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IIT M, THSTI to predict pregnancy outcomes, childhood mortality

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Agreement also envisages capacity building exercises for students & researchers on public health research and data science through exchange programs and training courses



Indian Institute of Technology Madras is going to collaborate on applying advanced analytical approaches for predicting pregnancy outcomes with Translational Health Science and Technology Institute (THSTI), an autonomous institute of the Department of Biotechnology, Union Ministry of Science and Technology in Faridabad, Haryana.

The Research Collaboration Agreement was signed today (22nd February 2019) during the IITM-THSTI Conclave on 'Transforming Maternal and Child Healthcare Using Data Science.' It is being spearheaded from IIT Madras by Initiative for Biological Systems Engineering (IBSE), an interdisciplinary group dedicated to pioneering innovative approaches and algorithms that integrate multi-dimensional data across scales to understand, predict and manipulate complex biological systems.

Highlighting the importance of this Research Collaboration, Prof. Gagandeep Kang, Executive Director, THSTI, said, "Our ability to understand, predict and manage human health and disease is changing rapidly with the application of new technologies that can identify changes at organism, organ system, cellular and molecular levels over time by careful study of patients and their outcomes. The analysis of the massive data sets generated by these studies is a critical need for which there has, so far, been limited capacity in India. We look forward to working with the IBSE to address problems in maternal and child health through deep engagement and integration."

The broad objectives of this Collaboration include:

Ø Bringing physician-scientists, biologists, engineers and data scientists together to solve public health problems related to maternal and child health,

Ø Applying advanced analytical approaches for prediction of adverse pregnancy outcomes, childhood morbidity and mortality,

Ø Evaluating maternal and childhood consequences of exposure to environmental pollutants,

Ø Studying the role of maternal and childhood nutrition on pregnancy outcomes, immune response to vaccines and childhood morbidity and mortality, and

Ø Undertaking capacity building exercises for students and young researchers of either Party in the fields of public health research and data science by enabling student exchange programs and training courses.

Addressing the IITM-THSTI Conclave, Prof Mahesh Panchagnula, Dean (International and Alumni Relations), IIT Madras, said, "The idea of making this conversation between who own the data and those who can use this data is still at its nascency. Going forward, every field is going to have a data-based decision maker. This conversation will define the way we make decisions and lead our life going forward."

THSTI will identify public health and clinical needs and research gaps in maternal, neonatal and child health, design observational studies, clinical and community trials to answer the defined research questions and also acquire clinical, epidemiological and biological data with well-defined experimental methods using standardised protocols under quality-controlled settings. Further, it will also participate in analysis and interpretation of clinical, epidemiological and biological data collected in and also work to obtain data or material advantageous for maternal, neonatal, and child health.

IIT Madras will help acquire data that is complementary (such as pollution exposure data), to clinical, epidemiological and biological data that can generate novel insights for research questions of joint interest. The Institute will provide insights based on analyses of data for the design of observational studies, clinical and community trials to answer the identified research questions and to generate results that are generalizable to population/subjects that are not part of the study cohorts.

Speaking about this collaboration, Dr. Himanshu Sinha, Associate Professor, Department of Biotechnology, IIT Madras, who coordinates the IBSE said, "We are very excited about this collaboration between THSTI and IITM as it will give us access to one of the most comprehensive and detailed Indian dataset on pregnancy outcomes being conducted by THSTI. We will analyse this dataset to develop India-specific models which could be deployed nationwide. Our ultimate goal is to create algorithms to help clinicians reduce maternal and child mortality rates in India."