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# ResilienX

Bulletin of the Centre for Digital Epidemiology,  
Faculty of Medicine, University of Jaffna



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## MESSAGE FROM THE COORDINATOR FOR STRATEGIC PLANNING.



Welcome to our first newsletter from the Centre. The faculty aims to achieve world-class status by initiating additional centres, units, and institutes. The successful historic opening, backed by strong support from the local and global academic community, alumni, and well-wishers, underscores the commitment to excellence.

This Centre was established to bring all the epidemiological research activities under one Centre. While the centre is busy strengthening the managerial structure and finding the resources, the Centre has started to explore many research areas and expand its research. We are building up a dedicated team to support the research projects, which are nationally and internationally relevant, with the support of eminent academics from renowned universities. The newsletter highlights the events that happened in the last six months. These are a few early encouraging achievements with the support of the dedicated team.

Creating an environment that supports faculty research and promotes interdisciplinary collaboration is crucial for the Centre. This approach enhances research efforts and amplifies the impact on the local and international communities. The coming year will bring more growth opportunities. The Centre is preparing to move into the next level of research at the faculty and will provide needed support for more meaningful and rigorous research. We expect more support from all our partners to harness the expected outcome in the coming years.

We hope to make a success story. We all will work together for it.

**Prof. R. Surenthirakumar**  
Coordinator for Strategic Planning  
Centre for Digital Epidemiology

## MESSAGE FROM THE COORDINATOR FOR CLINICAL RESEARCH & OPERATIONS.

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A university should engage in student teaching, community improvement, and research simultaneously. Our medical faculty, established in 1978, has been actively involved in these three activities. Various research projects have been conducted by faculty members across different locations. A new initiative aims to integrate and streamline these activities by launching the Centre for Digital Epidemiology (CoDE) with support from multiple stakeholders.

This Centre for Digital Epidemiology oversees all epidemiology-related research conducted at the Faculty of Medicine. It provides comprehensive support to researchers by coordinating, implementing, and delivering assistance. The centre comprises research fellows specializing in various aspects of epidemiology, along with administrative staff who facilitate its operations.

The staff at the Centre for Digital Epidemiology ensures the secure digitization of all data, maintaining its confidentiality. They assist in conducting research using real-time data, enhancing the quality of projects undertaken.



Conducting projects through CoDE proves to be more effective.

**Dr.S.Kumaran**

Coordinator for Clinical Research & Operations.  
Centre for Digital Epidemiology



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## INTRODUCTION TO CENTRE FOR DIGITAL EPIDEMIOLOGY:

FORGING A NEW FRONTIER IN DIGITAL EPIDEMIOLOGY!

### Unlocking the Future of Health through Innovation

March 13, 2023, marked a monumental milestone at the Faculty of Medicine, University of Jaffna—the birth of the Centre for Digital Epidemiology (CoDE). This ground-breaking initiative, made possible by the generous support of the Jaffna Medical Faculty Overseas Alumni, USA, sets the stage for a revolution in healthcare.

The Centre for Digital Epidemiology (CoDE) is set to revolutionize how we approach healthcare challenges, propelling us into a realm of pioneering research and transformative solutions.

### *Our Vision:*

*To be a Centre of excellence in research in epidemiology.*

### *Our Mission*

*To advance knowledge and learning in research, teaching and community outreach in epidemiology through comprehensive academic, scientific and ethical principles.*

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# STAFF AND ADVISORY PANEL

**"The Centre for Digital Epidemiology (CoDE) is proud to announce pivotal appointments and initiatives aimed at advancing its strategic goals.**

These appointees, carefully chosen by the Vice-Chancellor in consultation with the Board of the Faculty of Medicine and the Faculty Dean, declare an important step forward in our commitment to integrating innovative methods and promoting worldwide collaboration.

## **Coordinators for Excellence:**

Two key positions, the Coordinator for Strategic Planning and the Coordinator for Clinical Research & Operations, are set to be filled by individuals of exceptional merit.

These coordinators, carefully selected based on recommendations from the Board of the Faculty of Medicine and the Dean.

## **Visionary Leadership**

The newly appointed Centre Manager hold the pivotal responsibility of overseeing operations and facilitating strategic initiatives.



**Prof. R. Surenthirakumaran**  
Coordinator for Strategic Planning.



**Dr. S. Kumaran**  
Coordinator for Clinical Research & Operations.



**Mr. P. Pirasanth**  
Centre Manager of Centre for Digital Epidemiology



**Dr. H. M. Jency Vinuja**  
Office Manager



**MS. S. Abirame**  
Promoting and Propagating officer

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## INTERNATIONAL ADVISORY PANNEL

To enrich CoDE's initiatives with diverse global perspectives and unparalleled expertise, the institution is proud to introduce its international advisory board. Comprising luminaries in the field, these advisory board members include:



**Prof. Krish  
Nirantharakumar**  
University of Birmingham



**Prof. Nishan  
Canagarajah**  
University of Leicester



**Prof. Neil Thomas**  
National Institute of  
Health Research



**Prof. Yeo Khung  
Keong**  
SingHealth



**Prof. Mahesh  
Nirmalan**  
University of Manchester



**Prof. Yasodha  
Natkunam**  
Stanford University



**Prof. Jasotha  
Sanmugarajah**  
Griffith School of Medicine



**Prof. Lehana  
Thabane**  
McMaster University



**Dr. Sujanthi Rajaram**  
Thomas Jefferson University



**Dr. Sivamainthan Vithiyananthan**  
University of Cambridge

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# COLLABORATORS



## **University of Birmingham**

The University of Birmingham, located in the United Kingdom, is a globally recognized institution renowned for its academic excellence and research contributions across various disciplines.

## **University of Manchester**

The University of Manchester stands as one of the United Kingdom's most prestigious institutions, recognized worldwide for its academic prowess and influential research contributions.

## **ERASMUS+**

Erasmus refers to the Erasmus Programme, an initiative by the European Union supporting international exchange and cooperation in higher education. It allows students and staff from universities across Europe to study, work, or teach abroad at partner institutions, fostering cultural exchange and collaboration.

## **SingHealth Duke-NUS**

SingHealth Duke-NUS refers to a strategic partnership between SingHealth, Singapore's largest healthcare group, and Duke-NUS Medical School, a collaboration between Duke University in the United States and the National University of Singapore (NUS). This partnership is focused on integrating clinical care, education, and research to advance healthcare in Singapore and beyond.

## **International Medical Health Organization**

The International Medical Health Organization (IMHO) is a non-profit entity dedicated to improving global healthcare standards, especially in underserved regions or areas facing medical challenges.

## **Toronto Metropolitan University**

Toronto Metropolitan University is a public research university located in the heart of Toronto, Canada. It was formerly known as Ryerson University. The university is known for its innovative education and career-focused courses.

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# COLLABORATORS



## **National Intensive Care Surveillance-MORU**

National Intensive Care Surveillance monitors antibiotic use and resistance in ICUs, M.O.R.U, linked with Mahidol University and Oxford University, likely conducts specific studies within this surveillance program, analysing ICU antibiotic practices to develop strategies for better treatment and patient outcomes.

## **Methodist Church, Sri Lanka (MCSL) and Christian Blind Mission (CBM)**

The Methodist Church in Sri Lanka (MCSL) is a Christian denomination in Sri Lanka that follows the Methodist tradition. Christian Blind Mission (CBM) is an international Christian development organization that focuses on improving the quality of life for people with disabilities in the world's poorest communities.

## **Institute of Health Policy**

The Institute of Health Policy is a non-profit, independent research institute in Colombo that aims to improve health systems and social policies in Sri Lanka and the surrounding region.

## **Banyan Academy of Leadership in Mental Health**

The Banyan is a non-profit organization that primarily focuses on mental health and related issues, especially among marginalized communities. They provide comprehensive mental health services, rehabilitation, and support for individuals dealing with mental health challenges, particularly those who are homeless or living in poverty.

# Research projects

Centre for Digital Epidemiology (CoDE), actively involved in advancing several critical areas within the domain of epidemiology and public health. CoDE conducting researches under following Areas.



## Research Areas

01

Women Health and Subfertility

02

Electronic Medical Record & Health Informatics

03

Environmental health

04

Cancer

05

Chronic illness and Geriatric

06

Neuro development & Paediatric

07

Accident and Trauma

08

Rural Health Development

## 1.WOMEN HEALTH & SUBFERTILITY

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### 1.1 The Community Health Care Worker facilitated Fertility Care

A ground-breaking initiative took root in the Northern Province of Sri Lanka in June 2023, marking the commencement of the "Community Healthcare Worker facilitated Fertility Care" project. Funded by the International Medical Health Organization (IMHO)

#### **Empowering Women, One Discussion at a Time**

In an exciting whirlwind of community engagement, our Community Health Care Workers (CHCWs) has been making waves in the Nallur MOH area, hosting impactful programs in 31 vibrant community centres. our CHCW dove deep into discussions with local women. From antenatal and postnatal care to tackling reproductive health, psychosocial concerns, subfertility issues, and post-reproductive health.

#### **A Lifeline of Support: Our Helpline Shines Bright**

But that's not all! We've introduced a helpline service, a beacon of support for the incredible women identified through our fertility care program. This lifeline ensures continuous contact, offering assistance and guidance every step of the way.

#### **Health Carnival Extravaganza: Illuminating Health & Well-being!**

A highlight of our efforts was the "Health Carnival" organized during the Nallur Temple festival from September 7th to 15th, 2023. This event became a platform to disseminate crucial information on antenatal and postnatal care, reproductive health, psychosocial issues, subfertility concerns, and post-reproductive health, enriching the public with vital knowledge and resources



# 1.WOMEN HEALTH & SUBFERTILITY

## 1.1 The Community Health Care Worker facilitated Fertility Care

*Fast forward six months, and the project has not only met but surpassed expectations, achieving a significant milestone in improving reproductive health in the region.*

### "Inspiring Progress: Prof. Thavam's Commendation at University of Jaffna"

Prof. Thavam Thambipillai, President of International College of Surgeons, US Chapter, Professor of Surgery at the Sanford School of Medicine, University of South Dakota and the Vice President of IMHO USA graced the University of Jaffna with his presence on 17th November 2023.

During his visit, he had the opportunity to engage with the The Community Health Care Worker facilitated Fertility Care project staff, expressing his elation at the remarkable progress made thus far.



### Inspiring Excellence: Commemorating Dedication in Fertility Care

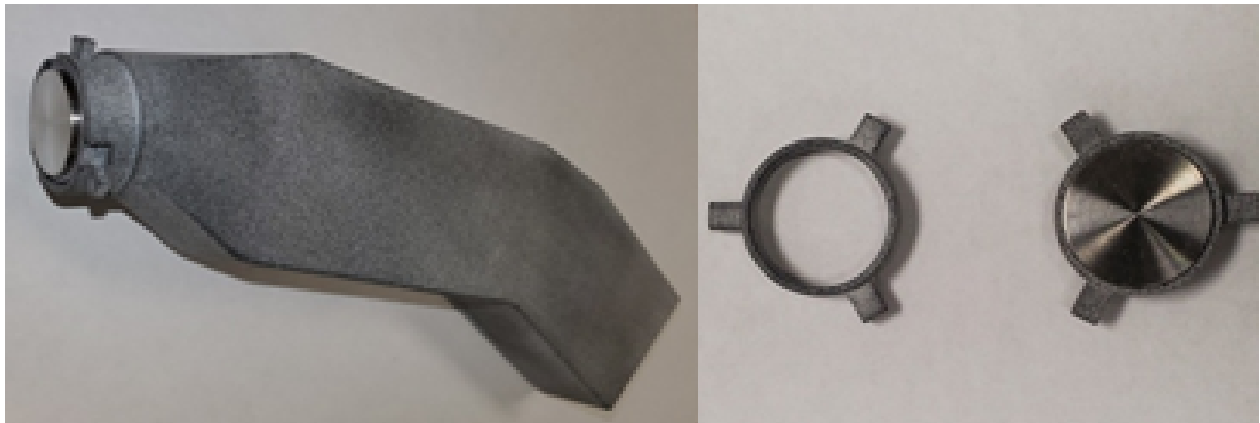
As a gesture of gratitude and recognition for their hard work, Prof. Thavam went above and beyond, presenting thoughtful gifts to all the Community Health Workers involved in the fertility care program. This act not only acknowledged their efforts but also served as a motivating force for the individuals who play a pivotal role in the success of the initiative.

# 1.WOMEN HEALTH & SUBFERTILITY

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## 1.2 Diagnostic Efficiency of Testicle Gauge in Male Infertility

TESTCAL GAUGE is a revolutionary device poised to address male infertility. Developed under the expert guidance of Dr. B. Balagobi, Senior Lecturer and Consultant Urological Surgeon. Following rigorous ethical scrutiny, the research has successfully obtained approval from its Ethical Review Committee and is currently progressing with ongoing development.



## 1.3 Prevalence of Subfertility in Kilinochchi District

The issue of subfertility has quietly emerged as a significant health concern in Sri Lanka, affecting individuals and families in profound ways. While the prevalence of subfertility has been a topic of interest, the lack of awareness in the Kilinochchi district prompted a pioneering community survey titled "Prevalence of Subfertility in Kilinochchi District."

Building on the success of a similar survey in Jaffna district, this initiative aims to uncover the prevalence and associate factors contributing to subfertility in the Kilinochchi district.

## 2.ELECTRONIC MEDICAL RECORD & HEALTH INFORMATICS

### 2.1 Electronic Medical Record system at Family Health Centre, under AF project



*Creating, developing, and maintaining an Electronic Medical Records (EMR) system at the Family Health Center falls within the ambit of the AF project's objectives.*

The project involves a design phase, including a needs assessment, blueprint creation, and design document drafting.

The development phase uses advanced software, scalable databases, and user-friendly interfaces. Testing and implementation involve rigorous procedures, pilot tests, and user acceptance trials.

The final goal is to integrate the EMR system into the Kondavil, Family Health Center's operations, ensuring functionality, reliability, and security. Maintenance and support protocols are established, and compliance with regulatory standards and data privacy regulations is ensured.

Throughout the process, close collaboration with healthcare professionals and IT experts will be integral to tailor the EMR system to the centre's specific requirements while aligning with the overarching goals of the AF project.

Regular assessments and feedback loops will ensure that the EMR system remains effective, user-friendly, and supportive of the centre's healthcare delivery objectives.

## 3. ENVIRONMENTAL HEALTH

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### 3.1 Relationship of Water Salinity with Hypertension and Its Selected Risk Factors and Quality Of Life among Adults in Karainagar and Nallur Divisional Secretariats

The University of Jaffna and the University of Manchester have collaborated to explore the impact of rising groundwater salinity on human health, an important but frequently neglected subject. This study tries to change our understanding of a crucial link: the relationship between water salinity and its consequences on human health.

#### **A Ripple Effect: The Impact of Salinity**

The ripple effect of water salinity on human living standards, health, socioeconomic conditions, and livelihood emerged as a central theme. This study aims to explain the complex connection between hypertension, water salinity, and adult quality of life in the divisional secretariats of Karainagar and Nallur.



#### **Methods**

This was an analytical cross-sectional study with a mixed-method approach, which consisted of quantitative, qualitative and laboratory research work. Quantitative methods were carried out through household survey and the qualitative study was carried out through focus group discussions and in-depth interviews. Laboratory methods included water analysis (pH, electric conductivity, salinity and sodium concentration) and urine analysis (sodium concentration).

The study population was permanent residents of respective divisional secretariats. The sample size was 234, and a multistage cluster sampling method was used. Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Jaffna.

### 3.ENVIRONMENTAL HEALTH

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#### 3.1 Relationship of Water Salinity with Hypertension and Its Selected Risk Factors and Quality Of Life among Adults in Karainagar and Nallur Divisional Secretariats

*The initial findings comparing Karainagar and Nallur in Jaffna, reveal stark differences in water usage, health outcomes, and socio-economic factors:*



- **Water Scarcity:**

- Karainagar heavily depends on paid water deliveries (browsers) for drinking and cooking, while Nallur has access to diverse water sources.
- Karainagar residents bear the financial burden for water, impacting their expenses.

- **Health Outcomes:**

- The prevalence of Hypertension is high in Nallur than Karainagar attributed to urban lifestyle. But the association between hypertension and risk factors such as diabetes and obesity is high in Karainagar this may be due to health disparities stemming from social inequities and a sense of isolation.

- **Socio-economic Factors:**

- Karainagar residents face significant disadvantages in education, income, and occupation compared to Nallur.
- Poverty and marginalization are prevalent in Karainagar, limiting access to water and essential resources.

- **Urban vs. Island Challenges:**

- Nallur grapples with health issues typical of urban settings, whereas Karainagar struggles with water scarcity, poverty, and social inequalities specific to island communities.

Our study underscores the need for targeted interventions addressing water scarcity, health disparities, and socio-economic inequalities in these communities. Implementing solutions tailored to each area's unique challenges is crucial for sustainable improvements.

### 3.ENVIRONMENTAL HEALTH

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#### 3.2 Water Security through Participatory Action Research in the Northern Province of Sri Lanka.

The WASPAR project, an international collaboration addressing water security in Northern Sri Lanka, faces the pressing problem of long-term water management in an area that is primarily reliant on subsurface water supplies due to the lack of surface rivers.

The project's fundamental goal is to create a long-term and inclusive stakeholder engagement framework to secure water security. The programme aims to build an effective platform for collective decision-making by fostering a specialised multilevel stakeholder forum for water governance.



##### **1. Unveiling Nature's Marvels: Exploring Valukki Aru**

The Northern Water Forum and the WASPAR project's Young Water Professionals network organised a field tour in Valukki Aru on September 9, 2023. Participants explored the complicated flow pattern, revealing the interconnecting ponds within its captivating cascade system.

##### **2. Empowering Water Governance: Workshops and Discussions**

The expedition extended beyond exploration to host pivotal workshops at crucial junctures. The Northern Province chief secretariat served as a focal point for enlightening discussions with provincial government officials. These sessions emphasized the pressing need for policy modifications at the provincial level, sparking a proactive dialogue aimed at instigating meaningful change.

### 3.ENVIRONMENTAL HEALTH

## 3.2 Water Security through Participatory Action Research in the Northern Province of Sri Lanka.

### NORTHERN WATER FORUM LEADS ENLIGHTENING SUNSET DIALOGUES ON CRITICAL WATER ISSUES!

under the umbrella of Norther Water Forum, the Sunset Dialogue series has been conducted since August on different water-related topics. Third and fourth sessions were held in September.

#### Insights Unveiled, Solutions Explored:

These sessions weren't just discussions; they were catalysts for actionable insights and collaborative strategies. Engaging speakers unveiled innovative solutions and emphasized the urgency of addressing water issues in the region.

#### Unifying Voices, Driving Change:

The Sunset Dialogues have been instrumental in uniting experts, professionals, and the community, fostering a collaborative spirit to safeguard water resources in Northern Sri Lanka.

The Northern Water Forum remains committed to these informative and transformative dialogues, continuing to illuminate paths towards sustainable water management and a promising future for all.



## 4. CANCER

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### 4.1 The prevalence of Oesophageal Premalignant lesions, among tamil patients, Northern Province, Sri Lanka

The Faculty of Medicine, University of Jaffna, in collaboration with the University of Colombo, Sri Lanka, and SingHealth - Duke NUS, Singapore, is currently undertaking a comprehensive investigation into the oesophageal health of Tamil patients residing in Northern Sri Lanka.

Here's an exclusive peek into three riveting projects shaping the future of medical intervention:

**Prevalence of Oesophageal Premalignant Lesions Research:** With 390 participants already enrolled in this pivotal study (targeting 584), 166 biopsies have been procured from abnormal oesophageal mucosa. This in-depth exploration promises insights into early-stage indicators, crucial for preventive measures and early intervention.

**Radiotherapy Advancements:** Currently in the developmental phase, this proposal aims to revolutionize radiotherapy approaches for enhanced efficacy and patient comfort. The groundwork is underway, setting the stage for a breakthrough in treatment modalities.

#### **Trends in Oesophageal Cancer Incidence:**

Drawing from comprehensive cancer data collected from Tellippalai Trail Cancer Hospital and District General Hospital, Vavuniya, a meticulous joint analysis spanning 2014-2022 has been conducted.

These findings are shaping a compelling manuscript that unravels critical trends in oesophageal cancer, paving the way for targeted interventions and resource allocation.

## 4. CANCER

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### 4.2 The prevalence of actionable driver mutations in primary prostate cancer in the Northern Province, Sri Lanka

This cross-sectional laboratory-based study was undertaken to pinpoint specific actionable somatic driver mutations (Braf V600E/K, EGFR L858R, EGFR T790M, EGFR del A747\_A750, and EGFR -exon 20 insertions) within this disease landscape. Conducted at the Teaching Hospital Jaffna,

Prostate cancer stands as one of the most prevalent malignancies affecting men worldwide, second only to lung cancer. In a pioneering effort, this research endeavors to offer a deeper understanding of the molecular profile of prostate cancer, laying the groundwork for personalized treatment strategies.

#### **Methodology:**

Our study employed meticulous methodologies for comprehensive data collection. Patient socio-demographic information was gathered via interviewer-administered questionnaires.

Clinical details were extracted from clinic records using a standardized data extraction form. We curated histological presentations from individual reports, ensuring accuracy and detail.

The collection and preservation of biopsy samples as paraffin-embedded wax blocks were conducted with utmost diligence, serving as crucial assets for our investigative efforts.

#### **Research Cohort and Data collection**

A cohort comprising 166 patients diagnosed with prostate cancer and attending Teaching Hospital Jaffna over a three-year period starting from October 2021 constituted the backbone of this study.

As of now, a robust repository encompasses detailed information from 166 prostate cancer patients, including their contact details, secured within a password-protected computer system. Our diligent efforts have culminated in the collection of 592 wax blocks from 115 patients, all accompanied by their respective histological reports, meticulously stored at Teaching Hospital Jaffna. .

## 4.CANCER

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### 4.3 Community lead Cancer prevention Program



As an innovative initiation, the University of Jaffna, is set to commence on a Community-led Cancer Prevention Program. The study, **"Holistic Approach to Preventing Common Cancers,"** aims to reset cancer prevention in the Northern Province of Sri Lanka, focusing on Breast, Oral, Gastrointestinal, and Cervical cancers. Led by Dr. B. Balagobi and supported by the Centre for Digital Epidemiology, this initiative brings together local and international healthcare experts.

This initiative comprises three pivotal components:

#### **1. Service Delivery:**

Efforts are underway to extend cancer prevention services across community centers, schools, and divisional hospitals. Screening programs for early detection of oral, breast, colorectal, and cervical cancers are a cornerstone, ensuring timely identification and intervention.

#### **2. Capacity Building:**

A concurrent focus on empowering community members, healthcare providers, and future medical professionals through tailored capacity-building programs is in progress. This aims to fortify the healthcare infrastructure and knowledge base essential for sustained cancer prevention efforts.

#### **3. Research:**

An implementation study utilizing a specific methodology is ongoing, evaluating the effectiveness and viability of the established approach. This includes assessing the methodology's appropriateness, acceptability, and feasibility.

## 4.CANCER

### 4.3 Community lead Cancer prevention Program

#### Current Progress

A feasibility study is currently ongoing in a geographically defined area which is the Nallur MOH area. It was commenced in the middle of December and will be completed at the end of March.

A community-based, continuous health education and health promotion incorporating organic farming and gardening, healthy food preparation and storage, water management and pollution prevention, air pollution prevention, exercise and meditation, and self-care is carried out among the public by approaching them via community centers, schools, and other institutions.

Parallely, the suspected persons will be referred to the Family Health Center at Kondavil. The patients will be assessed there and those who are in need will be directed to the Early Cancer Detection Centre was established in Teaching Hospital, Jaffna.



#### Methodological Approach:

Employing strategies such as community engagement, behavior-changing communication, and comprehensive patient-centric care, the initiative focuses on meticulous data collection. A questionnaire has been developed to capture insights from community-based screenings and assessments at the Early Cancer Detection Centre. All data is meticulously recorded on an IT platform for thorough analysis at the study's conclusion.

Once the feasibility study concludes, our aim is to craft a strong methodology. This will set the stage for a year-long pilot study in the Kilinochchi district.



## 5.NEURO DEVELOPMENT & PEDIATRIC

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### 5.1 Awareness among primary teacher on dyslexia and prevalence study on dyslexia among school children aged 8-14 years in Jaffna District, Sri Lanka.



#### **Investigating Dyslexia & Associated Conditions in Jaffna's Schools**

Our joint research, led by experts from the faculty of Medicine at the University of Jaffna, Teaching Hospital Jaffna, and Vellore Institute of Technology – Chennai, is dedicated to identifying dyslexia and related conditions including ADHD, dyscalculia, dysgraphia, and dyspraxia prevalent in Type I AB, IC, and Type II government schools across the Jaffna district.

This joint effort has the potential not simply to expand academic understanding but also to transform discoveries into meaningful therapies. Through this collaboration, both universities are committed to furthering discussion about dyslexia, promoting acceptance, and empowering those affected by this learning difference.

#### **A Journey in Progress: Data Collection Unfolding**

Since June 2023, this endeavor has been capturing invaluable data from schools in Jaffna and across India. The tireless efforts of this dedicated team continue to paint a clearer picture of the challenges faced by these students.

#### **Visiting Scholar: Prof. Maya Rathnasabapathy**

On November 13, 2023, Associated Prof. Maya Rathnasabapathy, one of the Primary Investigators and an Associate Professor in Psychology at the Vellore Institute of Technology in Chennai, Visited the university of Jaffna, Faculty of Medicine. During her visit team members had a discussion.

## 6. CHRONIC ILLNESS AND GERIATRIC

### 6.1 Global National Institute for Health Research (NIHR) AF research

Global National Institute for Health Research (NIHR) AF is an international research, ongoing in the University of Jaffna, Sri Lanka, in collaboration with the University of Birmingham, Brazil and China.

The NIHR AF study conducted in collaboration with various international institutions, including the University of Jaffna, presents a pivotal initiative addressing the significant burden of atrial fibrillation (AF) in Sri Lanka.

The project's comprehensive approach aims to enhance the management of this prevalent cardiac rhythm disorder, reducing associated morbidities such as stroke, heart failure, and dementia.

#### Project Goals

Discuss the primary goal of the project, which revolves around implementing the 'ABC pathway' for effective AF management in both primary and secondary care settings.

#### Challenges Addressed

Address the lack of baseline data and awareness of AF in developing countries like Sri Lanka. Emphasize how the study aims to bridge these gaps through targeted screening programs, improved diagnosis and risk assessment, early referrals, and enhanced data sharing between community and hospital care.

**From February 2020 to April 2023, our survey engaged 10,000 permanent residents in Northern Province,** aiming to delve into cardiovascular well-being. This comprehensive study comprised two key phases:

Phase I: Insightful Household Survey

Phase II: Physical measurement and bio sample analysis



## 6. CHRONIC ILLNESS AND GERIATRIC

### 6.1 Global National Institute for Health Research (NHR) AF research



#### Phase I: Insightful Household Survey

- Leveraging cutting-edge technology like "REDCap" and "Alivecor" for electronic data collection and AF detection via mobile ECG.
- Meticulously gathered participant demographics, health history, AF symptoms, and medication records through electronic clinical research forms.
- Probed lifestyle factors impacting AF risk, using validated questionnaires assessing anxiety, physical activity, alcohol/tobacco use, sleep quality, quality of life, and dietary habits.
- General Anxiety Disorder-2 (GAD-2) scale, Patient Health Questionnaire-2 (PHQ-2), International Physical Activity Questionnaire—Short Form (IPAQ), Audit C Used for alcohol use, WHO STEPS instrument for assessing tobacco use, Berlin Questionnaire for sleep quality, EQ-5D-5L (EuroQol-5 dimensions-5 levels) for quality of life, and the Fried Frailty Index.

#### Phase II: Physical measurement and bio sample analysis

- physical measurements such anthropometric, blood pressure and grip strength and all the measurements were taken using standard procedures and validated instruments.
- The physical measurement was followed by a bio sample collection for fasting plasma glucose, serum creatinine, lipid profile and full blood count using vacutainer technique and sample analysis were done.
- The rest of the samples were stored in a  $-80^{\circ}\text{C}$  deep freezer (Eppendorf-Cryocube) to analyze the novel cardiovascular and related risk biomarkers such as high-sensitivity cardiac troponin (hs-cTn), growth differentiation factor-15 (GDF-15), brain natriuretic peptide (BNP) and C reactive protein (CRP), HbA1c, Liver function test and genome-wide association studies (GWAS).

## 6. CHRONIC ILLNESS AND GERIATRIC

### 6.2 Empowering Communities: The Journey of Initiating a Telehealth Helpline

The University of Jaffna, in collaboration with NICS-MORU, has taken a bold step towards enhancing community well-being by establishing a dedicated telehealth helpline.

The telehealth initiative emerged from a community-based survey in Sri Lanka's Northern Province, focusing on atrial fibrillation prevalence among those aged 50 and above. Engaging the community directly revealed gaps in knowledge and a lack of support for lifestyle modifications. Stakeholder meetings with health authorities, local government officers, and research partners led to the idea of a dedicated helpline, supported by NICST-MORU

#### Deployment & Implementation:

A one-month pilot in July 2021 allowed for continuous improvement through feedback from helpline staff and participants. Weekly discussions involved the research team, technical experts, and participants, refining the data record system and ensuring a streamlined process. The helpline staff, composed of trained volunteers and a dedicated coordinator, operate from the Family Health Centre in Kondavil.



**Operating on weekdays from 8 am to 8 pm and Saturdays from 8 am to 12 noon,** the helpline aims to provide valuable health information and continuous support to participants of a community survey. **Dialling the number 074 1813476 connects individuals with a vital resource focused on improving their quality of life.**

The telehealth helpline, born from community engagement and a commitment to addressing health disparities, stands as a beacon of support for research participants. By combining technological innovation with community involvement, the initiative exemplifies the power of collaboration in advancing healthcare access and improving the quality of life for individuals in the Northern Province of Sri Lanka.

## 6. CHRONIC ILLNESS AND GERIATRIC

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### 6.3 Rapidly Progressing Diabetic Nephropathy Study

Rapidly progressing diabetic nephropathy (RPDN) is a serious complication of diabetes that affects the kidneys. Research in this area is crucial due to its impact on the quality of life and mortality rates of individuals with diabetes. Studies in RPDN often focus on identifying risk factors, understanding the mechanisms leading to rapid progression, and developing effective interventions to slow down or prevent kidney damage.

An island-wide study in the pipeline seeks to unravel the mysteries of diabetic nephropathy's swift progression. As the proposal takes shape, anticipation grows for breakthroughs in diabetes management.

### 6.4 A detailed study on blindness, visual impairment and their causes in people aged 50 years and above in Northern Province, Sri Lanka

Vision loss profoundly affects personal, economic, and social facets, particularly as blindness and visual impairment (VI) escalate with age. In the rural areas of North Sri Lanka, limited access to eye care services due to poverty and insufficient resources poses significant barriers to quality care. To counter this, a community-based eye-screening initiative focuses on individuals aged 50 and above to understand the prevalence, causes, and risk factors associated with blindness and Visual Impairment. The initiative aims to ascertain prevalence rates and causes of blindness and Visual Impairment paving the way for improved eye health services and addressing avoidable blindness cases.

Now, the groundwork for the initiative is in full swing. The team has completed the literature review and developed a comprehensive questionnaire. The proposal for Ethical Review Committee (ERC) approval is underway.

## **7.ACCIDENT AND TRAUMA**

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### **7.1 Understanding Intergenerational Trauma in Post-Conflict Settings**

A ground-breaking collaboration between the University of Jaffna and Toronto Metropolitan University is poised to delve into the complexities of 'Intergenerational Trauma in a Post-Conflict Setting.'

This joint endeavor signifies a crucial step towards healing and understanding the enduring impact of historical conflicts on present-day societies.

### **7.2 A Multicentre Randomized Controlled Trial Assessing Safety and Efficacy of a Novel, Affordable Fracture External Fixation System**

This research is Led by SingHealth Duke-NUS and the Harvard Global Orthopaedics Collaborative at the Department of Orthopaedics, Beth Israel Deaconess Medical Center, the Affordable External Fixation (AEFIX) Trial is a pioneering multicenter randomized controlled trial addressing musculoskeletal injuries in low- and middle-income countries (LMICs).

Focused on assessing the safety and efficacy of the AEFIX system, developed by SONA Global Limited, this trial is crucial in evaluating a novel and affordable fracture external fixation system specifically designed for resource-limited settings. The trial's primary aim is to determine if the AEFIX system is a safe and effective alternative to locally available methods for managing femur and/or tibia fractures in patients aged 18 and above who cannot safely undergo internal fixation.

It will assess primary outcomes such as the loss of fracture reduction measured on x-ray, along with secondary objectives focusing on reducing complications, enhancing clinical fracture healing, and improving patient quality of life.

## 8.RURAL HEALTH DEVELOPMENT

### 8.1 Bridging Gaps in Primary Care Through Community Health Workers

In the heart of the Northern Province of Sri Lanka, where access to medical professionals is a challenge, a ground breaking project, 'Bridging the Gaps in Primary Care through Community Health Workers,' has taken root. Spearheaded by the International Medical Health Organization (IMHO), this initiative is a guiding light for communities in Kilinochchi District that are grappling with limited access to healthcare services.



This approach proves to be a crucial and effective strategy, particularly in regions facing healthcare workforce shortages. CHWs act as the frontline healthcare workers, reaching out to underserved and geographically remote areas. By bringing basic healthcare services directly to the community, they bridge the gap between healthcare providers and those in need.

This is a vital step towards enhancing healthcare outcomes and addressing disparities in rural areas.



# EMPOWERING THROUGH KNOWLEDGE: CAPACITY BUILDING INITIATIVES

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### Weekly Teaching Sessions on Research Methodology:

CoDE takes pride in presenting weekly teaching sessions on research methodology and statistics, supported by the esteemed University of Birmingham. These sessions are meticulously crafted to equip participants with essential tools, techniques, and insights vital for conducting impactful research. Aimed at fostering a culture of innovation and excellence, these sessions elevate the statistical expertise of CoDE staff and dedicated researchers engaged in pioneering endeavors at the esteemed Faculty of Medicine, University of Jaffna.

The CoDE Weekly Statistics Teaching Sessions are a paramount opportunity for participants to deepen their statistical knowledge. Hosted every Tuesday via the Zoom online platform, these sessions are meticulously designed to enrich and fortify participants' grasp of statistical principles essential to robust research methodologies

### Journal Club meeting

Journal Club convenes every first and third Thursday of the month, dedicating time to select and rigorously appraise articles using the esteemed CASP tool. Whether it's a case control, cohort study, or clinical trial, this platform fosters in-depth evaluation and critical thinking.

Prior to relevant Journal Club meetings, manuscripts, spanning various study types and accompanied by CASP evaluations, are shared with members every first and third Monday. This prelude allows for thorough review and idea generation among participants.

# CAPACITY BUILDING

## Workshop on Women Health

### The Workshop on Women's Health in Sri Lanka, held at , Birmingham, UK ,on October 19, 2023.

workshop focused on the following topics:

- Key areas of challenges for women's health in Northern Province, Sri Lanka
- e-Health postnatal interventions to tackle cardiovascular disease in Sri Lanka
- Postnatal care
- Electronic health records (EHR) for Maternity Care in LMIC - creating a learning health system
- Key challenges in building capacity in Sri Lanka
- Mum-Predict
- Birth cohort
- Opportunities for shared learning and implementation



**Aim is to bring together Researchers and Healthcare Professionals to Address women's health issues in Sri Lanka.**



## CAPACITY BUILDING

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### CoDE Workshop Transforms Vision into Action at University of Jaffna

Centre for Digital Epidemiology (CoDE), at the Faculty of Medicine University of Jaffna hosted a transformative Capacity Building Workshop on 19th of November 2023.

This dynamic event, held at the conference hall, brought together dedicated staff members from various ongoing projects under the umbrella of CoDE. Prof. Maya from Velure Institute of Technology, served as a valuable resource person.

Prof. Maya spearheaded discussions on ongoing project objectives, progress, and outcomes, encouraging a lively exchange of ideas. The workshop not only marked achievements but also sparked collaborative strategies for future project enhancements, leaving participants inspired and ready to advance their initiatives to new heights.



### Full papers published in Peer Journals

1. Antony Sheron, V., Gooden, T. E., Uruthirakumar, P., Shribavan, K., Guruparan, M., Subaschandren, K., Lip, G. Y. H., Nirantharakumar, K., Thomas, G. N., Surenthirakumaran, R., Kumarendran, B., Manaseki-Holland, S., & NIHR Global Health Research Group on Atrial Fibrillation Management. (2023). The pathway to diagnosis and follow-up care for atrial fibrillation in Sri Lanka: A descriptive longitudinal study. *NIHR Open Research*, 3, 63. <https://doi.org/10.3310/nihropenres.13497.1>
2. Gooden, T. E., Wang, J., Carvalho Goulart, A., Varella, A. C., Tai, M., Sheron, V. A., Wang, H., Zhang, H., Zhong, J., Kumarendran, B., Nirantharakumar, K., Surenthirakumaran, R., Bensenor, I. M., Guo, Y., Lip, G. Y. H., Thomas, G. N., & Manaseki-Holland, S. (2023). Generalisability of and lessons learned from a mixed-methods study conducted in three low- and middle-income countries to identify care pathways for atrial fibrillation. *Global Health Action*, 16(1). <https://doi.org/10.1080/16549716.2023.2231763>
3. V Antony Sheron, Kumaran Subaschandran, Rajendra Surenthirakumaran, Gregory Lip, Powsiga Uruthirakumar, Tiffany E. Gooden, G. Neil Thomas, Krishnarajah Nirantharakumar, Balachandran Kumarendran, Shribavan Kaneshamoorthy, & Mahesan Guruparan. (2023). Stepping-stone to strengthening and streamlining the management of Atrial Fibrillation in Northern Province of Sri Lanka. *AF Healthcare Pioneer Report*. <https://heartrhythmalliance.org/aa/br/medical/af-healthcare-pioneers-and-centres-of-excellence>.
4. Sheron, V. A., Shanmugathas, S., Gooden, T. E., Guruparan, M., Kumarendran, B., Lip, G. Y. H., Holland, S. M., Nirantharakumar, K., Shribavan, K., Subaschandren, K., Haniffa, R., & Surenthirakumaran, R. (2022). Healthcare provider and patient perspectives on access to and management of atrial fibrillation in the Northern Province, Sri Lanka: A rapid evaluation of barriers and facilitators to care. 1-13. <https://doi.org/10.1186/s12913-022-08440-1>
5. Kanesamoorthy, S., Sheron, V. A., Uruthirakumar, P., Kodippily, C., Kumarendran, B., Gooden, T. E., Thomas, G. N., Nirantharakumar, K., Lip, G. Y. H., Guruparan, M., Haniffa, R., Surenthirakumaran, R., Beane, A., & Subaschandran, K. (2022). Prevalence of atrial fibrillation in Northern Sri Lanka: A study protocol for a cross-sectional household survey. *BMJ Open*, 12(11). <https://doi.org/10.1136/bmjopen-2021-056480>
6. Uruthirakumar, P., Surenthirakumaran, R., Gooden, T. E., Lip, G. Y. H., Thomas, G. N., Moore, D. J., Nirantharakumar, K., Kumarendran, B., Subaschandran, K., Kaneshamoorthy, S., Sheron, V. A., Guruparan, M., Arasalingam, A., Beane, A., Bensenor, I. M., Brocklehurst, P., Cheng, K. K., Santos, I. S., El-Bouri, W., ... Zhong, J. (2023). The impact of rate and rhythm control strategies on quality of life for patients with atrial fibrillation: A protocol for a systematic review. *Systematic Reviews*, 12(1), 52. <https://doi.org/10.1186/s13643-023-02197-2>

## Abstract publications

1. Powsiga U, Sheron VA, Kaneshamoorthy S, Surenthirakumaran R, Kumarendran B, Guruparan M, Lip GYH, Thomas GN, Nirantharakumar K, Gooden T4, Haniffa R, Beane A, Kodippily C, Kumaran S (2023). Healthcare utilization among older individuals: A community based cross sectional study from Northern Province, Sri Lanka. Sri Lankan Association of Geriatric Medicine- 9th Scientific sessions.
2. Powsiga U, Sheron VA, Kaneshamoorthy S, Surenthirakumaran R, Kumarendran B, Guruparan M, Lip GYH, Thomas GN, Nirantharakumar K, Gooden T4, Haniffa R, Beane A, Kodippily C, Kumaran S (2022). Health related quality of life among population aged above 50 years in Northern Province, Sri Lanka. Jaffna University International Research Conference, Research Conference of Faculty of Medicine – Jaffna, p.31-32
3. Powsiga U, Sheron VA, Kaneshamoorthy S, Surenthirakumaran R, Kumarendran B, Guruparan M, Lip GYH, Thomas GN, Nirantharakumar K, Gooden TE, Haniffa R, Beane A, Kodippily C, Kumaran S (2022). Obstructive sleep apnea and associated factors among above 50 years old individuals in Northern Province, Sri Lanka (2022). Jaffna Medical Association Annual Scientific Sessions
4. Powsiga U, Sheron VA, Kaneshamoorthy S, Surenthirakumaran R, Kumarendran B, Guruparan M, Lip GYH, Thomas GN, Nirantharakumar K, Gooden TE, Haniffa R, Beane A, Kodippily C, Kumaran S (2022). Mental health conditions and associated factors among older individuals in the Northern Province, Sri Lanka: A cross-sectional community-based study (2022). MQ Mental Health Science Festival.



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**Empowering Tomorrow's Resilience:  
Where X Marks Endless Possibilities**



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