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GARBH-INi — India's Largest Pregnancy Cohort Uses AI to Tackle Preterm Births

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WHY IN NEWS

The GARBH-INi initiative — South Asia's largest pregnancy cohort study — is enrolling approximately 12,000 women and deploying AI-driven diagnostics to address India's preterm birth crisis, which accounts for 3.6 million of the country's 27 million annual births.

About GARBH-INi

FEATURE	DETAIL
Full form	Group for Advanced Research on Birth outcomes — an interdisciplinary INitiative
Leading institution	Translational Health Science and Technology Institute (THSTI), Faridabad
Under	Department of Biotechnology (DBT), Ministry of Science & Technology
Cohort size	~12,000 women enrolled
Biorepository	1.6 million biospecimens
Imaging data	1 million ultrasound images
Distinction	South Asia's largest pregnancy cohort

India's Preterm Birth Crisis

India ranks **first globally** in absolute number of preterm births:

METRIC	VALUE
Total annual births in India	~27 million
Preterm births (before 37 weeks)	~3.6 million (13.3%)
Global preterm births	~15 million/year
Preterm birth: Leading cause of	Under-5 mortality worldwide
India's share of global preterm births	~24%

AI-Driven Solutions

Pregnancy Dating Models

Traditional pregnancy dating relies on the Last Menstrual Period (LMP) method, which is inaccurate for ~40% of Indian women due to irregular cycles and late booking. GARBH-INI's AI models use **ultrasound measurements and biochemical markers** to predict gestational age more accurately.

Microbiome-Based Predictors

The vaginal and gut microbiome composition during pregnancy has been linked to preterm birth risk. GARBH-INI's machine learning models identify high-risk microbial signatures in early pregnancy, enabling targeted interventions.

Rapid Point-of-Care Diagnostics

Designed for **Accredited Social Health Activists (ASHAs)** and Auxiliary Nurse Midwives (ANMs) at Primary Health Centres:

- Paper-based rapid tests that detect preterm birth biomarkers from a drop of blood
- Results in 15–20 minutes without laboratory equipment
- Enables early referral of high-risk pregnancies to district hospitals

AI in Healthcare — SAHI Framework

The Ministry of Health has unveiled the **SAHI (Strategy for AI in Healthcare for India)** framework to govern AI deployment in the health sector:

- AI-based cancer detection tools classified as **Class C medical devices** under regulatory oversight
- **MegCan Care Project:** Free AI-driven cancer screening for 1 million individuals
- Focus areas: radiology, pathology, maternal health, disease surveillance

THSTI and DBT

The Translational Health Science and Technology Institute (THSTI) is part of the **NCR Biotech Science Cluster** in Faridabad — India's largest biotech research campus:

INSTITUTION	FOCUS
THSTI	Translational research — lab to clinic
RCB (Regional Centre for Biotechnology)	International training and education
NIBMG (National Institute of Biomedical Genomics)	Genomics and precision medicine
DBT-BIRAC	Biotech startup funding and incubation

UPSC RELEVANCE

GARBH-INi full form, THSTI, DBT, WHO definition of preterm birth, India's rank in preterm births

Health policy — maternal and child health, role of AI in public healthcare delivery

Science & Technology — AI applications in healthcare, indigenisation of diagnostics

★ FACTS CORNER — KNOWLEDGEPEDIA

GARBH-INI:

Full form: Group for Advanced Research on Birth outcomes — an interdisciplinary INitiative

Led by: THSTI, Faridabad (under DBT)

Cohort: ~12,000 women; 1.6 million biospecimens; 1 million ultrasound images

India's preterm births: 3.6 million/year (1st globally in absolute numbers)

Preterm defined: Birth before 37 completed weeks of gestation

AI IN HEALTHCARE (INDIA):

SAHI: Strategy for AI in Healthcare for India (MoHFW framework)

AI cancer tools: Classified as Class C medical devices

MegCan Care: Free AI-driven cancer screening for 1 million people

AI Pap smear accuracy: 94%; 380x faster than manual pathology

OTHER RELEVANT FACTS:

THSTI location: NCR Biotech Science Cluster, Faridabad

DBT: Department of Biotechnology (Ministry of Science & Technology)

Global preterm births: ~15 million/year; 1 million die from complications annually

SDG 3.2: End preventable deaths of newborns and under-5 children by 2030

India's NMR (Neonatal Mortality Rate): ~20 per 1,000 live births (SRS 2022)

Sources: [The Hindu](#), [Indian Express](#), [DBT](#)

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