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Saksham MNCH Aavishkar Challenge

A compendium of transformative solutions

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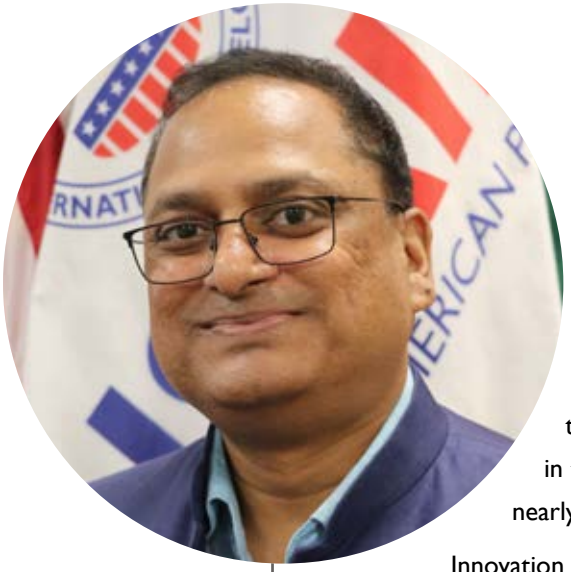


Foreword

For decades, the United States Agency for International Development (USAID) has worked in close partnership with India to address many of the country's most pressing health challenges, including maternal and child mortality, polio, HIV, and tuberculosis. USAID supports the Government of India's goals to reduce preventable maternal and child deaths by providing technical expertise across continuum of care and improving quality of care in the public and private sector. USAID is using innovative training methods to nearly double the knowledge of health providers and quadruple their skill sets.

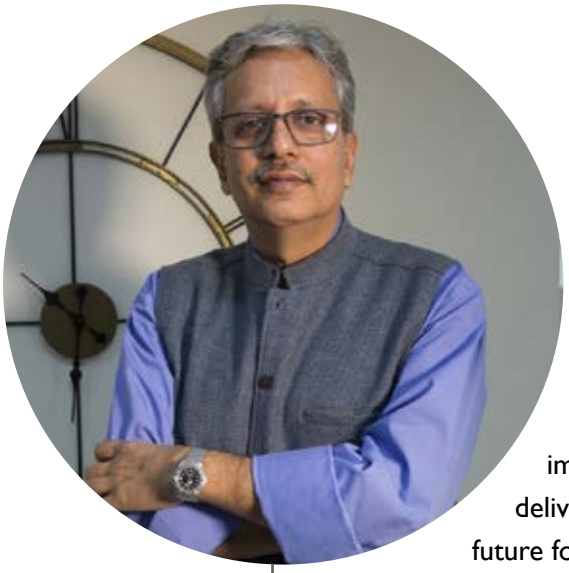
Innovation has long been recognized as a driving force for positive change. In the context of maternal, newborn, and child health (MNCH), it holds the key to addressing the complex challenges that hinder access to quality health care for women, newborns, and children in marginalized communities. Today, the United States and India are urgently working together to ensure that we both leverage our resources to do the most good. Given India's dynamic economy and growth trajectory, its status as a leader in innovation, and its diverse set of private and public sector stakeholders, USAID is working with the Government of India, the private sector, and civil society to test and scale innovative development solutions in India, as well as regionally and globally.

USAID-supported Saksham Aavishkar Challenge, organized by PATH under USAID's Saksham program, has enabled the identification of groundbreaking interventions that hold the potential to save lives and transform health systems. USAID is proud to introduce the Saksham Aavishkar MNCH Innovations Compendium, a remarkable collection of solutions that embodies the transformative power of innovation in the MNCH space. These innovations not only address critical gaps but also have the potential to empower local communities, frontline health care workers, and policymakers.

In Assam, Odisha, and Chhattisgarh, where the Saksham project has been actively engaged, the pressing need for enhanced MNCH outcomes cannot be overstated. By prioritizing innovations, we can make significant strides in reducing maternal and child mortality, improving access to antenatal and postnatal care, and ensuring the well-being of newborns.

I extend my heartfelt appreciation to the Saksham team for curating this compendium, and I am deeply grateful to the dedicated individuals, organizations, and communities whose unwavering efforts have brought these innovations to life. May this compendium act as a catalyst, fostering greater collaboration, resource mobilization, and knowledge sharing. Together, let us continue investing in innovation, recognizing it as a vital path to address MNCH challenges and create a healthier, more prosperous future for women, newborns, and children

Dr. Sachin Gupta
Maternal and Child Health Advisor
USAID India



Message

I am delighted to present the *Saksham Aavishkar MNCH Innovations Compendium*, a remarkable collection that celebrates the power of innovation in transforming the maternal, newborn, and child health (MNCH) landscape. I am honoured to witness the extraordinary impact that innovative approaches have on revolutionizing MNCH care delivery, driving improvements in health outcomes, and creating a brighter future for women, newborns, and children.

Innovation has always been at the heart of progress, and its significance in the field of MNCH cannot be overstated. The Saksham Aavishkar Challenge, a visionary initiative organized by PATH India under the Saksham program, has paved the way for remarkable advancements, fostering a culture of creativity, collaboration, and relentless pursuit of solutions. Through the generous support of the United States Agency for International Development (USAID), we have been able to harness the potential of innovation and unlock new possibilities to address complex challenges in MNCH.

This compendium serves as a testament to the transformative power of innovation in MNCH. Within its pages, you will discover a rich tapestry of innovative interventions, technologies, and approaches that have the potential to reshape the face of MNCH care. From cutting-edge digital solutions to community-driven initiatives, each innovation represents a bold step toward achieving equitable access to high-quality health care, reducing maternal and child mortality rates, and ensuring the well-being of the most vulnerable populations.

Innovation goes beyond mere invention; it represents a mindset, a way of thinking that challenges conventional wisdom and embraces new possibilities. It empowers individuals, communities, and health care systems to push boundaries, reimagine traditional models, and drive systemic change. The innovations featured in this compendium exemplify the spirit of ingenuity and collaboration as well as the relentless pursuit of excellence that is essential for transforming the MNCH space.

At PATH India, we firmly believe that innovative approaches hold the key to overcoming the complex and interconnected challenges in MNCH. By combining the latest scientific advancements with deep contextual understanding, we can develop tailored, context-specific solutions that bridge gaps in service delivery, improve the quality of care, and enhance health outcomes for all.

I would like to express my heartfelt gratitude to the incredible innovators, health care providers, researchers, and policymakers who have dedicated their time, expertise, and unwavering commitment to drive innovation in MNCH. Their relentless pursuit of excellence has not only saved lives but also inspired a new wave of transformative change, igniting hope and optimism for a healthier future.

I would also like to extend my sincere appreciation to USAID for their generous support and unwavering belief in the power of innovation to shape the MNCH landscape. Their partnership and investment in Project Saksham have been instrumental in fostering an environment where innovation thrives and ground breaking solutions emerge.

As you peruse through the different innovations and remarkable progress captured in this compendium, I invite you to be inspired, to envision a future where every woman, every newborn, and every child receives the care they deserve. Let us seize this opportunity to celebrate the achievements of those at the forefront of MNCH innovation and redouble our efforts to nurture, scale, and replicate these successes.

Neeraj Jain
Country Director, India and
Director, South Asia PATH

Message

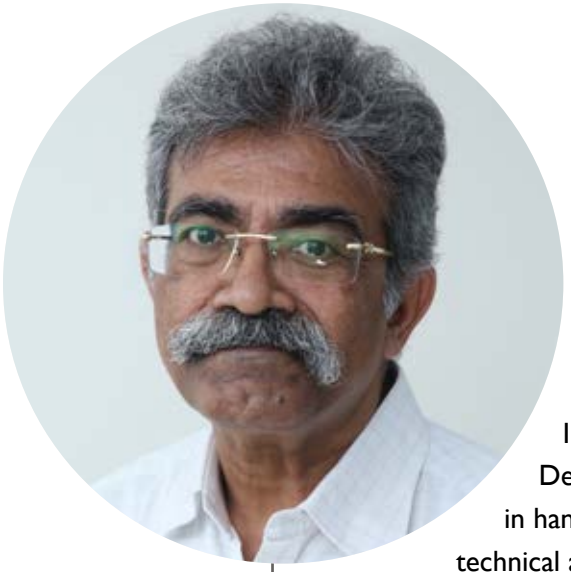
It is my pleasure to present the *Saksham Aavishkar MNCH Innovations Compendium*, which exemplifies the power of innovation in the field of maternal, newborn, and child health (MNCH). The compilation stands as a testament to the steadfast commitment of many individuals, organizations, and communities in their efforts to transform health care for women, newborns, and children across India.

With support from the United States Agency for International Development (USAID), this initiative has successfully brought together brilliant minds, passionate innovators, and dedicated health care professionals to address the urgent challenges encountered in MNCH programs.

Innovation encompasses more than the mere discovery of novel solutions; it encompasses challenging the existing norms, embracing creativity, and embracing the boundless possibilities of the unfamiliar. It involves empowering communities, amplifying voices, and ensuring that no mother, newborn, or child is left behind. The narratives and accomplishments shared within this compendium bear witness to the incredible progress made in enhancing MNCH outcomes and promoting equitable access to high-quality care.

I extend my heartfelt appreciation to the entire team of contributors who have made this compendium possible. Together, we can persistently push the boundaries, nurture collaborations, and construct a world where every mother, newborn, and child can flourish, regardless of their circumstances. May this compendium serve as a wellspring of inspiration, prompting us all to take bold strides, forge new alliances, and continue our unwavering pursuit of innovative solutions for MNCH care. Let us embrace the ethos of innovation and solidarity as we collectively strive to construct a healthier and more equitable future for generations to come.

Dr. Sudhir Maknikar
Director – Family Health, South Asia
India Country Program, PATH



Message

Saksham is a transformative endeavor that aims to change the landscape of maternal, newborn, and child health (MNCH) in the states of Assam, Chhattisgarh, and Odisha.

In close alignment with the vision of the US Agency for International Development (USAID), the Saksham consortium works hand in hand with national and state governments, providing targeted technical assistance while showcasing innovative interventions for scalable implementation. The goal is to support the government through novel approaches, leveraging innovations and a continuum of care model to enhance MNCH outcomes.

It is with immense pleasure and pride that I welcome you to browse through the *Saksham Aavishkar MNCH Innovations Compendium*—an extraordinary collection that showcases the transformative power of innovation in the realm of MNCH care.

The Saksham Aavishkar Challenge, organized by PATH India as part of the Saksham program, has played a pivotal role in fostering a culture of innovation and collaboration.

This compendium unveils the groundbreaking innovations that emerged from the Aavishkar challenge organized as part of Saksham and showcases the remarkable progress made in MNCH interventions, including the introduction of point-of-care devices, solutions for frontline workers and health care providers, and innovative process enhancements aligned with existing guidelines. These pioneering solutions have the potential to revolutionize maternal and child health care.

The innovations challenge marks a significant milestone in the journey of Project Saksham, as it showcases the transformative potential of new technologies in addressing critical gaps in maternal and child health care.

I extend my heartfelt appreciation to all the participants, experts, and partners who contributed to this Aavishkar challenge. Your dedication, ingenuity, and unwavering commitment to maternal and child health are an inspiration to us all. Together, let us embrace the power of innovation to create a brighter future for mothers and children in Assam, Chhattisgarh, Odisha, and beyond.

Dr. Dinesh Baswal
LEAD - MNCH
India Country Program, PATH

Contents

Background

Over the years, India's progress against maternal and infant mortality has witnessed a remarkable transformation. The Maternal Mortality Ratio (MMR), once alarmingly high at 556 in 1990, has descended to 97 in recent years (SRS 2018–20). Likewise, the rates of infant mortality and mortality among children under the age of five have also undergone a profound shift from 78.9 and 109.3 (NFHS 1992–93) to 35.2 and 41.9 (NFHS 2018–19), respectively.

However, the rates of maternal mortality, neonatal mortality, and the loss of young lives, while declining significantly, need further improvement. Certain regions bear the weight of MMR, with levels reaching twice the national average. States such as Assam, Rajasthan, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, and Chhattisgarh are still grappling with persistently high MMR, demanding intensified focus in these regions.

Saksham is a four-year (2021–25) USAID-funded maternal, newborn, and child health (MNCH) Accelerator initiative that supports national and state health systems through new approaches, which include harnessing innovations to boost the implementation of high-impact interventions for improving maternal, newborn, and child health through a continuum-of-care approach. The consortium, spearheaded by PATH, is supported by partners such as Jhpiego, Piramal Swasthya, and Deloitte.

The key objectives of Saksham are as follows:

1. **Improve access to and use of evidence based, high-quality MNCH information, services, and interventions for scalability and sustainability.**
2. **Strengthen the capacity of health systems to deliver improved, institutionalized, measured, documented, and responsive services to the needs of the population.**
3. **Establish cross-sectoral collaboration and innovative partnerships between MNCH and non-MNCH organizations with a major focus on tea garden hospitals in Assam.**

Saksham Interventions

Saksham, a visionary initiative, embraces a comprehensive approach to achieving its goals by implementing innovative models that strengthen the health care system at various levels: community, facility, district, state, and national. In vulnerable districts of Assam, Chhattisgarh, and Odisha, Saksham is demonstrating 12 innovative models aimed at advocating and scaling up interventions in both intervention and non-intervention states.

At the Community Level

At the community level, frontline workers (FLWs) such as ASHA, ASHA supervisors, and ANMs often lack the necessary skills and tools as well as access to technologies to provide integrated MNCH services. To address this, the **Sashakt AAA** model equips FLWs with the required tools to enhance their skills in identifying, referring, and following up on high-risk pregnancies. Additionally, the model focuses on improving supportive supervision through a living lab approach. In Assam, FLW core groups identified challenges faced by pregnant women in accessing the Wage Compensation Scheme (WCS) in tea garden areas. Through a collaborative campaign called **MAAdol,** the core group, along with the District Program Management Unit (DPMU) and a multi-stakeholder forum, successfully cleared a backlog of beneficiary forms and processed a significant amount of INR 89 lakh as an installment of WCS.

Another model, **VHSNC**, revitalizes existing the community platform known as Village Health, Sanitation, and Nutrition Committee (VHSNC) to enhance community ownership and accountability for improving MNCH services. Additionally, community volunteers are engaged under the Enhancing Service Accountability through a partnerships model to generate awareness about government health initiatives and facilitate access to health services for pregnant women.

At the Facility Level

The **Thinking Beyond Training** model complements the government's capacity-building initiatives by incorporating obstetric drills using mannequins and deploying a low-dose, high-frequency capsule in antenatal care (ANC), intrapartum care, and post-natal care (PNC). Regular mentorship visits and the introduction of the Safe Delivery app further ensure the conversion of knowledge into skills. Skill labs are also established in medical colleges to train current and future health care providers in intrapartum care.

To improve public health facilities, the government launched the **SUMAN (Surakshit Matritva Abhiyaan)** initiative, requiring each facility to meet certain service standards. The e-SUMAN model supports this initiative by digitizing checklists and reducing paperwork as well as strengthening beneficiary feedback.

To ensure a continuum of care and respectful maternity care, the **Saarthi** model digitally links community-level interventions with facility-level interventions. Pregnant women are registered through FLWs and linked to the nearest health facility, enabling timely identification, referral, and management of high-risk pregnancies and post-delivery follow-up.

At the District Level

The **Total District** approach model supports public and private health care facilities in achieving quality certifications—LaQshya for public facilities and Manyata for private facilities—ensuring quality services for pregnant women. The **District Task Force (DTF)** model strengthens coordination among program teams working on maternal and child health in government settings. Furthermore, the **Saksham dashboard** provides evidence-based data on MNCH indicators, empowering members to make informed decisions on MNCH services.

In the tea garden areas of Assam, the **Sangathan model** establishes multi-stakeholder forums to address unique challenges faced by tea garden communities in accessing health services. These forums bring together key stakeholders to identify and resolve issues specific to these communities.

At the State Level

The **State Technical Advisory Group** constitutes a committee to discuss MNCH service delivery issues, with a customized dashboard that assesses the state's performance and tracks service quality at different levels.

At the National Level

The **National Technical Advisory Group** serves as an expert group for the review and recommendation of innovations and best practices in MNCH. The group provides policy recommendations to the Ministry of Health and Family Welfare based on their expertise.

Finally, the **Saksham Aavishkar** Innovation Challenge identifies technology innovations, including point-of-care diagnostics to screen and refer high-risk cases. The winning solutions, along with other promising ones, will be showcased in a compendium and demonstrated in Saksham intervention areas.

In addition to these models, Saksham strengthens partnerships with government and private stakeholders to address MNCH issues at the local, state, and national levels. **Mobile Medical Units (MMUs)** in tea garden areas of Assam receive technical assistance to improve services, while hospital management committees in tea garden hospitals are supported to maintain facility standards.

Through this comprehensive package of interventions, Saksham effectively addresses key gaps in MNCH and promotes equitable access to high-quality services. The project collaborates with the national and state health systems to demonstrate best practices and provides technical assistance to scale up successful initiatives based on the results of the demonstrations.

Saksham Aavishkar Challenge

Through the Saksham Aavishkar Innovation Challenge, PATH leveraged the capabilities of its Impact Lab and the partner consortium to bring together innovators, technology manufacturers, and other relevant stakeholders including the government, health agencies, and providers for the introduction of transformative solutions in the MNCH setting.

Saksham outlined the following pivotal objectives to be accomplished through the Aavishkar challenge:

1. **Identification of user-centric innovations (products, processes, and partnerships) across the continuum of care.**
2. **Selection of the most promising innovation that may be piloted in Saksham geographies.**
3. **Development of a compendium of innovations identified through the challenge.**
4. **Review of selected innovations by the National Technical Advisory Group for MNCAH+N.**

Saksham Aavishkar Compendium

This compendium features a wide range of innovations that include low-cost diagnostic tools for the early detection of maternal and child health complications and community-based interventions for improved MNCH outcomes.

By highlighting successful MNCH innovations, the Saksham Aavishkar compendium amplifies their visibility and creates opportunities for scaling up these solutions. It serves as a source of inspiration for other innovators, health care professionals, and policymakers, encouraging them to replicate and adapt successful models to their contexts.

Saksham Project Partners

Supported by

USAID is the world's premier international development agency and a catalytic actor driving development results. USAID works to help lift lives, build communities, and advance democracy. USAID's work advances U.S. national security and economic prosperity; demonstrates American generosity; and promotes a path to recipient self-reliance and resilience.

MOMENTUM is a suite of innovative awards funded by the U.S. Agency for International Development (USAID) to holistically improve voluntary family planning and maternal, newborn, and child health services in partner countries around the world. Saksham is one of the projects funded by USAID under MOMENTUM.

Consortium Partners

The consortium prime - PATH is forging unique partnerships to address major MNCH challenges as well as deploying human-centered design methodologies, primary health care technologies, innovations, and market intelligence.

Piramal Swasthya is leveraging their digital health and real-world experience of working with the communities and community platforms in the tea gardens of Assam and tribal districts of Chhattisgarh and Odisha.

Jhpiego is leading capacity-building efforts in maternal and neonatal health leveraging digital technology for intra-natal decision support, quality standards, and partnership with the private-sector for high-quality MNCH services.

Deloitte is bringing expertise in the MNCH data management science for integration of existing system for maximum impact.

Aavishkar Partners

Social Alpha

Social Alpha architecture is built around a not-for-profit platform, Foundation for Innovation and Social Entrepreneurship (FISE) and operates through a nationwide network of technology and business incubation infrastructure, sponsored, and enabled by Tata trusts, Government of India, and a number of academic, philanthropic, and corporate partnerships.

Centre for Cellular and Molecular Platforms (C-CAMP)

Centre for Cellular and Molecular Platforms (C-CAMP) is an initiative of the Department of Biotechnology, Government of India. Established in 2009 with a mandate to enable cutting-edge life sciences research and innovation, C-CAMP is one of India's most exciting life sciences innovation hub bringing together academia, industry, and the start-up ecosystem all on one platform.

National Neonatology Forum (NNF)

National Neonatology Forum (NNF) is a strong and large body of more than 9,000 neonatologists across India and abroad. NNF has been actively involved in advocacy, policy making, research, and ensuring quality health care to newborn for the last four decades.

WHO CC for Training and Research in Newborn Care, Division of Neonatology, Department of Pediatrics, AIIMS, New Delhi

Established in 1962 and designated as WHO CC in 1997 as well as a center of excellence under the Government of India, this division has been at the forefront of education, patient care, R&D, evidence synthesis and policy development, and advocacy in newborn health in India, Southeast Asia and beyond. The faculty led many initiatives in the region, such as Neonatal Resuscitation, Kangaroo Mother Care, Neonatal ventilation, CPAP, and Quality Improvement amongst others.

The INCLEN Trust International

The INCLEN Trust International is a not for profit research organization conducting collaborative, multi-disciplinary studies on high-priority global health issues. The core function units of INCLEN are the Clinical Epidemiology Units (CEU) and Clinical Epidemiology Research Training Centre (CERTC), which are spread across 89 academic institutions in 34 countries. INCLEN is recognized as a Scientific and Industrial Research Organization (SIRO).

WINNERS

Saksham MNCH Aavishkar Challenge

Fetosense

AI-based fetal heart monitor

CareNX

Organization

CareNX Innovations Pvt. Ltd

About the innovation

This is a wireless, interactive and smartphone-based NST/ CTG machine designed to monitor pregnancy remotely from anywhere, at any time. This device provides the best possible fetal-monitoring experience possible for doctors and mothers.

What is the existing gap being addressed by this technology?

- Undiagnosed preterm asphyxia causes 50 percent (300,000) of total intra-uterine fetal deaths each year, leading India to consistently fail in achieving its SDG target of bringing Infant Mortality Rate (IMR) to under 14. The number of gynecologists to pregnancy ratio can get as low as 1:1700 in resource-poor settings in India, due to which maternal care in such areas is often provided by general physicians (GPs). However, GPs lack access to cardiotocography (CTG) machines to diagnose fetal preterm/asphyxia due to their high cost and bulkiness as well as the necessary expertise to run the machines.

How is the gap being addressed by the solution?

- CareNX has developed and patented an artificial intelligence (AI) based portable fetal monitor called Fetosense. This device has been able to achieve a 52 percent reduction in fetal complications in more than 160,000 pregnancy cases with the help of auto-analysis, remote fetal monitoring, and timely consultations.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Yes; this technology is suitable for use at community and primary health centers.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- More than 700 gynecologists across hospitals and clinics are using Fetosense. Over 2,500 pregnancies are being screened on a weekly basis, totaling more than 160,000 cases so far. The Indian government has also incorporated Fetosense into the National Health Mission's project implementation plan for FY2022–2023, which will enable access to fetal monitoring at tertiary-care facilities covering more than 100,000 pregnancies each year.

Product specifications

-

Dimensions (l x w x h)	21 x 30 x 7 cm
Weight	4 kg
Consumables	No consumables
Product lifetime	8 years
Consumables shelf life	NA

Product name	Version	Price in INR (inclusive of GST)	AMC (10% of MRP)
Fetosense Basic	V1.0	145,600	14,560
Fetosense Twin	V2.0	269,999	26,999
Central Monitoring System (CMS)	With 4:1 and 8:1 configuration as per requirement	600,000	60,000

Team Members

Mr. KRS Jamwal
Executive Director
TATA Technologies

Mr. Rajesh Kamble
Co-Founder
DigiTrans Technologies

Mr. Prashant Jawanjal
Co-Founder
DigiTrans Technologies

Dr. Rohit Srivastava
Head of Biomedical
IIT Bombay

Dr. Anupama Bhute
Head of Gynecology
Nelson Hospital, Nagpur

Interdisciplinary team of doctors, engineers, and business personnel

NeoWarm®

Instant, portable, non-electric warm blanket

Organization

Parisodhana Technologies Pvt. Ltd

About the innovation

NeoWarm® is an easy-to-use warm blanket to prevent hypothermia in newborn babies. It is based on air-activated heating technology to provide warmth on demand, without requiring any external source of energy (or equipment) such as electric power, hot water, or microwave ovens.

What is the existing gap being addressed by this technology?

- **Gap 1:** Many premature and low birth weight babies lose their body temperature, become hypothermic, during transport from remote locations to well-equipped NICUs and SNCUs due to lack of viable methods in LMICs to provide warmth during transport.
  Gap 2: Availability of radiant warmers at NICUs, away from the postnatal wards makes it difficult to achieve zero separation between mother and the newborn. The baby needs to be removed completely from the warmer for breast feeding or pumped milk will be offered to the baby. Both these gaps are being addressed by NeoWarm®.

How is the gap being addressed by the solution?

- NeoWarm® can be used to keep the baby next to the mother in the postnatal ward and facilitates breastfeeding while continuing to receive warmth, thereby addressing a major challenge with radiant warmers.

Is the technology suitable for low - and middle-income countries (LMIC)?

- With no capital or maintenance cost and no need for specially trained human resources, which happens to be a major gap in LMICs, NeoWarm® is the perfect solution for offering right care, at any time or place.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- **TRL – 8**
  A semi-automatic manufacturing facility is currently available for NeoWarm® heating elements in Hyderabad, Telangana, India. NeoWarm® wraps will be stitched by female artisans as per design specification and QC aspects, and with the material provided by Parisodhana - established partnerships with female self-help groups supported by Tata Power, Tata Steel, and others.

Product specifications

Dimensions (l x w x h)	**NeoWarm® Wrap** - 490 mm x 285 mm **NeoWarm® heating element** - 250 mm x 170 mm
Weight	< 1 kg
Consumables	• Heating elements (3 provided in each pack) • 2 diapers • 2 sterile sheets to wrap the neonate
Product lifetime	24 hours (once activated each element provides up to 8 hours of warmth)
Consumables shelf life	24 months
List price	INR 1,299 (expected at INR 999 with scale)

Team Members

Aruna Rangavajjula
Co-Founder
Parisodhana Technologies Pvt. Ltd

Satyanarayana Kuchibhatla
Co-Founder
Parisodhana Technologies Pvt. Ltd

Dr. Ajay Karakoti
Co-Founder
Parisodhana Technologies Pvt. Ltd

Phani Ram Thangirala
Vice President, Business Development
Parisodhana Technologies Pvt. Ltd

AlloTricorder

savemom

Organization

SaveMom Pvt. Ltd
(company under JioVio Healthcare)

About the innovation

This Artificial Intelligence of Things (AIoT)-based virtual maternal care platform would provide pregnant women with access to continuous monitoring and personalized care.

What is the existing gap being addressed by this technology?

- The global maternal mortality rate is 216 deaths per 100,000 live births and the neonatal mortality rate is 12 deaths per 1,000 live births. These rates are particularly high in LMICs.

How is the gap being addressed by the solution?

- AIoT-based virtual maternal care platforms have the potential to improve maternal and neonatal health outcomes by providing pregnant women with access to continuous monitoring and personalized care. This platform would use wearable devices and an AI software to collect data on a woman's vital signs, symptoms, and activity levels. This data would be then analyzed by AI algorithms to identify potential problems early on. If a problem is identified, the platform would alert the woman's health care provider so that they can intervene promptly. The platform would also provide the woman with personalized information and resources on pregnancy, childbirth, and parenting.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Yes.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- The product is ready for commercial production.

Product specifications

Dimensions (l x w x h)	127 x 76 x 25 mm
Weight	0.4 kg (with box) 1.1 kg (without box)
Consumables	Allotricorder Pressure monitoring cuff USB cable User manual
Product lifetime	1-year warranty
Consumables shelf life	Rechargeable (100 tests per full charge)
List price	INR 30,000 (Price may vary based on volume of order)

Team Members

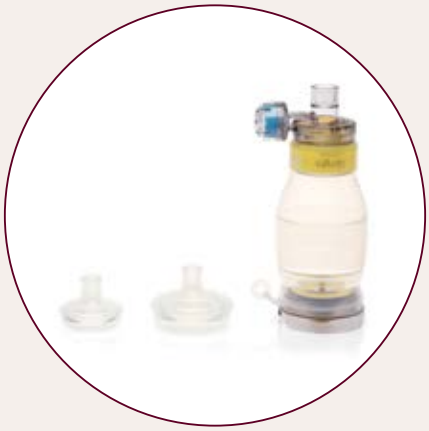
Senthil Kumar.M
Head - Product Innovations
CEO & Co-Founder

J. Dhinesh Pandian
Product - Marketing & Sales Head,
COO & Co-Founder

RUNNER UP

Saksham MNCH Aavishkar Challenge

Safer Birth Innovations



Organization

Laerdal Global Health

About the innovation

The Safer Birth Innovations is a collection of both training and clinical tools to help prevent and treat the leading causes of newborn and maternal deaths. The training tools consist of a NeoNatalie Live manikin, which is able to simulate various patient cases and provide objective performance feedback to help build competence and confidence in health workers. The clinical tools in the bundle consist of Moyo (fetal heart rate monitor), NeoBeat (newborn heart meter), Upright (pre-term and newborn bag mask) and Penguin Newborn Suction.

What is the existing gap being addressed by this technology?

- Early identification of fetal distress and appropriate resuscitation at birth is one of the most effective interventions to prevent complications of birth asphyxia.

  Established in 2012 at Haydom Lutheran Hospital in Tanzania, the Safer Births consortium has become the largest research and development program for newborn resuscitation in the world. As a result of the Safer Births research, four innovative tools were made to enable health workers to make time-critical lifesaving decisions on the spot. The Safer Births Bundle is a collection of both training and clinical tools to ultimately help prevent and treat the leading causes of newborn and maternal deaths.

  Research has showed that by using these new tools in a systematic way, performing on-site frequent refresher trainings, and using data for quality improvement, each midwife was able to save two more lives every year.

How is the gap being addressed by the solution?

- The Safer Births Bundle is a collection of both training and clinical tools to help prevent and treat the leading causes of newborn and maternal deaths.

  ### Clinical innovations

  - Fast and reliable fetal and newborn heart rate monitoring, efficient bag mask ventilation, and improved maternal care
  - Tools used:
    - » Moyo Fetal Heart Rate Monitor
    - » NeoBeat Newborn Heart Rate Meter
    - » Upright Bag Mask

  ### Training innovations

  - In-service simulation-based training for Helping Babies Breathe/ Essential Newborn Care (HBB/ENC)
  - Tools used:
    - » NeoNatalie Live Newborn Ventilation Trainer (a smart manikin for training newborn resuscitation skills, which provides immediate feedback on skills training and team scenarios.)

Is the technology suitable for low - and middle-income countries (LMIC)?

- Yes, this technology is simple, durable, culturally adaptable, and affordable.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

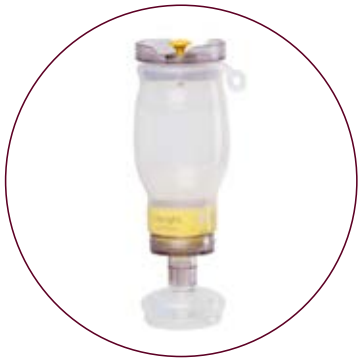
TRL – 9

The technology has been applied in its final form; it is operational and in the market.

Product specifications

Moyo: Fetal heart rate monitor

Dimensions (w x h x d)	96 x 96 x 24 mm
Weight	300 g (main unit + ultrasound transducer)
Consumables	• Abdominal transducer belt (pack of 3) • Neck strap (pack of 3) • Battery charger (5V USB adapter) • USB cable (1.5 m)
Product lifetime	2 years
Consumables shelf life	NA
List price	INR 39,000 (excluding GST and freight)

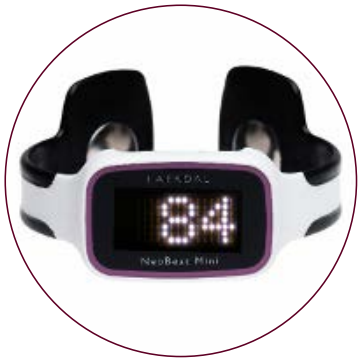


Upright bag mask

Dimensions (l x b x h)	73.5 x 9.3 x 21.9 cm
Weight	0.1892 kg
Consumables	• Upright is supplied with mask sizes 0 and 1 • Oxygen kit can be bought separately
Product lifetime	3 years
Consumables shelf life	NA
List price	INR 3,194 (excluding GST and freight)

Upright is also available with positive end-expiratory pressure (PEEP), especially designed for use on small babies.

NeoBeat - Newborn Heart Meter



Dimensions (l x b x h)	83 x 87 x 40 mm
Weight	31 g
Consumables	• Wall-mounted charging holder • Battery charger (5 V USB wall adapter) • USB cable (1.5 m)
Product lifetime	Rechargeable lithium battery (3–6 years, depending on use)
Consumables shelf life	NA
List price	INR 21,753 (excluding GST and freight)

The NeoBeat - Newborn Heart Meter is available in two sizes:

- **NeoBeat:** For newborns weighing 1.5–5 kg
- **NeoBeat Mini:** For newborns weighing 0.8–2 kg

NeoNatalie Live: Newborn ventilation trainer

Dimensions (l x b x h)	49 x 24 x 12 cm
Weight	1730 kg (± 10 g)
Consumables	• Baby cap • Baby blanket • USB charger and cable • App (available in App Store and Google Play) Products like Upright, NeoBeat, and mobile devices may be purchased separately.
Product lifetime	2 years (if properly stored and maintained) It is advised to charge the device occasionally if stored for a long time.
Consumables shelf life	NA
List price	INR 32,683 (excluding GST and freight)

Team Members

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Laerdal Global Health

NOTABLE MENTIONS

Saksham MNCH Aavishkar Challenge

Scanbo D8

Multifunction health vitals monitor

AIF AMERICAN INDIA FOUNDATION

Organization

American India Foundation

About the innovation

Scanbo is an integrated device comprising a thermometer, pulse oximeter, blood pressure monitor, glucometer, and single-lead ECG.
The device can be connected via Bluetooth to any smartphone operating on Android or iOS and measures health vitals via the Scanbo mobile app. Patient data is immediately digitized and stored on the cloud for access and sharing.

What is the existing gap being addressed by this technology?

- **High Maternal and Child Mortalities in MANSI geographies:** Andhra Pradesh accounts for a high number of under-five deaths—35 per 1000 live births. As per NFHS-5, in Uttarakhand, the neonatal, infant, and under-five mortality rates are 32.4, 39.1, and 45.6, respectively.

  Delay in identifying high-risk conditions: Many high-risk conditions like anemia, preeclampsia, and gestational diabetes go untreated during antenatal check-ups.

  Shortage of diagnostic services at the community level: There is no provision for tests (BP, glucose, and temperature) at camps on Village Health Sanitation and Nutrition days.

How is the gap being addressed by the solution?

This solution helps community health workers and MANSI field workers identify high-risk beneficiaries and ensure timely referrals to manage complications in Andhra Pradesh and Uttarakhand project locations.

The key features of this innovation are as follows:

- A handy portable device to measure eight health vitals via five tests
- Identification of high-risk conditions based on the test results
- Timely initiation of home-based care through field workers
- Appropriate referral for facility-based care

Is the technology suitable for low - and middle-income countries (LMIC)?

The device is easy to carry and has been used in hard-to-reach and tribal areas. It is best suited in LMICs for its cost-effectiveness.

A single Scanbo device is suitable for covering beneficiaries in 20–25 villages, making it an economically viable option. The tests cost INR 36 for five tests, namely:

- Temperature
- SpO2
- BP and heart rate
- Glucose
- ECG

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL – 9

The technology has been applied in its final form; it is operational and available in the market. Contract manufacturers are ready to start work at manufacturing facilities.

The commercial product is ready and availabe in the market, prepared to be scaled up. Devices are in stock and more can be delivered within eight weeks of a confirmed order.

Product specifications

Dimensions (l x w x h)	70 x 70 x 15 mm
Weight	0.09 kg
Consumables	Glucose strip
Product lifetime	3 years
Consumables shelf life	2 years

List price

Under the prepaid model, the device comes free of cost and only tests are charged.

INR 3,500 per device per month with a minimum of six months of use. This amount can be used over 12 months. Test charges are deducted from this prepaid amount.

Five tests (temperature, SpO2, BP, heart rate, glucose, and ECG) cost INR 36 per patient, including glucose strip and lancet.

Team Members

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Dr. Arvind Ranjan
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Sucheta Rawat
Program Manager
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Majari Singh
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American India Foundation

Dr. Bharti Dangwal
Senior Program Manager
American India Foundation

Srikrishna Paleru
State Program Manager
Andhra Pradesh
American India Foundation

BabyChecker

DELFT IMAGING SYSTEMS

Organization

Delft Imaging

About the innovation

BabyChecker is a mobile application that uses AI to detect risky pregnancies using ultrasound images.

What is the existing gap being addressed by this technology?

- Lack of access to ultrasound and clinicians in settings leads to high rates of maternal and antenatal mortality. This technology can be used where maternal and antenatal mortality is the highest.

How is the gap being addressed by the solution?

- BabyChecker can be used by any primary health care worker who has no clinical background or prior knowledge in reading ultrasounds. This device is a point-of-care screening tool to triage risky pregnancies in resource-constrained and rural settings.

Is the technology suitable for low - and middle-income countries (LMIC)?

BabyChecker was designed for resource-constrained and rural settings in LMICs. It does not rely on constant electricity supply or connectivity.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL 7
Actual system prototype is near completion or ready and has been demonstrated in an operational environment or is at pilot level.

Product specifications

Dimensions (l x w x h)	20 x 15 x 5 cm
Weight	2 kg (max)
Product lifetime	3 years
List price	• **Ultrasound probe** - INR 224,655 (USD 2,741) • **Mobile app** - INR 359,508 (annually) (USD 4,386)

Team Members

Guido Geerts
CEO

Frank Vijn
Director of Projects

Enya Seguin
Unit Manager

Parviz Ghoddoosi Dehnavi
Deep Learning Engineer

Saans

INNACCEL

Organization

InnAccel Technologies Pvt. Ltd

About the innovation

Saans is an infrastructure-independent, portable, low-skill breathing support system that can be used in all hospital settings and during the transportation of the patient.

What is the existing gap being addressed by this technology?

- Over the last couple of decades, India has made significant strides in reducing infant and neonatal mortality across the country. Unfortunately, the nation still sees around 650,000 neonatal deaths every year. According to UNICEF, prematurity, neonatal infections, and birth asphyxia are the leading causes of neonatal mortality.

  Clinical studies have indicated that breathing support, such as CPAP (continuous positive airway pressure), would be a critical intervention for around 80 percent of these patients. Most neonatal systems are designed for stationary use in the NICU (Newborn or Neonatal, Intensive Care Unit), and require enabling infrastructure

such as compressed oxygen and air lines along with uninterrupted electricity. In India, however, where a significant proportion of the 25 million annual births occur in lower-level hospitals (i.e., primary- or secondary-level facilities), neonatal CPAP therapy is often not available, necessitating transport without adequate breathing support to higher centers with NICUs and functioning neonatal CPAP systems.

There is a strong need for a neonatal CPAP system that can be used at all levels of health care (from labor rooms in PHCs to NICUs in tertiary-care hospitals), and during transport, with minimal infrastructure and skill requirements, to effectively manage respiratory distress and reduce neonatal mortality to help India meet UN Sustainable Development Goals.

How is the gap being addressed by the solution?

- Saans is an infra-independent and easy-to-use device that can be used by untrained nurses and in low-resource settings. This makes it suitable for emerging markets and thereby cater to the biggest section of society.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Saans has a number of unique features that make it effective even in settings without the infrastructure required by existing products. Some of these are listed here:
  - Saans can work with any source of oxygen, such as cylinders and O2 concentrators, unlike other systems that require compressed oxygen lines.
  - Saans has an inbuilt air compressor and air-oxygen blender; it and does not require a compressed air source.
  - The product can provide multiple modes of breathing support in one integrated system.
  - It is battery-powered, portable, and enabled for use during transportation.
  - Continuous parameter monitoring, auto-calibration, and intelligent alarms reduce reliance on caregiver skills.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- **TRL – 9**
  The product is commercially available in the market.

Product specifications

Dimensions (l x w x h)	219 x 212 x 306 mm (main unit)
Weight	~ 4 kg
	HFNC and CPAP circuits and cannulas
Product lifetime	5 years
Consumables shelf life	As per the manufacturing date
List price	INR 2,00,000 (base)

Team Members

A. Vijayarajan
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InnAccel Technologies Pvt. Ltd

Shaunak Patel
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Co-Founder, CEO
InnAccel Technologies Pvt. Ltd

Vibhav Joshi
Co-Founder, Director
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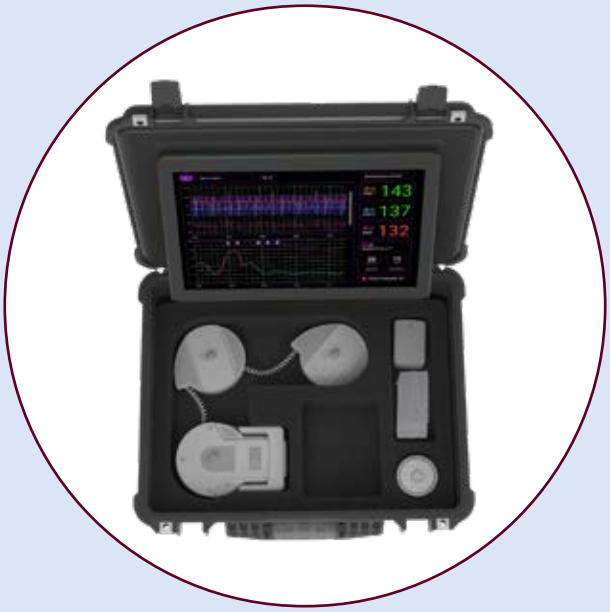
Janitri's maternal and fetal health monitoring system



Organization

Janitri Innovations

About the innovation

Janitri's maternal and fetal remote monitoring system monitors fetal heart rate and uterine contraction in a timely and accurate manner. Unlike other available devices, the system comes with a mobile application that provides a real-time view, auto-interpretation of complicated graphs, and remote monitoring for health care providers. Remote monitoring allows doctors to facilitate early and effective decision making on intrapartum care.

What is the existing gap being addressed by this technology?

- Globally, an estimated 2.6 million stillbirths occur annually, accounting for nearly 7,200 stillbirths daily. Mothers and babies are at a greater risk of dying during the intrapartum period, including labor and delivery. Fetal heart rate, uterine contraction monitoring, and partograph are evidence-based techniques that can help identify maternal and fetal risk factors so that they can be addressed early on in the pregnancy.

  However, these parameters are often monitored inaccurately or ignored due to a lack of manpower and resources in public health care facilities leading to intrapartum complications and death.

  India has only about 60,000 OBGYN specialists to manage 28 million births annually. Most of the deliveries are managed and conducted by staff nurses in low-resource health care facilities where lack of tools for continuous monitoring and skilled expertise can lead to a delay in the early detection of intrapartum complications. This can ultimately delay referral and initiation of treatment.

Need for monitoring pregnancy

The most common causes of maternal mortality are hemorrhage, PPH, eclampsia, sepsis, infections, and obstructive labor that occurs either during delivery or after the delivery. Most of these deaths can be avoided by monitoring pregnant women thoroughly to make timely decisions and avoid any life loss.

Current challenges in monitoring pregnancy

- Public health care facilities are inadequately staffed to manage high patient load.
- A majority of the deliveries are managed by staff nurses and midwives who lack the skills and expertise to manage high-risk deliveries.
- Manual data entry requires time to maintain multiple labor case sheets and delivery registers. In a majority of the cases, these records are filled post-delivery leading to inaccuracy.
- Long-term continuous monitoring using cardiotocography (CTG) causes discomfort to the patients.
- No remote monitoring; experts are required to be present physically.
- Data entry does not trigger a call to action.

How is the gap being addressed by the solution?

Janitri is a social enterprise with a vision that no mother and baby should die due to preventable causes. It has developed and validated a programmatic intervention that includes a device (Doppler and Toco to monitor fetal heart rate and uterine contractions) and a mobile application that interacts with the device and provides the facility of real-time data view, auto interpretation of complicated graphs, and remote monitoring.

This intervention has two components:

1. **Keyar DT:** A device to monitor fetal heart rate and uterine contractions
2. **Janitri for hospital software application:** A mobile-based application with real-time data view, auto-interpretation of data, and remote monitoring

Is the technology suitable for low - and middle-income countries (LMIC)?

The devices and software applications have been used in centers all across India and in five additional countries. They have been adopted by Indian state governments and multiple hospitals around the world. The device has significant clinical evidence supporting its effectiveness in government centers, private centers, and rural, tribal, and urban populations. They have implemented six programs with state governments and low-resource public health partners in six states of India.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL 9

This product is available in the market for commercial use.

Product specifications

Dimensions (l x w x h)	325 x 270 x 150 mm
Weight	5 kg
Consumables	Keyar DT works on the principle of Cardiotocography and does not require consumables
List price	INR 85,000 – 1,23,000 (based on features)

Team Members

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Sitoal Neogy
Vice President – Sales
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Saurabh Jain
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Priyanka Choubey
AVP – CSR & Public Health
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Dhruv Mistry
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Janitri Innovations

Shardul Phansalkar
Industrial Designer
Janitri Innovations

Sreeya Mazumder
HR
Janitri Innovations

Community Health Integrated Platform (CHIP)

Organization

Khushi Baby

About the innovation

The Community Health Integrated Platform (CHIP) provides a unified, offline, mobile interface that enables community health workers to provide comprehensive, longitudinal primary health care as well as leverage AI to target public health interventions.

What is the existing gap being addressed by this technology?

- Community health workers report data through various mechanisms specific to national health programs, resulting in concerns about data quality and time-consuming data compilation. Also, sharing of data securely and efficiently between health workers at different levels is limited. These challenges are more pronounced in Rajasthan, where less than 50 percent of infant and maternal deaths are reported, and less than 70 percent of pregnant women and infants are registered in the central ministry's health portal.

How is the gap being addressed by the solution?

- CHIP is an offline mobile interface that unifies care coordination across multiple National Health Mission (NHM) programs, including family planning, maternal health, child health, and immunization tracking. It supports community health workers with automated decision support, engagement, tracking, and reporting. The platform also enables health workers to provide personalized care to beneficiaries, while GIS-enabled dashboards allow health officials to monitor community health status, needs, and health worker performance. This enables data-driven allocation of resources, training, and supervision.

Is the technology suitable for low - and middle-income countries (LMIC)?

- CHIP has been designed in line with NHM guidelines, making it replicable across India with regional language interfaces and other local customizations. Furthermore, India's decentralized public health infrastructure is similar to other LMICs, with a range of health care facilities at different levels—from national referral hospitals to village health teams. Therefore, the platform's design and implementation can be adapted to meet the needs of LMICs with similar public health care systems.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- **TRL – 9**

  The technology has been applied in its final form; it is operational and in the market.

  The platform is already being scaled across Rajasthan under Khushi Baby's role as the nodal technical support partner to the Department of Maternity Health and Family Welfare, Government of Rajasthan.

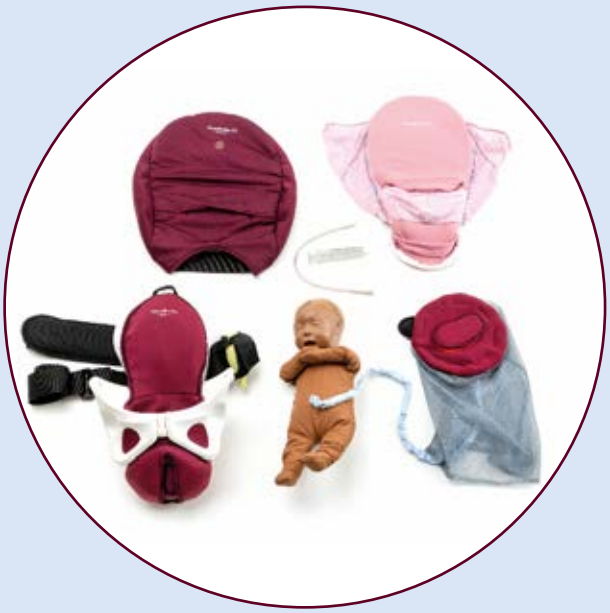
Team Members

Ruchit Nagar
CEO

Md Shahnawaz
COO

MamaBirthie CS

Birthing and safe C-Section simulator



Organization

Laerdal Global Health

About the innovation

This is an educational solution.

What is the existing gap being addressed by this technology?

- MamaBirthie CS will help strengthen comprehensive emergency maternal and neonatal care (CEmONC) by providing hands-on training to skilled birth attendants and professionals. This will lead to increased access to safe CEmONC facilities.

How is the gap being addressed by the solution?

- MamaBirthie CS will ensure the safety of both mother and child through proper hands-on training through simulated practice of C-sections including surgical techniques as well as other delivery techniques like cephalic delivery, breech maneuvers, and reverse breech delivery.

  MamaBirthie CS also supports training on certain complicated vaginal deliveries like vacuum deliveries, supporting different life-saving skills during labor and delivery in addition to surgery.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Our solutions are simple, durable, culturally adaptable, and affordable.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- **TRL – 9**

  The product is already in the market.

Product specifications

Dimensions (l x w x h)	48 x 38 x 30 cm
Weight	5 kg
Consumables	NA
Product lifetime	3 years
Consumables shelf life	NA
List price	INR 63,652 (product only price without GST and freight)

Team Members

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ReMeDi® Solution

Organization

Neurosynaptic Communications Pvt. Ltd

About the innovation

ReMeDi® is an indigenously developed and patented technology, designed especially to bring health care access to the doorsteps of those who need it. It brings together various components like diagnostics, doctor consultations, medications, referrals, specialty care, cloud-based Electronic Medical Records (EMR), live dashboards, and much more, onto a single platform and ensures a continuum of care.

It comprises a set of wireless intelligent CE- and/or FDA-certified medical devices that are perfectly suitable for point-of-care services and offer more than 40 diagnostic tests. We are in the process of integrating these devices with the e-Sanjeevani platform.

Cloud-based ReMeDi® application has various customizable workflows for patient registration, unique ID generation, appointment scheduling, capturing diagnostic parameters, uploading past medical records, audio-video conferencing, ICD-10–based diagnosis, prescription generation, episodical EMRs, consumables ordering, live monitoring dashboards, etc. The platform is HIPPA compliant and is certified ISO27001 for Information Safety and Security.

This solution enables access to holistic health care for mothers, newborns and children by aiding in:

- Registration of pregnancy cases
- Creating health awareness
- Providing alerts and reminders for ANCs
- Screening and diagnosis of risk factors
- Identification, tracking, and referrals of high-risk pregnancies

What is the existing gap being addressed by this technology?

- Health system gaps such as inadequate workforce, lack of quality, lack of access to essential diagnostics or medicines, and unavailability of specialist care are known to compound the challenge of providing holistic health care to mothers, newborns, and children. Only 65.3 percent of deliveries in rural areas are institutionalized in a public facility. Anemia is prevalent in more than 40 percent of women and children. A significant number of women also have elevated BP (21.3%) and blood sugar levels (15.6%) and are on medications. A negligible percentage undergoes screening for breast, cervical, and oral cancer.

  Neonatal complications also worsen due to unavailability of timely check-ups. The rural population, especially women, children, and the elderly, suffer from the lack of access to such essential services.

  These gaps are being addressed by ReMeDi® Solution, which enables access to holistic health care for mothers, newborns, and children.

How is the gap being addressed by the solution?

- ReMeDi® Solution brings health care access closer to the care seeker. We have been working in several regions of India with various partners. Our major project, which is implemented in association with a reputed foundation, covers 11 out of 19 blocks in a district, where we have served a population of more than one lakh till date. Over 60 percent of these are female and have benefitted with timely ANC checks, screening and diagnosis of anemia, hypertension, diabetes, syphilis, and more. They also benefit from awareness sessions, consultation with general practitioners and specialists from reputed hospitals, essential medicines, and adequate referrals.

  Similar projects are also being run in the states of Uttar Pradesh, Tamil Nadu, Maharashtra, Madhya Pradesh, Bihar, Haryana, Karnataka, Gujarat, Chhattisgarh, Rajasthan, Jharkhand, and West Bengal.

Is the technology suitable for low - and middle-income countries (LMIC)?

Using the cloud-technology with some innovative features, ReMeDi® has emerged as a vital channel of health care delivery in poor, rural pockets of developing countries delivering care close to clients and saving precious resources. The solution has been built to operate in rough rural conditions.

ReMeDi® has evolved over several years of experimentation across India and several other countries with multiple revenue and service delivery models, and offers a seamless-platform for multiple providers in the ecosystem to come together to provide efficient and meaningful health care delivery. Our solution and services are focused on providing quality health care in an affordable and accessible manner. It is designed for and is very suitable for LMICs and developing countries where access to primary health care is an important challenge.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL – 9

Product specifications

Dimensions (l x w x h)	461 x 354 x 113 mm
Weight	~ 3.5 kg
Consumables	• Test cassettes or strips required additionally to use in the devices • Optical reader (rapid test reader) • Lipid and glucometer device • Hemoglobin device
Product lifetime	5 years
Consumables shelf life	1 year from the date of manufacture
List price	INR 75,000 to 300,000 (based on the configuration of the sensors included in the kit)

Team Members

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Neurosynaptic Communications Pvt. Ltd

Rajeev Kumar
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Varsha Salunke
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Integrated treatment and monitoring solution for Hypoxic Ischemic Encephalopathy in newborns

Organization

Sensivision Health Technologies Pvt. Ltd

About the innovation

REVIVE is a first-of-its-kind device to diagnose, treat, and prognosticate Hypoxic Ischemic Encephalopathy (HIE) in neonates.

REVIVE does a whole body cooling treatment, which is known to be the only intervention for HIE. It is also the only device in the world that can also monitor brain electrical activity in these newborns through an EEG.

This device makes it easier for NICU staff to identify newborns with the condition and initiate treatment quickly. Since it is fully automated, the device works effectively without much supervision from the NICU staff. The device complies with all the global safety standards and is tailored for use in diverse conditions from inside an ambulance to an NICU.

What is the existing gap being addressed by this technology?

- Birth asphyxia is a top cause of neonatal death in India. Hospitals encounter birth asphyxia complications on a daily basis. Hypoxic Ischemic Encephalopathy (HIE) is one of the most common birth asphyxia complications, resulting in a large number of deaths or morbidity. When newborns do not get sufficient blood flow and oxygen, their brain suffers damage. In India, birth asphyxia impacts 1.6 million babies every year claiming at least 3 lakh lives. Mortality is 60–80 percent in severe HIE and 30–40 percent for moderate HIE. Newborns that survive will end up with disabilities such as cerebral palsy and mental retardation.

How is the gap being addressed by the solution?

- The only known intervention for HIE proven through clinical trials is whole body cooling. The newborn's core body temperature (CBT) is brought down to 33.5 degree celsius and maintained for over 72 hours and then rewarmed back to normal temperature. This treatment limits the damage to newborn's brain due to asphyxia thereby significantly increasing the chances of survival and also reducing long-term damage to the brain.

  REVIVE is the first-of-its-kind device to diagnose, treat and prognosticate HIE in neonates. This device makes it easier for NICU staff to identify newborns with the condition and initiate treatment quickly. Being fully automated, the device effectively treats while at the same time requiring least monitoring by the NICU staff. The device complies with all the global safety standards and is tailored for use in diverse conditions from inside an ambulance to a NICU.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Since nurse-to-patient ratio is poor in LMICs, REVIVE's fully automated operation requiring least intervention from doctors or nurses through the 80 hours of treatment enables safe and effective care. It is a very user-friendly product requiring minimal training.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- **TRL – 9**
  The product is already in the market. Manufacturing and assembly is in full swing at its ISO 13485 facility in Bengaluru, India.

Product specifications

Dimensions (l x w x h)	700 x 650 x 250 mm
Weight	11 kg
Consumables	• Body wrap • Rectal temperature probe • Skin temperature probe
Product lifetime	5 years
Consumables shelf life	3 years
List price	INR 75,000–300,000 (based on the configuration of the sensors included in the kit)

Team Members

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CEO
Sensivision Health Technologies Pvt. Ltd

Ashim Purohit
Chief Business Officer
Sensivision Health Technologies Pvt. Ltd

Rohini Krishnamoorthy
Director Engineering & Manufacturing
Sensivision Health Technologies Pvt. Ltd

IoT-based blood bag monitoring solution

Organization

Bagmo Pvt. Ltd

About the innovation

This is a simple Internet of Things (IoT) device with a blood bank information system to increase safety and efficiency in the blood supply chain.

The blood bag monitoring system monitors the storage conditions of blood bags while they are transported and stored through radiofrequency identity (RFID) technology. Using this solution, it is possible to provide data regarding vein to vein that is from donor to patient along with end-to-end tracking and traceability.

What is the existing gap being addressed by this technology?

Bagmo is a company that aims to make blood available primarily to rural India. The company recognizes that maternal mortality is a significant issue in India, with many deaths caused by hemorrhage that requires immediate blood transfusions. Inadequate availability of blood in rural areas is a major contributor to maternal deaths.

To address this issue, Bagmo has surveyed different stakeholders to identify bottlenecks in the current scenario and started addressing some of the known issues that can impact the availability of blood.

How is the gap being addressed by the solution?

Bagmo is addressing the need of MNCH in rural India by improving the availability of blood transfusions through the development of a blood bag monitoring system. The system uses RFID and smart temperature sensors to monitor the storage conditions of blood bags from the donor to the patient, ensuring the efficient supply of blood in the blood bank and associated blood storage centers.

The Bagmo Tracker web app connects via the internet to a central monitoring system, which records the temperature, position, and expiry date of each blood bag. This information enables mother blood banks to trace each blood bag and decide the reliability of each unit, ultimately improving the availability and quality of blood transfusions in rural areas. By providing an affordable and easily adoptable solution, Bagmo aims to eliminate avoidable maternal mortality and morbidity caused by inadequate access to blood transfusions.

Is the technology suitable for low - and middle-income countries (LMIC)?

Our blood bag monitoring system is suitable for LMICs like India because it addresses challenges in accessing safe and reliable blood transfusions, is affordable and scalable, and can improve MNCH. It is flexible and can be implemented in different settings, making it suitable for health care systems with varying capacities.

The Bagmo solution is:

- easily deployable
- retrofittable with existing infrastructure
- requires very less training at rural hospitals
- is 20x more affordable than other existing solutions available

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL – 7 and Manufacturing Readiness Level – 8

There is capability to produce systems, subsystems, or components in a production representative environment. Pilot-line capability has been demonstrated, and the company is ready to begin low-rate production.

Product specifications

Dimensions (l x w x h)	128 x 129 x 32 mm
Weight	297 g (including battery)
Consumables	NA
Product lifetime	Up to 5 years
Consumables shelf life	NA
List price	INR 60,000 per unit INR 45,000 per unit for bulk orders

Team Members

Anas D.
Founder & Innovation Engineer
Bagmo Pvt. Ltd

Ashfaq Ashraf
Founder & Team Lead
Bagmo Pvt. Ltd

Joy Mammen
Mentor
Bagmo Pvt. Ltd

Rameesa K.
HR Manager
Bagmo Pvt. Ltd

SMART*health* *Pregnancy*

The George Institute for Global Health India

Organization

The George Institute for Global Health, India

About the innovation

The SMART*health Pregnancy* system consists of a mobile app for providing point-of-care decision support for screening, referral, continuous evidence-based management, and follow-up tracking; a web-based dashboard for real-time analytics and report generation; and a patient alert system for follow-up visits and providing medication adherence and self-care support, through SMS or interactive voice response (IVR) messaging. The SMART in SMART*health* stands for **Systematic Medical Appraisal, Referral and Treatment.**

What is the existing gap being addressed by this technology?

- The system can be used for the detection, referral, and management of women with high-risk pregnancies.

How is the gap being addressed by the solution?

- Mobile technologies have the potential to revolutionize the delivery of essential health care in rural populations, where the majority of antenatal and postnatal care is delivered by low-skilled, community health workers. The George Institute has developed SMART*health*: a low-cost, smartphone-based system that supports clinical decision making and improves the screening, detection, and management of adults with chronic diseases in India. This system can empower community health workers with a digital tool to help guide their screening along with support from an education program, digital dashboard and supply chain monitoring of essential medicines such as IFA tablets.

Is the technology suitable for low - and middle-income countries (LMIC)?

- Yes

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- The technology is currently being assessed in a large efficacy-and-effectiveness trial in two states of India (Haryana and Telangana).

Team Members

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nLite360®

Organization

Heamac Healthcare Pvt. Ltd

About the innovation

The nLite360® is an intelligent phototherapy system designed to provide customized treatment for mild to severe neonatal jaundice. It is the world's first standalone device that can cater to all jaundice cases and perfectly fit into NICU, rural health care, and home care settings. The device only requires a few vital input parameters essential to start phototherapy, and its intelligent algorithm identifies the risk level of the neonate and displays the best mode of treatment.

The nLite360 device effectively addresses unmet needs and fills the gaps in the Maternal and Child Health (MCH) sector, especially in developing countries where the problem of neonatal jaundice is severe and often leads to critical conditions. The device is designed to provide efficient and uninterrupted therapy to the neonate, even in home care settings, with a feedback system that ensures continuous monitoring by the physician.

The device's portability and battery-powered feature, which is rechargeable by regular power supply and solar power, enables it to be used multiple times. Its empathetic design and modularity make it easy to use and convert from a high-risk to a low-risk level. Both these factors make it ideal for resource-constrained settings.

The nLite360® device has been certified and tested for all types of settings. Overall, the nLite360® device is an effective solution for neonatal jaundice and has the potential to make a significant impact on saving babies in rural areas.

What is the existing gap being addressed by this technology?

Presently, there is lack of access to high-quality, affordable medical devices in developing countries. However, access to high-quality health care should be the right of all people and not a matter of luxury.

Today, hospitals and clinicians serving the world's poor are not able to treat their patients with the right equipment. The result is an enduring illness, suffering, mortality, and an ever-spiraling trap of poverty. Our first focus is the maternal and childcare sector, where newborn jaundice is the most neglected problem.

Jaundice is caused by an excess of bilirubin in the blood. In high income countries, newborn jaundice is easily treated with phototherapy and rarely leads to kernicterus, which is a type of preventable brain damage that can occur if severe jaundice goes untreated. In LMICs, however, kernicterus ranks as the seventh-leading cause of mortality in newborns.

According to the WHO, there is a significant burden of severe neonatal jaundice. In developing countries, 45 percent of these cases are of severe conditions, leading to mortality or lifetime disabilities. In India alone, 6.7 million babies suffer from severe jaundice, which may lead to death or lifetime disabilities. A total of 42 million babies across the world are born with severe jaundice needing intensive phototherapy.

This is because the current devices are not able to provide effective phototherapy and are not nearly as accessible, partly due to their costs and design aspects suitable for high-end clinical settings. The only solution for the critical cases is blood transfusion and it is highly reported in the lower pyramid sector. The chances of survival are nascent post blood transfusion, so prevention is the only solution.

How is the gap being addressed by the solution?

nLite360® is a medical device designed to treat neonates with jaundice. The nLite360® device provides efficient treatment at reduced time and cost, enabling the treatment of more neonates. It is an alternative to the current devices used in multi-specialty hospitals. The device's portability, ease of use, and certification for both NICU care and home care make it a suitable option for treating neonates in resource-constrained settings.

The go-to-market strategy for nLite360® involves targeting the Indian market initially, where there are 120,000 private nursing homes and corporate hospitals and 1,500 public health centers that cater to the 25 million babies born annually. The total market size in India for critical jaundice cases is estimated at INR 825.801 crore. The estimated purchase in India alone is currently at 23,720 devices. However, there is a requirement of 55,053.4 more devices, indicating a gap of 31,333.4.

The total addressable market (TAM) for nLite360® is INR 1,800 crore, the serviceable addressable market (SAM) is INR 825 crore, and the serviceable obtainable market (SOM) is INR 300 crore.

The vision of the company is to deploy 50,000 units and save 6,000,000 babies in India initially and expand the innovation to other developing countries. By introducing nLite360® into the market, the company can create a great positive impact on society. The device can reduce the burden on health care providers and hospitals by enabling the treatment of more neonates. Moreover, parents can also treat their babies at home with the device, reducing the need for hospitalization.

Is the technology suitable for low - and middle-income countries (LMIC)?

The device is especially suited for rural health care centers in LMICs, where there is a lack of provision for treating neonates with jaundice. The target customers for nLite360® are hospital management with NICUs, public and private MCH hospitals, pediatricians, gynecologists owning delivery clinics, and parents of newborns with jaundice.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TLR – 6

Product specifications

Dimensions (l x b x h)	850 x 500 x 600 mm
Weight	15 kg
Consumables	Transparent neonatal gel mattress and biocompatible non-woven baby pouch.
Product lifetime	One-year warranty for 4–5 years based on usage
Consumables shelf life	5 years
List price	INR 1,00,000–3,00,000 Prize customizable can be done based on the version purchased. A discount of 10–20% is possible with orders of 25 or more units.

Team Members

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Akitha Kolloju
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PEscreen

Preeclampsia Screening Test

Intignus Biotech Pvt. Ltd.

Organization

Intignus Biotech Pvt. Ltd

About the innovation

PEscreen or the Preeclampsia Screening Test is a single-use, point-of-care rapid test for screening and diagnosis of preeclampsia which can be used in conjunction with other clinical and laboratory information.

What is the existing gap being addressed by this technology?

- Preeclampsia is a leading cause of maternal and perinatal morbidity and mortality globally. The incidence of preeclampsia is highest among the underprivileged population and a majority of pre-eclamptic women are African or Indian. Surveys indicate incidence statistics as high as 15 percent or more in rural areas and 10 percent or more in urban areas of India.

  The disease develops with the placenta, and post progression usually manifests after 20 weeks of gestation. In some cases, it even presents itself as late as 4–6 weeks postpartum. At this stage,

the damage to mother and child is already done. As preeclampsia can strike quickly, potentially causing severe and immediate complications unless the pregnancy is induced; early and point-of-care diagnostic tests are needed.

How is the gap being addressed by the solution?

Intignus Biotech has developed PEscreen, a preeclampsia-screening test for all pregnant women. This test can predict preeclampsia development earlier in the upcoming weeks of gestation based on circulating levels of a preeclampsia-specific biomarker.

This test is a sensitive, visual, lateral flow assay-based test. It can help delineate moderate- and high-risk patients. Moreover, the test is rapid, at one-third of the current testing cost, which makes it affordable and cheap for routine monitoring of pregnant women.

Is the technology suitable for low - and middle-income countries (LMIC)?

PEscreen is a low cost, rapid test—results can be seen in under 15 minutes—that can detect preeclampsia earlier (before the sixteenth week of gestation). It is a point-of-care test that does not require any instruments and can be operated by a minimally trained person, making it usable in low-resource settings.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL 5

Intignus is in talks with an IVD specialist. The manufacturing process will be outsourced to a third party manufacturer.

Product specifications

Dimensions (l x b x h)	110 x 70 x 25 mm
Weight	500 g
Consumables	• Chromatographic membranes • Gold nanoparticles • Antibodies • Plastic housing
Product lifetime	36 months
Consumables shelf life	12 months
List price	INR 800

Team Members

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Intignus Biotech Pvt. Ltd

Pranjali Sahasrabuddhey
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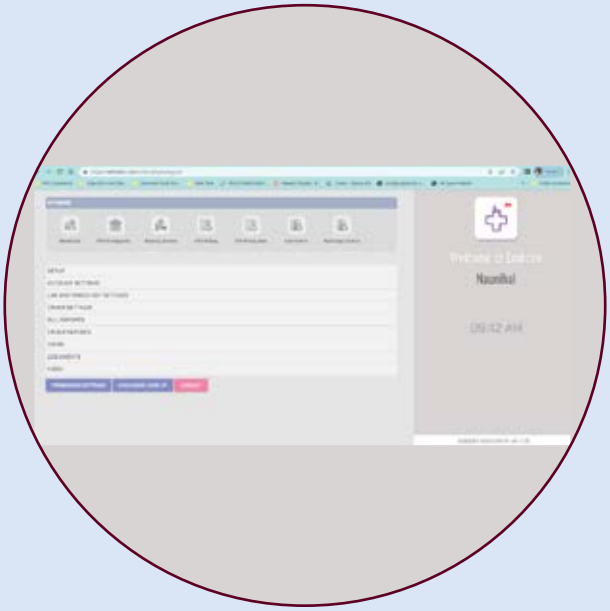
Naunihal

An application for quality follow up of newborns discharged from the special newborn care unit



Organization

Renataus Meditech Solutions Pvt. Ltd

About the innovation

This is a mobile application for community health workers and special newborn care unit (SNCU) staff with following key features:

- AI-based registration by scanning of the SNCU registration/discharge form or the home-based newborn care (HBNC) form—it should be a hard copy
- Key health records and scanning of physical records
- Automated home-visit checklist based on discharge calendar
- AI-based risk and decision calculator for sick newborn
- Automated scheduler for follow-up visits as per date of discharge and discharge follow-up guidelines
- Online appointment with SNCU doctors
- Notification to mother, community health worker, and SNCU staff
- Integrated teleconsultation platform
- E-prescription
- Common information-sharing platform for community and facility staff

What is the existing gap being addressed by this technology?

- Currently, there are many available follow-up mechanisms for sick newborns at home and they are currently being implemented. However, most of them are focused on data only and the service components are missing.

  The most important missing feature of this mechanism is the lack of connection between service providers i.e., SNCU and the community i.e., frontline workers.

  Due to lack of linked service and connection between SNCUs and the community, newborns discharged from these units so not receive quality follow-up care, keeping in mind the limited skills of ANMs and ASHAs.

How is the gap being addressed by the solution?

- The proposed solution will address the gap of coordination between SNCU staff and community health workers by using a common application to update the information about the sick newborn's discharge and post discharge follow-ups. This application will also bring quality follow-up by SNCU staff using the telemedicine technology and remote monitoring system.

  It aims to bring the timely identification of high-risk newborns along with timely consultations and referrals to increase post-discharge compliance and reduce neonatal mortality among most vulnerable.

Is the technology suitable for low - and middle-income countries (LMIC)?

- This technology is suitable for other LMICs as they too face similar challenges.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- The core technology and application is proven, developed, and being used by different health care providers to digitalize their practices and health care service delivery. A level of customization would be required to adapt it to suggested use case, and it may require additional time and budget.

Product specifications

- Product specifications doesn't apply as the product is a software application and doesn't have any hardware component.

Team Members

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Rentaus Meditech Solutions Pvt. Ltd

Sustainable Energy Enabled High Risk Pregnancy Identification Kit for Frontline Health Workers

Organization

SELCO Foundation

About the innovation

This is a portable solar-powered high-risk pregnancy identification kit. It is powered by a flexi solar panel of 20 Watt with a four-hour battery backup.

What is the existing gap being addressed by this technology?

- Every pregnant woman requires individualized care. Pregnant women can develop life-threatening complications with little or no warning.
- ANC utilization is inadequate and inequitable in India. According to NFHS - 4, only 21 percent of pregnant women utilized full ANC. Overall, 51.6 percent had four or more ANC visits, 30.8 percent consumed Iron Folic Acid (IFA) tablet for at least 100 days, and 91.1 percent had one or more doses of tetanus toxoid.

- Delayed identification of high-risk pregnancies impacts maternal and neonatal outcomes negatively.
- Poor access and connectivity, reliable energy poverty, lack of information, and inadequate service availability and cultural practices are barriers to provision of maternal and child health care to marginalized communities in remote areas.
- Early identification of high risk pregnancies are paramount to initiate prompt treatment.

How is the gap being addressed by the solution?

- A low-cost high-impact innovation, the Sustainable Energy-driven High-Risk Pregnancy Identification Kit aims to bridge access to quality and timely ANC.
- This innovation helps strengthen the birth-preparedness systems in the health care delivery value chain.
- The kit bridges ANC access gaps in the last mile aiding in the early identification of high-risk pregnancies by frontline health workers through clean and reliable energy.
- Portability with no dependency on the grid ensures quality ANC at doorsteps even at remote locations that have unreliable or no electricity access.

Is the technology suitable for low - and middle-income countries (LMIC)?

Yes; it is easily suitable for LMICs due to its cost-effectiveness; simple and portable design; and comprehensive package approach. It is a comfortable, lightweight, easy to wear, and easy to use tool.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

TRL – 9

The product is manufactured at an ISO 13485 facility. It has been designed with DFM principles and is ready for scaling.

Product specifications

Dimensions (l x w x h)	38 x 30.5 x 13 cm
Weight	4 kg (with solar panel)
Screening Equipment Package	• BP monitor Hemoglobinometer • Glucometer • Fetal Doppler • Infrared thermometer • Weighing scale • Urine strips
Product lifetime	NA
Consumables shelf life	NA
List price	INR 35,000 (USD 426.01) (including of one-time strips and flexi solar panel and battery) (excluding software subscription cost)

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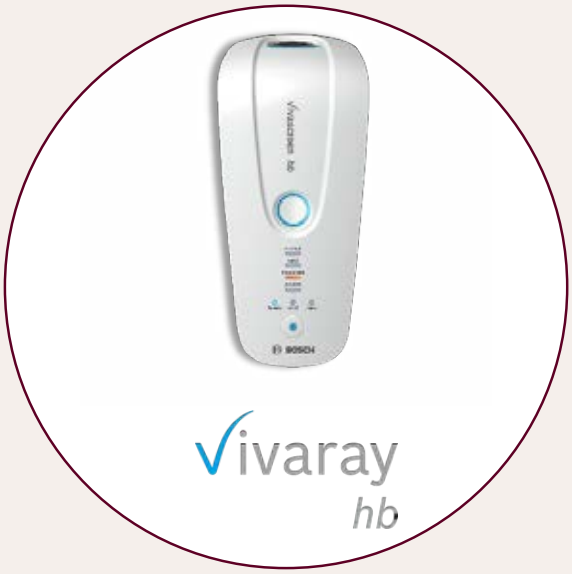
PROMISING SAKSHAM TECHNOLOGIES BEYOND

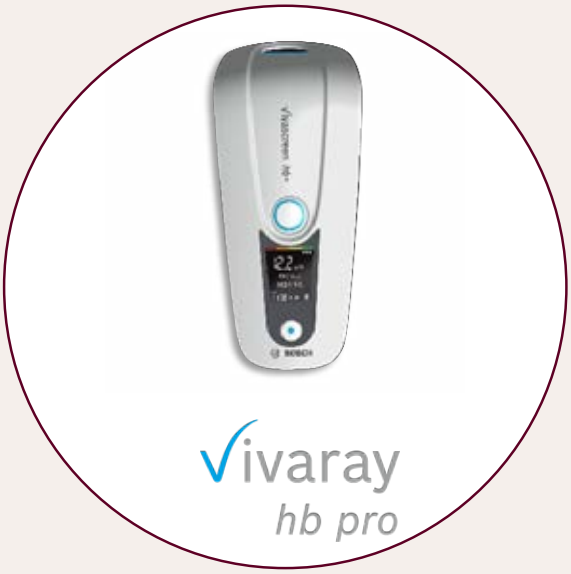
Saksham MNCH Aavishkar Challenge

Vivaray HB and HB Pro

Bosch Global Software Technologies
alt_future

HMTL HINDUSTAN MEDICAL TECHNOLOGY





Organization

Bosch Global Software Technologies

Sales & Service Partner
Hindustan Medical Technology

About the innovation

Current methods for anemia screening involve a blood draw or a prick, whereas the Bosch hemoglobin monitoring device measures hemoglobin non-invasively, rapidly, and at the point of care. The Bosch Hemoglobin Monitor utilizes specific wavelengths of light to detect what are known as photopleythsmograms (PPGs) on the surface of a human finger without pricking the skin. PPG is an optical method for detecting volumetric changes in blood in peripheral circulation. The finger is placed in between the light source and a photo detector. Depending on its characteristics, the finger absorbs light emitted by the source. The attenuated light is measured by the photo detector and is recorded as a PPG. The novel algorithm uses machine learning methods to interpret the captured PPG signals and estimate the hemoglobin levels. The algorithm has been trained with thousands of data points captured from multiple health care centers.

What is the existing gap being addressed by this technology?

Anemia is the cause for one million mortalities globally. There is a 30 percent prevalence of anemia in women. Anemia burden reduction is part of the WHO global target for 2025.

How is the gap being addressed by the solution?

Vivaray is an AI-powered machine-learning–based non-invasive hemoglobin-monitoring solution built to provide point-of-care solution. The device can measure the hemoglobin level in the blood within 60 seconds without causing infection and biohazard.

It is portable, compact, and affordable and can be used as a standalone device using a companion app or be connected to our cloud-based platform (Viva-suite) for geospatial heat map generation resulting in population health management.

Is the technology suitable for low - and middle-income countries (LMIC)?

It is designed and manufactured to make it affordable for emerging economies with test costs getting reduced to one-tenth of the existing market price.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- Technology implementation is complete.
- The product manufacturing line has been established.
- Product certification is presently awaited.

Product specifications

Dimensions (l x w x h)	184 x 42 x 73 mm
Weight	~ 230 g
Consumables	NA
Product lifetime	2 years
Consumables shelf life	NA
List price	Yet to release

Team Members

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Vice President & Global Director
Bosch Global Software Technologies

SCINTIGLO

Cutting Edge Medical Devices Pvt. Ltd
Born To Innovate...

Organization

Cutting Edge Medical Devices Pvt. Ltd

About the innovation

Scintiglo is a smart point-of-care diagnostic device that performs microproteinuria estimation with lab-like accuracy at the patient's doorstep. The test is helpful in the early detection of kidney and heart diseases in patients with diabetes and hypertension. The device can also help in early identification of high-risk pregnancies, especially in remote areas.

The device consists of a reader device and a proprietary reagent that when mixed with a fresh urine sample and placed in the device can give quantitative microprotein estimation. This test helps in the early detection of kidney and heart conditions. The device also works with a smartphone app that allows the data to be shared anywhere at any time. Hence, it is a device ideally suited for telemedicine centers.

What is the existing gap being addressed by this technology?

In India and across the world, pre-eclampsia poses as a major threat resulting in preterm births, emergency caesareans, and maternal morbidity. The main cause leading to this condition is pregnancy-induced hypertension. This condition makes it a high-risk pregnancy.

Any deadly situations can be forewarned by monitoring these conditions along with BP by testing the minute quantities of proteins in urine. This can help in proper and timely management, thus saving thousands of maternal deaths and newborn complications.

How is the gap being addressed by the solution?

The device is portable and can be placed in a primary health centers and sub-centers. Pregnant women coming for their antenatal check-ups can be additionally screened with this microproteinuria test. This will help keep a track of health of the pregnancy, especially high-risk ones.

Is the technology suitable for low - and middle-income countries (LMIC)?

The device and its reagents and consumables are extremely affordable and stable even without refrigeration, making the product ideal for LMICs and low-resource settings.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

The device is portable, battery-operated, and can store data, making it ideal for providing health care in remote locations affordably and effectively. The product is already in the Indian market with all the required quality certifications and regulatory clearances. The device is being used in a tribal-dominant district of Madhya Pradesh under CSR support from donors. The present market cost of the test in the market for patients in India is around INR 500–700 per test.

Product specifications

Dimensions (l x b x h)	200 x 160 x 135 mm
Weight	600 gm
Consumables	Disposable single use cuvettes and proprietary reagent in a dropper bottle for easy dispensing
Product lifetime	5 years with a battery change
Consumables shelf life	2 years without refrigeration
List price	- INR 100,000 per device - INR 150 for consumables per test (Costs will come down drastically on bulk procurement.)

Team Members

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EzeCheck

Organization

EzeRx Health Tech Pvt. Ltd

About the innovation

EzeCheck is a non-invasive hemoglobin-screening device with a cool white LED light. When the patient places their fingertip on the LED bed, light passes through the epidermis and touches the peripheral blood. While returning the light through the absorbance spectroscopy, the device generates patterns resulting in biomarker changes and sends these to the AI server to predict the value after evaluation through a deep learning model.

What is the existing gap being addressed by this technology?

- Since the device has a light bed to place the fingertip, it is suitable for children over four years old. It is useful for periodic maternal screening.

How is the gap being addressed by the solution?

- Due to lack of infrastructure and availability of the screening technique, our solution is non-invasive and portable. ASHAs and ANMs can screen quickly within a minute and without taking a single drop of blood from the human body. Also, the IoT enablement of the device is useful for real-time tracking, which can help understand the before and after interventions in a timely manner.

Is the technology suitable for low - and middle-income countries (LMIC)?

- As per the prevalence of anemia data, deficiency of hemoglobin is the prime problem for LMICs. Lack of nutritional supplements, legacy issues of mother's bad health, and lack of awareness are the prime reason for anemia. The flagship product is affordable and accessible and can be operated by a semi-skilled person and without much knowledge.

What is the technology-readiness level (TRL) as well as the product and manufacturing readiness of the product?

- After successful clinical trials and validation, around 2,500 devices have been deployed across India. This has been done mainly through various state government initiatives, development agencies like UNICEF and Jhpiego, and leading pharma companies like Emcure and others.

  Recently, the device was also validated by Regional Medical Research Centre (RMRC), Bhubaneswar of ICMR (Indian Council of Medical Research).

  Apart from India, the work has been started in the South East Asian countries of Myanmar and the Philippines. The innovators have also applied for PCT - Patent Cooperation Treaty and national filling for 74 countries.

Product specifications

Dimensions (l x b x h)	185 x 74 x 52 mm
Weight	0.37 kg
Consumables	NA
Product lifetime	Minimum 5–7 years (with one-year hardware warranty)
Consumables shelf life	NA
List price	INR 35,000 for 2,500 tests after consumption of initial test (per test cost will be INR 10.50) OR INR 48,000 for one-year unlimited test in government a set up

Team Members

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21	**Renatus Meditech Solutions Pvt. Ltd**	NAUNIHAL	Dr. Shiv Kumar	Director & CoFounder	9910047146	drshiv@embebo.com
22	**SELCO Foundation**	Sustainable Energy Enabled High Risk Pregnancy Identification Kit for Frontline Health Workers	Dr. Kalyani R. Nadgir	Program Coordinator	9449581996	kalyani@selcofoundation.org

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