
# SHARE INDIA

Society for Health Allied Research and Education India

# ANNUAL REPORT 2021-22


SHARE INDIA Office of Research at MediCiti Institute of Medical Sciences (MIMS) Campus

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Society for Health Allied Research and Education India

# ANNUAL REPORT
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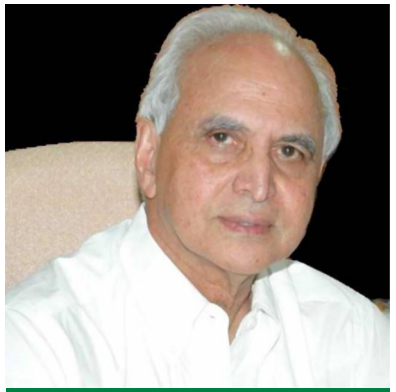
# Contents

# Message from our Chairman



Dr. P.S. Reddy

The beginning of the year 2021 saw India overcoming the second wave of COVID-19, despite being under-prepared for what lie ahead. Healthcare facilities, hospitals, and communities rose to save as many lives as possible across the country. And we, at SHARE INDIA, were steadily working on our long-term field-based research activities. The Phase III clinical trial for TB vaccines continued with the follow-up of 219 participants who were successfully enrolled in the previous year as per the protocol timelines. Our technical assistance projects continued with the same vigour in providing support to the Government of India for TB and HIV treatment and care and laboratory testing for a continuum of services. We have also successfully collaborated with the Central TB division, CDC India, Telangana Aids Control Society, National Health Mission (NHM) and the Government of Telangana on multiple projects related to tuberculosis, HIV and improving hospital infection prevention and control (IPC) practices.

Another example of our resolve to meet contemporary research needs in the Indian context is reflected in the results of the COVID-19 Sero-surveillance project funded by BIRAC under the National Biopharma Mission. In this project, we successfully recruited and followed-up a cohort of 5000 individuals aged 2 years and above, with an overall retention rate of 91% at the end of four rounds spread over a year. The prime reasons behind the success of this project were our agility to realign our well-trained manpower and leverage our strong community goodwill built over the years. This underscores the importance of long-term investment in capacity building and meaningful community engagement as a strategy toward solving public health challenges even amidst tough circumstances.

The Indo-American Artificial Heart project is on-going and the sixth animal test was performed at Palamuru Bioscience on a sheep using the CentriMag centrifugal pump on March 19th, 2022. The impeller developed by the Indian team has passed bench testing. It is given for injection moulding. The development of motors and controllers has reached advanced stages.

In order to fulfil our primary objective of creating a research culture at MediCiti Institute of Medical Sciences (MIMS), we entered into a collaborative agreement with the Indian Institute of Public Health, Hyderabad (IIPHH). As a first step, they are helping faculty to write scientific papers for publication utilizing the data that has been gathered for various projects. IIPH is also engaged in imparting training in research methodology to students and faculty of MIMS.

Despite all the challenges, we rose from strength to strength with a new hope that tomorrow will be momentous. We intend to build our research culture and we trust that our work will speak for us. We hope our story beyond this page will help you understand our work and build meaningful collaborations.

# About SHARE INDIA

Indian American professionals from various medical and non-medical fields, all of whom earned their education from undivided Andhra Pradesh, started a not-for-profit society 'Science Health Allied Research Education' (SHARE) in USA in 1981. To support causes in India and for the purpose of giving back to mother country, two, not for profit societies SHARE INDIA (1986) and SHARE Medical Care (1987), were formed with a similar vision to translate the dreams into action. SHARE INDIA is a research society and recognised as a Scientific and Industrial Research Organisation {SIRO), by Ministry of Science and Technology, Government of India.

SHARE INDIA is the brainchild of Dr. P.S. Reddy, Professor of Medicine, at the University of Pittsburgh, who is also the chairman of SHARE INDIA. He devotes half his time in India to translate NRIs dreams into reality.

Along with CDC funded projects to the government, a variety of community welfare projects like REACH, LIFE, TETRA, HELP and CSSI are fully funded by generous donors. SHARE INDIA endeavours have brought significant improvements in the areas of pre-natal and post-natal care, TB, pregnancy, birth control, awareness and prevention of HIV, infant care, infant mortality rate, maternal mortality rate, immunization and cancer.

SHARE INDIA is entirely funded by voluntary contributions. Individual philanthropists, NRIs, and the private sector are the organization's primary donors. Donations are tax-exempt under section 35(1) (ii) of the Income Tax Act.

**Vision and Mission**

- To provide quality and advanced medical care at lowest possible cost
- To develop a working model of Healthcare Delivery System for rural population
- To promote undergraduate, graduate, postgraduate and Continuing Medical Education
- And above all to promote Research

**Philosophy of SHARE INDIA**

Nature has created a divided world of those who have the capacity to give and those who have the need to receive. We are the lucky few who are blessed with the capacity to give rather than receive. Let us thank God for giving the capacity and opportunity to give by giving.

# Governing Council

| | |
|---|---|
| **Dr. P. Sudhakar Reddy** | Chairman |
| **Mr. M. K. Agrawal** | Vice Chairman and Treasurer |
| **Dr. V. Malakonda Reddy** | Secretary |
| **Dr. Madhu K. Mohan** | Secretary General |
| **Dr. A Gopal Kishen** | Member |
| **Dr. Prakash N. Shrivastava** | Member |
| **Dr. C. Venkata S. Ram** | Member |
| **Dr. P. Naveen Chander Reddy** | Member |
| **Mrs. Nandini Prasad** | Member |
| **Mrs. Poornima Prabhakaran** | Member |
| **Mr. K. Krishnam Raju** | Member |

# Executive Team

| | |
|---|---|
| **Dr. Vijay V. Yeldandi** | Head Infectious Diseases and Public Health |
| **Dr. Shikha Dhawan** | Director - Programs |
| **Dr. Satish Kaipilyawar** | Associate Project Director |
| **Dr. Anita Singh** | Associate Project Director |
| **Dr. B. Ravi Kumar** | Associate Project Director |
| **Mr. Nitin C. Desai** | Administrator, Projects |
| **Mr. N. Lakshminarasimhan** | Senior Manager, Finance and Accounts |
| **Ms. Revina Suhasini** | Senior Manager, Human Resource and Administration |
| **Mr. Purushotham Reddy R.** | Head, Information Technology and Data Manager |

# Scientific Research Advisory Members

| | |
|---|---|
| **Dr. B. M. Gandhi** | Chief Executive Officer, Neo Biomed Services, 100, Vansanth Enclave, New Delhi |
| **Prof. Seyed E. Hasnain** | Vice Chancellor, Jamia Hamdard University, Hamdard Nagar, New Delhi |
| **Prof. Suman Kapur** | Sr. Professor, Dean, International Programmes & Collaboration Division, Birla Institute of Technology & Science, Pilani, Hyderabad |
| **Dr. G.V.S. Murthy** | Director, Indian Institute of Public Health, Hyderabad |
| **Prof. M.U. R. Naidu** | Former Dean Faculty of Medicine and Prof & Head Clinical Pharmacology & Therapeutics, The Nizam's Institute of Medical Sciences, Hyderabad |
| **Dr. Ganesh Oruganti** | Former Executive Director, SHARE INDIA, Ghanpur Village, Medchal Mandal and District, Telangana |
| **Prof. Prabhakaran D.** | Executive Director, CCDC & Vice President, Research & Policy, PHFI, Centre of Chronic Disease Control (CCDC) & Public Health Foundation of India (PHFI), New Delhi |
| **Prof. B. Sashidhar Rao** | Fellow of Telangana Academy of Sciences, (FTAS) & Former Professor & HOD, Dept of Biochemistry, Osmania University, Hyderabad. |
| **Dr. P. S. Reddy** | Chairman, SHARE INDIA, Ghanpur, Mandal & District Medchal, Telangana |
| **Dr. B. Sesikeran** | Former Director, NIN-ICMR, National Institute of Nutrition, Hyderabad |
| **Dr. J. Gowri Shankar** | Director, Indian Institute of Science Education and Research, Mohali, Punjab |
| **Dr. D. C. Sharma** | Head of Technical Operations. MRIDA, Palamur Biosciences Pvt Ltd., Karvina, Madigattla Village, Bhootpur Mandal, Mahabubnagar, Telangana |
| **Dr. G. Sundar** | Director, Birla Institute of Technology & Science (Pilani) Campus, Shameerpet, Hyderabad |
| **Dr. S. P. Vasireddi** | Chairman and Managing Director, Vimta Lab Life Sciences Facility, Hyderabad |
| **Dr. K. Vijayaraghavan** | Former Director Research, SHARE INDIA and Deputy Director, NIN Kakiteeya Nagar, Street No.2, Habsiguda, Hyderabad |
| **Dr. Vijay V. Yeldandi** | Head Infectious Diseases and Public Health, SHARE INDIA |

# Clinical Studies at SHARE INDIA-MIMS Ghanpur Village Medchal, Telangana

The Indian Council of Medical Research (ICMR), the Apex governing body in India for the formulation, coordination and promotion of biomedical research, selected SHARE INDIA-Medi Citi Institute of Medical Sciences (MIMS) as a sub-site of Bhagwan Mahavir Medical Research Centre (BMMRC) for a vaccine study entitled "A Phase-III, randomized, double-blind, three arm placebo controlled trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis (TB) in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients" (July 2020-June 2023).

The primary objective of the trial is to evaluate the efficacy of VPM1002 and Immuvac by comparing the reduction in incidence of TB over three-year period among Indian healthy household contacts of newly diagnosed sputum positive PTB patients vaccinated with VPM1002 and Immuvac in comparison to placebo. The SHARE INDIA site was initiated on 14th September 2021, 219 participants have been vaccinated and are periodically followed up every four months. Currently visit 11 (22 months/660 days) follow up is ongoing.

## Summary of SHARE INDIA Projects

| S. No. | Title of the study | Investigators | Designation / Institution Name | Project Exp. 2021-22/ (Unaudited) Project Cost Approved | Funding source | Project status |
|---|---|---|---|---|---|---|
| 1 | Indo-American Artificial Heart Program | Dr. P. S. Reddy<br>Premium Institutes form USA and India, Engineering Institutions in India, Pre-Clinical GLP facility and Medical Device Manufacturers | Chairman, SHARE INDIA | Rs. 9.14 Lakhs (2021-22) | Self-funding by Indian Institutions aided by SHARE INDIA / SHARE USA | On going |
| 2 | Longitudinal Indian Family hEalth-LIFE Study | Dr. Kalpana Betha | MBBS, MD. | Rs. 9.78 Lakhs (2021-22) | SHARE INDIA / SHARE USA | On going |
| 3 | Mycoplasma genitalium, differentiated Ureaplasma species, and pregnancy outcomes | Dr. Kalpana Betha<br>Dr. Catherine L. Haggerty | MBBS, MD.<br>Associate Professor, University of Pittsburgh | US $ 46,318 (2016-22) | Fogarty International Center -NIH | Project Concluded Data Analysis in progress. |
| 4 | The influence of vaginal microbiota on adverse pregnancy outcomes in the LIFE study | Dr. Kalpana Betha<br>Dr. Catherine L. Haggerty | MBBS, MD.<br>Associate Professor, University of Pittsburgh | Sub Study of Item No. 2 above | Fogarty International Center -NIH | Project Concluded Data Analysis in progress. |

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| S. No. | Title of the study | Investigators | Designation / Institution Name | Project Exp. 2021-22/ (Unaudited) Project Cost Approved | Funding source | Project status |
|---|---|---|---|---|---|---|
| 5 | The role of pre pregnancy and prenatal danger associated molecular patterns in pregnancy complications (DAMP)- LIFE Study Samples | Dr. Kalpana Betha | MBBS, MD. | US $ 24,000 (2017-22) | Partial support from TAMU, Texas | Project Concluded Data Analysis in progress. |
| | | Dr. Brandie N. Taylor | Associate Professor, Texas A&M University | | | |
| | | Dr. Catherine L. Haggerty | Associate Professor, University of Pittsburgh | | | |
| 6 | Technology Enabled community health workers to extend Telemedicine to Rural homes at Affordable costs TETRA Study FOLLOW UP OF SIX VILLAGES | Dr. D. Shailendra | MBBS, MD. | Rs. 5.44 Lakhs (2021-22) | SHARE INDIA / SHARE USA | In view of pandemic the study was freezed during the year. |
| 7 | HEaLthy Pregnancy (HELP) study | Dr. Sapna Vyakaranam | MBBS, MD. | Rs. 4.32 Lakhs (2021-22) | SHARE INDIA / SHARE USA | Study concluded, Data analysis in in progress. |
| | | Dr. Kalpana. Betha | MBBS, MD. | | | |
| | | Dr. Aparna Varma | Consultant, Department of Biochemistry, AIIMS, Bibinagar | | | |
| | | Dr. Rashmi Pant | Biostatistician, SHARE INDIA | | | |
| | | Dr. Padma Yalamati | Consultant, Biochemist, CARE Hospitals | | | |
| 8 | Improving Antenatal Care (ANC) to enhance adherence to National ANC guidelines, including the screening, detection, referral and management of gestational diabetes and pregnancy induced hypertension (PIH), using electronic decision support system enabled Frontline Health Workers, in primary healthcare settings of India and Nepal: a cluster randomized trial | Dr. D. Prabhakaran | Vice President (Research & Policy), PHFI Delhi | Role of SHARE INDIA is facilitating the work in villages when required initially. | Newton Fund | Project concluded, data analysis is in progress. |
| | | Dr. Oona Campbell | Professor, Epidemiology, London School of Hygiene & Medicine,UK | | | |
| | | Dr. Biraj Karmacharya | Professor, Community Programs, Kathmandu University School of medical sciences, Nepal | | | |
| | | Dr. Kalpana Betha | MBBS, MD. | | | |
| | | Dr. P. S. Reddy | Chairman, SHARE INDIA | | | |

# Summary of SHARE INDIA Projects

| S. No. | Title of the study | Investigators | Designation / Institution Name | Project Exp. 2021-22/ (Unaudited) Project Cost Approved | Funding source | Project status |
|---|---|---|---|---|---|---|
| 9 | Caesarean SurgicalSite Infection - CSSI Study. | Dr. Kalpana Betha | MBBS, MD. | Rs. NIL Lakhs (2021-22) | SHARE INDIA / SHARE USA | Completed, Data analysis is in progress for publication of paper. |
| | | Dr. Catherine L. Haggerty | Associate Professor, University of Pittsburgh | | | |
| 10 | Empowering Indian health researchers with computational modelling tools- HADM Small Grant | Dr. Guru Rajesh Jammy | Director Research, SHARE INDIA | US$7,500 2017-2021 | NIH - University of Pittsburgh | Ongoing - No cost Extension approved. |
| | | Dr. M. Raheel Sayeed | Research Scientist, SHARE INDIA | | | |
| | | Dr. Lincoln P. Choudhury | HIV Consultant, Delhi, India | | | |
| 11 | Develop and test 3D printing technology to produce innovative limbs at affordable cost for the disabled in India | Dr. Srinivasa Prakash Regalla | Professor, Mechanical Engineering, Birla Institute of Technology and Science, Hyderabad | Rs. 3.26 Lakhs (2021-22) | SHARE INDIA / SHARE USA | Ongoing, expansion and further development in progress |
| | | Dr. Prakash N. Shrivastava | Professor Emeritus, University of Southern California, USA | | | |
| | | Dr. D. Sudheer Reddy | MBBS, M.D. | | | |
| 12 | IndEpi: A Platform for systematic Integration of Indian Epidemiology Datasets to enable Health Analytics and Disease Modelling | Dr. Rashmi Pant | Biostatistician, SHARE INDIA | Rs. 12.10 Lakhs (April, 2019 to March 2021) 03 Years Budget Rs. 43.89 Lakhs (Capital or Non-recurring Rs. 10.05 and recurring Rs. 33.84) | Department of Science & Technology, Ministry of Science & Technology, Government of India | On going |
| 13 | InPoChlam: Innovative Point of Care Chlamydiales. Joint industrial R&D projects between India and EUREKA member countries Belgium, The Netherlands, Spain and United Kingdom | Dr. Kalpana Betha | MBBS, MD | Rs. 11.44 Lakhs (2021-2022) 03 Years Budget Rs. 118.196 Lacs (Capital or Non-recurring Rs. 35.476 and Recurring Rs. 82.72) | DBT, Government of India | Sanctioned and in Planning stage- Implementation delayed due to COVID-19 |
| | | Dr. Rashmi Pant | Biostatistician, SHARE INDIA | | | |
| | | Dr. Vijay V. Yeldandi | Professor, University of Illinois at Chicago, USA | | | |
| | | Dr. Servaas A. Morre | Maastricht University The Netherlands | | | |
| | | Dr. Pierre Paul Michel Thomas | Institute of Public Health, Genomics, Maastricht University, The Netherlands | | | |
| 14 | Harnessing a population-based cohort for an epidemiological study on Dengue and Chikungunya and drive capacities to conduct clinical trials | Dr. D. Shailendra | MBBS, MD. | Rs. 221.57 Lakhs 2021-22 (1093 Lakhs 2020-2023) | National Biopharma Mission, Government of India | Project activity on going as per the protocol. Round 3 completed and Round 4 to commence. |

# Summary of SHARE INDIA Projects

| S. No. | Title of the study | Investigators | Designation / Institution Name | Project Exp. 2021-22/ (Unaudited) Project Cost Approved | Funding source | Project status |
|---|---|---|---|---|---|---|
| | | | ICMR Funded Projects | | | |
| 15. | TB prevalence and interventions for reducing TB and LTBI in high-risk key population of rickshaw drivers and construction workers | Dr. Shikha Dhawan | Director Programs, SHARE INDIA | Rs. 29.73 Lakhs (2021-22) | ICMR | On going, No cost extension applied |
| 16. | Improving TB diagnosis at Designated Microscopy Centers (DMCs) by introduction of Quality Management Systems and optimum utilization of rapid molecular diagnostics and its cost implications | Dr. Shikha Dhawan | Director Programs, SHARE INDIA | Rs. 49.95 Lakhs (2021-22) | ICMR | On going, No cost extension applied |
| 17. | A Phase III, randomised, double blind, three arm placebo controlled trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis ( TB) in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients-TB Vaccine trial, sub site of BMMRC. | Dr. K. Sailaja | MBBS, MD. SHARE INDIA | Rs. 3.26 Lakhs (2021-22) Rs. 14.17 Lakhs (2021-22) Contribution of SHARE INDIA for the project. | ICMR | On going project |
| 18. | Capacity building for undertaking the "A Phase III, randomised, double blind, three arm placebo controlled trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis (TB) in healthy household contacts of new pulmonary TB patients " | Dr. K. Sailaja | MBBS, MD. SHARE INDIA | Rs. 14.47 Lakhs (2021-22) | ICMR | On going project |

# Summary of SHARE INDIA Projects

| S. No. | Title of the study | Investigators | Designation / Institution Name | Project Exp. 2021-22/ (Unaudited) Project Cost Approved | Funding source | Project status |
|---|---|---|---|---|---|---|
| **Technical Assistance to Government of India- "Global Fund Project to fight AIDS"** | | | | | | |
| 19. | Design and develop comprehensive advocacy, communication strategies and tools for NACP | Dr. Shikha Dhawan | Director Programs, SHARE INDIA | Rs. 167.54 Lakhs (2021-22) | Global Fund through NACO, Ministry of Health & Family Welfare, Govt. of India. | On going |
| **Technical Assistance to Government of India- "CDC funded Projects"** | | | | | | |
| 20. | National Initiative to Strengthen & Coordinate HIV/TB response in India– NISCHIT / NISCHIT Plus | Dr. Vijay V. Yeldandi | Professor, University of Illinois at Chicago, USA | US $ 1,676,696 (2021-22) Rs. 1,283.44 Lakhs | Centers for Disease Control and Prevention (CDC), Atlanta, USA | On going |
| | | Dr. B. Ravi Kumar | Associate Project Director, SHARE INDIA | | | |
| 21. | Laboratory Quality Systems in HIV— LaQSH / LaQSH Plus | Dr. Vijay V. Yeldandi | Professor, University of Illinois at Chicago, USA | US $ 1,511,774 (2021-22) Rs. 1,156.51 Lakhs | Centers for Disease Control and Prevention (CDC), Atlanta, USA. | On going |
| | | Dr. Anita Singh | Associate Project Director, SHARE INDIA | | | |
| 22. | Strengthening TB Action and Response STAR | Dr. Vijay V. Yeldandi | Professor, University of Illinois at Chicago, USA | US $ 607.992 (2021-22) Rs. 465.11 Lakhs | Centers for Disease Control and Prevention (CDC), Atlanta, USA. | On going |
| | | Dr. Satish Kaipilyawar | Associate Project Director, SHARE INDIA | | | |
| 23. | Building Systems Capacity on Outbreaks Laboratory Surveillance Training Emergency Response-BOLSTER | Dr. Vijay V. Yeldandi | Professor, University of Illinois at Chicago, USA | US $ 253,541 (2021-22) Rs. 193.96 Lakhs | Centers for Disease Control and Prevention (CDC), Atlanta, USA. | On going |
| | | Dr. Guru Rajesh Jammy | Project Director, SHARE INDIA | | | |
| | | Dr. Prashant Vennela | Public Health Specialist, Infection Prevention & Control, SHARE INDIA | | | |

# 1 Artificial Heart Program (AHP)

**Vision:**

Promote bio-engineering research in Engineering Institutes of India in collaboration with Medical Institutions, Engineering Industries and Medical device developers to develop medical devices in India.

**Objectives:**

Moon-shot: Develop total artificial heart Immediate: Development of Left Ventricular Assist Device (LVAD) / Extracorporeal Membrane Oxygenator (ECMO)

**Key activities:**

**The LVAD has two critical parts, Motor and Pump Head. It can be used as LVAD and ECMO with addition of oxygenator in the circuit.**

The project is developing LVAD / ECMO Blood Pump. SHARE INDIA jump started its activities toward the development of a blood pump suitable for bench testing and pre-clinical readiness.

The disposable pump head is being developed by CBIT, KITS and SNIST. The 3D printed prototype underwent In-Vitro testing in AIG hospital using a mockloop testing system developed by our team. (Figure 1). Its showed minimal hemolysis comparable to similar devices in extensive use. Therefore, it is given for injection molding.

The motor is being developed by Laxven Systems, the motor works on Maglev principle, which levitates and rotates the impeller which is inside the pump without any physical contact. (Figure 2).
Simultaneously control studies are being performed with existing LVAD/ ECMO devices on sheep at Palamur Bioscience Labs. ( image). Testing for von Willebrand factor accrued deficiency is being developed by BITS Palani, Hyderabad Campus.

***COLLABORATORS***

**SHARE INDIA, Hyderabad, India**

- Dr. P. S. Reddy, Chairman
- Dr. Vijay V. Yeldandi, Head Infectious Diseases and Public Health
- Dr. Shikha Dhawan, Director Programs
- Dr. B. M. Gandhi, Chief Executive Officer, Neo BioMed Services, New Delhi
- Dr. A. G. K. Gokhale, Cardiothoracic Surgeon, Apollo Hospitals, Hyderabad

**Birla Institute of Technology (BITS) PILANI, Hyderabad, India**

- Dr. Suman Kapur, Senior Professor, Department of Biological Sciences

**Kakatiya Institute of Technology & Science, (KITS) Warangal, India**

- Dr. K. Ashoka Reddy, Principal
- Dr. K. Sridhar, Professor & Head of Mechanical Engineering
- Dr. Venu Madhav Kotturu, Professor of Electronics & Instrumentation Engineering
- Dr. Ganesh Kumar Gampa, Associate Professor, Dept of Mechanical Engineering
- Dr. Sai Kumar Gadakary, Asst Professor, Dept. of Mechanical Engineering


**Sreenidhi Institute of Science and Technology (SNIST), Hyderabad, India**

- Ms. Sadia Alvi, Asst Professor, Dept. of Mechanical Engineering

**Asian Institute of Gastroenterology (AIG), Hyderabad, India**

- Dr. P. Naveen Chander Reddy, Medical Director

- Dr. C. Sukesh Kumar Reddy, Sr. Consultant Cardiothoracic Surgeon
- Dr. Naresh Kumar, Cardiothoracic Surgeon
- Dr. Rajeev Vijay Kumar Menon, Sr. Consultant - Interventional Cardiology
- Dr. Sachin Yalagudri, Sr. Consultant Cardiologist and Electrophysiologist

**Laxven Industries, Hyderabad, India**

- Mr. C. Ramesh Reddy, Managing Director; Electromechanical Manufacturing

**Shristi Resins Hyderabad, India**

- Mr. K. P. Reddy, Managing Director

**Palamur Biosciences Pvt. Ltd., Mahbubnagar, India**

- Mr. K. Venkata Reddy, Managing Director
- Mr. T. Vijayaragavan, Chairman
- Dr. Rammoorthy, Test Facility Management
- Dr. D. C. Sharma, Medical Research Institute for Device Assessment (MRIDA)
- Dr. S. Anoop, Medical Research Institute for Device Assessment (MRIDA)

**Shree Pacetronix Ltd., Indore, India**

- Mr. Atul Sethi, Executive Director & Managing Director
- Mr. Aakash Sethi, Executive Director & Joint Managing Director
- Mr. Vikas Gokhale, Technical Director-Research

**Acknowledgments**

We gratefully acknowledge critical voluntary help being provided by the following international experts from the inception of the project:

- Prof. Harvey Borovetz, Professor of Bioengineering
- Dr. Shawn Bengston, Director of Quality Management Systems
- Dr. Joe Hanke, Surgery Supervisor, McGowan Institute for Regenerative Medicine
- Dr. William R. Wagner, Director of the McGowan Institute for Regenerative Medicine, and
- Dr. Edward Klein, Director of Pathology Services at Division of Laboratory Animal Resources, Faculty from University of Pittsburgh, USA,
- Prof. James Antaki, Professor of Heart Assist Technology, Cornell Engineering, Cornell University, Ithaca, New York, USA,
- Dr. James Long , Cardio thoracic surgeon, Medical Director, Nazih Zuhdi Transplant Institute - INTEGRIS Baptist Medical Center, Oklahoma, USA,
- Dr. Kurt Dasse, Co-Founder, President & CEO
- Dr. Barry Gellman, Chief Technology Officer
- Ms. Priscilla Petit , Co-Founder, Director of Quality & Regulatory Inspired Therapeutics, Florida, USA, And
- Dr. Tim Kaufmann, Chief Executive Officer and
- Dr. Deepanshu Sodhani, R&D Project Manager enmodes GmbH, Aschen, Germany

**Abstracts**

1. An Abstract title “PEDS6: Virtual Anatomic Fit Study of PediaFlow Implantable VAD in Infants (4 Kg To 8 Kg)” Been selected for the Oral presentation for the ASAIO 2022 International Conference, Chicago, USA.
2. An Abstract title “Fast and Effective Method to Conduct Flow Visualization of Blood Pump” Been selected for the poster presentation for the ASAIO 2020 International Conference, Chicago, USA

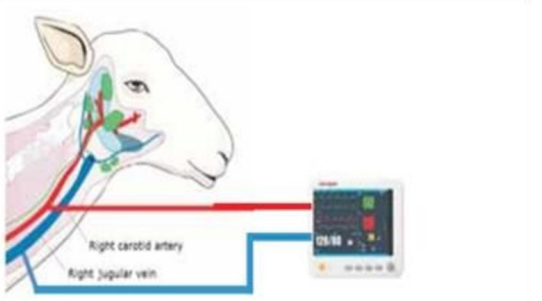
3. Rugveda T, Sadia Alvi, Dr Ravinder Reddy., Design of Mock Circulatory Test Loop with LV Simulator for a Centrifugal Blood Pump, ASAIO 2020
4. Dr Ravinder Reddy., Rugveda T., Chemical Polishing Method to Improve the Surface Roughness of FDM Printed Component of Blood Wetted Devices, ASAIO 2020
5. Ganesh Kumar, G., Ashoka Reddy, K., Venu Madhav K., Eswaraiah. K., Experimental and Numerical Studies of a Centrifugal Heart Pump Used for Total Artificial Heart (TAH), ASAIO 2021
6. Ganesh Kumar, G., Ashoka Reddy, K., Venu Madhav K., Eswaraiah. K., Comparative Studies on six and four bladed Centrifugal Heart Pump Used for Left Ventricular Assisted Device (LVAD),ASAIO 2021
7. Ganesh Kumar, G., Ashoka Reddy, K., Venu Madhav K., Eswaraiah. K., (2020), "Mathematical and Experimental Studies on Effect Of Number Of Blades On Centrifugal Pump Used In Left Ventricular Assisted Device (LVAD), ASAIO Journal June 20, Volume 66, ISSN 1058-2916, pp 83, (DOI: l 0.1097/MAT.0000000000001l 86), Wolters Kluwer Publishers

**Status of the project**

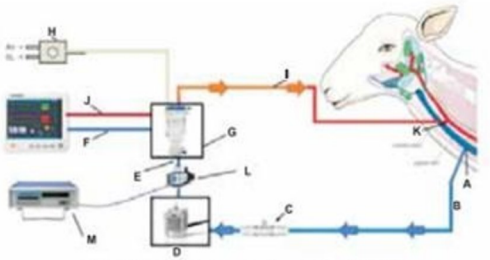
The 3D design of the indigenous blood pump was sent to a manufacturing facility in Hyderabad and initial injection moulded pump parts were received. Various biocompatible adhesives were procured and tested for the assembly of the pump parts.

A dedicated Hemolysis Testing Laboratory was setup in the Research block at AIG Hospital, Hyderabad. 13 hemolysis tests were conducted at AIG Hospitals on CentriMag, 3D-printed pump prototypes and the injection moulded pump.

Palamuru Biosciences along with AIG conducted 6 sheep studies to evaluate the performance of Centrimag pump. The study which is conducted for about 6 hours, provides data on surgical cannulation and post-operative management of the sheep. Further studies to be planned for 24-hour animal survival.




Blood pressure and Blood gas monitoring during sheep study



Cardiopulmonary bypass circuit

The 6th animal test was performed at Palamuru Bioscience, on a sheet using the CentriMag centrifugal pump on 19th March 2022.

# Longitudinal Indian Family hEalth (LIFE) pilot study

2

## Investigators

- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Shailendra, MBBS, M.D.

**About the Project:**

The LIFE study exams are being conducted in villages of Medchal Mandal, Medchal District of Telangana (India). This is a long-term cohort study that will examine socio-economic and environmental influences on children's health and development in India. The LIFE project is a prospective cohort study of Indian women followed through conception, pregnancy, and delivery, and the physical and mental health and development of their children.

**Aims:**

Understand the links between the environmental conditions in which Indian women conceive, become pregnant, give birth, the physical and mental health along with development of their children.

**Methods:**

The LIFE Pilot is a prospective cohort study of Indian women followed through conception, pregnancy, and delivery, and the physical and mental health and development of their children. Since 2009, 1227 women aged between 15 and 35 years were recruited before conception or within 14 weeks of gestation. Women were followed through pregnancy, delivery, and postpartum. Follow-up of children is on-going. Baseline data were collected from husbands of 642 women. Anthropometric measurements, biological samples and detailed questionnaire data were collected during registration, the first and third trimesters, delivery and at 1 month postpartum. Anthropometric measurements and health questionnaire data are obtained for each child, including developmental assessment at periodic intervals.

**Status of the Project:**

Till 31st March 2020, 1227 women have been recruited from 40 villages in Medchal Mandal; 924 deliveries were done at MediCiti Hospital (MIMS) while 351 deliveries were done outside MIMS. 1139 PNC-1 month follow ups are completed. Project specific questionnaires completed by age of the child include 06 months - 990, 12 months - 964, 18 months - 1020, 24 months - 999, 36 months - 989, 48 months - 939, 60 months - 933. Children screened for mental health problems include 1029 in the age group for 3-4 years; 817 in age group 6-7 years. Couples follow up visits for 5-6 years include 977 women and 883 men. The project also completed 96-98 months follow up for 360 children, 108-110 months' follow-up visit for 360 children: WISC-IV scale (8-11years) for 198 children and SMR scale for 198 children.

Due to pandemic, the team was working on the digitization of the records and the investigators are analyzing the data for publications. Follow up visits of the participants were finalized. Within the last one year, the participant files are being organized systematically for digital archiving which is likely to be completed in the about 6 months.

The plan to resume field activities is being charted.

# 3 Mycoplasma genitalium, differentiated Ureaplasma species and pregnancy outcomes

## Investigators

- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Catherine L. Haggerty, Associate Professor, Department of Epidemiology, GSPH, University of Pittsburgh, PA, USA

**Funding Source:** Fogarty International Center –NIH

**About the Project:**

Reproductive tract infections (RTI) present major health, social, and economic problems for women in developing countries. The objective is to understand extent from the poor pregnancy outcome due to reproductive tract infections in India. It emerged as an intermediary outcome of the LIFE study, where SHARE INDIA team has been following the pregnant women for a longitudinal study to understand the environmental influences on childbirth. Earlier a review was conducted on prevalence of Chlamydia trachomatis among child bearing age women in India and published in 2015. The present study is a resultant of the observations made during the review and field experiences through community engagement in Medchal – Malkajgiri district in rural Telangana.

**Aim:**

To identity the burden of poor pregnancy outcomes due to reproductive tract infections in India.

**Objectives:**

Determine the role of pre-pregnancy and prenatal vaginal infections with mollicutes including fastidious Mycoplasma genitalium and the newly differentiated Urea plasma spp. termed U. urealyticum (UU) and U. parvum (UP) in Pre-Term Birth (PTB) and Spontaneous abortion (SAB). The study also aims to determine the relationships between vaginal infection with Mycoplasma genitalium, Urea plasma urealyticum, Urea plasma parvum, and adverse pregnancy outcomes, including spontaneous abortion and preterm birth. It also examines chorioamnionitis as an associated factor between Mycoplasma genitalium or Urea plasma infection and spontaneous preterm birth.

**Status of the project:**

DNA was isolated from 2000 and odd vaginal scrapings collected from the women at registration, 1st Trimester, 3rd Trimester, Delivery and 30 days after delivery by QIAamp cador Pathogen mini kit (QIAGEN), following manufacturers protocol. Probes and Primers were designed by Dr. Jorgen Skov Jensen (Statens Serum Institute, Denmark) for the following organisms: Mycoplasma genitalium (MG): FAM (organism) and HEX (Internal control), Chlamydia trachomatis (Ctr): FAM (organism) and Cy5(Internal Control), Mycoplasma hominis (Mh): FAM (organism) and HEX (Internal control), Trichomonas vaginalis (Tv): FAM (organism) and HEX (Internal control), Neisseria gonorrhoeae (Ng): FAM (organism) and HEX (Internal control), Ureaplasma urealyticum (UU), Ureaplasma parvum (UP) All the probes were standardized under specific cycling conditions; reamplified for Mh, Mg, Ng and Tv; As next steps approximately 800 and odd DNA samples should be amplified with the Mh, Mg, Ng and Tv probes provided.

# The influence of vaginal microbiota on adverse pregnancy outcomes in the LIFE study

4


**Investigators**

- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Catherine L. Haggerty, Associate Professor, Department of Epidemiology, GSPH, University of Pittsburgh, PA, USA



**Funding Source:** Fogarty International Center –NIH


**About the Project:**

Women's health particularly of the reproductive health of rural women in developing countries is a risk influencing childbirth. Studies conducted earlier across the globe have demonstrated that, a homogeneous Lactobacillus-dominated microbiome has long been considered the hallmark of health in the female reproductive tract. In contrast, a vaginal microbiome species as observed with bacterial vaginosis, has been associated with increased risk for acquisition and transmission of sexually transmitted infections, PTB and pelvic inflammatory disease. However, many asymptomatic healthy women have diverse vaginal microbiota. More refined approaches are needed to assess risk, promote health, and prevent and treat disease. While conducting the longitudinal study LIFE, it was observed that, there is a cohort of women who experience multiple problems due to vaginal micro biota at labor and delivery. Focusing on maternal health, SHARE INDIA team earlier conducted studies on cervical carcinoma. The experience of the health researchers of the SHARE INDIA provided impetus to conduct further study among pregnant women on mother's health.

**Aims and Objectives:**

- To characterize and compare the pre-pregnancy vaginal microbiota of: Pregnant women who subsequently experience a spontaneous abortion women who subsequently deliver preterm, to a control group of women who deliver at term.
- To characterize and compare the vaginal microbiota at labor and delivery among women who deliver preterm and a control group of women who deliver at term

**Status of the project:** The project is studying 20 cases of women with spontaneous abortion, 20 cases of women who delivered preterm and 20 control women who delivered at term. Archived preconception vaginal samples were analyzed using broad range 16S rRNA gene PCR with sequencing. Women who delivered at term had vaginal microbiota dominated by Lactobacillus species.

# 5 The role of pre-pregnancy and pre-natal danger associated molecular patterns in pregnancy complications (DAMP) - LIFE Study Samples


**Investigators**

- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Brandie N. Taylor, Associate Professor, School of Public Health, The Texas A&M University System, Texas, USA
- Dr. Catherine L. Haggerty, Associate Professor, Department of Epidemiology, GSPH, University of Pittsburgh, PA, USA



**Funding Source:** Partial Support from Texas A & M University, USA


**About the Project:**

Early pregnancy loss is non-induced embryonic or fatal death or passage of products of conception before 20 weeks' gestation. Early pregnancy loss is also termed as spontaneous abortion or miscarriage. The World Health Organization (WHO) defines it as expulsion or extraction of an embryo or fetus weighing 500 gm or less. National Health Portal of India, states, spontaneous abortion in the first trimester is common, affecting at least 15–20% of the clinically recognized pregnancies. Approximately 80% of all cases of pregnancy loss occur within the first three months of pregnancy (first trimester). This study is taken with the cohort of pregnant women of LIFE study to understand the factors associated with early pregnancy serum markers of cellular damage, innate immune signaling, angiogenesis and preeclampsia subtypes to promote maternal health. SHARE INDIA conducted studies earlier on association of higher maternal Serum fluoride with adverse fatal outcomes and published its findings.

**Aims:**

- Determine if circulating pre-pregnancy and first trimester biomarkers of placental dysfunction (EGFL7, PIGF, sFLT-1, PP-13) are associated with SAB
- Determine if circulating pre-pregnancy and early pregnancy DAMPS (HG BM-1, HSP70) and innate immune signalling biomarkers (Pentraxin-3) are associated with SAB
- Determine if pre-pregnancy and early pregnancy circulating markers of oxidative stress (MDA, GDH) are associated with SAB.

**Objectives:**

Examine the relationship between early pregnancy serum markers of cellular damage, innate immune signaling, angiogenesis and preeclampsia subtypes.

**Status of the project:**

The project is studying the eleven markers from different groups of immune response were analyzed with 320 samples from women who are controls, registered preconception and at 1st trimester. The data entry is completed and the statistical analysis is in process.

# Technology Enabled health workers to deliver Telemedicine to Rural Homes at Affordable costs (TETRA)

6

**Investigators**

- Dr. Shailendra, MBBS, M.D.

**Funding Source:** SHARE INDIA and SHARE USA

**Aims:**

To demonstrate feasibility, effectiveness and sustainability of a low-cost telemedicine strategy for detection, treatment and monitoring of blood pressure and blood sugar in remote and underserved locations.

'TETRA' uses a novel strategy anchored by non-physician health workers (NPHWs) equipped with a tablet computer with embedded decision prompt systems (mHealth tool) linked to point-of-care devices for blood pressure and blood sugar measurement and guided remotely by a physician via Skype, screen individuals for hypertension and diabetes, facilitate a telemedicine consult, print a physician ordered e-prescription and distribute medication at the doorsteps of beneficiaries across six villages in Telangana (India). The NPHWs follow-up individuals with hypertension and diabetes once in three months and provide a continuum of care.

**Status of the Project:**

- A paper on optimal strategies for blood pressure measurement and diagnosis of hypertension under submission to 'PLOS ONE' journal.
- Planning to restart the project suspended since March 2020.
- Resources including manpower and technologies being aligned for the restart.
- Installation and testing of mHealth software on tablet device to be used by NPHWs is ongoing.

7

# HEaLthy Pregnancy (HELP) Study

## Investigators

- Dr. Sapna Vyakaranam, MBBS, M.D.
- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Rashmi Pant, Biostatistician, SHARE INDIA
- Dr. Aparna Varma, Consultant, Professor and Head, Department of Biochemistry, AIIMS, Bibinagar
- Dr. Padma Yalamati, Consultant Biochemist, CARE Hospitals

**Funding source:** SHARE INDIA and SHARE USA

**About the Project:**

Hypertensive disorders of the pregnancy cover a spectrum of conditions including preeclampsia, eclampsia, chronic hypertension and preeclampsia superimposed on chronic hypertension. Preeclampsia is a major cause of maternal and perinatal mortality (number of still births and deaths of new-born in first week of life). Hypertensive disorders of the pregnancy occur in about 10% of all pregnant women around the world. Preeclampsia effects 3-5% of pregnancies. SHARE INDIA earlier conducted and published studies on hypertensive disorders of pregnancy.

**Aims:**

To identify whether the early rise in blood pressure or serum creatinine or serum uric acid or urine protein creatinine ratio compared to the 1st trimester (baseline) value predicts the later onset of hypertensive disorders. It also aims to study the association between these markers and maternal and fetal outcomes.

**Objectives:**

Measure blood pressure, serum uric acid, serum creatinine (stored at - 80°C) and urine protein creatinine ratio every month during the course of pregnancy and examine the tracking of these markers to identify which marker, individually or in combination helps in the prediction of hypertensive disorders at the earliest.

**Methods:**

Healthy Pregnancy (HELP) Study is a cohort study of pregnant women. The study initially enrolled 1000 pregnant women and followed them throughout the pregnancy till delivery, while these women visit the department of Obstetrics and Gynecology at MIMS.

**Status of the project:**

There were no new women recruited in the study and the recruited women could not be followed up due to COVID-19 pandemic. Data was reorganized to make it analyzable. Work is being carried out on writing a cohort study paper on the HELP study.

# Improving Antenatal Care (ANC)

8

## Investigators

- Dr. D. Prabhakaran, Vice President (Research and Policy), PHFI, Delhi
- Dr. Oona Campbell, Professor, Epidemiology, The London School of Hygiene and Tropical Medicine (LSHTM), UK
- Dr. Biraj Karmacharya, Professor Programs, Kathmandu University of Medical Sciences, Nepal.
- Dr. P. S. Reddy, Professor of Medicine, University of Pittsburgh and Chairman, SHARE INDIA
- Dr. Kalpana Betha, MBBS, M.D.
- Dr. Sailesh Mohan, Centre for Control of Chronic Conditions (CCCC), PHFI, New Delhi
- Dr. Poornima Prabhakaran, CCCC, PHFI, New Delhi
- Dr. Ajay V. CCCC, PHFI, New Delhi
- Dr. Ambuj Roy, Department of Cardiology, AIIMS, New Delhi
- Dr. Sandosh Padmanabhan, Department of Medicine, University of Glasgow, UK
- Dr. Sonia Anand, Professor, Department of Medicine, McMaster University, Canada
- Dr. Abha Shrestha, Department of Obstetrics and Gynaecology, Kathmandu University of Medical Sciences, Nepal Dr. Pablo Pere, Associate Professor, Cardiologist and epidemiologist, LSHTM
- Dr. Clara Calvert, Assistant Professor, LSHTM
- Dr. John Cairns, Professor of Health Economics, LSHTM
- Dr. Ishita Rawat, Research Fellow, CCCC, PHFI, New Delhi

**Improving Antenatal Care (ANC) to enhance adherence to National ANC guidelines, including the screening, detection, referral and management of gestational diabetes and pregnancy induced hypertension (PIH), using electronic decision support system enabled-frontline health workers, in primary healthcare settings of India and Nepal: A Cluster-Randomized Trial**

**Funding source:** Newton Fund

**Objectives of the study:**

In this project the Society proposes to develop and evaluate an Electronic Decision Support System (EDSS) for non-physician Front Line Health Workers (FHWs) that incorporates ANC services with screening, detection and referral of high-risk pregnancies to the existing health system for appropriate clinical management.

SHARE INDIA hypothesizes that the EDSS enabled FHWs will not only enhance screening, detection and referral for Gestational Diabetes Mellitus (GDM) and Pregnancy Induced Hypertension (PIH), but also improve adherence to National ANC guidelines and provide a continuum of maternal care services to improve glucose and blood pressure control and health outcomes for both mothers and babies.

**The research questions are:**

- Does an mHealth EDSS, provided to frontline health workers, enhance ANC by improving adherence to national ANC guidelines, and improve the screening, detection, referral and management of GDM and PIH, compared with usual care in primary healthcare settings?
- What are the socio-economic, health-system and political factors affecting the implementation of the enhanced ANC?
- What is the cost of the enhanced ANC intervention, the change in resource use, and the costs of the intervention relative to the value of the improved health outcomes achieved?

**Partners:**

The study is jointly funded by Medical Research Council, UK and Department of Biotechnology (DBT), Government of India. The project will take place India (Telangana) and Nepal (Kathmandu) and will last 36 months. It will include a multi-disciplinary team of investigators coordinated by the Public Health Foundation of India (PHFI), India, with support from three regional coordinating centres in (a) MediCiti Hospital, Telangana, India (b) Kathmandu University, Nepal and (c) London School of Hygiene & Tropical Medicine (LSHTM), UK.

**Phases of the project:**

The study includes three phases and four components. The three phases are: 1) Developing an EDSS that integrates ANC with screening, detection, referral and management of GDM and PIH, 2) Piloting the EDSS and 3) Evaluating effectiveness through a cluster randomized controlled trial at primary healthcare level in India and Nepal.

The four components comprise of: 1) Formative research to understand the context, intervention development to develop the technology and how to deliver it, and a pilot test, 2) Cluster randomized controlled trial (cRCT)to randomly pick primary health centres to implement and evaluate the intervention and compare them to other centres who give usual care 3) Ongoing evaluation, using qualitative methods to understand the processes of implementation and 4) Economic analysis to see what the intervention costs and how cost effective it is.

**Status: From Dec-2021 to March-2022**

- The pilot testing of the mIRA- Electronic Decision Support System (EDSS) for frontline health workers has been conducted in selected health facilities which include PHC Peddashapur, Rangareddy District and PHC Kulkacherla, Vikarabad District.
- A draft mIRA Application Pilot testing report has been prepared and shared with the office of Commissioner of Health and Family Welfare, Government of Telangana.
- Based on the findings from the pilot testing, the mIRA EDSS Application has been modified. An interim mIRA application has been released by the software company. The final version of the mIRA App will be released by the end of April-2022.
- First set of Healthcare workers to be positioned in five selected districts for the mIRA project trial have been recruited. Training to the healthcare workers with details about the mIRA project, ANC guidelines, Record Keeping at Health Facilities, Process Evaluation Tools and mIRA App has been given which includes three days of Virtual and three days of Physical Training.
- The healthcare workers have been provided with Tablet each and made to use and work on the mIRA App regularly to get acquainted with mIRA - EDSS application.
- A master list of Healthcare facilities required for mIRA trail study randomization in selected five districts for the project namely Rangareddy, Vikarabad, Yadadri Bhuvanagiri, Medak and Siddipet has been prepared in consultation with the DMHO's and Medical Officers of each district.
- Next steps for the project include obtaining permission for CHFW, Govt. of Telangana for mIRA trial implementation.

# Caesarean Surgical Site Infection (CSSI)

9

## Investigators

- Dr. Kalpana Betha, MBBS, M.D.
- Dr. P. Lakshmi Sailaja, MBBS, M.D.
- Dr. Catherine L. Haggerty, Associate Professor, Department of Epidemiology, GSPH, University of Pittsburgh, PA, USA

**Funding source:** SHARE INDIA and SHARE USA

**About the study:**
Surgical site infections are one of the most common associated infections in the low middle-income countries. As per studies conducted in India, they make up to 14-16% of inpatient infections. Objective of present study was to evaluate the risk factors associated with caesarean surgical site infections and the bacteria causing these infections and the antibiotic sensitivity and resistance pattern of the pathogens isolated.

**Aim:**
To reduce incidence of surgical site infections following caesarean sections.

**Objectives:**
Estimate the incidence of caesarean surgical site infections following caesarean sections at MediCiti Hospital. Identify risk factors associated with SSI following caesarean and to determine the bacteriological profile of SSI linked with caesarean section.

**Status of the project:**
A total of 2000 cases of patients who underwent caesarean section were included and all women completed one month follow up post operatively. Among them CSSI was found in 4.6% of cases. In the interim analysis, duration of less than 6 hours of labor, presence of more than 10 and more than 15 people in OT and no use of cautery in subcutaneous tissue showed significance with SSI. Women who were overweight showed a marginal significance as a risk factor (p=0.058). Further analysis of the data and a paper are in progress.

# 10 Empowering Indian health researchers with computational modelling tools

**Investigators**

- Dr. Guru Rajesh Jammy, Director Research, SHARE INDIA
- Dr Raheel Syed, Research Scientist, SHARE INDIA
- Dr. Lincoln P. Choudhury, Consultant

**Funding Source:** University of Pittsburgh

Computational model can help the Society translate observations into an anticipation of future events, act as a test bed for ideas, extract value from data and ask questions about behaviors. A key feature of today's computational models in health is that they are able to study a biological system at multiple levels, including molecular processes, cell to cell interactions, and how those interactions result in changes at the tissue and organ level. This enables safe and effective new therapeutics to advance more efficiently through the different stages of clinical trials. Simulation software is now starting to be used to develop highly accurate personalized human organs, medical devices and biologics. Today, simulation technologies can detect how these models will respond under stress or in any lifelike situation. When finally brought to market, the device will result in the highest levels of quality and safety for both patients and providers.

**Objectives:**

Utilize a validated agent-based model to project the HIV incidence in the state of Telangana from the year 2005, till year 2030. To understand the effect of some, select interventions on the HIV incidence for achieving the Sustainable Development Goals (SDG).

**Status of the project:**

The Agent Based modelling was performed specifically for prevention of parent to child transmission (PPTCT) intervention efficiency in Telangana state population synthetic and was completed in April 2020. The results will be shared with various stakeholders in India and a manuscript is underway.

# Develop and test 3D printing technology to produce innovative limbs at affordable cost for the disabled in India

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**Investigators**

- Dr. Prakash N. Shrivastava, Professor Emeritus, University of Southern California, USA; Founder Member, SHARE INDIA
- P. Nikethan Reddy, M. Tech, BKP Project Manager
- Dr. D. Sudheer Reddy, MBBS, M.D.
- Dr. Kaushik Kalyan, MBBS, M.D.

**Advisor**

- Dr. Srinivasa Prakash Regalla, Professor and Head, Department of Mechanical Engineering, BITS Pilani, Hyderabad

**Funding source: Initial Funding:** Biotechnology Industry Research Assistance Council (BIRAC), Department of Biotechnology, Government of India; Currently: SHARE USA.

**About the Project:**

Development and use of Prosthetics has been in vogue since ancient times. However, from the early nineteenth century the advent of Hangar Limb ushered prosthetics into modern era. Studies have shown that substantial percentages of people with congenital limb loss or acquired limb loss choose not to use a device, despite having access to one. Low usage rates of prostheses may result from result from a lack of aesthetic design, weight, and availability of insurance and health care, and high costs. In this scenario, 3D printing is becoming an integral part of prosthesis creation, resulting in response to several tangible issues, including reduced access to conventional prostheses in a timely manner and, in some cases, restricted access. Therefore, efforts were made for development of technology to manufacture affordable and high comfort below-knee prosthesis with innovative reverse engineering and 3D printing technologies that enable high level fit leading to great comfort while the innovative materials give greater strength.

SHARE INDIA/MIMS and BITS Pilani (HYD) have collaborated in the last 4 years to develop individually tailored, light weight and comfortable sockets for below knee prosthesis. Their product called "Sukhfit" has been used by over 20 patients for over 2 years. The Society is now in the process of using patient feedback to improve their designs. These improvements include:

- Increase of strength to make it longer lasting;
- Increase of comfort level by redesigning the liner and
- Decrease of the cost of production by reusing waste materials, computer automation and reduced labour.

**Aims:**

- Increase the strength of the prosthesis and make it more effective and longer lasting.
- Improve digital imaging process to remotely collect patient's anatomical data.
- Provide the prosthesis for as many patients as possible and make it attractive for both prosthetists and patients in the near future.
- To provide better comfort, and maximum security for all patients at low cost.

**Objectives:**

Develop and test 3D printing technology to produce innovative limbs at affordable cost for the disabled in India.

**Status of the project:**

The Society have successfully doubled the strength of the prosthesis by using strategically placed reinforcement ribs around the area where higher stresses and loads are acting. It has given 5 new patients its new model "Sukhfit 2020" with the latest changes and are getting new patient feedback to continue further improvements. It has also modified the workbench (model3) to improve quality, stability and reliability of patient's anatomical data taken in the field remotely. It has developed a

# Develop and test 3D printing technology to produce innovative limbs .....

customized new motor with required specifications for torque and rpmsl in collaboration with Laxven Solutions Inc., Cherlapally Telangana. SHARE INDIA has applied and received a new, formal approval for their patient testing protocol from the MIMS research Committee during this period. A completely new design for a liner is being developed. The Society's success will permit to replace the imported silicone liners that are prohibitively expensive for Indian populace and also allow to use the shuttle lock pyramid device with their 3D printed sockets. The Society is very thankful to the donors to provide "Sukhfit 2020" prosthesis to 50 deserving patients. The Society is presently severely limited in working with patients due to COVID-19 pandemic but continue to proceed with in laboratory developments.

# IndEpi: A platform for systematic integration of Indian Epidemiology datasets to enable health analytics and disease modelling

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## Investigators

- Dr. Rashmi Pant, Biostatistician, SHARE INDIA

**Funding Source:** Department of Science and Technology, Government of India

**Aim:**
To create a national resource that integrates epidemiological evidence from existing sources on the health and well-being of the Indian population and make it available with tools of modelling and analysis to aid evidence-based policy making.

**Methods:**
This project will conduct secondary data analysis of the REACH, LIFE, MILES and HELP databases. The data science methods used will include Growth curve modelling, Social Network analysis and machine learning Status of the project: completed planned activities in Year 1 and presented dashboards at the DST partners' meeting in Pune on February 7, 2020.

As next steps, we will upload models to the Public Health Informatics Platform (PHIP) to display results from machine learning methods for potential collaboration.

Year 2 activities were completed by transferring some models of child anthropometry to the PHIP. The project has completed its deliverables in terms of data annotation and analysis and is in the process of finishing two publications. SHARE India's work on COVID-19 is also part of this platform.

# 13 Lab on Wheels: An innovative point-of-care test to diagnose Chlamydiales in One Health setting InPoChlam

## Investigators

- SHARE INDIA: Dr. Kalpana Betha, Dr. Vijay V. Yeldandi, Dr. Rashmi Pant
- Sam Higginbottom, University of Agriculture Technology and Sciences: [SHUATS], Allahabad, Uttar Pradesh: Dr. Jonathan A. Lai, - Dr. Rajiv Kant, Dr. Neeraj, Dr. Sarvjeet Herbert, Dr. Bipasha David
- NTR College of Veterinary Sciences, Vijayawada, Andhra Pradesh: Dr. T. Srinivasa Rao, Dr. D. Narendra Nath, Dr. Ch. Bindu Kiranmayi
- The Netherlands Microbe: Prof. Dr. Servaas Morre, Anne Ammerdorffer, Sander Ouburg, Pierre Thomas; BiosparQ: Dr. Gerold de Valk Belgium; UGent: Dr. Daisy Vanrompay, Dr. Ir. Sven Arnouts

**Funding Source:** Department of Biotechnology, Government of India

**About the Project:**

Modern pathology laboratories are providing Point of Care (POC) services to the needy. However, often these are inaccessible and not affordable to patients living in rural areas. The One Health approach underlines the necessity to understand the environment and provide pragmatic solutions for prevention and treatment of infectious diseases.

**Aim:**

InPoChlam is Joint Industrial Research and development project between India and EUREKA member countries (Belgium, The Netherlands, Spain and United Kingdom). The goal of this collaborative innovation across borders is to foster ONE HEALTH through affordable, innovative solutions for prevention and control, point of care diagnostics and treatment of infectious disease (Chlamydia) to improve prevention, treatment outcomes and efficient utilization of health resources.

Objective: The main objective is the collection of a clinical cohort of human patient samples, chicken broiler samples and poultry worker samples in India. Samples will be used for identification of Chlamydiales in a variety of biological and environmental samples in order to fully validate the Lab on Wheels and show its market potential in India, and possible other less developed countries.

**Status of the Project:**

Samples will be collected according to previously established strategies for epidemiological studies on Chlamydiales in both humans, chickens and the environment. If women infected with C. trachomatis and additional 'veterinary' Chlamydiales have a higher risk on reproductive health failures than women with C. trachomatis only, treatment of these women can be adjusted accordingly. As next steps work will begin on designing measurement instruments for the surveys and data collection. The DBT approval for the second year is awaited and the recruitment is under process.

# Harnessing a population-based cohort for an epidemiological study on Dengue and Chikungunya and drive capacities to conduct clinical trials

14

## Investigators

- Dr. D. Shailendra, MBBS, M.D.

**Funding Source:** National Biopharma Mission, Biotechnology Industrial Research Advisory Council, Department of Biotechnology, Government of India

**About the Project:** The project is a collaborative effort of National Biopharma Mission (NBM), Biotechnology Industrial Research Advisory Council, Department of Biotechnology, Government of India. NBM aims to build capacity and develop a Clinical Trials Network for vaccine trials in India. SHARE INDIA is one of the four Health and Demographic Surveillance Sites (HDSS) selected to study:

- Prevalence
- Annual incidence of Dengue & Chikungunya in 1800 individuals aged 2 years and above

After the COVID-19 outbreak, estimation of:

- Prevalence
- Four-monthly incidence
- Cumulative sero-conversion of COVID-19 in 5000 individuals over one year added as study objectives

Apart from sero-surveillance, fortnightly telephonic surveillance for Acute Febrile Illnesses(AFI) is being done on all 5000 individuals. Serum samples are being stored to explore aetiologies of AFI, if required.

**Objectives:**

- Preparation towards initiation of longitudinal incidence study
- To operationalize longitudinal incidence study at the site
- To establish GCP compliant field site for conduct of vaccine trials

**Methods:** SHARE INDIA will implement the common protocol for study and initiation of sample collection for studying sero prevalence of Dengue and Chikungunya. The participants will be followed for 24 months for acute febrile episodes and tested for incident dengue and chikungunya cases. A total of 1800 participants aged 2-50 years in the Medchal area will be recruited for the study. In the year 3 of the study, SHARE INDIA will work towards developing a clinical trial site and by the end of third year should be ready for clinical trial for any vaccine candidates for the diseases. In view of the COVID-19 pandemic, it was decided that with established community presence and experience of maintaining population cohorts could be leveraged to fill knowledge gaps related to the actual burden of COVID disease in the community as well as to improve understanding of the community transmission dynamics. A total of 5000 participant aged above 2 years in the Medchal area will be recruited in the study.

**Status of the project:**

- From Round 1 to Round 2 97% of the participants retained in the study
- From Round 2 to Round 3 97%% of the participants retained in the study till 31st March 2022.
- Round 4 will start from 14th April 2022.

| Village | Round 1 Participant | Round 2 Participant follow up | Round 3 Participants follow up |
|---|---|---|---|
| Pudur A | 502 | 485 | 464 |
| Pudur B | 507 | 492 | 478 |
| Muneerabad A | 518 | 478 | 462 |
| Muneerabad B | 506 | 495 | 487 |
| Gowdavelly A | 510 | 495 | 488 |
| Gowdavelly B | 506 | 491 | 480 |
| Dabilpur A | 505 | 500 | 488 |
| Dabilpur B | 506 | 490 | 467 |
| Nutankal A | 506 | 498 | 491 |
| Nutankal B | 522 | 497 | 475 |
| **Total** | **5088** | **4921** | **4792** |

# 15 TB prevalence and interventions for reducing TB and LTBI in high-risk key population of rickshaw drivers and construction workers

## Investigators

- Dr. Shikha Dhawan, Director Programs, SHARE INDIA

**Funding Source:** Indian Council of Medical Research (ICMR)

**Project Partners:**

- State TB Office, Delhi and Karnataka-National TB Elimination Program
- State TB Training & Demonstration Centre, Delhi and Karnataka-National TB Elimination Program
- Indian CST, Bangalore, Karnataka
- Ramaiah Medical College, Bangalore, Karnataka

The project funded by ICMR supports NTEP's existing guidelines to treat TB in high-risk groups (socially vulnerable and clinically high risk) and to reach the unreachable for the screening of TB among rickshaw drivers and construction workers.

Key affected population specially rickshaw drivers and construction workers are disadvantaged group of people as compared to general populations mainly on the account of their reduced access to medical services and the underlying detriments of health. Cycle rickshaw drivers do strenuous pedalling as compared to e- rickshaw drivers although both groups are exposed to environmental pollutants & workers at construction sites exposed to silica containing dust at high and low pollution levels but may or not be engaged in strenuous activities. Therefore, these rickshaw drivers and construction workers are vulnerable, underserved and are at risk of TB infection and disease, constituting a challenge for TB control.

Several studies have suggested that the TB burden in these groups is higher than general population. Keeping this in mind SHARE INDIA enhanced outreach activities to detect TB and LTBI in these groups. We used a customised and cost-efficient approach to conduct prevalence surveys that could inform the extend of gaps and unmet needs of these group. Through this project we intended to:

- Reduce barriers for early TB case detection, including delay in presentation to NTEP facility, identification of rickshaw drivers'/construction workers as presumptive TB and LTBI cases, timely diagnosis and subsequent treatment/TB preventative therapy among this high risk population
- Pursue advocacy, communication, social mobilization and address the needs of high risk key population with TB
- Foster community participation in TB care, prevention and health promotion
- Promote the use of Standards of TB Care in India for this risk key population

**Objective:** A provider-initiated activity with the objective of detecting TB and LTBI as early as possible in the key population i.e. Rickshaw drivers & Construction workers and to initiate the treatment/TB preventative therapy promptly.

**Key Activities:**

Meeting with Rickshaw Drivers Owners/Thekedars and Construction workers: One to one "pre-sensitization meetings were conducted at project sites with Fleet operators for e- rickshaws, rickshaw owners / Thekedar and construction contractor or site engineer before the initiation of the study. These stakeholders were sensitized on the ICMR funded project, TB and LTBI, Goals of TB Elimination by 2025, planned survey to find TB and LTBI cases and data collection, outcomes and

expectation from the study.

Mapping of Rickshaw stands and Construction sites: The project study covers 5 zones of MCD for Delhi site and for Bangalore site study zones are selected based on Air Quality Index values from the 12 ambient air quality monitored sites from the Karnataka State Pollution Control Board (KSPCB).

| Delhi-Zones (Rickshaw Drivers) | Bangalore-Zones (Construction Workers) |
|---|---|
| ▸ Karol Bagh<br>▸ Central Delhi<br>▸ Sadar/ Paharganj<br>▸ Civil Lines<br>▸ East Delhi | ▸ Bapujinagar<br>▸ BTM Layout<br>▸ Hombegowda Nagar<br>▸ Jayanagar 5th block<br>▸ Vijayanagar<br>▸ Chansandra<br>▸ City Railway Station |

To study the prevalence of TB and LTBI in high-risk key population for Delhi and Bangalore zone. Google maps were created and marked with location of study sites and presence of rickshaw stands and construction sites. The key work sites of cycle and e-rickshaw drivers like metro station, market, schools were mapped along with and routes of operation of rickshaw drivers with key charging points for e- rickshaws.

**Training of Project staff:** Training of project staff increased their ability to recognize the increased risk of TB and screening in this high risk population for signs and symptoms suggestive of and give special attention to syndromic disease surveillance.

**Enrolment of Rickshaw drivers and construction workers:** The project team engaged in one-to-one discussions and group meetings with Rickshaw drivers and construction workers and they were provided TB education material in local language about importance of screening and testing for TB and LTBI. The rickshaw drivers and construction workers were explained to provide sputum sample if required for TB testing at NTEP facility in case they have signs and symptoms suggestive of TB or TST and X-ray diagnosis for LTBI diagnosis at NTEP facilities. All participants were well informed and consent was taken before enrolment.

**Conduct of field surveys as per developed questionnaires:** The project team equipped with preloaded questionnaires on Tablets and printed consent forms approached rickshaw drivers and construction workers. Survey questionnaires were designed in a manner to collect information based on all detriments of health including social determinants. The collected information was uploaded on the cloud in real time through a GPMS Tranportal supported by Indian CST- our project partner.

**Linkage of TB affected participants to NTEP facilities:** All study participants were linked to nearest NTEP facilities which ensured confirmation of diagnosis thereby ensuring early detection of TB. The diagnosis of participant was done as per NTEP algorithm utilizing NTEP TB diagnostics available at the linked NTEP facilities.

**Strengthening NTEP & Project staff for Detect – Treat - Prevent- Build approach with TST Training:** NTEP and project staff was trained for Tuberculin Skin Test (TST) administration and Reading for LTBI at New Delhi Tuberculosis Centre (NDTB), New Delhi and STDC Karnataka. This training not only helps in building capacity for TB elimination programmes but also open a new way for understanding LTBI burden that can contribute to new TB cases.

The project also linked all eligible TB affected participants to social welfare schemes including nutritional support as per NTEP guidelines.

**Results:** A total of 8000 participants with informed consent were selected for the inclusion of this study. The prevalence of LTBI was 17 %, whereas

it was found that participant who were eligible for TB screening was 12 %. TB diagnostic algorithm as per NTEP were followed for the screening of TB among these high risk key populations and seven new cases of active Tuberculosis were found. These seven participants have been successfully enrolled for TB treatment and care under NTEP. All LTBI positives participants as per project mandate are linked to NTEP for Tuberculosis Prevention Therapy (TPT) and till date ten participants are on TPT and work to link others is ongoing.

Key Achievements:

- Delhi Police joined hands with SHARE INDIA and supported survey team by arranging camps in Rickshaw stands and garages and also helped in increasing awareness among rickshaw drivers for TB and LTBI testing. Delhi Police played a key multiplier in our efforts during field activities.

- Leveraging on technology has enabled the participants to link them from rickshaw stand to nearest NTEP facility. Social media platform such as WhatsApp messenger has been used to create group for key population team which enable the real time registration and prompt diagnosis on the basis of screening of the participant done by survey team. This initiative helped survey team to enrol all symptomatic participants hassle free to NTEP facilities so that finding missing Millions TB cases can be done.

- Using TB as entry point, this intervention has also increased the participants' confidence to uptake other health services available at nearest NTEP / Government facilities and diagnosis of diabetes, COPD and other health ailments (orthopaedic, general weakness etc.)

Hence, Rickshaw drivers and Construction workers are one of great human capital without which life of public in big cities cannot be imagined. Rickshaw drivers on one hand provides last mile connectivity to individuals and even though the utility of metro becomes limited without them and on the another hand construction workers builds the infrastructure for the developing modern India, but anyhow these section of people are deprived of social, economic and health benefits. Tuberculosis affects the community in which Rickshaw drivers and construction workers interact, their family members and most importantly every single individual who takes rickshaw as mode of transportation. As we know, TB infection is the seed bed for developing TB disease and continued transmission, and there is lifetime risk of activation of LTBI especially among these high risk key populations. Therefore, scaling up of TB Preventative Therapy is important to meet the goals of ending TB in India. So, treating LTBI is not optional it is only way to reduce human and economic cost.

Sensitization of NTEP officials on project activities & Rickshaw drivers using NTEP posters

Administration to TST to Rickshaw Drivers

# Improving TB diagnosis at Designated Microscopy Centers (DMCs)

16

**Investigators**

- Dr. Shikha Dhawan, Director Programs, SHARE INDIA

**Improving TB diagnosis at Designated Microscopy Centers (DMCs) by introduction of Quality Management Systems and optimum utilization of rapid molecular diagnostics and its cost implications**

The Indian Council of Medical Research (ICMR) funded "Quality Management Systems (QMS) project at Designated Microscopy Centers (DMCs) under National TB Elimination Program (NTEP), Government of India". The DMCs selected for the project were Delhi (Kingsway Camp, RK Mission) and Odisha (DTC Cuttack, KIMS Bhubaneswar).
QMS provides an effective mechanism for health system improvement yielding long-term benefits in the quality, cost-effectiveness, and sustainability of public health programs. The project enhanced TB case diagnosis at peripheral level laboratories by introducing QMS and optimizing utilization of available diagnostic technologies (smear) and rapid molecular diagnostics (CB-NAAT, Truenat). The project is aligned to support the NTEP's goal of TB elimination in India by the year 2025 with early, quality assured diagnostics and patient centric care as key pillars.

SHARE INDIA led models of laboratory-driven quality systems at DMCs focused attention on areas of greatest need and accelerated improvement in areas such as staff competency, supply chain, instrument maintenance, logistics and efficient utilization of existing diagnostic technologies as per country's diagnostic algorithms. Following baseline assessments, gaps were identified to plan for capacity building of NTEP staff by series of trainings, handholding, monitoring and supportive supervision visits. The project strengthened "Good Documentation Practices" by developing and implementing Quality Manual, SOPs, logs and forms. Laboratory Quality Assurance, Quality Control and Continuous Quality Improvement processes were also streamlined and strengthened. Certificate of Excellence" in "Quality" was bestowed to the DMCs by Central TB Division, ICMR and SHARE INDIA on successful EQA (External Quality Assurance) performance and implementation of Quality System Essentials. The results of pilot project implemented for the first time in India will support NTEP in formulating a national policy to provide funding and technical assistance for national scale-up of QMS at DMCs for improved pre-analytical, analytical, and post-analytical aspects of TB diagnostics and patient centric care.

**Project Impact:**

1. Improvement in TB diagnosis by smear microscopy and reduction in non-conclusive test results for rapid molecular diagnostics provided evidence for increased TB case finding and decreased shopping for health by patients
2. Test errors in Truenat and CBNAAT reduced providing evidence for confirmed diagnostics at first patient visit thereby justifying cost effective scale up of molecular diagnostics and upfront testing for TB & resistance to rifampicin
3. Maintenance and calibration of instruments by vendors and laboratory staff reduced laboratory downtime and optimized utilization of all TB diagnostic technologies
4. pool of master trainers developed is a resource pool to meet the challenges of continuous quality improvement in TB case diagnosis and care at DMCs. Creating a collective pool of master trainers in each state can be leveraged to bring about QMS implementation across all peripheral laboratories in a phased manner
5. Knowledge management tools developed to be used for QMS scale-up
   i. project checklist to be used for assessment of NTEP DMCs in

implementing QMS

ii. SOPs, logs, forms and quality manual developed for the project to be used as a ready resource material for QMS scale-up

iii. use of staff duty assignment logs, roster and replacement matrix to prevent disruption of laboratory services


Certificate of Excellence awarded by
Central TB Division, ICMR and SHARE INDIA to peripheral laboratories under
National TB Elimination Program on successful implementation of Quality Management Systems


Installation of Truenat at DMC-Kingsway Camp Centre, Delhi & Display of SOPs & Documentation practices

## 17

## A Phase III, randomised, double blind, three arm placebo controlled trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis ( TB) in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients- TB Vaccine trial , sub site of BMMRC

### Investigators

- Dr. K. Sailaja, MBBS, M.D.

**Funding Source:** Indian Council of Medical Research (ICMR)

The Indian Council of Medical Research (ICMR) , the apex governing body in India for the formulation , coordination and promotion of biomedical research selected SHARE INDIA and Medicity institute of Medical Sciences (MIMS) as s subsite of Bhagwan Mahavir Medical Research Center (MMMRC) for a vaccine study titled " a phase -III randomsized double blind three arm placebo controlled trial to evaluate the efficacy and safety of two Vaccines -VPM 1002 and Immuvac(Mw) in preventing Tuberculosis (TB) in healthy household contacts of newly diagnosed sputum positive Pulmonary TB patients " (July 2020 – June 2023)

The primary objective of the trial is to evaluate the efficacy of VPM1002 and Immuvac by comparing the reduction in incidence of TB over a three-year period among Indian healthy household contacts of newly diagnosed sputum positive PTB patients vaccinated with VPM1002 and Immuvac in comparison to placebo. The SHARE INDIA site was initiated on 13th July 2020 and has successfully enrolled 219 participants who are being followed-up as per the protocol timelines.

**Status of the project:** Currently visit 11 (22 months/660 days) follow up is ongoing.

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## Capacity building for undertaking the "A Phase III, randomised, double blind, three arm placebo controlled trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis (TB) in healthy household contacts of new pulmonary TB patients"

### Investigators

- Dr. K. Sailaja, MBBS, M.D.

**Funding Source:** Indian Council of Medical Research (ICMR)

**Objective:**

- To support the training of study site personnel about the protocol, GCP, biosafety and risk benefits.
- To develop site specific recruitment and retention strategies.
- To Understand the community preparedness or willingness for participation in the trial for the benefit of the household contacts of Index TB patients.
- Sensitizing community peers and creating awareness about the TB vaccine trial.

**Status of the project:** With this trained manpower we could successfully retain 90% of the enrolled participants.

# 19 Design and develop comprehensive advocacy, communication strategies and tools for NACP”

**Introduction:** SHARE INDIA is selected as a Sub-Recipient under the National AIDS Control Organization (NACO), Ministry of Health and Family Welfare, Government of India for The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) funded project to “Design and develop comprehensive advocacy, communication strategies and tools”. The project is designed to develop a new age communication and advocacy strategies to meet the 95-95-95 fast track targets by 2025 and provide a way for elimination of HIV/AIDS as a public health threat by 2030. Under the project, community-based behaviour change communication tools are being developed to achieve the targets set under National Strategic Plan (2017-24). The National and State Communication Digital Repository with standardized contents is under development for equitable access to general population, NACO and SACS. Tools for reach, recall and impact of communication activities are under different stages of development. Strategies are being implemented currently to address stigma and discrimination issues related to HIV and effective implementation of the HIV and AIDS (Prevention and Control) Act, 2017. It is proposed to use communication as a tool for improving gains across all program components with an overall aim to support NACO’s IEC and Mainstreaming Division in a 360-degree multimedia approach encompassing advocacy and communication strategies.

**Project Objectives:**

- To develop a new age communication and advocacy strategy to meet 95-95-95 fast track targets by 2025 and provide a way for elimination of HIV/AIDS by 2030.
- To develop need and community-based behaviour change communication tools to achieve the targets set under National Strategic Plan.
- To develop, maintain and utilize National and State Communication Digital Repository.
- To develop and execute tools for reach, recall and impact of communication activities.
- Strategy development for addressing stigma and discrimination related to HIV and effective implementation of the HIV and AIDS (Prevention and Control) Act, 2017.

**Funding Source:** The Global Fund to Fight AIDS, TB, and Malaria (GFATM)

**Key Highlights:**

- **Newsletter:** To pace up with the challenging times during COVID-19 pandemic and evolving technological advancements, NACO envisaged to opt for an interactive format of NACO News in the form of e-Newsletter and for wider dissemination of the bulletin to the stakeholders on a quarterly basis. SHARE INDIA is supporting NACO’s envision of this transition and the first copy was successfully published on NACO’s website and was further circulated through email on 29th July 2021. Currently NACO E-Newsletter is being published every quarter with technical support from SHARE INDIA.
- **Developing IEC, Youth & Mainstreaming state-specific interventions:** To identify the programmatic gaps and to target the right population as per epidemiological and programmatic data, it was required to study the data sets from NFHS-5, Sankalak, IBBS 2014-15, and BSS Lite 2020. SHARE INDIA is supporting NACO in epidemiological and programmatic analysis of 34 states/UT’s in India and the recommendations culled out from the same has been included in the Annual Action Plan of the states for current financial year for targeting the right population and identify the priority areas.
- **Sampoorna Suraksha SBCC material:** In the NACP V, a new immersion learning model of comprehensive service delivery to the populations “At Risk” for HIV & STIs called Sampoorna Suraksha has been

proposed. SHARE INDIA is supporting in creating the IEC and SBCC materials for the same and as part of the initiative, the logo has been designed and launched in the 'Consolidation & Rolled out of the Sampoorna Suraksha Strategy' consultation on 14th December 2021 by AS & DG, NACO.

- **RRC online Tool:** SHARE INDIA is supporting NACO in developing an online monitoring tool for Red Ribbon Clubs (RRC) which will help NACO in monitoring the Youth interventions conducted under RRCs across states in India. For this initiative an online tool format and prototype for the dashboard is finalized on the approval of NACO.
- **World AIDS Day, 2021:** SHARE INDIA supported NACO in conducting the World AIDS Day event in Ambedkar Centre in New Delhi on 1st December 2021. As part of the event, SANKALAK 2021 was released and a campaign on social media under the theme of End Inequalities, End AIDS, End pandemics has been executed. Approximately 1000 people attended the physical event while 5 lakhs people were reached on social media.
- **Digital Repository:** National Digital Repository is an attempt to create a one stop centre where all IEC materials related to HIV/AIDS will reside. The resource centre will not only help people to access resource material they need but will also disseminate information among their friends and family. SHARE INDIA is supporting NACO in development of National Digital Repository to serve the purpose of equitable access of material to all. A protype for digital repository has been created and approved by NACO.
- **Ombudsman Orientation:** SHARE INDIA supported NACO on National level orientation on roles and functioning of ombudsman under the chairpersonship of AS & DG, NACO on July 9, 2021. A total of 31 Ombudsman from 16 States joined the orientation. The purpose of the orientation was to acquaint the Ombudsman with the duty imposed on them by virtue of the HIV and AIDS Act, 2017 and to have a clear understanding on the legal rights of PLHIV and to be able to identify any violation which is prohibited under the Act. The key areas covered by NACO, and SHARE INDIA officials were provisions for dealing with discrimination in different settings, informed consent, right to non-disclosure of HIV status etc.
- **HIV and AIDS Policy for Establishment:** In collaboration with SHARE INDIA , NACO organised a National level multilevel stakeholder consultation to finalize the HIV and AIDS policy for establishments. A wide range of stakeholders participated in the consultation including representatives from trade unions, employers' organization, private companies, SACS, community representatives (PLHIV community, IDU community, MSM community, TG community, FSW community and other partners like ILO, USAID India, JHU.
- **Complaints Officer Trainings:** SHARE INDIA is supporting NACO and SACS in conducting complaints officer trainings and imparting adequate knowledge, skill to Complaints Officer to carry out their duties as provided under the HIV and AIDS (P&C) Act, 2017 and the HIV and AIDS (P&C) Rules, 2018. 18 States/UTs have shared nominations of Complaints Officer placed at establishments and in the month of February, state level training of Complaints Officer was successfully organized in the state of Bihar and UT of Puducherry.

Meeting at NACO on 16th August 2021 to review project deliverables

# 20 Technical Assistance to Government of India – CDC Funded Projects

## National Initiative to Strengthen and Coordinate HIV/TB Response in India – NISCHIT Plus

### Investigators

- Dr. Vijay V. Yeldandi, Clinical Professor of Medicine and Surgery, University of Illinois at Chicago, USA
- Dr. Jammy Guru Rajesh, Project Director, SHARE INDIA
- Dr. B. Ravi Kumar, Associate Project Director, SHARE INDIA

**Funding Source:** Presidents Emergency Plan for AIDS relief (PEPFAR) – U.S. Centers for Disease Control and Prevention (CDC), Atlanta; 2015-2020 and 2020-2025

**Introduction:** SHARE INDIA has been awarded a five-year Cooperative Agreement NISCHIT plus (September 2020 – September 2025) by the President's Emergency Plan for AIDS Relief (PEPFAR) and the US Centers for Disease Control and Prevention (CDC) to strengthen the national response on improving the ART services and HIV-TB management for people living with HIV (PLHIV). As a key implementing partner, through project NISCHIT Plus (National Initiative to Strengthen and Coordinate HIV-TB response SHARE INDIA ) provides technical assistance (TA) to the National AIDS Control Organization (NACO) and Andhra Pradesh State AIDS Control Society (APSACS) to enhance the treatment and retention cascade in the state of Andhra Pradesh (AP). Project would strengthen the capacities of health facilities in implementation and scale up successfully demonstrated ART service delivery models in the state of Andhra Pradesh.

**Key Accomplishments:**

***Transitioning of tenofovir, lamivudine and dolutegravir (TLD) regimen***

NACO has rolled out Dolutegravir (DTG) based regimens for treatment of HIV positive adults, adolescents and children (weighing more than 20 kg/ age more than 6 years) in a phased manner. APSACS with the technical assistance of SHARE INDIA, ensured smooth transitioning of eligible PLHIV (as per national guidelines) onto DTG anchored regimens, initially for PLHIV on TLE regimens. Project has supported for transitioning onto TLD through training and clinical mentoring through virtual platforms, developed SOPs, tools for ART staff, IEC materials for patients. As of March 2022, 90% PLHIV were transitioned onto DTG based regimen.

SHARE INDIA, aims to provide TA to India's National AIDS Control Programme (NACP) for achieving Undetectable=Untransmittable through quality laboratory testing, workforce development, improved result utilization, strong laboratory epidemiology platforms and strengthen the national response on improving the ART services and HIV-TB management for people living with HIV (PLHIV) through project LaQSH Plus (Laboratory Quality Systems in HIV) and NISCHIT Plus (National Initiative to Strengthen and Coordinate HIV/TB Response in India. Project STAR is providing technical assistant (TA) to the National TB Elimination Program (NTEP) through its work in collaboration with the Municipal Corporations in Maharashtra.

SHARE INDIA has gained substantial experience in providing TA to promote heath systems strengthening by establishing a model of Private Public Partnerships for HIV prevention and treatment, Strategic Information and human capacity development through capacity building, supportive supervision and mentoring, and provided training on operations research.

**Adverse Effects monitoring (AE Monitoring)**

NACO is actively monitoring "Adverse Effects of Dolutegravir" at select ART centers, ART plus centers, Centers of Excellence (CoE) and paediatric CoE. Project continued to support NACO in active monitoring and documentation of adverse effects of DTG based regimens at 16 select ART centers (15ARTCs and 1CoE) in the state, with registered PLHIV. 50,899 PLHIV were enrolled in AE monitoring from 60 ART centers (41% are from AP).

**ART dispensation through PPP models (Private Medical colleges)**

In addition to government sector, NACO is also engaging with the private sector for setting up of ART centers. As per the Gazette of India notification dated 28th October 2020, every teaching medical college should have ART centre by the time of third renewal (admission of 4th Batch of MBBS students), NACO has approved for establishing ART centers at eight private medical colleges in the state. To operationalize these centers, technical assistance, capacity building of staff on national ART guidelines and monitoring were provided by the Project. As per guidelines PLHIV were transferred to these private medical colleges for registration and providing the CST services.

**Scale up viral load testing**

Viral load testing under the NACP aims at monitoring the effectiveness of treatment of patients on ART. To accelerate coverage of viral load testing and utilization of results, TA was provided to the ART centers to fast track eligible PLHIV for VL testing as per NACO guidelines for VL testing which has resulted 76% coverage of eligible clients as on March 2022. To mitigate the impact of the COVID pandemic and to enhance coverage of VL testing, project has successfully demonstrated decentralised sample collection at peripheral hospitals and sample collection through camps with a focus on key populations. These innovations have contributed to increased access to Viral load testing.

**Tele consultations**

Adapting to the new norms of covid19, service delivery through virtual platforms are initiated at the high load Link ART centers. Through phone follow up and outreach, patient consent was obtained for teleconsultations and were mobilised to LAC along with available investigation reports (i.e., Blood sugar, Creatinine, LFT, RFT etc.) on scheduled date. Drug package and transportation from Nodal ARTC to LAC plus, physical set up for video conferencing to support teleconsultation at the Link ART Center and other logistical arrangements were provided. Nodal ART Medical Officer with technical support of Center of Excellence (COE) did clinical assessment of patients and recommend eligible patients for transition on DTG based regimens (based on latest VL/CD4/clinical status / SACEP recommendations. Post counselling, on benefits of DTG based regimens, drugs were dispensed for one month as per NACO guidelines. During June-July 2021, nearly forty-four teleconsultations were held and about 1500 PLHIV from forty-four sites were transitioned to DTG based regimens.

**Management of PLHIV with comorbidities like Hepatitis B & C**

In coordination with National Viral Hepatitis Control Program (NVHCP), all the PLHIV are screened for Hepatitis B &C at the ART centers. Follow up of PLHIV for screening and reporting are monitored by the project. Through March 2022 out of 198779 active care 90647 (46%) PLHIV were screened for hepatitis B and 54022 (27%) for hepatitis C with 2.11% (1912) and 0.30% (163) positivity respectively for Hepatitis B and C. Management of PLHIV who tested positive- to ensure confirmation tests and linkage to treatment at designated centers under NVHCP is in progress.

**SACEP Surge to fast track DTG transition**

Due to COVID -19, referrals of treatment failure cases and SACEP meetings were impacted. As of April 2021, the number of cases needing

SACEP referral for transition were 11,466. Further latest viral load (VL) result was made mandatory for transition of PLHIV on Dolutegravir (DTG) based regimens (TLE to TLD). Transition of PLHIV with either no VL test or with single PVL>1000 copies/ml was a major bottleneck. To fast track SACEP referrals and provide appropriate treatment recommendations to all the treatment failure cases, CDC- SHARE INDIA has initiated SACEP surge by adapting eSACEP / tele SACEP mechanism at the 10 ART Plus centers.

To fast-track transition of TLE patients with PVL >1000 copies to DTG based regimen and SACEP referrals, a guidance document was prepared. Based on directions from NACO, PLHIVs with no PVL test done and no signs of immunological failure were to be transitioned to DTG, based on CD4 levels. Centre of Excellence has facilitated SACEP meetings, data analysis and generation of line list of PLHIV with VL >1000 copies/ml, orientation of ART /ART plus staff on guidance document/ SOPs for transition, ensuring proper documentation - SACEP meeting format, RRR forms, white card updating, intensive follow up and monitoring of ART plus centers. As a result, within a span of 15 days, all the pending 9511 PLHIV were provided with SACEP recommendations and transitioned to appropriate DTG based regimens.

**COVID-19 Response**

To ensure continued safe and convenient access of antiretroviral (ART) to people living with HIV, SHARE INDIA worked with APSACS to rapidly implement several HIV service delivery scalable interventions, both at the community and facility level in PEPFAR-supported districts, which have the highest HIV incidence and HIV burden in India. During the first and second wave, the project has provided IPC trainings to medical officers in line with national COVID-19 mitigation guidance through the ECHO platform, effectively ramped up multi-month dispensation, decentralized drug delivery.

As a result of all these efforts, a total of 1, 66,494 patients (of 1, 91,342 alive on ART) were dispensed drugs during the months of April and May 2020 (the period of intensive lock down), of which 39% (64,632) PLHIV were dispensed pills through decentralized facilities and & 11915 through home visits.

In line with National guidelines, project has ensured COVID vaccination to all PLHIV on a priority basis where ART centers function as COVID vaccine centers. Through March 2022, of Active PLHIV, 72% had the first dose and 70% of them had the second dose of vaccine.

**eNISCHIT**

SHARE INDIA, in collaboration with National Institute of Tuberculosis and Respiratory Disease (NITRD), Project ECHO (Extension for Community Healthcare Outcomes), U.S Centers for Disease Control and Prevention (CDC) and the National AIDS Control Organization (NACO) launched virtual e-NISCHIT (National Initiative to Strengthen Collaboration between HIV-TB through e-Learning) program. This initiative aims to build capacities of healthcare providers from ART centers on HIV-TB co-management, by providing a platform for live interaction with subject experts. The initiative has successfully reached out to 178 ART centers located across thirteen states of the country.

# Laboratory Quality Systems in HIV – LaQSH Plus

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**Investigators**

- Dr. Vijay V. Yeldandi, Clinical Professor of Medicine and Surgery, University of Illinois at Chicago, USA
- Dr. Anita Singh, Associate Project Director, SHARE INDIA

**Funding Source:** Centers for Disease Control and Prevention (CDC), Atlanta; 2015-2020 and 2020-2025

**Introduction:** CDC-SHARE INDIA, through its project LaQSH (Laboratory Quality Systems in HIV), provided Technical Assistance (TA) for strengthening HIV laboratories in India under the National AIDS Control Programme (NACP) between 2015 to 2020. In the reporting period the following key activities were conducted.

**Key Activities:**

In continuation, SHARE INDIA has been awarded a five-year cooperative agreement by CDC from PEPFAR funding starting from 30th September 2020. It aims to provide TA to India's National AIDS Control Programme (NACP) for achieving Undetectable=Untransmittable through quality laboratory testing, workforce development, improved result utilization and strong laboratory epidemiology platforms for informed Public Health response. The overall goal of the project is to develop a Continuous Quality Improvement (CQI) led comprehensive and innovative laboratory strengthening support to NACP through innovative, evidence-based and proven strategies. The specific objectives are to,

- Provide technical assistance for Viral load (VL) scale up and strengthen lab clinical interface
- Implement Continuous Quality Improvement (CQI) in HIV/TB laboratories and other testing modalities
- Demonstrate integrated models of quality assisted diagnostic services for comprehensive management of PLHIV
- Strengthen HIV/TB laboratory capacity and integration of laboratory networks for optimization
- Strengthen HIV testing capacity and HIV case-based surveillance using evidence-based testing modalities like community-based testing, index testing, self-testing, recency testing and HIV drug resistance testing.

The focus is on high burden districts in the states of Andhra Pradesh (AP), Maharashtra (MH), Manipur, Mizoram and Nagaland towards achieving 95-95-95 treatment targets and the focus was on the following key activities.

**Improving access to Viral Load testing in Surge mode , Telangana**

The project established a sample referral and linkage mechanism to transport the plasma samples from ART Centers in Hyderabad to the VL Lab in Public Sector. The project provided training on "sample collection, processing and transportation" to ART Centre and VL Lab staff in the state and 20 staff were capacitated. In order to increase the coverage of VL testing, a surge operation was initiated in 13 ARTCs by linking these ARTCs with both public and private VL labs, and by increasing the sample collection frequency and number of samples, since 4th January 2021. The surge operation resulted in increased VL coverage from 22.4% in Dec 2020 to 67% by end of March 2021. Six ARTCs of Hyderabad and Rangareddy districts tested 12501 samples through both MHL (7845 samples) and VL Lab of Gandhi Medical College (4656 samples). This results in adding 57.7% of tests to the existing 34.9% in Dec 2020 (to summarise, 57.7% added to existing 34.9% tested in Dec 2020 makes the final % tests done as 92.6% at the end of June 2021). Similarly, the 7 ARTCs linked to MHL tested 18237 samples, adding 70.3% to the existing 17.2% in Dec 2020 (70.3% added to existing 17.2% tested in Dec 2020 makes the final % tests done as 87.5% at the end of June 2021). Overall in

the 13 ARTCs, 64.6 % tests added to 25.3% makes the total percentage testes as 89.9% in Jun 2021.

**Viral Load Testing Cascade, Andhra Pradesh:**
The project provided Technical Assistance (TA) to augment VL Testing through a combination of demand generation activities, and a well-coordinated and timely provision of lab services. Due to the efforts, VL testing coverage increased from 47% to 88% across these 18 ART centres; and overall state coverage increased from 47% to 56.6%; improved efficiency of viral load laboratories and effective utilization of all near-expiry kits for HIV-1 VL testing. Conducted advocacy meetings with APSACS for the timely release of contingency fund to VL labs for purchase of consumables.

**VL testing services at remote location using Govt. mobile vans, Maharashtra:**
To scale-up routine viral load testing capacities in the public sector, the project provided TA for Diagnostic Network Optimization (DNO); improve VL coverage through Camp mode and Capacity building; establish and strengthen VL lab network, through robust sample referral and linkages and lab optimization; expand and strengthen VL EQAS network, implement CQI at ICTCs and F-ICTCs. The project also provided support for strengthening of 10 identified labs in Mumbai for diagnostic services for the comprehensive clinical management of PLHIV and co-infection. Total 3 camps were organized during this period. 97 PLHIV availed the ART services at these camps and samples from 88 PLHIV were collected for routine VL testing and three additional tests were also offered.

**Transgender (TG) Health & Wellness Centres, Andhra Pradesh:**
In collaboration with I-TECH INDIA (Manipur) and VHS (Andhra Pradesh) SHARE INDIA has established Health & Wellness Centres for Transgenders (TGs) in Manipur and Andhra Pradesh. These comprehensive clinics with laboratory facility for screening of STIs including HIV and other basic biochemical parameters. The Lab component is supported by SHARE INDIA (Equipment, kits and consumables, etc.). Technical support was provided for ensuring QMS in the labs by SHARE INDIA. Diagnostics services started on 20th April 2021 in Manipur. LT and Community were trained by SHARE INDIA at JNIMS for all POCT. ITECH and SHARE INDIA developed “Daily and weekly reporting through Google spreadsheet” for these diagnostics services.

**NABL Medical Entry Level Testing Certification:**
The project provided TA for NABL Medical Entry Level Testing certification [M(EL)T] of SA-ICTC in identified sites in the cluster districts. TA was in terms of selection of ICTCs, training on the processes of M(EL)T, documentation, submission and assessment. Due to the efforts, 25 ICTCs out of 46 identified ICTCs are certified for NABL M(EL)T.

**HIV Self testing study:**
PATH in collaboration with NACO, SACS, Humsafar Trust, SHARE India, SAATHII, JHU, VHS, I-TECH, Sai Hospital, and ILO implement HIV self-testing (HIVST) services to different key population groups across the country and aims to assess the feasibility of implementing HIVST to inform evidence-based HIV testing policies and programmes in India. The project provided training to all the key technical staff and field study staff. Following Master trainers training in September in Delhi, 15 batches of field implementers were trained across the study sites. The improvement in training scores was Pre – 35.2% Post -78.8%. The project also carried out the field monitoring of the study implementation in Gujarat, West Bengal, Tamil Nadu, Karnataka & Delhi out of the 14 states in the country.

# Strengthening TB Action and Response – STAR

22

**Investigators**

- Dr. Vijay V. Yeldandi, Clinical Professor of Medicine and Surgery, University of Illinois at Chicago, USA
- Dr. Jammy Guru Rajesh, Project Director, SHARE INDIA
- Dr. Satish Kaipilyawar, Associate Project Director, SHARE INDIA

**Funding Source:** Centers for Disease Control and Prevention (CDC), Atlanta.

**Introduction:** SHARE INDIA provides technical assistance to the Government of India's National Tuberculosis Elimination Program (NTEP) by working with the Municipal Corporations and Central TB Division, Government of India (GoI) through different projects. These projects focus on 1) strengthening Airborne Infection Control (AIC) practices in primary and secondary healthcare institutions in Mumbai through 'AIC project', 2) strengthening TB services offered to Multi-Drug Resistant TB (MDRTB) patients through counselling and referral in high burden wards/locations in Mumbai through 'Saksham Project', 3) offering Drug Susceptibility Testing (DST) based individualized treatment regimen to DRTB patients, 4) improving quality of Cartridge based Nucleic Acid Amplification Test (CBNAAT) in laboratories in Mumbai, 5) improving treatment outcomes for MDRTB cases in slums of Dharavi, Mumbai via addressal of Adverse Drug Reactions (ADR) & linkage of migrated patients through 'End MDRTB in Dharavi project', 6) providing Latent TB Infection (LTBI) diagnosis & treatment for all household contacts of index cases and improving diagnosis and prevention of pediatric TB in Nagpur through 'HAaLT project', 7) assessing LTBI prevalence among household contacts of index cases in Mumbai, 8) building capacity of NTEP staff in Mumbai and twelve states of India for improved 'data use for action' through 'Surveillance, Epidemiological analysis, Monitoring and Evaluation' (SEME) and 'Engaging Local Experts in Validating and Analyzing TB data to End TB' (Expand ELEVATE) projects.

Airborne Infection Control (AIC) unit established under the AIC project completed baseline and five follow-up assessments in 143 institutes of Mumbai covering a total of 313 facilities. As a result, the overall AIC compliance in these facilities improved to 61% at the 5th follow-up compared to 46% at the baseline. Through their Saksham Plus project, since July 2016, the registration rate of DRTB patients increased up to 99.1%. Out of the total registrations, 84% patients' caregivers were registered and received counselling services through the project. Under the DST project, 43% of patients diagnosed as Rifampicin resistant on Gene Xpert benefitted from DST guided treatment and total 1369 samples were tested during the project period. The projects offering services of counselling and DST were then seamlessly transitioned to MCGM in April 2018. The rigorous follow up of MDRTB patients for monitoring their ADRs and linking migrants back to care through 'End MDRTB in Dharavi project' resulted in tremendous reduction of LTFU.

Under the HAaLT Project, the enrolled HHCs of index cases were offered IGRA test and symptom screening. Of these, the IGRA positive were offered TB preventive therapy (TPT) post ruling out TB. Similarly, in the LTBI prevalence project in Mumbai, the HHCs of index cases were enrolled and were offered IGRA test, symptom screening and X-ray test. Those positive for LTBI were offered TB preventive therapy (TPT) and those positive for TB were offered anti-TB treatment. The training on 'data use for action' offered to twenty-four districts of Mumbai through ELEVATE and SEME unit projects resulted in improved data quality and enhanced data-use for programmatic course-correction.

The recently launched Expand ELEVATE project (year 2021) provided 'data quality and analytics training' to the NTEP staff from twelve states of India to capacitate them on data-usage for action. Above and beyond

this, support is provided to CTD and states in analyzing data on various important topics such as impact of COVID-19 on TB programme, deaths among TB patients, trend analysis of key indicators over 5 years, etc. This project has further strengthened India's TB-free mission by supporting CTD and states in various other activities such as Joint Supportive Supervision Mission (JSSM) and Sub-National Certification (SNC).

# Building systems capacity on Outbreaks Laboratory Surveillance Training Emergency response...

23

## Investigators

- Dr. Vijay V. Yeldandi, Clinical Professor of Medicine and Surgery, University of Illinois at Chicago, USA
- Dr. Jammy Guru Rajesh, Project Director, SHARE INDIA
- Dr. Prashant Vennela, Public Health Specialist, Infection Prevention & Control, SHARE INDIA

**Building systems capacity on Outbreaks Laboratory Surveillance Training Emergency response and Infection Prevention Control and Anti-Microbial Resistance – BOLSTER**

**Funding Source:** Centers for Disease Control and Prevention (CDC), Atlanta; 2020-2025

**Introduction:** The project was initiated in the year 2020 and aims to develop capacities of laboratory, epidemiology and public health work force to strengthen and support the public health system as a concerted intervention in monitoring and responding to common pathogens and emerging outbreaks, Infection Prevention Control and Anti-Microbial Resistance with the support of CDC-India.

**Infection Prevention Control (IPC):** The Project BOLSTER is supporting the State of Andhra Pradesh and Telangana to prioritize Infection Prevention Control (IPC) through BOLSTER project.

**Andhra Pradesh:** The project staff are stationed at various strategic locations as duty stations in three regions of the state (North, Central and South), with two staff per region to support IPC activities. Completed Progress Review Visits to facilitate self-assessment by the 21 facilities staff using Infection Prevention and Control Assessment Framework (IPCAF) tool. The details are as follows:

PRV-1 - Completed at 21 facilities
PRV-2 - Completed at 18 facilities (PRVs to GGH-Kadapa, GGH-Nellore and DH-Rajahmundry needs to be completed)
PRV-3 - Completed at 7 facilities

Out of 21 intervention sites 19 facilities, have started implementing monthly activity plan. (Except DH- Anakapalli, DH-Markapur. ICNs at these facilities have been affected with COVID-19).

**COVID-19 Support: SHARE INDIA has:**

- Sensitized the leadership of 21 out 21 facilities in ensuring the availability of adequate PPE, Hand Hygiene facilities and Human Resources
- Supported facilities on a regular basis for environmental cleaning of COVID-19 isolation facilities (20 out of 21 facilities are diligently doing this activity)
- Guided all the facilities on screening of patients and Healthcare Workers (21/21 facilities are screening), maintenance of triage area (20/21 facilities have triage area – except DH-Tekkali as it is not a COVID Care center) and respiratory waiting area (17/21 facilities have respiratory waiting area)

Has conducted weekly virtual trainings (6) to HCF staff on IPC practices in last quarter (Dec 2021-Feb 2022) and a total of 112 Infection Control Nurses, Infection Control Officers and HICC members have attended these virtual trainings from 21 HCFs. A total 20 virtual trainings have been conducted since the project inception. The teams identified 30 trainers from 17 out of 21 HCFs and created a pool of master trainers to carryout IPC related capacity building programs across the state. Initiated internal audits of Hand Hygiene, Environmental cleaning, and Bio-medical waste management practices on a weekly basis by IPC teams across 21 HCFs.

Quality improvement Projects: In the reporting period 08 out of 21 intervention sites have initiated Quality improvement Projects. (DH-Tenali, GGH-Anantapur, KGH-Vizag, ACSR GGH-Nellore, DH-Atmakur, GGH-Kadapa DH-Proddatur and DH-Vizianagaram) which includes:

- Improving Hand Hygiene adherence
- Improving process in CSSD
- Improving process in OT
- Efficient Bio Medical Waste Management
- Ensure appropriate and adequate Environmental cleaning process
- Monitoring of catheterization in ICUs
- Ensuring availability of adequate IEC material near waiting areas to avoid overcrowding

The project has submitted updates to ICMR, NCDC on a six-monthly basis and to APVVP, DME and State Quality Team on monthly basis.

**On-site training for the staff at the healthcare facilities**

**Telangana:** HMSC approval for project implementation in Telangana: The project received an email communication on 17th December 2021 from ICMR, stating that the proposal has been forwarded to PO of concerned scientific division of ICMR for necessary technical evaluation. The project is waiting for further correspondence from ICMR to initiate the project.

All formal approvals have been received from the Telangana Vaidya Vidhana Parishad and National Health Mission (NHM) to work on strengthening of hospital infection prevention and control programs. A facility- based assessment and capacity building in the state of Telangana across 12 District Hospitals located in three strategic locations (3 Zones).

**Disease Surveillance:** The project is stationed at Delhi office, is carrying out surveillance activities with technical support from CDC. The disease surveillance activities under BOLSTER aim to work towards improving health systems and strengthening disease detection, diagnostics, mortality surveillance and epidemiological/laboratory workforce capacity development.

The activities carried out by the surveillance team are development of a baseline assessment tool to be used for State/District level for assessment of existing health systems in selected states and to identify gaps and opportunities for providing support to the states for strengthening the health systems and building their capacity in outbreak detection and response.

Supported the State Health Department of Uttarakhand for Kumbh Mela disease surveillance activities in April 2021 which included:

- Integration of data received by the Health Emergency Operation Centre (HEOC) established at Haridwar, Uttarakhand for Kumbh Mela disease reporting on Integrated Health Information Platform (IHIP) portal. The various data sources integrated included IHIP data, data from ambulance services, call centre data and media alerts/rumors received by the HEOC.
- Creation of a decision support system (DSS) tool for the HEOC team for automated generation of daily reports for Kumbh Mela surveillance. The DSS tool was designed to auto-generate graphical

visualizations of the IHIP portal data. These graphs were then used by the HEOC team for the daily reports submitted to policymakers for day-to-day decision-making regarding allocation of resources such as health workers at mass gathering sites and services such an ambulance and setting up testing sites.

- Geographic Information System (GIS) mapping of all health facilities reporting on IHIP portal for Kumbh Mela disease surveillance.
- The call related data from the call centre established for the HEOC was analyzed by the team to provide the HEOC team information on the type of calls received at their call centre which was established for the Kumbh Mela.

Visited Raipur, Chhattisgarh in July 2021 along with CDC team to meet State health authorities and identify their state health priorities and what support they require from CDC/SHARE India. The team also conducted a situational assessment of health facility cascade at Raipur, Chhattisgarh to assess the data flow. Participated and provided training during a workshop on Lab Based Surveillance of Infectious Disease at Jaipur, Rajasthan, organized by Centers for Disease Control and Prevention (CDC), India and Directorate, Medical and Health Services, Rajasthan in August 2021. This 3-day workshop was organized for providing training to State/district epidemiologists, microbiologists and entomologists. Provided weekly situational updates on Covid-19 cases, deaths, vaccination, tests done and test positivity across India and consular cities to CDC, India by analysis of COVID-19 data available on official websites. The project team is in talks with the States of Rajasthan, Chhattisgarh, Odisha and Sikkim to implement surveillance activities, namely baseline assessment of health systems, laboratory and epidemiological workforce capacity building, IDSP data linkage and consolidation of data streams under Integrated Disease Surveillance Programme (IDSP).

# Publications: 2021-2022

1. Ashwin Belludi1, Allison M. McFall ,Sunil Suhas Solomon, David D. Celentano Shruti Mehta2, AK Srikrishnan, Gregory M. Lucas. **Awareness, Willingness, Facilitators and Barriers of PrEP among Key Population: Results from a cross-sectional study in high-prevalentgeographies of India.** https://doi.org/10.1371/journal.pone.0247352, February 25, 2021
2. Vijay V. Yeldandi, M.D. **A Special Tribute to COVID-19 Healthcare Heroes.** Synopsis of JAAPI Webinar – June 14, 2021.
3. Muthusamy Santhosh Kumar, P. Kamaraj, Siraj Ahmed Khan,Ramesh Reddy Allam, Pradip V. Barde,Bhagirathi Dwibedi, Suman Kanungo,Uday Mohan, Suman Sundar Mohanty, Subarna Roy, Vivek Sagar,Deepali Savargaonkar, Babasaheb V. Tandale,Roshan Kamal Topno, C. P. Girish Kumar,R. Sabarinathan,V. Saravana Kumar, T. Karunakaran, Annamma Jose, Provash Sadhukhan, G. S. Toteja, Shanta Dutta, and Manoj Murhekar- **Seroprevalence of Dengue Infection Using IgG Capture ELISA in India, 2017–2018.** June 20 2021. Trop. Med. Hyg., 00(00), 2021, pp. 1–4, doi:10.4269/ajtmh.21-0386,Copyright © 2021 by The American Society of Tropical Medicine and Hygiene.
4. Mahesh Mhetre, Rashmi Pant, Manish Bamrotiya, Pramod Deoraj, Ramesh R. Allam. **Unfavourable TB Outcomes in PLHIV with Delayed TB Treatment Initiation—A Retrospective Analysis, Open Journal of Epidemiology, 2021, 11, 293-302** https://www.scirp.org/journal/ojepi, ISSN Online: 2165-7467,ISSN Print: 2165-7459, DOI: 10.4236/ojepi.2021.113026 Aug. 24, 2021 .
5. Jerel M. Ezell, MPH, MA1,2, Dana Pasquale, PhD, MPH3, Shirish Poudyal, MD4, Sameena Azhar, MSW, MPH5, Ellis Monk, PhD6, Mahesh Vidula, MD7, Vijay Yeldandi, MD, Edward Laumann, PhD, Chuanhong Liao, MS, John A. Schneider, MD, MPH- **Are skin color and body mass index associated with social network structure? Findings from a male sex market study.** Ethn Health. 2021 August ;26(6): 863–878. doi:10.1080/13557858.2019.1590537.
6. Divya Nair , Reshma Raju, Sudipto Roy , Shailendra Dandge,Girish Kumar Chethrapilly Purushothaman, Yuvaraj Jayaraman, Boopathi Kangusamy, Rahul Shrivastava, Narendra Kumar Arora, Winsley Rose, Sanjay Juvekar, Guru Rajesh Jammy , Kavita Singh, Sanjay Mehendale, on behalf of DRIVEN Team Prabu Raj kumar and Shikha Taneja Malik - **Sero-Surveillance to Monitor the Trend of SARS-CoV- 2 Infection Transmission in India: Study Protocol for a Multi Site,Community Based Longitudinal Cohort Study.** Study Protocol Pubished 24 Mar. 2022. Doi: 10.3389/fpubh.2022.810353, Frontiers in Public Health. www.frontiers.org 1 March, 2022, Volume 10 Article 810353.

**Abstract/Oral Presentation:**

1. Involving Communities in COVID-19 and TB Care – An Experience from India, Vijay V. Yeldandi and Shikha Dhawan. Presented at the 52nd World Conference on Lung Health. 19-22 October 2021.
2. Rational Use of Antibiotics When? What? How? In the Era of Evidence Based Medicine. Vijay V. Yeldandi. 5th Annual State Medical Conference. Indian Medical Association. Telangana State. October 30-31. 2021 Hyderabad Telangana.
3. "Active screening and management of adverse events during multidrug-resistant tuberculosis treatment – Dharavi, India"
4. "Prevalence of latent tuberculosis infection among household contacts of pulmonary TB patients – Mumbai, India"
5. Seroprevalence of Dengue Infection Using IgG Capture ELISA in India, 2017–2018
6. TB and COVID-19 in migrants – the need to focus on both conditions

**SHARE INDIA**
**Ghanpur Village, Medchal Mandal, Medchal Malkajgiri District**
**BALANCE SHEET AS AT 31 st March,2021**

| | SCH.NO | | As At 31.03.21 Amount (Rs) | | As At 31.03.20 Amount (Rs) |
|---|---|---|---|---|---|
| Source of Funds | | | | | |
| Capital Fund | 1 | | 11833779 | | 13108321 |
| Total | | | 11833779 | | 13108321 |
| Application of Funds | | | | | |
| Fixed Assets | 2 | | | | |
| Gross Block | | 38355939 | | 34350640 | |
| Less: Depreciation | | 26971386 | | 24487925 | |
| Net Block | | | 11384553 | | 9862715 |
| Current Assets: | | | | | |
| Cash and Bank Balances | 3 | 112141355 | | 41808859 | |
| Loans and Advances | 4 | 2742212 | | 3946526 | |
| Other Current assets | 5 | 726312 | | 1038958 | |
| | | 115609879 | | 46794343 | |
| Less: | | | | | |
| Current Liabilities and Provisions | 6 | 115160653 | | 43548737 | |
| Net Current Asset | | | 449226 | | 3245606 |
| Total | | | 11833779 | | 13108321 |

For LUHARUKA & ASSOCIATES
CHARTERED ACCOUNTANTS
FRN 01882S

(RAMESHCHAND JAIN)
PARTNER
M No. 023019

Place: Hyderabad
Date:20/12/2021

For SHARE INDIA

(Dr.V.MALAKONDA REDDY)
SECRETARY

**SHARE INDIA**
**Ghanpur Village, Medchal Mandal, Medchal MalkajgiriDistrict**
**Income And Expenditure Account for the year ended 31st March 2021**

| | SCH.NO | 31.03.21 Amount (Rs) | 31.03.20 Amount (Rs) |
|---|---|---|---|
| INCOME: | | | |
| Donations | | 5159734 | 10383216 |
| Grants | | 213545211 | 146083099 |
| Other Income | 7 | 3300446 | 1539478 |
| Total | | 222005391 | 158005793 |
| EXPENDITURE: | | | |
| Personnel Expenses | 8 | 103417441 | 79791222 |
| Power & fuel | 9 | 484555 | 797861 |
| Programme expenses | 10 | 102269655 | 65471735 |
| Other Expenses | 11 | 12041069 | 11546091 |
| Total | | 218212720 | 157606909 |
| Excess of Income over Expenditure before Depreciation | | 3792672 | 398884 |
| Less: Depreciation | | 5067213 | 3106631 |
| Excess of expenditure over income transferred to Capital Fund | | 1274542 | 2707747 |

NOTES TO ACCOUNTS 12
As Per our report of even date attached

For LUHARUKA & ASSOCIATES
CHARTERED ACCOUNTANTS
FRN 01882S

(RAMESHCHAND JAIN)
PARTNER
M No. 023019

Place: Hyderabad
Date: 20/12/2021

For SHARE INDIA

(Dr.V.MALAKONDA REDDY)
SECRETARY

## SHARE INDIA
Ghanpur Village, Medchal Mandal, Medchal Malkajgiri District
BALANCE SHEET AS AT 31 st March,2022

| | SCH.NO | | As At 31.03.22 | | As At 31.03.21 |
|---|---|---|---|---|---|
| | | | Amount (Rs) | | Amount (Rs) |
| **Source of Funds** | | | | | |
| Capital Fund | 1 | | 95,42,294 | | 1,18,33,779 |
| Total | | | 95,42,294 | | 1,18,33,779 |
| **Application of Funds** | | | | | |
| Fixed Assets | 2 | | | | |
| Gross Block | | 4,20,74,283 | | 3,83,55,939 | |
| Less: Depreciation | | 3,46,28,703 | | 2,69,71,386 | |
| Net Block | | | 74,45,580 | | 1,13,84,553 |
| **Current Assets:** | | | | | |
| Cash and Bank Balances | 3 | 8,07,29,392 | | 11,21,41,355 | |
| Loans and Advances | 4 | 33,12,983 | | 27,42,212 | |
| Other Current assets | 5 | 81,223 | | 7,26,312 | |
| | | 8,41,23,598 | | 11,56,09,879 | |
| Less: | | | | | |
| Current Liabilities and Provisions | 6 | 8,20,26,884 | | 11,51,60,653 | |
| Net Current Asset | | | 20,96,714 | | 4,49,226 |
| Total | | | 95,42,294 | | 1,18,33,779 |

Notes to Accounts & Significance of Accounting Policies 12
As Per our report of even date attached

For LUHARUKA & ASSOCIATES
CHARTERED ACCOUNTANTS
FRN 01882S

(CA RAMESHCHAND JAIN)
PARTNER
M No. 023019

Place: Hyderabad
Date: 11-09-2022

For SHARE INDIA

(MK AGARWAL)
Vice Chairman, Secretary and Treasurer

P. Mareen Chander Reddy

## SHARE INDIA
Ghanpur Village, Medchal Mandal, Medchal MalkajgiriDistrict
Income And Expenditure Account for the year ended 31st March 2022

| | SCH. NO | 31.03.22 | 31.03.21 |
|---|---|---|---|
| | | Amount (Rs) | Amount (Rs) |
| **INCOME:** | | | |
| Donations | | 1,03,50,000 | 51,59,734 |
| Grants | | 35,95,19,974 | 21,35,45,211 |
| Other Income | 7 | 31,99,994 | 33,00,446 |
| Total | | 37,30,69,968 | 22,20,05,391 |
| **EXPENDITURE:** | | | |
| Personnel Expenses | 8 | 15,16,10,943 | 10,32,62,156 |
| Power & fuel | 9 | 6,06,923 | 4,84,555 |
| Programme expenses | 10 | 20,35,06,193 | 10,22,69,655 |
| Other Expenses | 11 | 1,19,80,080 | 1,21,96,354 |
| Total | | 36,77,04,138 | 21,82,12,720 |
| Excess of Income over Expenditure before Depreciation | | 53,65,830 | 37,92,672 |
| Less: Depreciation | | 76,57,316 | 50,67,213 |
| Excess of expenditure over income transferred to Capital Fund | | 22,91,486 | 12,74,542 |

Notes to Accounts & Significance of Accounting Policies 12
As Per our report of even date attached

For LUHARUKA & ASSOCIATES
CHARTERED ACCOUNTANTS
FRN 01882S

(CA.RAMESHCHAND JAIN)
PARTNER
M No. 023019

Place: Hyderabad
Date: 11-09-2022

For SHARE INDIA

(MK AGARWAL)
Vice Chairman, Secretary and Treasurer

P. Mareen Chander Reddy

# Abbreviations

| | |
|---|---|
| AIG | Asian Institute of Gastroenterology |
| ANC | Antenatal Care |
| APSACS | Andhra Pradesh State AIDS Control Society |
| ATT | Anti-Tuberculosis Treatment |
| BIG | Biotechnology Ignition Grant |
| BIRAC | Biotechnology Industry Research Assistance Council |
| BOLSTER | Building Systems Capacity on Outbreaks Laboratory Surveillance Training Emergency Response and Infection Control Prevention and Anti-Microbial Resistance |
| CBIT | Chaitanya Bharathi Institute of Technology |
| CCCC | Centre for Control of Chronic Conditions |
| CDC | Centers for Disease Control and Prevention |
| CSSI | Caesarean Surgical Site Infection |
| CVD | Cardio-Vascular Disease |
| DBT | Department of Biotechnology |
| DMC | Designated Microscopy Centers |
| EQA | External Quality Assurance |
| GBP | British Pound |
| GFATM | The Global Fund to fight Aids, Tuberculosis and Malaria |
| GSPH | Graduate School of Public Health |
| HELP | HEaLthy Pregnancy |
| HIV | Human Immunodeficiency Virus |
| ICMR | Indian Council of Medical Research |
| IDSP | Integrated Disease Surveillance Programme |
| LaQSH | Laboratory Quality Systems in HIV |
| LIFE | Longitudinal Indian Family hEalth |
| LSHTM | The London School of Hygiene and Tropical Medicine |
| LTBI | Latent Tuberculosis Infection |
| MIMS | MediCiti Institute of Medical Sciences |
| NACP | National AIDS Control Programme |
| NACO | National AIDS Control Organization |
| NBM | National Biopharma Mission |
| NIH | National Institutes of Health |
| NISCHIT | National Initiative to Strengthen and Coordinate HIV/TB response |
| NTEP | National TB Elimination Program |
| PA | Pennsylvania |
| PHFI | Public Health Foundations of India |
| PIH | Pregnancy Induced Hypertension |
| PLHIV | People Living with HIV/AIDS |
| QMS | Quality Management Systems |
| REACH | Rural Effective Affordable Comprehensive Healthcare |
| Rs | Rupees |
| SIRO | Scientific and Industrial Research Organisation |
| STAR | Strengthening TB Action and Response |
| TAMU | Texas A and M University |
| TA | Technical Assistance |
| TB | Tuberculosis |
| TETRA | Technology Enabled community health workers to extend Telemedicine to Rural homes at Affordable costs |
| TSACS | Telangana State AIDS Control Society |
| UK | United Kingdoms |
| UOP | University of Pittsburgh |
| US $ | United States Dollar |
| USA | United States of America |

### 1. The End TB Dharavi project

**One lost-to-follow up averted and life saved with Shabnam's incessant efforts!!**

A 50-year-old male patient taking DRTB treatment went to his native place without informing the NTEP staff. However, with consistent efforts and daily phone calls from our field coordinator, the patient's sister-in-law answered the call. Despite the language barrier, our field coordinator succeeded in convincing the patient's sister-in-law to provide their current address. A follow-up home visit and a counselling session the very next day helped to convince the patient to accompany the field coordinator to the PHI for necessary treatment and sputum testing. The patient submitted his sputum sample for culture and was grateful for the timely support and counsel given by the field coordinator and pledged to take the medicines regularly. Shabnam our field coordinator was glad she could help at the right time and save a life!

### 2. Comprehensive health camps for CLHIV & ALHIV

To ensure retention and suppressed viral load, comprehensive health camps for CLHIV and ALHIV were facilitated at ART centers in coordination with YRG CARE and with support of DAPCUs. To facilitate these camps, the project team supported in coordination and mobilisation of CLHIV as per the line list and technical officers examined the children. The following services were provided during these camps. A total of 1076 CLHIV were screened during the camps held across the state. As a result of these interventions, Viral suppression rates has increased from 64% in March 2021 to 75% in 2022.

### 3. Testimonials from the E2 state trainings

"Training is very important and relevant. With the help of charts and pivot tables we can compare and analyse performance and check if there has been an increase or decrease with time. This will enable to strategize at the district and sub district level regarding early intervention". – District TB Officer (West Bengal)

"The sessions were really good. All the participants should start practicing and utilising dashboards and implement whatever has been taught in the training." – State TB Officer (Andhra Pradesh)

"This was a great opportunity to learn about the basics of excel. Pivot table and VLOOKUP is generally useful in data analysis and visualization." – District TB Centre (Andhra Pradesh)

"The training is specifically useful for our district level staff as it will be able to project the data easily and analyse data to present during monthly review meetings. – District Program Coordinator (Andhra Pradesh)

Social media links

**SHARE INDIA**

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www.sharefoundations.org | www.theshareindia.org | www.facebook.com/SHARE-INDIA-108578097443744