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# **2023-24 ANNUAL REPORT**

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**Society for Applied Studies**



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## From Our Leadership



We are delighted to present the Annual Report 2023-2024, which reflects the progress and achievements of the past year. This report is a testament to the dedication and hard work of our teams, whose commitment to excellence continues to drive our organization forward.

Over the past year, we have made significant strides in advancing our research initiatives, a core component of our mission. Our teams have engaged in rigorous research, delving into critical areas that have national and global significance. This commitment to research has not only enhanced our understanding of key issues but also contributed to the development of innovative solutions that are poised to make a lasting impact.

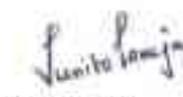
We have been designated as an ICMR Collaborating Centre of Excellence in recognition of the commendable achievements in biomedical research. We are particularly proud of our efforts to build research capacity at the national level. Through strategic partnerships, training programs, and resource development, we are trying to foster a robust and collaborative research environment.

As we look ahead, we remain committed to our mission of driving impactful research and innovation.

We extend our deepest gratitude to our Scientific and Program Advisory Committee members, the Board of Governors, Ethics Review Committee members, and our friends and well-wishers without whom we would not be where we are. Thank You for your continuous support, guidance and encouragement.

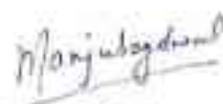
Together, we will continue to strive for excellence and make a difference.

  
Nita Bhandari

  
Sunita Taneja

  
Sarmila Mazumder

  
Temsunaro R Chandola

  
Manju Bagtwal

  
Swati Naik



## About Us

The Society for Applied Studies (SAS), New Delhi, is a premier research organization in India. It pursues research and innovation in communities, primarily at the population level. It develops and evaluates single and integrated interventions that can potentially achieve the desired health impact at different points in the life cycle for mothers and children.



Conduct high-quality scientific research to improve health and well-being of women and children in India and the developing world

Target priority high burden issues in maternal and child nutrition, mental health and cognitive development, infectious diseases and the implementation and economics of health care



Synthesize knowledge and data into actionable evidence to inform policies and the practice of public health

Strengthen research capacity by creating and nurturing highly-skilled investigators and research team with appropriate expertise

## Research Focus

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Resource poor settings:

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Prevention of diseases, deficiencies and disabilities of public health significance with special emphasis on newborns, children and mothers

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Conduct research to support indigenous and partnered efforts at innovative and affordable technologies for children and women

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Innovation in implementation of existing health care and social welfare programs to enhance reach and impact

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## Areas of Research

Women and Children Health and Nutrition Mental Health and Cognitive Sciences
Infectious Diseases Evaluation of vaccines Epidemiology and Surveillance
Implementation Science
Knowledge Integration and Economic Analysis

## Women and Children

### Health and Nutrition

Research is dedicated to improving women's health during preconception, pregnancy and postnatal period and to understand the determinants of impaired growth and development in children. SAS has developed and evaluated multiple interventions to elucidate their clinical, biological and biochemical effects in the continuum from pre-conception, pregnancy and childhood on the health of women, and growth and development of children.



Counselling of enrolled mother



Mother feeding her baby



Physician examination

### Research projects

- Impact of an integrated health, nutrition and early child stimulation and responsive care intervention package delivered to preterm or term small for gestational age babies during infancy on growth and neurodevelopment
- Evaluation of the impact of nutritional supplementation plus intensive breastfeeding support compared with intensive breastfeeding support alone on mortality, morbidity and growth in infants aged 0-6 months with growth faltering in low resource settings (Breastfeeding Counselling and Management of Growth in early infancy - BRANCH)
- Effect of community-initiated Kangaroo mother care in low-birth-weight infants on infant breast milk intake and gut microbiome
- Elimination of Malnutrition through Action-Research on Moderately acute malnourished children - Microbiota-directed complementary foods to treat children with moderate acute malnutrition in the first two years of life - Open label Randomized controlled Pre-proof of Concept
- Impact of an integrated intervention package during preconception, pregnancy, and early childhood on biomarkers of infant growth in the first 6 months of life: A sub-study in WINGS
- Long-term impact of an integrated intervention package delivered during preconception, pregnancy and early childhood on body fat and metabolic health in children aged 5-6 years
- Exploring interrelationship between linear growth, body composition and metabolic syndrome in pre-school children: a population-based cohort in North India
- The impact of maternal anaemia on neurodevelopmental outcomes among infants: a prospective maternal-infant birth cohort follow up study in low- and middle-income countries
- Longitudinal follow up of children after standard treatment regimen to find recurrence rates of anemia and effective treatment strategies among non-responders to IFA treatment
- Building evidence and designing solutions to prevent stillbirths in India - a collaborative approach to retrospectively analyze pregnancy cohorts in India
- Effect of biweekly preventive supplementation with multiple micronutrients and iron folic acid compared to iron folic acid alone in children aged 6 to 59 months on hemoglobin concentration and anemia prevalence: a randomized controlled trial in rural Haryana
- Effect of daily therapeutic supplementation with multiple micronutrients and iron folic acid compared to iron folic acid alone in mild to moderate anemic children aged 6 to 59 months on anemia cure and hemoglobin concentration: a randomized controlled trial in rural Haryana
- Preintervention survey to assess breastfeeding practices in BRANCH trial

### Mental Health and Cognitive Sciences

The Mental Health and Cognitive Sciences Unit hosts a team of trained and experienced psychologists and public health researchers. The team conducts community-based randomized controlled trials, primarily to understand ways to accelerate development in children as well as addresses mental health issues in mothers, young children, and adolescents.

#### Research projects

- Multi-domain interventions from preconception to early childhood and neurodevelopment at 4-6 years
- Testing the robustness and the predictive value of eye tracking assessment in the early detection of common neurodevelopmental and behavioral problems in the first 24 months of life
- Long term neurodevelopment in low-birth-weight babies who received Kangaroo Mother Care (KMC) compared to those who did not: A follow-up study from community initiated KMC Trial
- Evaluating effect of a package of nutritional, WASH, medical and psychosocial care on neurodevelopment. Study nested within the WINGS to evaluate the effect of the package of intervention delivered to mother-child dyad from pre and peri-conception till child ages 24 months on neurodevelopmental outcomes at 24 months of age
- Use of the Global Scale for Early Development (GSED) within the Women and Infants Integrated Growth Study (WINGS) for impact evaluation on neurodevelopment in children under three years of age, in partnership with WHO



Eye tracking assessment of an enrolled child



Neurodevelopment assessments at the study clinic in Devli and Palwal

## Infectious Diseases

The focus of research in the domain is to:

- generate population-based disease burden of major infectious diseases through surveillance.
- develop interventions for management of infectious diseases and clinical outcomes mediated by infection, inflammation and their interaction with nutrition and
- clinical evaluation of vaccines and health products/solutions (phase II to IV trials)

### Evaluation of Vaccines

SAS conducts Phase II and Phase III trials of vaccine candidates for diseases of national importance in children and adults and was a partner of the clinical trial network of National Biopharma Mission to support vaccine development. Our team are trained in clinical trial protocols with quality control and assurance systems and is proficient in fast-tracking site preparation and initiating vaccine trials rapidly in response to infectious disease emergencies. We are building capacity to evaluate tools and solutions for healthcare delivery to communities.



Observing enrolled infant in the hospital



Clinical Research Centre, HIMSR

### Research projects

- An Open label, Randomized, Active-controlled, Multi-centric phase I/II Study in Indian Toddlers and Infants to Assess the Immunogenicity and Safety of SIPL HEXASILT<sup>TM</sup> (DTwP-HepB-IPV-Hib) Vaccine in Comparison to SIPL Pentavac (DTwP-HepB-Hib) + Poliovac (IPV) Vaccines Administered as Separate Injections.
- A Prospective, Multicentre, Randomized, Active-controlled, Observer-blinded, Phase II study seamlessly followed by a Phase III study to evaluate the Safety, Tolerability and Immunogenicity of the candidate HGCO19 (COVID-19 vaccine) in healthy subjects
- A phase 3, observer-blinded, randomized, controlled study to evaluate the safety and immunogenicity of a booster dose of COVOVAX in Indian adults who received primary vaccination against COVID-19
- A Seamless Phase II/III, Observer-blinded, Multicentre, Randomized Clinical Trial to Evaluate Immunogenicity and Safety of BBV87, an Inactivated Chikungunya Virus Vaccine in Healthy Subjects 12-65 Years of Age
- A Seamless Phase 1/2, Double Blinded, Randomized, Placebo-Controlled Study to Evaluate the Safety and Immunogenicity of Dengusil in Indian Adults and Children > 2 Years of Age
- ACYWX-04: 4 Phase 2/3, Randomized, Observer-blinded, Controlled, Multi-Center Study to Evaluate the Lot to Lot Consistency of SIPL Meningococcal ACYWX Conjugate Vaccine (NmCV-5) and to Compare its Safety and Immunogenicity with that of Licensed Meningococcal ACWY Vaccine Menactra<sup>®</sup> Healthy Individuals 18-85 Years of Age
- A Prospective, Multicentre, Randomized, Active-controlled, Observer-blinded, Phase II study seamlessly followed by a Phase III study to evaluate the Safety, Tolerability and Immunogenicity of the candidate GEMCOVAC-19 (COVID-19 vaccine) in healthy subjects
- A Phase-IV, Single-Arm, Multicentric Study to Assess the Safety Qhpv Vaccine (Cervavac<sup>®</sup>) when administered on a Two-Dose Schedule to girls and boys aged 9-14 years and in a three-dose schedule to women and men aged 15-26 year (SI-Qhpv/In-04)
- An observer-blinded, randomized, active-controlled, multicentric phase III study in infants and toddlers to assess the immunogenicity and safety of SIPL Hexavalent (dtwp-hepb-ipv-hib) vaccine containing reduced dose IPV in comparison with SIPL HEXASILT<sup>®</sup> (SI-wHEXA/IN-03)
- A Phase II/III, Multicenter, Double-Blinded, Randomized Study of SI Yellow Fever Vaccine to compare safety and immunogenicity with STAMARIL<sup>®</sup> in adults (YWF04)

## Epidemiology and Surveillance

SAS conducts community-based longitudinal studies as well as hospital-based surveillance to estimate incidence of infectious diseases. We have established a demographic and health surveillance in the urban areas of Dakshinpur, South Delhi known as Dakshin Delhi Environmental and Epidemiologic Surveillance System for Health and Disease (DEESHA) for conducting epidemiology studies of relevant diseases in healthy cohorts to support vaccine development and evaluation in these populations. These efforts are to understand and inform national policy in infectious diseases (burden by aetiology, burden by severity, healthcare usage and access, care-seeking behaviour, physician practices, etc) and to support vaccine development and evaluation.

We also conduct trials that evaluate treatment strategies and interventions to improve outcome in infectious diseases and that reduce the incidence of infectious diseases.



Demographic Health and Surveillance Site

## Research projects

- Establishment of a demographic and health surveillance site in an urban resettlement colony in Delhi (DEESHA) to study disease-specific epidemiology and conduct vaccine trials
- Community-based Surveillance to estimate incidence and sero-prevalence of acute febrile illness with focus on Dengue and Chikungunya - A prospective multi-centric cohort study.
- A collaborative network on respiratory disease epidemiology in India and capacity building (RespIND-Net)
- Optimizing place of treatment for young infants presenting with any low mortality risk sign of possible serious bacterial infection- Study-1
- Optimizing duration of hospitalization for young infants presenting with any moderate mortality risk sign of possible serious bacterial infection- Study 2
- Hospital-based surveillance for estimating Shigella disease burden and outcomes.
- Understanding pathways to universal health coverage in India: A district-level study in Himachal Pradesh
- Temporary Childbirth Migration: the magnitude and implications for maternal and infant health
- Efficacy of oral azithromycin in pregnant women living in low-income neighborhoods with high-risk of reproductive tract infections to prevent preterm birth



## Implementation Science

The focus is to recognize, understand and address health systems and implementation bottlenecks and real-life challenges, identify optimal implementation options for a given setting, and promote uptake of research findings into policy and practice, design innovative delivery strategies to improve coverage, quality, impact, and utilization and scale up efficacious interventions and effective programs.



Clinical session in the Pediatric ward



SAS team in Haryana for meetings with health officials

### Research projects

- Implementation research to promote treatment of pneumonia in under-five children in a north Indian district to achieve high population-based coverage
- Implementation research to develop an optimized model of comprehensive intervention package and delivery strategies to reduce stillbirth.
- Sustainable scalable interventions to improve maternal and newborn health in India (SIIMA) [Antenatal, Intrapartum and Postnatal Care Research Consortium - ARC]
- Implementation research to scale-up and evaluate the impact of immediate kangaroo mother care (IKMC) on newborn outcomes.
- Scale up program of WINGS interventions in five blocks of district Una of Himachal Pradesh
- SANKALP: Strengthening Program Implementation and Monitoring to Achieve Single-digit Neonatal Mortality
- Implementation research to improve effective coverage of the Anemia Mukht Bharat (AMB) program among pregnant women in selected areas of Palwal district, Haryana



## Knowledge Integration and Economic Analysis

Knowledge integration uses one or more of the following methods: review of available evidence, program evaluation reports, implementation research outputs, secondary analysis of data and reports of consultative groups.

Economic evaluation is the comparative analysis of alternative courses of action in terms of both their costs and consequences of programs or interventions and, choices to be made in allocation of resources. The purpose is to identify the best course of action, based on the available evidence.

### Research projects

- Equity and financial household impact in randomised controlled trials, implementation research and cohort studies in India (EQUIFINANCE)
- EQUIFINANCE qualitative study to obtain insights into how families prioritize care seeking for family members, the factors influencing their preference, sources of funds among families facing catastrophic expenditure/ impoverishment due to out of pocket expenditure.
- A data science approach to develop growth cut- offs for graded care of malnutrition in partnership with St. Johns Research Institute, Bengaluru, under Grand Challenges Exploration India.
- Exploring risk factors of adverse maternal and child health outcomes using machine learning and other advanced data analytical approaches in partnership with the Indian Institute of Technology Delhi, under Grand Challenges Exploration India.
- Cost effectiveness analysis of the study on (multiple micronutrients and iron folic acid compared to iron folic acid alone) prevention and treatment of anemia in under five children
- Knowledge Integration and Translational Platform phase 2 (Nutrition Domain Center)

### Analysis of wasting & severe wasting and its associated risk factors among under-5 children in India:

#### Policy implications



## Platform for Research Excellence Related to National Aims (PRERNA)

### Science Meetings

#### Workshop on Economic Evaluation in Healthcare, April 13-14, 2023

SAS organised a two-day virtual workshop for the young investigators. Senior Scientists and Scientists at all partner institutes, researchers and faculties from Translational Health Sciences and Technology Institute and Pondicherry Institute of Medical Sciences. The speakers included eminent experts in the field of Health Economics from Bergen Centre for Ethics and Priority Setting in Health, University of Bergen, Norway and Health Intervention and Technology Assessment Program (HITAP), Thailand. This two-day virtual workshop covered basic concepts of economic evaluation, discussions and reflections from Q & A sessions to develop capacity in the domain of economic evaluation particularly alongside RCTs/studies.

The image shows a virtual meeting interface with a grid of participants on the left. On the right, a slide titled "Costing methodologies" is displayed. The slide includes a list of costing methods: Goal-based, Top-down, Bottom-up, Cross, and Mixed costing. Below this is a 2x2 matrix with "Identification of resources" on the horizontal axis (Accounting vs. Activity) and "Evaluation of resources" on the vertical axis (Accounting vs. Activity). The quadrants are: Top-left (Accounting/Accounting) is "Top-down cost costing"; Top-right (Accounting/Activity) is "Top-down mixed costing"; Bottom-left (Activity/Accounting) is "Bottom-up cost costing"; Bottom-right (Activity/Activity) is "Bottom-up mixed costing". A note at the bottom states: "See slide for details of the various types of costing and their applications".

#### Pediatric Tuberculosis Science Meeting, August 24-25, 2023

A two-day virtual science meeting on "Pediatric Tuberculosis" was organized by the PRERNA partners. The purpose of the meeting was to understand the advancements and unresolved problems in the diagnosis, prevention, and treatment of tuberculosis in children, discuss ongoing programmatic efforts to address the gaps and the need for systems strengthening to meet tuberculosis elimination targets. The meeting was co-chaired by Dr. Varinder Singh is a professor of Pediatrics at Lady Hardinge Medical College & Kalawati Saran Children's Hospital, Delhi and Dr Rakesh PS who has been working for TB Elimination in various roles for last 10 years. Currently he is the Senior Technical Advisor at The Union South East Asia Office.

This block contains three main graphical elements. On the left is a yellow poster for the "PRERNA Science Meeting on Pediatric Tuberculosis". In the center is a circular infographic titled "PRERNA Science Meeting on Pediatric Tuberculosis" with icons for diagnosis, treatment, and prevention. On the right is a flowchart titled "Implementation of TB Elimination Strategy in India" showing a process from "WHO Global TB Strategy 2022" to "Implementation of TB Elimination Strategy".

#### PRERNA Partners' Meeting, Mahabaleshwar, January 8-9, 2024

PRERNA close out meeting was organized in Mahabaleshwar, Maharashtra as the project period was ending in May 2024. The PRERNA 1.0 Young Investigators who had successfully graduated from the program shared their PRERNA journey, their career pathway and how PRERNA platform helped them in achieving professional goals. The 2.0 young investigators made presentations on their academic background, domain of work, future goals and their career path to accomplish the goals. At the end of the meeting, a brainstorming session was held on the way forward on continuation of the program and explore options for future funding.



## PRERNA Young Investigators Program



Archana Thakur, Barsha Gadapari Pathak,  
Rukman Manapurath

Three young investigators, Barsha Gadapari Pathak, Rukman Manapurath and Archana Thakur were enrolled in the program.

Barsha is registered for PhD in Maternal and Child Health-Implementation Science on "Management of pneumonia among under-five children in a low to middle-income country; lessons from population-based research" under Prof. Ingvild Fosgaard, Department of Global Public Health and Primary Care, University of Bergen and Dr. Sarmila Mazumder, SAS. She attended the childhood pneumonia guidelines training, led by national trainers Drs. Vinod Kumar Arand (Former Technical Advisor, Save the Children) and Praveen Kumar (Department of Pediatrics, Lady Hardinge Medical College and Associated Kalawati Saran Children's Hospital) on April 20-21, 2023. Barsha made a presentation on "Next Generation Pneumonia Researchers" session at the Global Forum on Childhood Pneumonia in Madrid, Spain, April 2023.

Rukman is registered for PhD in Pediatric Nutrition - Childhood Obesity in the project "Effect of community-based nutritional and non-nutritional interventions on childhood obesity in a low- middle-income country: secondary data analysis" under Prof. Tor Strand, Department of Global Public Health and Primary Care, University of Bergen, Norway and Drs. Sumita Taneja and Ranadip Chowdhury, SAS. As a part of the PRERNA Young Investigator program, Rukman attended a week-long training program from September 19-22, 2023 in Prof. Anura Kurpad's laboratory at St. Johns Research Institute, Bengaluru. The training encompassed various aspects of D2O body composition analysis, including standardization procedures, preparation of lab standards, practical FTIR analysis using saliva samples, quality control, dose administration, data management, and an introduction to other body composition analysis techniques such as Air Density plethysmography (ADP), Dual Energy X-Ray Absorptiometry (DEXA) and Whole-body potassium counter. Rukman also attended the Leadership and Management Program hosted by INCLIN from December 12-22, 2023. He attended a webinar focused on the double burden of malnutrition, hosted by the WHO Department of Non-communicable Diseases and Nutrition and Food Safety on March 1, 2024.

Barsha and Rukman attended the second meeting of the WHO guideline development group for the development of pneumonia and diarrhea management guidelines for children under 10 years of age, in Geneva, Switzerland, November 27 to December 1, 2023. They also completed the mandatory PhD course at the University of Bergen from March 3 to 15, 2024.

Archana's interest lies in infectious disease modelling and decision analysis, and she is enrolled in the Infectious Diseases Modelling online course by Imperial College of London, UK. She completed a nine-week certificate course on modelling cost effectiveness in healthcare from London School of Economics and Political Science, United Kingdom. She is currently involved in multiple projects including the India Alliance funded Clinical Research Centres grant which aims to improve understanding of acute respiratory illnesses and its epidemiology in Indian under-five children and the ICMR funded randomized clinical trial evaluating oral azithromycin in pregnant women with high-risk of reproductive tract infections to prevent preterm birth. She is also part of the team that will be coordinating a multi-site randomized clinical trial to evaluate effectiveness of Flu and Pneumococcal Vaccination for the elderly, on behalf of ICMR. She coordinated the provider cost survey in the five collaborating facilities of SAS across Delhi-NCR-Himachal Pradesh, for the cost effectiveness analysis conducted by WHO. She was one of the reviewers in recently completed WHO systematic reviews on diagnostic test accuracy of lung ultrasound and digital auscultation/cough sound algorithm for childhood pneumonia and its aetiology and attended the WHO Guideline Development Group meeting (virtually), held in Geneva. She also conducted the WHO funded scoping review on antibiotics for paediatric indications (dose and age-appropriate formulation) and presented to WHO Target Product Profile Development group. She teaches students enrolled in MSc, Clinical Research at THSTI, Faridabad.



Barsha at the Second Global Forum on Childhood Pneumonia,  
Madrid, Spain



Rukman's hands-on training in Fourier Transform Infrared  
Spectroscopy (FTIR) at St. Johns Research Institute, Bengaluru.

## Key Highlights

### Indian Council of Medical Research Collaborating Centre of Excellence (ICMR CCoE)

SAS was recognized as an ICMR- Collaborating Centre of Excellence (ICMR-CCoE) for exceptional research capabilities, innovation, and contributions to advancing medical science and public health. The recognition is valid for five years (August 31, 2028). SAS is committed to contribute to the objectives and activities of ICMR and work together for the betterment of biomedical research in the country.



ICMR CCoE Plaque



Dr. Nita Bhandari and Nita Choudhary with DG, ICMR

### SAS-ERC Registration with Central Drugs Standard Control Organization (CDSCO)

In addition to registration with the National Ethics Committee Registry for Biomedical and Health Research (NECRBHR), Department of Health Research (DHR), the SAS Ethics Review Committee is registered as an Independent Ethics Committee (ECR/385/Indt/DL/2024) with CDSCO, Directorate General of Health Services (DGHS), Government of India.

With this registration, SAS ERC can review and accord approval to clinical trials and BA/BE study protocols of new drugs and conduct periodic review of the studies as per the New Drugs and Clinical Trial Rules, 2019.

### Frontiers Research Topic eBook

Drs. Nita Bhandari, Sunita Taneja, Ranadip Chowdhury, Bireshwar Sinha and Ravi Prakash Upadhyay were Guest Editors for the Research Topic "Care During Pregnancy and Early Childhood for Growth and Development in Low- and Middle- Income Countries" in Frontiers. A total of 19 research articles were published in Frontiers in Nutrition, Frontiers in Pediatrics, Frontiers in Medicine, Frontiers in Public Health. The eBook was published in January 2024.

A screenshot of the Frontiers eBook cover. The title is "Care During Pregnancy and Early Childhood for Growth and Development in Low- and Middle- Income Countries". Below the title is a photograph of a woman in a blue headscarf holding a young child. The cover has a dark blue header and footer with navigation icons. Below the cover, there is a snippet of the editorial text.

## DBT/Wellcome Trust India Alliance Annual Conclave

Dr. Ravi P Upadhyay attended the DBT/Wellcome Trust India Alliance 2023 Annual Conclave from July 13-15, 2023 in Hyderabad for the midterm review. Dr. Bireshwar Sinha attended virtual mid-term review on August 31, 2023 as he was away to the United Kingdom for Work Outside Host Institute.

## Scoping Reviews for Lancet Citizens' Commission

Barsha, Rukman and Archana coauthored Scoping Reviews for the Lancet Citizens' Commission on "Reimagining India's Health System" to lay out the path to achieving universal health coverage in India in the coming decade. The following manuscripts were published in Lancet Regional Health - Southeast Asia.

- Manapurath R, Raran Veetil D, Kamath MS. Use of modern technologies for promoting health at the population level in India. Lancet Reg Health Southeast Asia. 2023. doi: 10.1016/j.lansea.2023.100338.

- Pathak BG, Mathew G, Chandru V, Kamath MS. Catalyzing healthcare accessibility through cashless payment gateways in India: a digital revolution. Lancet Reg Health Southeast Asia. 2023. doi: 10.1016/j.lansea.2023.100288.



## PhD Degrees

Dr. Ravi Prakash Upadhyay completed his PhD - Nutrition, growth and neurodevelopment in children from low resource settings in India" from the University of Bergen, Norway. The PhD defense was held on September 28, 2023.

Dr. Bireshwar Sinha also completed his PhD; Topic: Effect of kangaroo mother care in low birth weight infants on breastfeeding performance, gut function, and maternal depressive symptoms in low middle income populations in the Indian subcontinent from Tampere University, Finland. The PhD defense was held on November 10, 2023. He was the winner of the Best PhD Thesis Award in Clinical Research in 2023.



Ravi Upadhyay, PhD defense



Bireshwar Sinha with Prof. Pär Andersson, PhD Supervisor and Prof. Liisa Laitinen, Opponent



## Key Assignments by SAS Scientists

**WHO Consultative Group on Multisectoral Programmatic Interventions to Reduce the Risk of Low Birth Weight:** Dr. Nita Bhandari served as a Steering Committee member for the consultative group. She along with Drs. Sunita Taneja and Ranadip Chowdhury are coauthors on the manuscript "Integrated multisectoral interventions to mitigate the risk of low birth weight in low-and middle-income country settings: implementation considerations for programs based on a WHO-led consultation".

**Scoping Review on Determining the Optimal Paediatric Dosing for Three Priority Antibiotics: Amoxiclavulanate, Azithromycin, and Nitrofurantoin:** SAS scientists were involved in scoping reviews on the optimal dosing of three priority antibiotics across therapeutic indications to inform the definition of a preferred product characteristic for new optimal child-friendly formulations and provide technical and coordination support to WHO and the Global Accelerator for Paediatric Formulations Network (GAP-f) Secretariat for the planning and smooth running of three virtual consultations to define preferred product characteristics of Paediatric Drug Optimization (PADO) priority antibiotics.

**Systematic Reviews for the Development of WHO Consolidated Guidelines on the Management of Childhood Pneumonia:** SAS scientists were involved in summarising evidence on the diagnostic accuracy of lung ultrasound compared to chest x ray/clinical diagnosis in the age group 2-59 months, through systematic review and meta-analysis (PROSPERO registration CRD42023439851).

**Systematic Reviews for Development of a WHO Guideline on the Management of Pneumonia and Diarrhoea in Children 0-9 Years of Age:** The scope of work is to conduct systematic reviews to inform the development of a WHO guideline on the management of pneumonia and diarrhoea in children 0-9 years of age in a manner consistent with the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Evidence Profile method and to provide evidence syntheses to update an existing published systematic review such as updating the search and/or refining the patient/population, intervention, comparison and outcomes (PICO) criteria or to perform a new systematic review.

**WHO Guideline on Complementary Feeding of Infants and Young Children 6-23 months of age:** Dr. Nita Bhandari served as a member of the WHO Guideline Development Group. She participated in all meetings and provided technical insights throughout the development process and review of the guideline. The guidelines (<https://www.who.int/publications/i/item/9789240081864>) were launched at a symposium in the Micronutrient Forum's Nutrition for Resilience conference in The Hague on October 16, 2023.

**WHO Norms' Project:** Dr. Bireswar Sinha supported WHO in the quantitative component of the WHO Norms project for small and/or sick newborn care in level-2 facilities in low and middle income countries. The scope included data extraction and cleaning, analysis and interpretation of data, presentation of findings, report writing and publication of findings in peer reviewed journals.

**Expert Group Meeting on Infertility Care in India:** Neeta Dhabhai attended the technical expert group meeting organized by WHO India in partnership with ICMR and brought together the Government of India, academia, public and private service providers, and global experts to deliberate and make recommendations for improving services in India. The agenda included dissemination and way forward vis-à-vis ART (Regulation) Act 2021; setting a research agenda for the future to generate prevalence data and advocacy for including infertility in public health discourse in India by applying a gender, equity and rights lens.

#### **Other Assignments**

Dr. Nita Bhandari served as a member of the WHO Guideline Development Group (GDG) group to provide updated global guidance on complementary feeding of infants and young children 6 to 23 months of age. She participated in a series of meeting organized by the group.

She is a member of the Stakeholder Group for Australia's National Ageing Research Institute (NARD) project titled Accounting for Diversity: Culturally and Linguistically Diverse (CALD) data variables in health and medical research, funded by the National Health and Medical Research Council of Australia. It aims to develop an extension to the SPIRIT and CONSORT guidelines regarding the inclusion of ethnically diverse participants in clinical trials.

Dr. Sunita Taneja is a Member, WHO Guideline Development Group (GDG) to generate guidelines on the prevention and treatment of wasting in infants and children and member, Technical Advisory Group, Balanced Energy and Protein (BEP), School of Public Health Harvard, Boston, USA.

Dr. Sarmila Mazumder is a Member, WHO Strategic and Technical Advisory Group of Experts for Maternal, Newborn, Child, and Adolescent Health and Nutrition KMC Working Group for Global Position paper and Implementation Strategies; and Updating WHO KMC Practice Guide.

Dr. Temsunaro Rongsen-Chandola served as a Member of the Training Advisory Committee, MSc with specialization in Clinical Trials for the Clinical Development Services Agency (CDSA) of the Department of Biotechnology and Faculty for the MSc Program in Clinical Research with specialization in Clinical Trials, THSTI. She served as a Faculty for the session on aspects of clinical trials in THSTI's 6-Days Advanced Course in Vaccinology (TIVaC), May 22-27, 2023. The course aimed to provide a comprehensive overview of vaccine development, from concept, design to delivery. The participants included PhD students/Postdoctoral fellows, mostly from academic institutions.

Dr. Ranadip Chowdhury is a member of the Balanced Energy-Protein Technical Advisory Group (BEP-TAG) which is an integral part of the Healthy Mothers Healthy Babies Consortium led by the Micronutrient Forum.

He also participated in the UNICEF Regional Office for South Asia Nourishing South Asia on Scaling-up MMS in Antenatal programmes, May 29, 2023 and the South-South Learning Session on Scaling-up Balanced Energy Protein Supplementation in Antenatal Programs, 19 July 2023. He participated as a speaker in the UNICEF Regional Conference on scaling up equitable nutritional care for girls and women in South Asia, September 18-20, 2023 and made a presentation on "Screening and managing women at nutritional risk" in a session of "Reaching women in preconception and women at nutritional risk".

Dr. Bireshwar Sinha has been nominated as a member of the Research Advisory Committee to guide all research and educational activities of Fortis Foundation. Bireshwar is also an invited member of the Lancet working author group for a Lancet clinical series on 'Wasting and linear growth faltering'.

Dr. Tarun Shankar Choudhary participated in International Food Policy Research Institute research event, 'Strengthening actions for nutrition in India: Insights from the National Family Health Survey', on June 20, 2023 at India International Centre, New Delhi.

Dr. Uma Chandra Mouli Natchu was a faculty for teaching sessions on Measurement Errors: Random Errors and Measurement Errors: Bias for the PhD students at Translational Health Science and Technology Institute, Faridabad in 'Clinical Research Methodology', September 2023.

Dr. Harish Chellani participated in WHO Regional Office for South-East Asia Regional meeting 'Sustain, Accelerate and Innovate strategies' for reducing maternal, newborn, and child mortality in Sri Lanka, September 19-22, 2023.

The WHO organized a training for master trainers for kangaroo mother care in Ethiopia from October 10-12, 2023. Anil Agarwalla, a pediatrician at Civil Hospital in Kaithal, Haryana represented the state of Haryana.

Dr. Sitanshi Sharma attended the webinar on WHO Guidelines on the prevention and management of wasting and nutritional oedema (acute malnutrition) on November 21, 2023.

Dr. Savita Sapra served as a Master trainer for District Early Intervention Center (DEIC) training by the Ministry of Health and Family Welfare's Rashtriya Bal Swasthya Karyakram (RBSK) with the aim to screen all the children from 0 to 18 years for four Ds- Defects at birth, diseases, deficiencies and developmental delays. She imparted training to clinical psychologists working in DEIC in states of Assam, Bihar, Madhya Pradesh, Arunachal Pradesh, Mizoram and Chattisgarh from July 17-21, 2023, September 4-8, 2023 and March 11-15, 2024.

Drs. Sunita Taneja, Ranadip Chowdhury and Bireshwar Sinha are a part of the WHO working group for the Risk Stratification Collaborative Study: Meta-analysis to examine risks for newborn and child survival, health and development. The analyses will contribute to the WHO wasting guidelines.

Drs. Nita Bhandari, Sunita Taneja, Ranadip Chowdhury and Neeta Dhabhal are the Core committee Members, C20 Working Group on Integrated Holistic Health - Mind, Body & Environment constituted by Amrita Hospitals, Kochi, Mata Amritanandamayi Math.

## Collaborators

### National

All India Institute of Medical Sciences, Delhi

Ambedkar Hospital, Delhi

Amrita Institute of Medical Sciences and Research Centre, Faridabad

Basic HealthCare Services, Udaipur

Batra Hospital and Medical Research Centre, Delhi

BPS Khanpur Medical College Hospital, Haryana

Christian Medical College, Vellore, Tamil Nadu

DBT/Wellcome Trust India Alliance, Hyderabad

NHM and District Hospitals, Sonapat, Palwal, Ambala, Kaithal, Nuh, Panchkula, Haryana

NHM and District Hospital, Durgapur, District Udaipur

Dr. Dango Lab, Delhi

Hamdard Institute of Medical Sciences and Research, Delhi

INCLEN Trust International Delhi

Indian Council of Medical Research, Delhi

Indian Institute of Technology, Delhi

Kamla Nehru Hospital, Indira Gandhi Medical College, HP

KEM Hospital Research Centre, Maharashtra

Lady Hardinge Medical College & SSKH and KSCH Hospital, Delhi

National Institute of Biomedical Genomics, West Bengal

Post Graduate Institute of Medical Research, Chandigarh

Rohtak Medical College, Haryana

St. John's Research Institute, Bangalore, Karnataka

Translational Health Sciences Technology Institute, Haryana

UNICEF, Delhi

Vardhman Mahavir Medical College & Safdarjung Hospital, Delhi

### International

Bergen Centre for Ethics and Priority Setting in Health, Norway  
Centers for Diseases Control, Atlanta, USA  
Emory University, USA  
George Washington University  
Harvard School of Public Health, USA  
Imperial College, UK  
International Food Policy Research Institute, USA  
John Hopkins University, USA  
London School of Hygiene & Tropical Medicine, UK  
Tampere University, Finland  
University College of London, UK  
University of Bergen, Norway  
University of California, USA  
World Health Organization, Geneva, Switzerland

### SAS- Tampere University Collaborative Meeting, November 2023

A collaborative meeting between scientists from SAS and Tampere University (TAU) was held in November 2023. The meeting focused on joint proposal development and brainstorming on areas of collaboration.



## Key Collaborations

### ICMR Collaborating Centres of Excellence (ICMR-CCoE)

The Indian Council of Medical Research hosted a meeting of the ICMR CCoEs on November 4, 2023 where certificates were presented to the nominated institutions. Also, the meeting aimed to engage in a productive dialogue and deliberation regarding the future roadmap for ICMR CCoE activities.

Dr. Nita Bhandari has been nominated as the Chairperson of the Project Selection Committee for Investigator-Initiated Research Proposals by the Nutrition, Division of Descriptive Research. She has also been nominated as the Chairperson, Technical Advisory Group (TAG) of the Indian Clinical Trial and Education Network (INTENT) by the Indian Council of Medical Research. The TAG provides overall guidance in functioning of INTENT and to identify the products/drugs of national health importance which can be supported with funding from ICMR.

Dr. Sunita Taneja has been nominated as a Member of the Project Review Committee for ICMR-AYUSH joint clinical trials on nutritional anemia and Intermediate Extramural Grants, member, Scientific Advisory Committee, ICMR - National Institute for Research in Reproductive and Child Health, Mumbai, Maharashtra and ICMR-Regional Medical Research Centre, Bhubaneswar. She is also a member, Technical Evaluation of Take Home Ration Proposal and selection committee member of ICMR Young Medical Faculty PhD program of India.

Dr. Sarmila Mazumder was elected as a member of the National Scientific Advisory Committee constituted by ICMR to guide various implementation research projects - comprehensive PHC, NCD, reproductive and child health and nutrition, and Anemia Mukh Bharat. She is a Member, ICMR Technical Support Group for strengthening the implementation of maternal and newborn health interventions delivery strategies at primary care facilities to achieve high and effective coverage of appropriate antenatal, intrapartum, postnatal care for the mother and newborn care till 6 weeks of life in Northeastern states. She is a member of the Scientific Advisory Committee (Implementation Research), National Institute for Implementation Research on Non-Communicable Diseases (NIIRNCD), Jodhpur; Project Selection Committee - Extramural RCN-Implementation research (Reproductive, Child Health and Nutrition Implementation research) of the ICMR-National Institute of Epidemiology, Chennai; Member, Steering Group, Implementation Research, Indian Council of Medical Research, Technical Advisory Group and ICMR Task Force project related to ANC formative research of the Indian Council of Medical Research (ICMR), New Delhi.

Dr. Temsunaro Rongsen-Chandola is a member of the Project Screening Committee member for evaluating intermediate grant proposals by the Indian Council of Medical Research. She is also a member of the Expert Group constituted by ICMR to review the 'Consensus Policy on the Ethical Conduct of Controlled Human Infection Studies in India'.

Dr. Ranadip Chowdhury has been nominated as a member of the Scientific Advisory Committee of ICMR-Regional Medical Research Centre, NE Region, Dibrugarh, Assam and is a Member, ICMR Expert Committee for development of Standard Treatment workflows (STW) for the diagnosis and treatment of anemia across various age groups.

He is also an ICMR Expert Committee Member for the Protocol Development Workshop for Project on 'Evaluating effectiveness of providing appropriate take home foods in combination with behaviour change intervention to reduce under-nutrition'

Dr. Bireshwar Sinha has been nominated as an expert for development of simple workflows for the care in pregnancy and childbirth for the detection, management, stratification of the severity and appropriate referrals using examples such as Integrated Management of Neonatal & Childhood Illnesses by the Indian Council of Medical Research.



WENO Distributors Meeting held at ICMR, June 1, 2023

## WHO Collaborating Centre for Research, Community-based Action and Programme Development in Child Health

Being a WHO CC, has endowed us with better research opportunities through collaborative research and linkages with other research organizations. It has also paved way for capacity building of the researchers, especially of the young investigators.

The research projects conducted by SAS are of national importance and aligned to WHO's research agenda. SAS has completed numerous research projects in collaboration with WHO.

SAS is instrumental in providing data management support for WHO multicenter projects being conducting across different continents.

The Department of Maternal, Child and Adolescent Health at WHO invited SAS investigators to present the Women and Infants Integrated Interventions for Growth Study, which is of great relevance from WHO perspective at the WHO Science Café on April 30, 2024. It was attended by entire MCA department and MCH representatives from the WHO regional offices.

The team attended the Briefing Meetings on WHO-coordinated Reproductive, Maternal, Newborn, Child, Adolescent Health, and Nutrition Research Studies in India, August 8-9, 2023 and WHO's Draft 14th General Programme of Work (GPW14) for WHO Collaborating Centres, 2025-2028, February 14, 2024.



BRANCH Investigators Meeting, Geneva, April 2023



WHO team's visit to Himachal Pradesh for PDSI study



BRANCH team's training



Capacity Chewathory of the WHO Regional Workshop on Reducing Young Child Malnutrition Through Optimizing Diets and the Food Environment, November 29-December 1, 2023

## Partnerships with Government

State Government of Haryana, Himachal Pradesh and Rajasthan

Memorandum of Understanding for Collaboration in Implementation Research and Intervention Scale Up for Accelerated Decline in Child Mortality and Improved Child Growth and Development.

SAS has been allotted the following space free of cost (infrastructure and electricity)

- a floor in the sub-divisional hospital in Hodal block of Palwal district, Haryana. The research team, data management team and all study activities including organization of trainings are carried out from the hospital.

- a hall in the district hospital, Palwal

- space in Dungarpur District Hospital, Rajasthan.

- space in Una District Hospital, Himachal Pradesh

### Strengthening government health systems and their capacity building

As a part of the SEMA (strengthening of the antenatal-intrapartum and postnatal care), the sub-divisional hospital in Hodal has evolved from a barren infrastructure of 3 floors, with only a couple of rooms in use, to a fully functional facility, bustling with activities. In 2020, when the study was initiated, the monthly ANC OPD attendance was less than 300, no high-risk cases were identified or referred, with only one medical doctor and 3 to 4 staff nurses in place. Over the past three years, the study facility has been ranked as the number 1 facility as per National Quality Assurance Standards (NQAS). It has received several accreditations and awards, such as Kayakalp and LaQshya. The monthly ANC OPD increased by three folds (300 to 1400 per month), high-risk case identification increased 30 times and among these identified cases, more than 90% are managed at the study facility. This has significantly reduced the burden on the district hospital. In the past 25 years, 4676 deliveries have been conducted with an average of 155 per month. A total of 403 LCSC and 14340 USG were conducted. Hematological and Biochemistry auto-analyzers were donated through the CSR activity of the Punjab National Bank and installed in the facility laboratory. Inhouse capacity building of government nurses and medical officers on "Essential newborn care" and "Partograph" was accomplished.



USG at the facility



Newborn sick unit

Another ongoing project, scaling up the government program on management of pneumonia in under-five children, has successfully operationalized service delivery at Health and Wellness Centers among other government facilities. In the process, induction training of Government Master Trainers was accomplished by National trainers. Subsequently training was imparted by the Master Trainers to the district level health officers across all facilities implementing the program. Additionally, orientation sessions were conducted for the private sector doctors most frequented by the community. Essential supplies, monitoring and supervision, effective referral to appropriate facilities, complete follow up of children with pneumonia, were strengthened within the government health systems.



The scale up immediate Kangaroo Mother Care across multiple districts in the state with the aim to deliver integrated comprehensive care, including skin-to-skin contact, breastmilk feeding, respiratory support, warmth, monitoring, and prevention and treatment of infections, for low birth weight and preterm newborns. Level 2 Special Newborn Care Unit is transformed to Level 2 Mother-Special Newborn Care Units (M-SNCU) to promote zero separation between mother/caregiver and the newborn, thus revolutionizing newborn care concept. The first M-SNCU at district level hospital in India has been successfully established and operational in Ambala. All SNCU staff including doctors and staff nurses were provided hands-on training, with particular focus on CPAP use, which was introduced for the first time at secondary level hospital. This paradigm shift in newborn care energized the government to bring about transformational changes, procuring equipment such as C-PAP machines, radiant warmers, laminar flow system, phototherapy units, using their own funds and ensuring provision of recurrent costs. Training of Master trainers across 4 districts, where IKMC will be scaled up, was conducted by National trainers from SAS and PGIMR, Chandigarh.



## New Grants

- Long-term impact of an integrated intervention package delivered during preconception, pregnancy and early childhood on body fat and metabolic health in children aged 5-6 years
- Exploring interrelationship between linear growth, body composition and metabolic syndrome in pre-school children: a population-based cohort in North India
- The impact of maternal anaemia on neurodevelopmental outcomes among infants: a prospective maternal-infant birth cohort follow up study in low-and middle-income countries
- Growth Reference Research Initiative in Indian Children (GCRRI)
- Building evidence and designing solutions to prevent stillbirths in India – a collaborative approach to retrospectively analyze pregnancy cohorts in India
- Longitudinal follow up of children after standard treatment regimen to find recurrence rates of anemia and effective treatment strategies among non-responders to IFA treatment
- Investigating the Gut Microbiome and Host Epigenomic Profiles in Preterm Stunted Infants at 6 months of Age in a Low to Mid Socioeconomic Neighborhood of North India
- Efficacy of oral azithromycin in pregnant women living-in low-income neighborhoods with high-risk of reproductive tract infections to prevent preterm birth (PPAZI)
- Temporary Childbirth Migration: the magnitude and implications for maternal and infant health
- Validation of EzeRx for anemia and a PoC Ferritin device by Huwel
- Scoping Review on Determining the Optimal Paediatric Dosing for Three Priority Antibiotics: Amoxiclavulanate, Azithromycin, and Nitrofurantoin
- WHO Norms project for small and/or sick newborn care in level-2 facilities in LMICs
- Implementation Research to Scale-up and Evaluate the Impact of Immediate Kangaroo Mother (KMC) Care on Newborn Outcomes.
- Pilot Scale up Program of WINGS interventions in Five Blocks of District Una of Himachal Pradesh
- Sankalp: Strengthening Program Implementation and Monitoring to Achieve Single-digit Neonatal Mortality
- Implementation research to improve effective coverage of the Anemia Mukh Bharat (AMB) program among pregnant women in selected areas of Palwal district, Haryana
- Implementation Research to develop an optimized model of comprehensive intervention package and delivery strategies to reduce stillbirths.

### Total Grants (in crores)



## Meetings, Trainings and Workshops

### Training on Breastfeeding Counselling, March 27 to April 8, 2023

A two-week Training of Trainers Course using WHO- IYCF training materials adapted for the study was organized for the breastfeeding support team, in collaboration with WHO. The objective was to create a pool of trainers who would, in turn, train the breastfeeding support team at SAS. A master trainer, WHO Consultant, Carol Williams, Health Promotion, University of Brighton trained the team with assistance from the lactation consultant at SAS. Clinical sessions were conducted in the antenatal and postnatal wards of the Department of Obstetrics and Gynaecology at Safdarjung Hospital.



### SAS-Amrita Mother-Neonatal Intensive Care Unit (M-NICU) Workshop, June 29, 2023

The Mother-Neonatal Intensive Care Unit (M-NICU) Workshop was conducted in Amrita hospital by Drs. Harish Chellani (SAS), Neeta Dhabhai (SAS), Nitya Verma (THSTI) and Sugandha (Safdarjung Hospital). It focused on advancing the care and management of both mothers and their newborns requiring intensive medical attention. This workshop brought together healthcare professionals, including neonatologists, obstetricians, nurses, and other specialists, to share knowledge, discuss best practices, and explore the latest advancements in maternal and neonatal care. Through a series of lectures, hands-on training sessions, and panel discussions, participants gain valuable insights into integrated care strategies, advanced medical technologies, and family-centered approaches. The workshop aims to enhance the coordination of care within M-NICUs, improve patient outcomes, and support families during critical times. By fostering collaboration and continuous learning, the M-NICU Workshop plays a pivotal role in shaping the future of maternal and neonatal intensive care.



#### **Breastfeeding Counsellors Hands-on Practice Session, Safdarjung, July 10, 2023**

The BFC Hands-on Practice Session is an immersive training event, it provides BFCs practical, experiential learning in a specific area, often related to technology or specialized techniques. The session led by Kirti Jain, Lactation Consultant, focussed on real-world applications, allowing them to directly apply new skills and techniques in a supportive, interactive environment. This will benefit from in-depth coverage of topics, immediate feedback, and opportunities for collaboration with peers and enhances skill proficiency and confidence but also fosters professional networking and knowledge sharing, making it invaluable.



#### **Workshops during World Breastfeeding Week**

##### **Vardhman Mahavir Medical College and Safdarjung Hospital, August 4, 2023**

The activity was an interaction with mothers and nursing staff of the postnatal wards with the SAS team (Dr. Neeta Dhabhai, Dr. Sitanshi Sharma and Ms. Kriti Jain), to understand the challenges faced by the mothers and the nursing staff to establish breastfeeding in the initial days post-delivery. The team will also promote supportive breastfeeding practices and KMC among the mothers and nursing staff.



Hamdard Institute of Medical Sciences and Research, August 7, 2023

SAS conducted an activity in view to promote Breastfeeding and Kangaroo Mother Care (KMC) practices among the health workers in collaboration with the Department of Pediatrics, HIMSR. Drs. Harish Chellani, Sitanshi Sharma, Ms. Kriti Jain and breastfeeding counselors Geeta Mehta, Ramanjeet Kaur and Neelam Kaur participated from SAS. The half day long activity was attended by a group of 70 HIMSR participants including the Dean, Medical Superintendent, Head of Department of Pediatrics, senior faculty members, resident doctors, staff nurses from labor room, NICU and postnatal wards. Sessions on Introduction to World breastfeeding week followed by importance of breastfeeding for mothers and infants, discussion on practices that can help in early initiation of breastfeeding, challenges faced by the mothers and support staff to establish breastfeeding and early initiation of KMC.



#### EpiCap: Strengthening Capacity In Analytic Epidemiology

EpiCap is an initiative of the Centre for Intervention Science in Maternal and Child Health (CISMAC), the Bergen Centre for Ethics and Priority Setting in Health (BCEPS), and the Centre for International Health (CIH) and the Indian partners include SAS, the Indian Council of Medical Research and the National Institute of Epidemiology. The objective is to strengthen the capacity in analytic epidemiology at the partner institutions in Norway, India and Sub-Saharan Africa; 7-8 workshops will be held between 2024 and 2026. The introductory course was held in Bergen in February 2024. Drs. Tarun Choudhary, Bireshwar Sinha and Uma Chandra Mouli Natchu served as facilitators; Drs. Ranadip Chowdhury and Ravi Prakash Upadhyay participated virtually. The sessions on pedagogy were mixed with helping master students at UIB with practical exercises. The SpeakLab sessions included tips on making short and impactful presentations.



#### **Work Outside Host Institution for India Alliance Fellows**

As a part of his Indian Alliance Early Career Fellowship, Dr. Bireshwar Sinha visited United Kingdom for an academic visit to the Great Ormond Street Institute of Child Health, University College London, June 12 to September 10, 2023 to learn laboratory methods to study child gut microbiome and biological markers related to growth and inflammation. The workplan comprised of understanding laboratory methods on processes, standardization issues, and precautions related to analysis of fecal samples for gut microbiome along with hands-on work; interpreting of gut microbiome analysis - creating a microbiota for age- Z score, functional analysis, bioinformatics and; hands-on work in measurement of immunological markers related to infant growth and development.



Dr. Sarmila Mazumder participated in the consultation meeting to design implementation research for comprehensive primary health care in rural areas at the ICMR Headquarters on April 8, 2023.

Dr. Nita Bhandari participated in a two-day Expert Consultation on the Micronutrient Quality of Complementary Feeding in Early Childhood hosted by the Micronutrient Forum to develop a joint roadmap reflecting priorities and key activities to align and catalyze food-based actions to improve the micronutrient quality of complementary feeding in early childhood. The meeting was held in Washington, June 8-9, 2023.

Priyanka Adhikary participated in the World Congress on "Exploring New Horizons in Fertility Care", Athens, September 10-13, 2023 organized by the International Federation of Fertility Societies (IFFS). The aims was to learn and discuss current advances in reproductive health, access to fertility care, and reproductive rights across the globe, and engage the patient perspective.

Dr. Vinod Kumar Anand served as faculty for the Regional Training of Trainers (ToT) of revised organized by the Ministry of Health and Family Welfare from September 12-16, 2023 in Jammu to strengthen pediatric service delivery in the states and union territories.

Dra. Sunita Taneja, Ravi Prakash Upadhyay and Savita Sagra participated in the Global Scales for Early Development (GSED) technical meeting in Istanbul from November 1 to 4, 2023 organized by the World Health Organization. It aimed to bring together all key partners involved in the GSED project to ensure high quality outputs are produced. The objectives of the meeting are to review project progress, strengthen learnings across countries and strategic planning for next steps. Additionally, the meeting provided an opportunity for knowledge sharing across countries and continents and fostering connections between a community of researchers and implementers in childhood development.

Dra. Sunita Taneja, Sarmila Mazumder, Harish and Ranadip Chowdhury attended the Roundtable Discussion focused on Implementation Research and research initiatives in Maternal Newborn and Child Health and Nutrition at the BMGF Country Office during Dr. Anita Zaidi's visit on November 6, 2023.

Dr. Bireshwar Sinha attended the hands-on-workshop on 'Good data and record management practices in clinical research' organized by the ICMR Indian Clinical Trials and Education Network (ICMR-INTENT), Ministry of Health & Family Welfare in collaboration with the Clinical Development Service Agency (CDSA) - Translational Health Science & Technology Institute (THSTI), Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India and the World Health Organization (WHO) India Office at the ICMR Headquarters, New Delhi on November 29-30, 2023.

Dra. Ranadip Chowdhury and Rukman Manapurath attended the Leadership and Management Program hosted by INCLN from December 12-22, 2023.

Dr. Ranadip Chowdhury was invited as an Expert to the Regional Workshop on Reducing Young Child Malnutrition Through Optimizing Diets and the Food Environment, November 29-December 1, 2023, New Delhi, India. He made a presentation on Current research, advances and information gaps in promoting optimum young child diets.

Dr. Sarmila Mazumder attended the NAMS Leadership Development (LEAD) Workshop from March 8-10, 2024.

Dra. Harish Cheliani, Sarmila Mazumder and Vinod Kumar Anand participated in the workshop to develop costing component of ICMR national health research priority projects on March 15, 2024.

#### **Dr. Dilip Mahalanabis Memorial Lecture, Liver Foundation, West Bengal**

A Memorial Lecture by Dr. Richard Caah was held on July 31, 2023 to honor and remember the contributions and great achievement of Dr. Dilip Mahalanabis.



## Infrastructure

### Our Offices

Different teams continue to operate out of our offices based at different locations in Delhi-NCR.

**Research Coordination and Management Support Office** in Kalu Sarai, New Delhi: Around 9000 sq ft built up area spread over 5 floors for senior management, scientists, data management, accounts, HR and administrative teams.



**Clinical Science Centre**, Devli, New Delhi 15,000 sq ft built-up area for screening, enrollment, randomization, assessment, collection and storage of biological specimens, patient monitoring and outpatient care for evaluation of vaccines and diagnostics and other health care technologies. This office is also the base for all teams working in urban areas in Delhi.



**Population Science Research Centre** in Palwal, Haryana: Around 17500 sq ft built-up area in Tatarpur, District Palwal for teams working on population science studies and major intervention trials in Haryana. Also houses a 1320 sq ft archival facility with indexed and restricted access.



### Data Management Centre

Real-time cloud-based data management using tablets and mobile phones with GCP and regulatory compliant processes, web-based electronic tracking of patient management and compliance. Fully equipped for database management of own research data and experienced in management and coordination of multicenter and multisite data management.

Specialized systems for security, fire safety, restricted access server rooms as per global standards



### Geographical Information System Lab

Equipped with high processing desktop to enable processing and storage of spatial data, with Basic version of ESRI ArcMap 10.8 installed for the real time mapping using NRSC cartosat3 data. GIS integrated demographic health surveillance will provide high resolution spatial data for the development and understanding of health and socio-economical conditions in the population.

### Infant and Child Cognition Assessment Lab

The laboratory hosts a battery of psychometric tests such as Bayley's Scale of Infant and Toddler Development, Wechsler Intelligence Scale for Children (WISC), Wechsler Preschool and Primary Scale of Intelligence, NEPSY ("A Developmental Neuropsychological Assessment") tool, Bracken School Readiness Assessment Ages and Stages Questionnaire, Crichton Vocabulary Scale (CVS), Global Scale for Child Development.

SAS has a dedicated room for screen-based eye tracking assessment using the Tobii X2- 60 eye tracker (Tobii Technology, Stockholm, Sweden). Objective assessment using the eye tracker is now a part of many ongoing studies in infants and young children.



## Clinical and Research Laboratories, SAS (CRL-SAS)

CRL-SAS is a Good Clinical Laboratory Practices compliant research lab that supports ongoing research studies at SAS through specimen collection at home, study clinic or laboratory, processing, storage and transportation as per project requirements. The Institutional Bio-Safety Committee oversees the environmental and occupational health and safety aspects of the functioning of the laboratory. As a part of the Government of India's DRIVEN project, the lab successfully underwent environmental and safety due diligence in 2022.

The lab was audited by an independent auditor for safety measures and was declared compliant for facility design, good safety practices, personnel training and awareness, fire, electrical, chemical, equipment and environment safety, waste management and emergency response plan, stems for home and lab collection of samples, processing, quality control and storage.

Designated areas for specimen receiving and processing, bacteriology, immunology, hematology, biochemistry, documentation, washing, sterilization, vaccine storage, biospecimen storage and biomedical waste management area.

Over the years, the lab has developed a rich repository of biospecimens including serum from mothers and infants, breast milk from lactating mothers and saliva from mother infant pairs at several time points. These are stored in liquid nitrogen storage tanks and  $-80^{\circ}\text{C}$  deep freezers, at different facilities under strict temperature-controlled conditions.



## Organizational Board and Committees

### Board of Governors

Nita Bhandari, President

Ramanjit Kaur Johal, Vice President

Rahul Khare, Secretary

Manju Bagdwal, Assistant Secretary

TS Rao, Treasurer

Partha Majumder, Member

Temsunaro Rongsen-Chandola, Member

### Scientific and Program Advisory Committee

Dr. NK Ganguly (Co-chair), Former Director General, Indian Council of Medical Research, New Delhi

Dr. Partha P Majumder (Co-chair), National Science Chair (Scientific Excellence), Government of India & Distinguished Professor, John C Martin Centre for Liver Research & Innovations, Kolkata

Dr. Anura Kurpad, Professor, Department of Physiology, St. Johns Research Institute, Bengaluru

Dr. Beena Koshy, Professor, Developmental Pediatrics, Christian Medical College, Vellore

Dr. B Sesikeran, Former Director, ICMR - National Institute of Nutrition, Hyderabad

Dr. CS Yagnik, Director, Diabetes Unit, KEM Hospital and Research Centre, Pune

Dr. Hemalatha R, Director, ICMR - National Institute of Nutrition, Hyderabad

Dr. Payitra Mohan, Co-Founder and Director, Basic Health Care Services, Udaipur

Dr. Pratima Ray, Retired Professor, Department of Biotechnology, Jamia Hamdard, New Delhi

Dr. Rajat Goyal, Country Director, IAVI, New Delhi

Dr. RM Pandey, Former Senior Professor & Head, Department of Biostatistics & Professor In-charge, Clinical Epidemiology Unit, All India Institute of Medical Sciences, New Delhi

Dr. Satinder Aneja, Professor, Department Pediatrics, Sharda University, Greater Noida

Dr. Siddharth Ramji, Former Director - Professor (Pediatrics and Neonatology), Maulana Azad Medical College, New Delhi

Dr. T Ramamurthy, INSA Senior Scientist, ICMR-National Institute of Cholera and Enteric Diseases, Kolkata



Scientific and Program Advisory Committee Meeting, August 3, 2023

### Ethics Review Committee

The SAS Ethics Review Committee is registered with the Department of Health Research, Ministry of Health and Family Welfare, Government of India (EC/NEW/INST/2022/DL/0140 valid up to August 2027). The ERC reviewed 14 full committee and 26 expedited proposal reviews during the year 2023- 2024. The ERC is also registered as an Independent Ethics Committee (ECR/385/Indi/DL/2024) with the Central Drugs Standard Control Organization (CDSCO), Directorate General of Health Services (DGHS), Government of India and can therefore, also review and accord approval to Clinical Trials and BA/BE Study protocols of new drugs and conduct periodic review of the studies as per the New Drugs and Clinical Trial Rules, 2019.

The committee is constituted and functions in accordance with the JCMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants, 2017.

The list of members is as follows:

Dr. Binoo Nayar (Chairperson - Clinician), Retired Senior Chief Medical Officer, School Health Services, Central Zone, Municipal Corporation of Delhi

Dr. Sarmila Mazumder (Member Secretary), Senior Scientist, Society for Applied Studies, New Delhi

Dr. Rajat Goyal (Basic Medical Scientist), Country Director (India), International AIDS Vaccine Initiative, New Delhi

Prof. Pratima Ray (Basic Medical Scientist), Department of Biotechnology, Jamia Hamdard, New Delhi

Dr. Jeeva Sankar (Basic Medical Scientist), Additional Professor, All India Institute of Medical Sciences (AIIMS), New Delhi

Dr. Pooja Gupta (Medical Scientist), Additional Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi

Dr. Satinder Aneja (Clinician), Former Director-Professor & Head, Department of Pediatrics, Lady Hardinge Medical College, Delhi

Colonel Gian Sagar (Legal Expert), Retired Army Officer

Mrs. Medha Shekhar (Legal Expert).

Dr. Rajib Dasgupta (Social Scientist), Professor and Chairperson, Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi

Dr. Sanghmitra Acharya (Social Scientist), Professor, School of Social Science, Jawaharlal Nehru University, New Delhi

Mrs. Runa Ghosh (Social Scientist), Senior Research Assistant, Society for Applied Studies, New Delhi

Mrs. Girija Sapra (Community Representative), Retired Teacher, Manava Bharati India International School, New Delhi

Mrs. Kiran Kanda (Community Representative), Teacher, Manava Bharati India International School, New Delhi

### Institutional Committees

SAS has constituted institutional committees to streamline the organizational policies and procedures and provide guidelines for decision making processes. The committees include:

Human Resources

Institutional Biosafety Committee

Travel and Transportation Committee Technical and Purchase Committee

Finance, Administrative and Legal: Advice sought from independent experts whenever required.

SAS has formulated clear and well-written policies and procedures to ensure transparency and accountability including internal and external audits.

### Internal Complaints Committee

Nita Bhandari

Ravi Prakash Upadhyay

Pradeep Kumar

Swati Naik

Medha Shekhar, Independent Member

Anisha Banerji, Independent Member

Savita Sapra, Independent Member

### Child Protection Committee

Nita Bhandari

Tarun Shankar Choudhary

Swati Naik

Rahul Khare, Independent Member

Savita Sapra, Independent Member

## Our Teams

There are research groups around each scientific program. These programs are led by investigators (MD, MPH, PhD) supported by skilled research associates who are responsible for the field operations and implementation. There are in built quality control systems in place as well as quality assurance checks. Research groups link with partner hospitals or laboratories depending on the need. The data management centre is compliant with regulatory guidelines.



## Internship Program

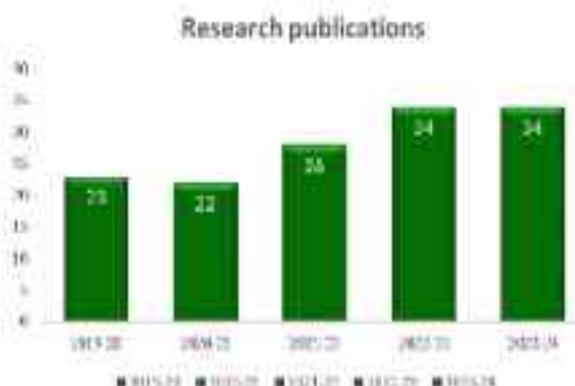
SAS offers short term internships to students from different streams. In addition to Hamdard Institute of Medical Sciences and Research, we received requests for internships from SGT University (Haryana), University of Delhi (Delhi), KR Mangalam College (Gurugram) and JIPMER International School of Public Health (Puducherry). The following students completed two-months internship during the year.

Sehla Tabasum, Masters, Public Health, HIMSR, New Delhi  
Gautami Korbili, Masters, Public Health, HIMSR, New Delhi  
Antara Narain, Bachelors in Sociology, Jesus and Mary College, University of Delhi



Intern from HIMSR with Dr. Chandola and Ms. Nirk

## Research Publications in Peer-Reviewed Journals



1. Upadhyay RP, Taneja S, Chowdhury R, Dhabhai N, Sapra S, Mazumder S, Sharma S, Tomlinson M, Dua T, Chellani H, Dewan R, Mittal P, Bhan MK, Bhandari N; Women and Infants Integrated Interventions for Growth Study (WINGS) Group. Child Neurodevelopment After Multidomain Interventions from Preconception Through Early Childhood: The WINGS Randomized Clinical Trial. *JAMA*. 2024 Jan 2;331(1):28-37. doi: 10.1001/jama.2023.23727. Erratum in: *JAMA*. 2024 Mar 5;331(9):802. doi: 10.1001/jama.2024.1307. PMID: 38165408; PMCID: PMC10762577

2. Chowdhury R, Manapurath R, Sandey IF, Upadhyay RP, Dhabhai N, Shaikh S, Chellani H, Choudhary TS, Jain A, Martinez J, Bhandari N, Strand TA, Taneja S; Small Babies Trial Group. Impact of an integrated health, nutrition, and early child stimulation and responsive care intervention package delivered to preterm or term small for gestational age babies during infancy on growth and neurodevelopment: study protocol of an individually randomized controlled trial in India (Small Babies Trial). *Trials*. 2024 Feb 8;25(1):110. doi: 10.1186/s13063-024-07942-z. PMID: 38331842; PMCID: PMC10854034

3. Upadhyay RP, Pathak BG, Raut SV, Kumar D, Singh D, Sudfeld CR, Strand TA, Taneja S, Bhandari N; Linear growth beyond 24 months and child neurodevelopment in low- and middle-income countries: a systematic review and meta-analysis. *BMC Pediatr*. 2024 Feb 8;24(1):101. doi: 10.1186/s12887-023-04521-0. PMID: 38331737; PMCID: PMC10851505

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5. Chowdhury R, Upadhyay RP, Sinha B, Taneja S, Das JK, Bhandari N; Editorial: Care during pregnancy and early childhood for growth and development in low- and middle-income countries. *Front Nutr*. 2024 Jan 9;10:1361926. doi: 10.3389/fnut.2023.1361926. PMID: 38264194; PMCID: PMC10803586

6. Choudhary TS, Manapurath R, Chowdhury R, Taneja S, Daniel A, Johnston R, de Wagt A, Bhandari N; Prevalence of Wasting and its Associated Factors among Children Under 5 Years of Age in India: Findings from the Comprehensive National Nutrition Survey. *Indian J Public Health*. 2024 Jan 1;68(1):89-94. doi: 10.4103/ijph.ijph\_1284\_22. Epub 2024 Apr 4. PMID: 38847639

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## Community Engagement

The SAS team organizes health camps every year to provide preventive and curative services to the community and for generating awareness about non-communicable diseases among the residents of the area. The camps also aimed to increase the involvement of the local population and community advisory board members in community development activities.

Four health camps were organized in Dakshinpuri on April 8, 2023, May 27, 2023, October 16, 2023 and March 2, 2024 in collaboration with Hamdard in collaboration with Hamdard Institute of Medical Sciences and Research (HIMSR) and the local ward counselor as a part of community outreach activity. The target population included children, adolescents, women of reproductive age group, pregnant and lactating women and elderly males and females.

The Pediatricians, Gynecologists, Physicians, Psychologists, Nutritionists, Phlebotomists and Support team were appreciated for the support extended by them to the population.



## Presence on Social Media

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2017-2018, a year of significant achievement for the Middle East Region. We have been honoured to receive the 2018 Middle East Region Award for Best Practice in the region, a testament to the hard work and dedication of our staff and partners. We are proud to have been recognised for our commitment to social responsibility and sustainable development. We look forward to continuing our work in the region in the coming year.

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