs.
- II. Coordination and assistance- The intern coordinated and assisted the project consultant and research assistant, in overseeing the data collection activities carried out by MLHPs and nursing students.
- III. Supervision- The intern monitored and recorded the performance of nursing students and MLHPs and guided them if and when needed during the questionnaire session in surveys.

Other roles and responsibilities-

- I. The intern participated in the meetings alongside the project coordinator and the team to discuss the findings of the baseline trial survey after the visit to Villupuram. Through a thorough examination of the collected data, it became evident that there were notable differences present in the results of the analysis. Recognizing the importance of accuracy and reliability, the team decided to conduct an additional survey in the following week.
- II. The project team assigned the intern with the responsibility of extracting data from specific journal articles for conducting a systematic review on Breast and Cervical cancer. Around 20 articles were sourced from online sources namely Google Scholar and PubMed, covering a span of the last 20 years, and originating from various countries. The key component was to find the relation between various screening tests and the diagnosis of the disease. The extracted findings were saved into an MS Excel sheet and submitted to the project consultant for cross-checking.

Challenges faced:

As the Intern is not familiar with the Tamil language, it was difficult to converse with the local people during the questionnaire round but thankfully the team was helpful and interpreted during the conversation.

The study for which the Intern was involved is being conducted in two states. However, the Intern could be practically exposed to the Tamil Nadu work only.

Key learning from the practicum:

During the internship at ICMR-NIE, Chennai, I was fortunate to immerse myself in a state-level public health initiative targeting Non-Communicable Diseases (NCDs). This opportunity not only allowed me to contribute to the program's objectives but also provided me with a deeper understanding of the organizational dynamics within the institution.

One of the highlights of my internship was the firsthand experience I gained in conducting field activities during my visits to Villupuram for baseline surveys. Direct engagement with the communities and first-hand experience of doing surveys helped me understand the challenges and possibilities in the public health field.

Furthermore, working with different people improved my teamwork skills. By working alongside researchers, healthcare professionals, and community stakeholders I was able to understand the impact of collective effort in achieving a shared goal. This experience taught me how important it is for different types of experts to work together in addressing complex public health issues.

In summary, my internship at ICMR-NIE was a transformative journey that has not only broadened my practical expertise and knowledge but also deepened my appreciation for the essential role of research and community involvement in advancing public health and well-being.

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