

HEALTH ACTION BY PEOPLE

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ACTIVITY REPORT

2018-2021

HEALTH ACTION BY PEOPLE

Report of the Activities for the period

April 1, 2018 to March 31, 2021

Registration and Affiliation

Health Action by People (HAP), a not-for-profit organization, is registered under the Travancore Cochin Literary, Scientific and Charitable Societies Act (Act XII) of 1955 on December 1, 1993 (Registration No.747). It is a non-governmental organization (NGO) and is devoted to research on health related problems. As per the Memorandum of Association and the Rules and Regulations, the aims and objectives of HAP are the following:

1. Create awareness among the people on the importance of the individual, family and societal level actions to usher in health for the people.
2. Generate people's participation in actions aimed at improving quality of life.
3. Undertake innovative action research involving people, aimed at cost-effective and culturally accepted health interventions.
4. Generate people's movements against exploitation of health by vested interests in the food, pharmaceutical, cosmetic and related consumer industries.
5. Undertake production of information packages with a view to achieve the objectives 1-4 above.
6. Collaborate with national and international bodies/agencies involved in health promotion.
7. Undertake any activity approved by the Executive Council of the HAP aimed at generating funds for carrying on with the objectives.

Recognition by Department of Scientific and Industrial Research (DSIR)

The recognition granted earlier by the Department of Scientific and Industrial Research (DSIR) as a Scientific and Industrial Research Organisation (SIRO), under the Scheme on Scientific and Industrial Research Organisations (SIROs)-1988, was renewed for a further period of 3 years ending on March 31, 2023.

Registration under Foreign Contribution (Regulation) Act

Renewal of Registration under Foreign Contribution (Regulation) Act has been granted. This renewed certificate is valid for a period of five years with effect from **01-11-2016 to 31-10-2021. Registration Number 052910251 Nature: Educational, Social.**

NGO DARPAN: Registration No.KL/2009/0006899

Institutional Ethics Committee: Renewed up to 2025.

GST registration number for Saanthwanam. No.32AAATH1205Q2ZU

RESEARCH ACTIVITIES

2018-19

PURE Study (Prospective Urban Rural Epidemiology):

PURE is a multinational, multicentred study guided and coordinated by McMaster University, Canada. The baseline study of this project was from March 2003 till 2007 and recruited 5650 subjects from fifteen locations in Thiruvananthapuram district both rural and urban. The study population comprises people between age group of 35-70 years. The first three year follow up of this study was completed and the second round follow up is going.

PURE MIND study:

PURE MIND is the sub study of PURE study. It is linked with PURE study; all the five centres in India involved in PURE study will be conducting the PURE MIND study. Aim of this study is to determine the prevalence and risk factors of covert stroke.

Objectives of the Study

- To determine the prevalence of covert cerebral ischemia in community-dwelling people in urban and rural settings in India.
- To determine the association between individual, societal and environmental factors and covert cerebral ischemia.
- To determine the association between covert cerebral ischemia (on MRI) and cognitive function, mood and activities of daily living.

Global Health Research Group on Dementia Prevention & Enhanced Care (DePEC STUDY)

Validation Of Idea (Identification & Intervention Of Dementia In Elderly Africans) Tool For Cognitive Screening In Kerala, South India.

Detecting minor and major neurocognitive disorders is of importance in allowing patients to access appropriate care. Most cognitive screening tools in common use worldwide have been developed and validated in high income countries (HIC) and usefulness in LMIC settings is greatly limited by cultural and educational differences. There is a shortage of specialist clinicians in LMIC. One way to overcome this problem is to develop and validate cognitive screening tools suitable for use by non-specialist healthcare workers and clinicians. The Identification and Interventions for Dementia in Elderly Africans (IDEA) study had developed a tool for low literacy setting.

The study will validate a simple screening tool for dementia which can be used by non-specialists in hospital setting and potentially in community setting. The study also will compare the tool performance with the MOCA.

Cognitive Impairment Study: Kalliyoor

Neurological disorders can cause significant morbidity, mortality, disability, socioeconomic losses and reduce the quality of life of older people. The incidence of cognitive decline increases with age, which correlates inversely with clinical outcome. With the extensive increase in the incidences of dementia, early detection of possible precursors, diagnosis, treatment, and control of modifiable risk factors are important to reduce the effect of disease. Kerala state has a proportion of elder population which is highest among all the states in India. There are limited studies on the community-based screening of elder for the prevalence of neurological disorders such as dementia/cognitive decline and there is a gap in information regarding the prevalence in community setting about the individuals over the age of 65 years. Hence, the proposed study will be carried out to 'study the cognitive status of elderly' in a selected Panchayat of Thiruvananthapuram district, Kerala.

The study used MoCA Tool, GDS Scale and EASI Tool to assess dementia and its domains. The study was a door to door two-phase cross-sectional survey conducted in all the 21 wards of Kalliyoor grama Panchayat (Nemom block) in Thiruvananthapuram district, Kerala state among Persons ≥ 65 years in Kalliyoor Panchayat who give written consent. The entire population of Kalliyoor Panchayat belonging to ≥ 65 years as per inclusion and exclusion criteria would be covered in the survey which included 4073.

Assessing The Sales And Purchase Patterns Of Cigarette And Other Tobacco Products In Kerala 2018

The WHO's Framework Convention on Tobacco Control postulates Demand and Supply reduction strategies for comprehensive tobacco control. As mentioned earlier, it shall not be wrong to say that Kerala can rightfully claim a tick for demand reduction strategies. However, we are yet to begin effective measures relating to reducing the supply of tobacco. Restriction of sales to and by minors is critical, especially as Kerala's Health Policy 2018 has highlighted the increasing tobacco use among youngsters in the state.

All these factors gave the impetus for the study to assess the sales and purchase patterns of cigarettes and other tobacco products in the state.

Objectives

1. To map the commercial establishments selling tobacco products in the selected wards of the three cities of Kerala – Trivandrum, Kollam and Kochi.
2. To determine the purchase pattern among persons using tobacco products in Urban areas of three districts of Kerala during 2018.

3. To determine if the commercial establishments selling tobacco products follow the legal regulations mandated by the Indian tobacco control law COTPA, 2003 regarding the sale of tobacco products

Evaluation of guideline based management, implementation status, and challenges in the implementation of Step wise approach to airway syndromes programme in Family Health Centres

Objectives

1. To compare the treatment plan and characteristics of patients with obstructive airway diseases in a Family Health Centre (FHC) to those in a primary health centre (PHC) which is not a family health centre in Thiruvananthapuram district, Kerala.
2. To assess the implementation status of the SWAAS program in the Family Health Centres (FHC) in Thiruvananthapuram district, Kerala.
3. To determine the challenges in the implementation of the SWAAS program.

SAANTWANAM

In collaboration with Kudumbashree (Government of Kerala), HAP had launched a novel programme, Saantwanam, in 2005. Under this programme, unemployed girls from B.P.L.families and who have qualified Plus Two level examination were given adequate technical training by HAP for measuring Blood Sugar, Urine Sugar, Cholesterol, etc. and they were motivated to make household visits for measuring the above at a reasonable charge (stipulated by HAP). The income so earned will be their own. The reagents being used in the apparatus will also be supplied by HAP at highly subsidized rates through an arrangement for wholesale purchase from the suppliers. We have already trained 1271 Saantwanam Caregivers, out of which around 250 are active – and, as per their own reports, they are able to earn a decent income ranging from Rs.20000/- to Rs.10,000/- and even more . For meeting the initial expenses of the Caregivers (for purchase of a two wheeler and medical kit) a long term loan of Rs.80,000 was/is being provided by the State Bank of India, and other nationalized and scheduled banks, without any collateral security. ***The Saantwanam programme is the brain child of HAP.***



Under this programme, the trained personnel (Caregivers) would reach out to every home in the villages and towns of Kerala and take the message of health. Individuals will be screened for the presence of dominant risk factors and diseases. Those who are already suffering from these conditions and are under treatment are monitored regularly to assess the progress of treatment. Early detection of diseases and regular screening will enable people to save enormous cost that may have to be encountered in terms of hospitalization, chronic disability and even death.

The following measurements/estimations are offered by the Saantwanam Caregivers at the household level through the programme, for which the necessary equipments are provided by HAP:

- | | | |
|----------------|-------------------|--------------------|
| ➤ Height | 2. Body weight | 3. Body Mass Index |
| 4. Body fat | 5. Blood Pressure | 6. Blood glucose |
| 7. Cholesterol | | |

HARSHAM

Harsham is a project for elderly care designed as an enterprise for geriatric care across the state addressing the issues of aged and elderly. The Geriatric care givers can help elderly by running routine errands, and providing a helping hand with everyday tasks that often become more difficult for the elderly thereby bringing companionship, relationship building and sharing, humor and a sense of purpose back into the lives of the clients. Kudumbashree, Government of Kerala and Health Action by People (HAP) plans to give a wide range of medical services at the comfort of the patient's home. Their service includes home nursing and support.



First batch of Geriatric care givers were given training at NS hospital Kollam from 7th to 21st May, 2018.

Training

DePEC Related Trainings:-

Networking meetings-A community study that aimed to find the prevalence of Cognitive impairment was conducted in Kalliyoor Panchayat in Thiruvananthapuram district of Kerala state. Networking meetings were held in Panchayath level in Kalliyoor with the Panchayath president and other. NLK wards in Kalliyoor were trained for administering the questionnaires of the study.

Selected volunteers were trained to administer IDEA screening tool in the hospital setting.



*Seminar on Strategizing dementia care in Kerala -Health Action by People in collaboration with New Castle University, UK conducted a workshop on “**Strategizing dementia care in Kerala**” on 3rd February 2018 at Residency towers, Thiruvananthapuram.*



A Colloquium on qualitative research was conducted in HAP by research team from New Castle University, UK. Susan Hrisos took the lead and lectured on various aspects and common issues in conducting qualitative research. Dr. Rema Sivaraman also led the seminar.

Training on qualitative research:-The research team from New Castle University trained the research assistants and the interviewers of the qualitative research titled:” **Mapping the dementia care and wider healthcare system in Kerala**” in 2020 in HAP premises

PURE AIR: - Trainings were given to participants and volunteers on how to keep the air pollution monitoring machine in the individual’s body and their kitchen for 48 hrs.



PURE Mind: - The trained volunteers administer different questionnaire to assess the participant’s mental status.



PURE: - Trainings were given to the community volunteers to administer the PURE Follow up questionnaires. The data are collected and uploaded in the iDataFax by the trained research assistants in HAP.

Medical Camp

DePEC Related-House to house surveys were conducted by experts in neurology to confirm the positive cases from the first phase of the study.

Medical camps were conducted in different parts of the study area on 13, 15 19, 24th November, 2019.

C R Soman School of Health Research (CRSSHeR)

C R Soman School of Health Research (CRSSHeR) is a HAP initiative started in honour of its founder-chairman, Professor C R Soman. Prof. Soman had a passion for both teaching and research. A series of workshops on research methodology were conducted under his leadership in many health institutions in India. CRSSHR continues this tradition. Our goal is to train the younger generation of teachers and researchers in health, including doctors, nurses and other health workers, so that they are capable of undertaking independent research on the problems facing the state.

CRSSHeR conducts research workshops both at its headquarters in Trivandrum, as well as in collaboration with other institutions.

Major themes of workshops have been:

MANUSCRIPT WRITING WORKSHOP:

Manuscript writing workshop was held on 3rd & 4th August 2018. 4 Paper writing manuscripts were presented.

1. RNTCP Project – Dr.Sudin Koshy, Dr Sreelal
2. Tobacco – Vendors – Dr. Kamala R
3. Tobacco – Households – Dr. Sanjeev Nair
4. NICE Dementia qualitative study – Dr. Thomas Iype / Dr.Sreelakshmi

Workshop on Statistics with R on September 6th and 7th, 2018 (2 days)

CR Soman Journal Club

The journal club was started on December 2013 as a regular monthly activity conducted usually on the third Tuesday of every month, unless otherwise inconvenient. The purpose was to enhance research skills among doctors and post graduate students in medicine and public health. HAP members and other renowned academicians give talks on important and relevant topics on health research, touching on methodology, analysis, presentation, relevance and content update. Apart from this, participants are encouraged to present critiques of important published journal articles. This is a Meeting provides a platform for critical evaluation of current literature whilst building the importance of research in clinical and public health practice.

The journal club discussion was based on the article entitled “**Basic concepts in Study Design**”.

- 1st session-“**An introduction to study design**” was presented by Dr. Antony.
- 2nd session- “**Plan for analysis**” was presented by Dr .Soumya Gopakumar
- 3rd session- “**Introduction to the manifesto for reproducible science**” was presented by Dr. Biju Soman.

DR. C.R.SOMAN AWARD

Health Action by People had instituted an Award, named after Dr. C.R.Soman, the founder-Chairman of HAP, who passed away on November 6, 2009. It is intended to encourage original research among the post-graduate students of the Government medical colleges in Kerala. The Award was proposed to be given every year to the

person whose Post Graduate thesis during the previous year was adjudged to be the best. The Award carries a cash prize of Rs.25, 000/- and a Certificate.

Dr.Archana Selvaraj: Department of Psychiatry, Government Medical College, Trivandrum was selected for the **9th DrC.R.Soman Award**, for her thesis **Prevalence of alcohol use and alcohol use disorder among Male patients admitted in a tertiary care centre**. It was awarded by Honourable Governor of Kerala, Shri. Justice (Retd) P Sathasivam on **9thNov 2018** at the old Auditorium, Trivandrum Medical College.



Dr.Ramdas Pisharody Memorial award:

Health Action by People (HAP), has instituted an award as a memorial to the most reputed clinical teacher and research methodology promoter who has been and continues as a source of inspiration for research career for thousands of grooming researchers.

The Award carries a cash prize of Rs.25, 000/- and a Certificate.

Dr.Reyma Sara Raju, Govt medical college, Thiruvananthapuram was selected for the **2nd Dr. Ramdas Pisharody Memorial award**, for her presentation on Proportion of Asthma -COPD overlap (ACO) and upper airway symptoms among patients with obstructive airway disease in a tertiary care centre. It was awarded by Honourable Governor of Kerala, Shri. Justice (Retd) P Sathasivam on **9thNov 2018** at the old Auditorium, Medical College, Trivandrum.



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CR Soman Oration 2018

5th “C R Soman Oration” was delivered by Prof.KP.Kannan. He is currently honorary fellow of Centre for Development Studies, panel member in International Panel on Social Progress and Chairman, Laurie Baker Centre for development studies on the topic ” *Lessons from Kerala Floods 2018, Challenges for building a new Kerala* ” on 9th November 2018 at Old Auditorium, Trivandrum Medical College.



Memento received by Dr Kannan from Hon.Chairman Dr.V Ramankutty

PUBLICATIONS

Association of dairy intake with cardiovascular disease and mortality in 21 countries from five continents (PURE): a prospective cohort study.

Dehghan M1, Mente A2, Rangarajan S3, Sheridan P3, Mohan V4, Iqbal R5, Gupta R6, Lear S7, Wentzel-Viljoen E8, Avezum A9, Lopez-Jaramillo P10, Mony P11, Varma RP12, Kumar R13, Chifamba J14, Alhabib KF15, Mohammadifard N16, Oguz A17, Lanas F18, Rozanska D19, Bostrom KB20, Yusoff K21, Tsolkile LP22, Dans A23, Yusufali A24, Orlandini A25, Poirier P26, Khatib R27, Hu B28, Wei L28, Yin L28, Deeraali A29, Yeates K30, Yusuf R3, Ismail N31, Mozaffarian D32, Teo K3, Anand SS3, Yusuf S33; Prospective Urban Rural Epidemiology (PURE) study investigators. BMJ. 2019 Mar 13;364:l772. doi: 10.1136/bmj.l772. PMID 30867146

Availability and affordability of essential medicines for diabetes across high-income, middle-income, and low-income countries: a prospective epidemiological study.

Chow CK1, Ramasundarahettige C2, Hu W2, AlHabib KF3, Avezum A Jr4, Cheng X5, Chifamba J6, Dagenais G7, Dans A8, Egbujie BA9, Gupta R10, Iqbal R11, Ismail N12, Keskinler MV13, Khatib R14, Kruger L15, Kumar R16, Lanas F17, Lear S18, Lopez-Jaramillo P19, McKee M20, Mohammadifard N21, Mohan V22, Mony P23, Orlandini A24, Rosengren A25, Vijayakumar K26, Wei L5, Yeates K27, Yusoff K28, Yusuf R29, Yusufali A30, Zatonska K31, Zhou Y32, Islam S33, Corsi D2, Rangarajan S2, Teo K2, Gerstein HC2, Yusuf S2; PURE investigators. PMID:30170949 Lancet. 2018 Nov 24;392(10161):2288-2297. doi: 10.1016/S0140-6736(18)31812-9. Epub 2018 Sep 11.

The effect of physical activity on mortality and cardiovascular disease in 130 000 people from 17 high-income, middle-income, and low-income countries: the PURE study.

Lear SA1, Hu W2, Rangarajan S2, Gasevic D3, Leong D2, Iqbal R4, Casanova A2, Swaminathan S5, Anjana RM6, Kumar R7, Rosengren A8, Wei L9, Yang W9, Chuangshi W9, Huaxing L10, Nair S11, Diaz R12, Swidon H13, Gupta R14, Mohammadifard N15, Lopez-Jaramillo P16, Oguz A17, Zatonska K18, Seron P19, Avezum A20, Poirier P21, Teo K2, Yusuf S2. PMID:28943267 Heart. 2018 Apr;104(7):581-587. doi: 10.1136/heartjnl-2017-311609. Epub 2017 Oct 24.

RESEARCH ACTIVITIES

2019-20

PURE Study (Prospective Urban Rural Epidemiology):

Funded by Mc Master University PHRI funding: PURE is a multinational, multicentered study guided and coordinated by McMaster University, Canada. The baseline study of this project was from March 2003 till 2007 and recruited 5650 subjects from fifteen locations in Thiruvananthapuram district both rural and urban. The study population comprises people between age group of 35-70 years. The first three year follow up of this study was completed and the second round follow up is going on.

Mapping the dementia care and wider healthcare system in Kerala- NIHR

The Objectives are:

1. To explore current dementia care pathways in Kerala from the perspective of two stakeholder groups:
 - Care providers and facilitators (health and community care professionals, paid carers, traditional medicine practitioners, faith healers, community leaders, NGOs)
 - Users of care and support services (unpaid family and friend carers, people with early-stage dementia).
2. To understand these pathways and care provision within the broader context of the healthcare system in Kerala

Validation of IDEA (Identification and Intervention of dementia in elderly Africans) tool for cognitive screening in Kerala, South India (DePEC): NIHR

A. Primary objective

Validation of IDEA mobile app as a screening tool for neurocognitive disorders in a busy neurology clinic in Kerala, South India

B. Secondary objectives

Comparison with performance of the MOCA, with adaptations for a Kerala population

Qualitative data on feasibility of using a dementia screening app in a neurology clinic setting.

SAANTWANAM

Saantwanam is a concept rooted in the philosophy of taking health screening to the people. Adequately trained and competent lady health personnel will reach out to every home in the villages and towns of Kerala and take the message of health to them. Individuals will be screened for the presence of dominant risk factors and diseases. Those who are already suffering from these conditions and are under treatment can be monitored regularly to assess the progress of treatment. The services can be provided at an affordable cost. Early detection and regular screening will enable people to save enormous cost that may have to be incurred in terms of hospitalization, chronic disability and even death.

There were 5 training sessions successfully completed. We have trained 159 caregivers in different districts.

Saantwanam Orientation Training: Kottayam

Orientation training was held on 3rd August 2019. There were around 150 participants attended the training. Micro Enterprises consultant (MEC) Block coordinators (BC) Accountant, auditors, District programme manager, DMC and ADMC of Kudumbashree also participated.



Saantwanam Training Programme:

Saantwanam Training Programme from 08th to 14th August 2019 at Mariyarani Centre, Sreekariyam Trivandrum. There were 2 training sessions successfully completed. We have trained 60 caregivers in different districts. (Alappuzha- 8, Iuka -

2, Kannur -5, Kasaragod -4, Kottayam -1, Kozhikode-19, Malappuram -3, Pathanamthitta -6,Thrissur- 11and Thiruvananthapuram -1)



Saantwanam Training Programme:

Saantwanam Training Programme from 27th September to 3rd October 2019 at Mariyarani Centre, Sreekariyam Trivandrum. We have trained 48 caregivers in different districts. (Kollam-2, Palakkad -19, Kottayam -14, Kozhikode-4, Pathanamthitta -8, Wynad -1)





DR. C.R.SOMAN AWARD

Health Action by People had instituted an Award, named after Dr. C.R.Soman, the founder-Chairman of HAP, who passed away on November 6, 2009. It is intended to encourage original research among the post-graduate students of the Government medical colleges in Kerala. The Award was proposed to be given every year to the person whose Post Graduate thesis during the previous year was adjudged to be the best. The Award carries a cash prize of Rs.25, 000/- and a Certificate.

Dr Joe Abraham, Department of Community Medicine, Amala Institute of Medical Science, Thrissur was selected for the 10th Dr C.R. Soman Award, for his thesis “A Study on Psychological Distress Among Civil Police Officers Of A Sub Division Of Thrissur District” which was presented on November 16th, 2019 at the Mini conference Hall of Health Action by People.

It was presented by Dr Rajan N Khobragade IAS Principal Secretary, Health, Government of Kerala on 16th November 2019 at the old Auditorium, Trivandrum Medical College.



Dr.Ramdas Pisharody Memorial award:

Health Action by People (HAP),has instituted an award as a memorial to the most reputed clinical teacher and research methodology promoter who has been and continues as a source of inspiration for research career for thousands of grooming researchers. Health Action by People had instituted an Award, named after Professor Ramdas Pisharody was a founder member of HAP retired

as Principal of Government Medical College, Thiruvananthapuram. The Award carries a cash prize of Rs.25,000/- and a Certificate.

Dr Subhash R, Department of Surgical Gastroenterology SK Hospital, Thiruvananthapuram was selected for the 3rd Dr. Ramdas Pisharody Memorial award, for his presentation on “A Prediction Model for Malignancy in Indeterminate Pancreatic Head Mass in the Background of Chronic Calcific Pancreatitis” which was presented on November 16th, 2019 at the Mini conference Hall of Health Action by People.

It was presented by Dr Rajan N Khobragade IAS Principal Secretary, Health , Government of Kerala on 16th November 2019 at the old Auditorium, Thiruvananthapuram Medical College.



PUBLICATIONS

Quality of medical prescriptions in diabetes and hypertension management in Kerala and its associated factors (ICMR Funding Project)

Vijayakumar Krishnapillai, Sanjeev Nair, Anand T. N, Sreelal T. P & Biju Soman *BMC Public Health* **volume 20**, Article number: 193 (2020) Cite this article**120** Accesses

Impediments to Optimal Health-care Utilization of a Particularly Vulnerable Tribal Group in Wayanad: A Qualitative Study

Hisham Moosan,1,2 Antony Stanley,1,2 Krishnapillai Vijayakumar,1,3 A. K. Jayasree,1,4 Tony Lawrence,1,5 and A. Veena¹ Research article Open Access Published: 06 February 2020

Building better migrant worker-health system interfaces: noteworthy interventions from local self-government institutions in Kerala: Soumya

Gopakumar a,b,c, Divya CS b, Aruna S Venu a, Ravi Prasad Varma P a,b.

Socioeconomic status and risk of cardiovascular disease in 20 low-income, middle-income, and high-income countries: the Prospective Urban Rural Epidemiologic (PURE) study.

Rosengren A1, Smyth A2, Rangarajan S3, Ramasundarahettige C3, Bangdiwala SI3, AlHabibKF4, Avezum A5, BengtssonBoström K6, Chifamba J7, Gulec S8, Gupta R9, Igumbor EU10, IqbalR11, Ismail N12, Joseph P3, Kaur M13, Khatib R14, Kruger IM15, Lamelas P3, Lanas F16, Lear SA17, LiW18, Wang C18, Quiang D19, Wang Y18, Lopez-Jaramillo P20, Mohammadifard N21, Mohan V22, MonyPK23, Poirier P24, Srilatha S25, Szuba A26, Teo K3, Wielgosz A27, Yeates KE28, Yusoff K29, YusufR30, Yusufali AH31, Attaei MW3, McKee M32, Yusuf S3. *Indian J Community Med.* 2019 Oct; 44(Suppl 1): S62–S65. doi: 10.4103/ijcm.IJCM 48 19PMCID: PMC6824166PMID: 31728094

Association of estimated sleep duration and naps with mortality and cardiovascular events: a study of 116 632 people from 21 countries.

Wang C1,2, Bangdiwala SI1, Rangarajan S1, Lear SA3, AlHabib KF4, Mohan V5, Teo K1, Poirier P6, Tse LA7, Liu Z7, Rosengren A8, Kumar R9, Lopez-Jaramillo P10, Yusoff K11, Monsef N12, Krishnapillai V13, Ismail N14, Seron P15, Dans AL16, Kruger L17, Yeates K18, Leach L19, Yusuf R20, Orlandini A21, Wolyniec M22, Bahonar A23, Mohan I24, Khatib R25, Temizhan A26, Li W2, Yusuf S1. *Author informationLancet Glob Health.* 2019 Jun;7(6):e748-e760. doi: 10.1016/S2214-109X(19)30045-2. Epub 2019 Apr 23. PMID 31028013

Joint association of urinary sodium and potassium excretion with cardiovascular events and mortality: prospective cohort study.

O'Donnell M1,2, Mente A3, Rangarajan S3, McQueen MJ3, O'Leary N2, Yin L4, Liu X4, SwaminathanS5, Khatib R6, Rosengren A7, Ferguson J2, Smyth A2, Lopez-Jaramillo P8, Diaz R9, Avezum10, Lanas F11, Ismail N12, Yusoff K13, Dans A14, Iqbal R15, Szuba A16, Mohammadifard N17, OguzA18, Yusufali AH19, Alhabib KF20, Kruger IM21, Yusuf R22, Chifamba J23, Yeates K24, DagenaisG25, Wielgosz A26, Lear SA27, Teo K3, Yusuf S3; PURE Investigators. *Lancet Glob Health.* 2019 May;7(5):e613-e623. doi: 10.1016/S2214-109X(19)30070-1. PMID 3100013

RESEARCH ACTIVITIES

2020-21

Local Government and Health in Kerala:

Health systems across the world are being scrutinised for their resilience to external shocks such as the one posed by the COVID pandemic. Response of Kerala to the medical and social impact of the pandemic has drawn considerable attention. Kerala had responded early and was able to mount a response mobilising the entire society, beyond the health system. One of the factors identified as that enabling Kerala to mobilise a universal and effective response is the active involvement of rural and urban local governments. Many state governments have sought to understand the factors that have ensured effective involvement of local governments in public health.

AIM

The broad aim of the study is to examine and document the experience of decentralised governance in the health sector in Kerala, identify causative & facilitating factors, including historical evolution of related policies and practice. And also, to assess their impact, if any, on the health sector in the state and draw lessons for other states and LMICs.

Specific objectives of the research would include:

1. To identify the current theoretical frameworks regarding decentralisation in health, the best known models and how does the Kerala experience fit in with these.
2. To examine the structures and processes existing in the public health system in Kerala prior to the legislation leading to decentralised governance, which may have contributed to easier functioning after decentralisation or provided experience in leadership and planning at the local level. These may include Hospital Management Committees, planning exercises at the local level following the decentralised legislation specific to Kerala that was promulgated in 1987, and was superseded by the all-India legislation.
3. To examine how far the state governments have facilitated the devolution of power to the LSGs especially with reference to the health institutions ('facilitation' will include a broad spectrum, including lack of facilitation and obstruction), specifically:
 - a. To see what powers are devolved to the LSG and document the relevant government order or guideline.
 - b. To see how well the LSG and the local health institution such as PHC have worked together to achieve specific goals set by LSG.
 - c. To see whether the political process was resisted by bureaucrats and technical personnel within the department, and how effectively and through what means the resistance was tempered.
 - d. To see whether the financial resources of the LSG have improved under decentralisation and how it has helped it meet its health goals.
 - e. To see whether physical infrastructure at the local health institution has improved under decentralisation.

- f. Whether this has resulted in engaging the community as a partner in improving people's health.
4. To examine how the joint up functioning of the local government and self help group of kudumbashree has impacted the health sector.
5. To examine the functioning of the National Rural Health Mission and later the National Health Mission in the state, as well as other named and unnamed initiatives of the State and Central governments such as the RSBY, the accreditation scheme for hospitals, the Ardrum mission, Kayakalp scheme, and the initiative to institute awards for performance for hospitals controlled by LSGs, and how these have specifically interacted with decentralised governance:
 - a. To see whether decentralisation led to more effective use of funds allocated to these schemes and how.
 - b. To see whether decentralisation led to better usage of human resources under these schemes and how.
6. To examine the intersectoral cooperation at the LSG level between department of health and other arms of government such as the department of social justice and the sanitation mission; specifically:
 - a. To see whether decentralisation has facilitated such activities as achieving immunisation targets and mother and child nutrition at the Anganwadi level and in such institutions as old age homes;
 - b. To see whether decentralisation has facilitated the initiation and sustenance of palliative care at the LSG level;
 - c. To see whether decentralisation has facilitated the function of waste management at the LSG level and how.
7. To examine whether decentralisation has had an effect on the implementation of 'vertical' programmes in health, such as the RNTCP (Revised National Tuberculosis Control Programme).
8. To examine whether decentralisation has facilitated the epidemic response at the LSG level in responding to earlier epidemics of dengue, chikungunya, leptospirosis and Nipah virus outbreak as may be relevant to the LSG, specifically:
 - a. To see whether the health system could respond faster with early reporting, contact tracing and organisation of immunisation if necessary;
 - b. To see whether the LSG has successfully contained earlier epidemics;
 - c. To see whether the LSG facilitated management of the potential health crisis during the previous flood years and how
9. To document the lessons Kerala experience can provide to other states and LMICs planning decentralisation in the health sector including development of a practical methodology of bottom-up participatory planning in the health sector.
10. To document the results of the above research in the form of a published Volume

PURE Study (Prospective Urban Rural Epidemiology):

PURE is a multinational, multicentred study guided and coordinated by McMaster University, Canada. The baseline study of this project was from March 2003 till 2007 and recruited 5650 subjects from fifteen locations in Thiruvananthapuram district both

rural and urban. The study population comprises people between age group of 35-70 years. The first three year follow up of this study was completed and the second round follow up is going.

- ❖ PURE Round 3 data collection was decided to carry out over the phone considering the present pandemic situation.
- ❖ Out of the 4881 participants, 507 were contacted and data collected using Tablets.
- ❖ Now MML corrections are going on (as per PHRI instructions).
- ❖ During this lockdown period our HAP team contacted each and every Households of PURE centres and gave awareness and guidelines to be followed in fighting the pandemic.

Global Health Research Group on Dementia Prevention & Enhanced Care (DePEC STUDY)

- Qualitative study among consultant neurologists to explore the barriers of using guidelines for dementia
- MoCA Validation study- developing the normative data for Kerala, redefining the cut off score of MoCA
- IDEA screening tool validation- 2 phases
- Mapping the dementia care and wider healthcare system- Completed all interviews (15), transcribed all, data transferred.
- A short study on Dementia Health policy was done on New Castle DePEC team's suggestion.

SAANTWANAM

Saantwanam is a concept rooted in the philosophy of taking health screening to the people. Adequately trained and competent lady health personnel will reach out to every home in the villages and towns of Kerala and take the message of health to them. Individuals will be screened for the presence of dominant risk factors and diseases. Those who are already suffering from these conditions and are under treatment can be monitored regularly to assess the progress of treatment. The services can be provided at an affordable cost. Early detection and regular screening will enable people to save enormous cost that may have to be incurred in terms of hospitalization, chronic disability and even death.

- ❖ 1878 caregivers were trained of which 959 launched as of 31st March 2021.
- ❖ Active workers - 420 as on 31st March 2021.
- ❖ 47 Caregivers were launched last year between 1st April 2020 & 31st March 2021.
- ❖ 11 batches of about 340 care givers benefitted from the Calibration Training Programme conducted across all the districts adhering to the Covid protocol.

DR. C.R.SOMAN AWARD

Health Action by People had instituted an Award, named after Dr. C.R.Soman, the founder-Chairman of HAP, who passed away on November 6, 2009. It is intended to encourage original research among the post-graduate students of the Government medical colleges in Kerala. The Award was proposed to be given every year to the person whose Post Graduate thesis during the previous year was adjudged to be the best. The Award carries a cash prize of Rs.25, 000/- and a Certificate.

Dr Arya Rahul, Department of Community Medicine, Trivandrum was selected for the 11th Dr C R Soman Award for her Thesis 'Efficacy of Non –Pharmacological Intervention in Controlling Diabetes Among Patients Attending NCD Clinics of Primary Health Care Settings' which was presented in a function organised on March 13th 2021 at the office premises of Health Action by People. Dr K Vijayakumar, Hon Secretary, Health Action by People handed over the award.



ACTIVITIES AT THE TIME OF COVID

▪ COVID Awareness Programmes

In unison with other academic communities

- Short videos on how to wear masks, it's proper disposal etc.
- Hap team (Saantwanam & PURE) contacted the Saantwanam Care givers and PURE participants over the phone and educated them on the safety guidelines to be followed.

- **Trainings :**

- Trainings for 7 groups of around 150 Rapid Response Team Volunteers from Kallikkad, Kalliyoor, Varkala etc. which were well received

CONSULTANCY

- The services of HAP have been sought by some panchayats for their health projects. HAP has rendered consultancy services for developing Health Master Plans to Kallikad, Venganoor, Vattamkulam (Malappuram) etc
 - The Health Master Plan initiative “**Aardram Vattamkulam** “ is being implemented at Vattamkulam Panchayat with technical assistance from Health Action by People (HAP) and the State Health Systems Resource Centre.
 - As the initial phase of implementation of this, a People’s Representative Workshop was held.
 - Dr Vijayakumar K, Secretary of HAP, who spearheaded the conceptualization of the Aardram Mission, led the workshop activities.



Dr Vijayakumar, Secretary of HAP addressing the People’s Representative workshop to implement the Aardram Vattamkulam” initiative.

Use Of Our Research To The Society: For Policy, Planning And Intervention

Our research on the prevalence of diabetes mellitus and coronary risk-factor, for the first time, created a proper understanding of the burden of lifestyle diseases in Kerala.

It has been discussed and debated in the media and sensitized the planners, policy makers and decision makers. Government of Kerala has included lifestyle diseases in Kerala, for special attention in the National Rural Health Mission. Our data on prolife population has been widely quoted in various platforms. There is universal acceptance that cardio vascular diseases are the prime killers in Kerala. Government is contemplating primary prevention strategies from the School level, involving of exercise, increased vegetable, fruit content in school meals and campaign against junk foods, tobacco and alcohol. Information that HAP generates at population level is the only one of its kind in Kerala.

PUBLICATIONS

Associations of unprocessed and processed meat intake with mortality and cardiovascular disease in 21 countries [Prospective Urban Rural Epidemiology (PURE) Study]: a prospective cohort study.

Iqbal R, Dehghan M, Mente A, Rangarajan S, Wielgosz A, Avezum A, Seron P, AlHabib KF, Lopez-Jaramillo P, Swaminathan S, Mohammadifard N, Zatońska K, Bo H, Varma RP, Rahman O, Yusufali A, Lu Y, Ismail N, Rosengren A, Imeryuz N, Yeates K, Chifamba J, Dans A, Kumar R, Xiaoyun L, Tsolekile L, Khatib R, Diaz R, Teo K, Yusuf S. *Am J Clin Nutr.* 2021 Mar 31:nqaa448. doi: 10.1093/ajcn/nqaa448. Online ahead of print.

PMID: 33787869

Associations of cereal grains intake with cardiovascular disease and mortality across 21 countries in Prospective Urban and Rural Epidemiology study: prospective cohort study

_Sumathi Swaminathan,¹ Mahshid Dehghan,² John Michael Raj,³ Tinku Thomas,³ Sumathy Rangarajan,² David Jenkins,⁴ Prem Mony,¹ Viswanathan Mohan,⁵ Scott A Lear,⁶ Alvaro Avezum,⁷ Patricio Lopez-Jaramillo,⁸ Annika Rosengren,^{9,10} Fernando Lanas,¹¹ Khalid F AlHabib,¹² Antonio Dans,¹³ Mirac Vural Keskinler,¹⁴ Thandi Puoane,¹⁵ **Biju Soman**,^{16,17} Li Wei,¹⁸ Katarzyna Zatonska,¹⁹ Rafael Diaz,²⁰ Noorhassim Ismail,²¹ Jephth Chifamba,²² Roya Kelishadi,²³ Afzalhussein Yusufali,²⁴ Rasha Khatib,^{25,26} Liu Xiaoyun,¹⁸ Hu Bo,¹⁸ Romaina Iqbal,²⁷ Rita Yusuf,²⁸ Karen Yeates,^{29,30} Koon Teo,² Salim Yusuf² Multicenter Study *BMJ* 2021 Feb 3;372:m4948. doi: 10.1136/bmj.m4948. PMID: 33536317 PMCID: PMC7856570 DOI: 10.1136/bmj.m4948

PURE: Association of symptoms of depression with cardiovascular disease and mortality in low-, middle-, and high-income countries JAMA PSYCH

S. Rajan, M. McKee, S. Rangarajan, S. Bangdiwala, A. Rosengren, R. Gupta, V. **Raman Kutty**, A. Wielgosz, S. Lear, K. AlHabib, H.U. Co, P. Lopez-Jaramillo, A. Avezum, P. Seron, A. Oguz, I.M. Kruger, R. Diaz, M. Nafiza, J. Chifamba, K. Yeates,

R. Kelishadi, W. M. Sharief, A. zuba, R. Khatib, O. Rahman, R. Iqbal, H. Bo, Z. Yibing, L. Wei, S. Yusuf Comparative Study JAMA Psychiatry 2020 Oct 1;77(10):1052-1063. doi: 10.1001/jamapsychiatry.2020.1351. PMID: 32520341 PMCID: PMC7287938 DOI: 10.1001/jamapsychiatry.2020.1351

The first state-level public health program for obstructive airway disease in India: An early field-level evaluation

Soumya Gopakumar^{1,2}, **Mathew J Valampampil**^{3,4}, **M S Manu**^{4,2}, **Sanjeev Nair**^{5,2}, **R Kamala**^{5,2}, **A Raj Atulya**², **Bipin K Gopal**⁴, **Veena Babu**², **K Vijayakumar**² J Family Med Prim Care 2020 Sep 30;9(9):4998-5003. doi: 10.4103/jfmpe.jfmpe_216_20. eCollection 2020 Sep.

PMID: 33209835 PMCID: PMC7652171 DOI: 10.4103/jfmpe.jfmpe_216_20

PURE: Variations between women and men in risk factors, treatments, cardiovascular disease incidence, and death in 27 high-income, middle-income, and low-income countries THE LANCET

M. Walli-Attaei, P. Joseph, A. Rosengren, K. Chow, S. Rangarajan, S. Lear, K. Alhabib, K. Davletov, A. Dans, F. Lanas, K. Yeates, P. Poirier, K. Teo, A. Bahonar, F. Camilo, J. Chifamba, R. Diaz, J. Didkowska, V. Irazola, R. Ismail, M. Kaur, R. Khatib, X. Liu, M. Manczuk, J. Miranda, A. Oguz, M. Perez-Mayorga, A. Szuba, L. Solekile, **R. Varma**, A. Yusufali, R. Yusuf, L. Wei, S. Anand, S. Yusuf Lancet 2020 Jul 11;396(10244):97-109. doi: 10.1016/S0140-6736(20)30543-2. Epub 2020 May 20. PMID: 32445693 DOI: 10.1016/S0140-6736(20)30543-2

PURE: Associations of outdoor fine particulate air pollution and cardiovascular disease in 157 436 individuals from 21 high-income, middle-income, and low-income countries

LANCET PLANETARY HEALTH P Hystad, A Larkin, S Rangarajan, KF AlHabib, A Avezum, KB Tumerdem Calik, J Chifamba, A Dans, R Diaz, JL du Plessis, R Gupta, R Iqbal, R Khatib, R Kelishadi, F Lanas, Z Liu, P Lopez-Jaramillo, S Nair, P Poirier, O Rahman, A Rosengren, H Swidan, LA Tse, Li Wei, A Wielgosz, K Yeates, K Yusoff, T Zatoriski, R Burnett, S Yusuf, M Brauer Lancet Planet Health 2020 Jun;4(6):e235-e245. doi: 10.1016/S2542-5196(20)30103-0. PMID: 32559440 PMCID: PMC7457447 DOI: 10.1016/S2542-5196(20)30103-0

Association of dairy consumption with metabolic syndrome, hypertension and diabetes in 147 812 individuals from 21 countries.

Bhavadharini B, Dehghan M, Mente A, Rangarajan S, Sheridan P, Mohan V, Iqbal R, Gupta R, Lear S, Wentzel-Viljoen E, Avezum A, Lopez-Jaramillo P, Mony P, Varma RP, Kumar R, Chifamba J, Alhabib KF, Mohammadifard N, Oguz A, Lanas F, Rozanska D, Bengtsson Bostrom K, Yusoff K, Tsolkile LP, Dans A, Yusufali A, Orlandini A, Poirier P, Khatib R, Hu B, Wei L, Yin L, Deeraili A, Yeates K, Yusuf R,

Ismail N, Mozaffarian D, Teo K, Anand SS, Yusuf S. BMJ Open Diabetes Res Care. 2020 Apr; 8(1):e000826. doi: 10.1136/bmjdr-2019-000826. PMID: 32423962

PAST RESEARCH ACTIVITIES

Cognitive Status among Elderly in Kalliyoor Panchayat, South Kerala (DePEC study)

Major objective

To assess the cognitive status among adults aged 65 years or above in Kalliyoor Panchayat of Thiruvananthapuram district, Kerala

Minor objectives

To determine the risk factors associated with poor cognitive status

To identify the health seeking behaviors of ≥ 65 -year-old population.

Barriers and facilitating factors in implementing NICE guidelines for Dementia care:

A qualitative study among Neurologists in Government Medical College, Thiruvananthapuram, Kerala.

To identify the barriers and facilitating factors associated with implementation of NICE guidelines for dementia care by Neurologists in Kerala

Pulmonary Rehabilitation in the Management of COPD – Physician and Patient Beliefs and Practices in Kerala State, South India.

This was a mentorship research project which was initiated towards the end of the previous year by Dr Sanjeev Nair, Treasurer of HAP, in collaboration with St John's Research Institute, Bangalore. The total duration of this project was proposed to be one year. The study included patients from 14 districts of Kerala, both rural and urban undergoing treatment for COPD. The data was collected during the year from a total of 756 patients all over Kerala. The purpose of the research was to probe into the pulmonary rehabilitation strategy being practiced by Pulmonologists treating COPD patients in Kerala including private practitioners, in order to capture the attitude and knowledge of patients undergoing treatment for COPD regarding pulmonary rehabilitation. The data collected were being analyzed and they are in the process of preparation of research paper.

Factors associated with prescription of non-RNTCP Anti-TB drugs by private practitioners practicing RNTCP in Trivandrum city

An operational research study funded under Revised National Tuberculosis Control Programme and State Health & Family Welfare Society-TB, Kerala (State H & FW - TB Society). The Revised National Tuberculosis Control Programme (RNTCP) based on the internationally recommended DOTS strategy was initially implemented mainly through the network of health care facilities under the public health departments of the state governments. The study intends to capture the profile of TB patients opting private institutions for treatment and reasons for patient approaching a private hospital despite the RNTCP functioning so well in the public sector.

Improving the Case Management Quality of Non-Communicable Diseases- Diabetes and Hypertension: This project is funded by Indian Council of Medical Research (ICMR).

The study assessed 9190 prescriptions from 344 doctors practicing in seven districts of Kerala and conducted 12 in-depth interviews and 4 focus group discussions. Based on the study results we suggest greater dissemination of non-communicable disease (diabetes and hypertension) management guidelines, facilitate the adoption of common guidelines across public and private sector and periodic training to doctors on drug prescription for diabetes and hypertension, as well as strengthening of the non-doctor health care human resources for non-communicable diseases.

Respiratory Morbidity In Kalliyoor Panchayath, Thiruvananthapuram, Kerala- HAP Funding

Primary objective

To determine the prevalence of Asthma and COPD in Persons equal to or above the age of 18yrs and 35 yrs based on the screening tool and clinical examination including Pulmonary function test in Kalliyoor Panchayat.

Secondary objectives

To identify the health seeking behaviors

To determine the risk factors associated with respiratory morbidities

To assess the treatment response and change in disease status at the end of one year in patients with Asthma / COPD in Kalliyoor Panchayat.

Variability in FeNO in various population groups of Asthma patients in South Kerala and correlation of FeNO with response to treatment in Asthmatics in Kerala - Funded by HAP

Primary Objectives

To determine if there is variability in FeNO levels among Asthmatics from the three geographic zones of South Kerala presenting at a tertiary care hospital.

To determine if there is a correlation between FeNO levels and control of Asthma, as measures by Asthma control test, among Asthmatics presenting to a tertiary hospital

Secondary objectives

To determine the factors associated with high FeNO levels in Asthmatics presenting to a tertiary care hospital.

FeNO levels in COPD patients in Trivandrum, Kerala- Funded by HAP

Primary Objectives

To determine the levels of FeNO in patients with COPD presenting to a tertiary care hospital in Trivandrum

Secondary objectives

To determine whether there is any correlation between FeNO levels and peripheral blood eosinophilia in patients with COPD presenting to a tertiary care centre in Trivandrum

Perspectives of patients with a non-cancer diagnosis seeking palliative care in Thiruvananthapuram- Funded by HAP

1. To study the experiences of non-cancer life-limiting diseases from the perspective of patients and their primary caregivers seeking palliative care in Thiruvananthapuram
2. To explore patient experiences with respect to their pre-disease social identities and changes undergone during disease progression.

Exploring health inequity by assessing the nature of healthcare utilization and its correlates among tribal population of Kerala

This is a one year research projected funded by International Development Research Centre (IDRC), Canada through Achutha Menon Center for Health Science Studies (AMCHSS), Thiruvananthapuram. The study, “Exploring health inequity by assessing the nature of healthcare utilization and its correlates among the tribal population of Kerala”, attempts to give a holistic picture of the nature of health inequities in the tribal population in Kerala in terms of service provision and acquisition. This study also attempts to look at the policies enacted by the state to address these health inequities

Harmful use of Alcohol in Kerala- Social and Economic Impact on Families and the State: Study on the Health Related Problems

This study was commissioned by the Govt. of Kerala in light of growing concerns about excessive consumption about alcohol in the state. The study was aimed at providing an overview of the nature and pattern of alcohol use to understand the pathways of harmful use, the extent of harm associated with families and the community. It was concluded by exploring policy options and their feasibility for the reduction of harmful use of alcohol in the local context. It was carried out extensively across over 3000 households in three districts of the state- Kasargod, Kottayam and

Thiruvananthapuram. The study involved detailed analysis, including both quantitative and qualitative aspects. The study found that there were significant secondary and tertiary effects of alcohol consumption, in addition to negative individual effects. The study also brings forth a number of recommendations, primary among which is generating awareness, youth-based interventions for prevention and implementation of a stringent legal and monitoring mechanism as long-term solutions. The study also delves into the current Alcohol Policy in Kerala and asserts the need of a detailed, critical analysis of the same.

Problem Solving for Better Health (PSBH)-

This program was started as early as in 1993, with the financial support from Dreyfus Health Foundation (DHF), New York. For pursuing this program, HAP was associating itself with 71 medical colleges in India on the exciting health problem solving experiment — for this purpose, PSBH Workshops were being organized, with selected undergraduate medical students from medical colleges all over India. The Indian program is unique in focusing attention on medical students, generally under the leadership of the Department of Community Medicine. The program imparts problem solving skills in community health to undergraduate medical students through an intensive and participatory workshop, lasting 3-4 days. The feedback from the faculty and students was quite positive. The program fulfils the objectives laid down by Indian Medical Council, on learning public health and community medicine.

Population Registry of Life Style Diseases (PROLIFE)

This study was an elaborate study undertaken by HAP and it was sponsored by the Kerala Research Programme on Local Level Development (KRPLLD) of the Centre for Development Studies, Trivandrum in 2001. For this study HAP had adopted a large rural community with a population of 161,942 belonging to 7 Panchayats in a Community Development Block in Varkala. The registry gathered information on births, deaths, major diseases, hospitalization and other significant health related events. Details of birth, like age of mother, parity, nature of delivery, gender, weight of baby on birth and complications, if any, were collected. Cause of death was verified through administering a validated verbal autopsy instrument. More importantly, extensive socio-economic and demographic data on every household as on 1 March 2001 were gathered. Comprehensive lifestyle characteristic questionnaires were administered to over 78,000 subjects who were 20 years or more of age on the cut off day. The study established Kerala as the diabetes, heart disease, and hypertension and obesity capital of India.

The original intention to conduct extensive follow up study every 5 years but so far this was not possible due to dearth of funds. Possibility was being explored for raising funds for this

Indo-Danish Collaboration on Diabetes Epidemiology (INDADE)

This collaborative study is part of an effort for establishing a scientific cooperation between partners in India and Denmark. The background for this is the concern of the enormous increase in diabetes worldwide, in particular, in the third

world. This project builds on an existing programme, PROLIFE, initiated earlier by HAP.

The study was initiated in April 2007. For this study, the Ottoor Panchayat (Varkala) was selected from the PROLIFE community which covered a population of 15, 917 people of which 10, 846 were adults above 19 years.

As first Phase of the study, 7988 (73 %) of the adults were screened for diabetes, hypertension and overweight. In the second round of screening 8619 (79%) of the people in the community were covered. After the second round of screening, the number of diabetic subjects in the cohort rose from 1450 to 2058, which showed that the prevalence of diabetes increased from 18.1% to 23.9%. The third round of annual screening was on the verge of completion. The screening process is proposed to be continued every year. The first round of annual medical examination for the cohort of 1450 subjects was over by November 2010, in which 86.7% of the subjects in the cohort were followed up. The second round of annual medical examination of diabetic subjects was started on July 2011 and the medical examination is going on. Through the annual medical examination, we were able to study the complications, social, economic, psychological and implications etc. We have nearly completed Phase I of the study and screened over 6800 adults for diabetes. Part of the work on Phase II has also been completed.

THANK YOU