



**Rolling Advertisement**  
No. BT/DBT/Med-II/Advt-I/2019  
Department of Biotechnology  
Medical Biotechnology Division  
Ministry of Science & Technology  
Government of India

## **Maternal and Child Health Research Programme**

### **Call for Concept Proposal in the area of Developmental Disorders and Diseases of Infancy and Early Childhood**

The peri-natal, infancy and childhood periods are central for understanding human development. Early childhood developmental trajectories of children at risk can predict adverse developmental outcomes and promote well-being. The Department is desirous of promoting research and knowledge generation in order to understand and find newer ways to ameliorate problems and diseases of *Infancy and early childhood*. The program envisages to engage clinicians and basic researchers to generate novel research hypothesis and to design appropriate clinical interventions to prevent prevalence of multitude of such problem.

Fresh perspective and ingenious ideas are invited in order to landscape technologies for primary care and wellness centers and to initiate invention and early-stage development of new medical technologies, application centric discovery and discovery for knowledge generation in the following areas.

#### **Domain 1. Chronic Malnutrition and Cognitive Development**

Malnutrition increases susceptibility and incidence of infections and is associated with diminished response to vaccines. Diarrheal infections and under nutrition can be viewed as being synergistic in their contribution to morbidity and mortality.

- Chronic malnutrition (including fetal under nutrition) and its long term consequences including inter-generational effect.
- Low cost, simple and effective methods (especially non-invasive) for detection of disorders of growth, macro- and micronutrient deficiency in the community,.
- Prevalence and etiology of infections in children with severe acute malnutrition
- Identification of biomarkers of infection in children with severe acute malnutrition
- Pharmacokinetics of various antibiotics in children with severe acute malnutrition

- Optimal treatment strategies (new agents, new regimens, adjunct modalities) for the treatment of systemic infections in malnourished children
- Role of micronutrient supplementation as adjunctive therapy in malnourished children with infections.
- Point of care or minimal technology diagnostics for syndromic tests for childhood infection (fever of  $\geq 5$  days' duration, rash fever, bronchiolitis, lower respiratory tract infections, diarrhea)

## **Domain 2. Autism Spectrum Disorder (ASD)**

- Etiopathogenesis and identification of modifiable risk factors
- Simplified and context specific tools that can be used by frontline healthworkers and non-specialist physicians and nurses for early identification of ASD
- New Complimentary therapies in ASD
- Technology based rehabilitation in ASD

**Domain 3. Congenital Heart Diseases (CHDs)** Despite advances in understanding of development of human heart the exact morphogenesis of cardiac malformations remains elusive. Multiple factors such as genetic factors, maternal factors and environmental factors are thought to result in abnormal development of the heart in fetal life. Recent advances in genomics are also expected to improve causation as well as management of CHDs. The program is aimed to support research for better understanding of causation of congenital heart disease which is likely to affect the management. There is a clear paucity of systematically performed studies to define various morphologic and physiologic characteristics defining management strategies in patients with CHDs. Some of the potential areas are -

- Developmental biology of human heart for understanding CHDs.
- Modifiable maternal environment factors that impact CHD
- Fetal diagnosis and intervention
- Clinical genomics to improve the diagnosis and management of CHDs.
- Robust systematic database of morphological, physiological and clinical characteristics of various types of CHDs for AI application.

## **Domain 4. Birth Asphyxia, Hyperbilirubinemia and Hypothermia**

- Innovating affordable, robust fetal heart monitors
- Innovating compact/foldable phototherapy machines with high irradiance
- Development of robust, effective and affordable neonatal equipment: Ventilators, resuscitation equipments, transcutaneous bilimeter, breast pumps, warming, hypothermia detection devices

- Development and validation of a simple tool for parents and frontline health workers and non-specialist physicians for early identification of developmental delays, disability and impairments in at risk neonates.
- Low cost kits for checking G6PD status in neonates
- Development of low cost instruments for bilirubin estimation at primary care settings

#### **Domain 5. Infections: Management in vulnerable groups**

- Acute respiratory infections / childhood pneumonias
- Develop simple low cost diagnostic technologies for detection of common viral pathogens causing pneumonia,
- Develop and validate biomarkers for diagnosis of pneumonia
- Easy to use technologies for diagnosis and case management of childhood pneumonias

**The Concept proposals with credible ideas and those with translational potential would be preferred.**

This is a rolling advertisement and would remain open throughout the year. Concept proposals received would be evaluated twice in a year based on the schedule of Technical Expert Committee (TEC) meeting of Maternal and Child Health- Developmental and Disease Biology programme (MCH) which is likely to be held in January/February and July/August of each year.

The evaluation would be in accordance with the stated goals of the programme, uniqueness, track record of the main investigators and feasibility of doing the proposed research in their present setting. The decision would thereafter be communicated to investigators/coordinators. While experience in the area will be valued but will not be limiting for the right proposal.

**How to Apply:** Interested investigators- Researchers/Scientists and clinicians with novel ideas in the identified domains working in recognized R&D Institutions can come together to submit the concept proposals through email ([medbio2.hddb@gmail.com](mailto:medbio2.hddb@gmail.com)) as per the format given below. Two hard copies of the same should be sent to Dr. Anamika Gambhir, Department of Biotechnology, Block-2, Room no.610, CGO Complex, Lodhi Road, New Delhi-110003, bearing the Advertisement No., title and Domain on the envelop in the format ‘**Concept proposal in the area of Developmental Disorder and Diseases of Infancy and Early Childhood: -----(enter Domain)**’ . For any specific queries you may contact Dr Anamika Gambhir (9870396331)

*Note: Format: Single space; Font: Arial; Size 12*

## **Proforma**

1. (i) Project/ Programme Title and Domain
  - (ii) Specific Area of your proposal
  - (iii) Single or Multi-centric
  - (iv) Names(s) of the Investigator(s),
  - (v) Institute address, Contact numbers etc.
2. Indicate category of domain expertise and potential PIs (Basic and/or clinical research). Multifaceted and multi-institutional collaborations encouraged.
3. Scientific Hypothesis and key questions to be addressed and Primary Objectives (100 words)
4. Detailed work plan i.e., how will you test the hypothesis/approach towards development of technology and solutions? (500 Words)
5. What is the novelty in your approach?
6. Feasibility of doing the study in your present institution/workplace.
7. Tentative budget (under the headings Non-recurring/Manpower/Recurring).
8. List 4-6 statements on expected deliverables (a) study outcomes (or) translational outcomes.
9. Professional Experiences and Training relevant to the project
10. CV of the investigators as per format (Annexure I).
11. Any other highlights

**(Annexure I)**

- 1. Name :.....
- 2. Date of Birth : ..... 3. Sex (M/F):.....
- 4. Designation .....
- 5. Department : .....
- 6. Institute/University : .....
- 7. Address :.....  
.....
- PIN : .....Telephone : ..... e-mail:.....
- 8. Specialization/Research Areas.....

9. Education Details (Post-graduation onwards & Professional Career)

SR. NO.	DEGREE AWARDED	INSTITUTION/PLACE	YEAR	FIELD OF STUDY

10. Employment Details: Position and Employment (Starting with the most recent employment)

SR. NO.	INSTITUTION/PLACE	DESIGNATION	FROM DATE	TO DATE

- 11. Awards/Honors Details
- 12. Details of ongoing/completed projects.
- 13. Publications of the last 5 years in relevant areas.