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CMIE HEALTHCARE INNOVATION BOOTCAMP SERIES

BOOTCAMP ON NEWBORN CARE

6th - 8th November 2023

Venue: CMIE, 9th Floor, NCA Block

**QUEST FOR NEW SOLUTIONS IN
NEONATOLOGY**

Jointly Organised by
**CMIE - AIIMS & NEONATAL DIVISION,
DEPT. OF PEDIATRICS, AIIMS**

REPORT FOR THE BOOTCAMP

The CMIE Healthcare Innovation Bootcamp on Newborn Care, conducted from November 6th to 8th, 2023, signifies a pivotal advancement in neonatal innovation, uniting experts and healthcare innovators for collaborative efforts in elevating newborn care, jointly organized by CMIE and the Department of Paediatrics at AIIMS, New Delhi.

Objectives:

The CMIE Healthcare Innovation Bootcamp on Newborn Care, aimed to advance newborn care through innovation. It sought to provide a comprehensive understanding of neonatology developments, encourage collaborative learning, empower healthcare professionals, inspire innovation, promote networking, explore cutting-edge advancements, enhance problem-solving skills, foster interdisciplinary collaboration, bridge the gap between theory and practice, empower future healthcare leaders, and encourage lifelong learning. The overarching goal was to create an environment fostering innovation, collaboration, and education to catalyse transformative changes in the healthcare landscape for the benefit of newborns and their families. The event strategically promoted dynamic knowledge and idea exchanges among experts, clinicians, and participants, propelling accelerated progress in new-born care.

Participants:

The selective participation of twelve startups in immersive interactions fostered a nuanced comprehension of leading-edge neonatology advancements, fostering an environment conducive to collaborative innovation.

Introduction to the bootcamp and Neonatology services:

Prof. A.K. Dinda's introductory and welcoming session on November 6th, 2023, introduced participants to CMIE, emphasizing its role in fostering healthcare innovation and entrepreneurship, setting the stage for collaborative learning and inspiring exploration in new-born care.

The bootcamp commenced with a comprehensive presentation by Prof. Ramesh Agarwal, Chief of the Division of Neonatology at the All India Institute of Medical Sciences, New Delhi. Prof. Agarwal provided a succinct overview of Neonatology Services, highlighting industry gaps for aspiring entrepreneurs to address. Emphasizing not only affordability and functionality, but also High Quality, World-class design, and Low Maintenance, he urged innovators to consider a holistic approach to medical device development. This session laid the foundation for participants to explore practical applications and challenges in neonatology, fostering a deeper appreciation for specialized care.

Technical Sessions:

Over 3-days, technical sessions were organised. The speakers offered an overview of the diseases, and current landscapes and scope of innovation in diagnosis and treatment.

- a. Dr. Satya Prakash's "**Huffing and Puffing**" session explored neonatal respiratory challenges, emphasizing diagnostic and therapeutic approaches, including Continuous Positive Airway Pressure (CPAP), empowering participants with insights into innovative solutions and the role of technology in neonatal healthcare.

- b. Dr. Deepika Kainth's session on “**A Neonate with Jaundice**” empowered participants with insights into timely management, focusing on phototherapy and fostering discussions on innovative approaches in neonatal care.

Session on Innovations:

The bootcamp also hosted session on innovation in the area on neonatology. The innovators shared their journey of innovation, their vision and support system.

- a. Mr. Michael Ranjit Singh from Pheonix Medical Systems, Chennai talked on “**Product Development Roadmap**” explained in detail about the Biodesign process and Product Development process – starting from idea to post-market including covering ideation, testing, regulatory compliance, and commercialization, with a focus on practical challenges and interactive problem-solving. He did not restrict to product development but also gave insights about regulatory compliances and ‘organisation building’ mantras, which can help in taking the product to market.
- b. A dedicated presentation on “**Regulatory Pathway for Medical Devices and In-Vitro Diagnostics**” by Mr. Subhash Sugathan from QAscent Research Solutions Pvt Ltd, Delhi. The presentation was very detailed and touched upon a vast array of aspects. He emphasized on crucial insights into the complexities of regulatory compliance for neonatal medical products, emphasizing the non-negotiable commitment to safety and quality.
- c. Dr. Avijit Bansal spoke on “**Innovating for a better Newborn Resuscitation: Learnings from our experience**” talking about his journey of developing an innovative Newborn Resuscitation device called “NeoBreath”. He showcased innovations poised to revolutionize resuscitation efforts, sparking discussions on the future of neonatal care. He also interacted one-on-one with innovators to understand their specific needs and provided valuable advice accordingly.
- d. Mr. Nitin Sisodia's session on the second day delved into the “**Challenges and opportunities in neonatal care innovations**”, fostering a collaborative approach and empowering participants to envision impactful solutions for the complexities within the field. Mr. Sisodia described his journey while developing the device “**Sohum – a non-invasive, portable device to screen neonates for hearing impairment**”, their interactions with doctors and the impact their device is able to create in the life of a hearing-impaired child.
- e. Mr. Ratul Narain's session highlighted the development and commercialization journey through this presentation on “**Hypothermia TempWatch From Concept to Commercialization**”, offering participants a concrete example of transforming a neonatal care innovation from concept to a successful product. Mr. Narain talked in great detail how he chose the TempWatch idea from a plethora of potential ideas he had and how they built and commercialized the device.
This case study inspired and empowered participants with valuable technical insights for their own journeys in advancing neonatal healthcare.
- f. Dr. Vivek Kumar’s session on “**Digital Innovations in Neonatology**” explored the profound impact of digital transformation on neonatal care. Participants gained technical insights into telemedicine, remote monitoring, big data analytics, and IoT, empowering them to envision and contribute to the future of neonatal healthcare through digital innovations.

- g. One of the session was conducted by Ms. Marita Sirevaag from Laerdal Medical in Norway presented the "**Development Process of NeoBeat**" offering participants insights into the journey of creating a revolutionary neonatal monitoring device. She described the team's journey on development and commercialization of NeoBeat, an easy-to-use heart rate monitor that is strapped around the neonate's chest and provides real-time heart rate reading to the caregivers. The talk centred around the simplicity of the device, re-emphasizing the importance of building simple and robust solutions.
- h. The "**Investor's Perspective on Funding Innovations**" session, led by Aditi Kumar, provided participants with technical insights into the investor ecosystem, pitching strategies, due diligence processes, and investment strategies. This technical empowerment equipped participants with the knowledge to navigate the complexities of securing funding for innovative neonatal care projects.

Clinical Visits and Discussions:

One of the important and an attractive session of the bootcamp was the clinical visits, wherein the participants engaged in a transformative clinical visits to **Mother and Child Centre, AIIMS – Delhi** and **Kasturba Hospital, Delhi**. The participants were divided into 2 groups and both these groups got an opportunity to visit both the sites over a period of two-days. The cross-pollination of experiences between AIIMS and Kasturba Hospital groups facilitated a comprehensive understanding of neonatal care practices and identified opportunities for innovation and improvement. The visits were guided by Prof. Ramesh and team at AIIMS, New Delhi and Dr. Rajesh Yadav and team at Kasturba Hospital, Delhi, respectively. This real-world exposure allowed participants to observe neonatal care, identify gaps, explore future prospects, and recognize the imperative need for innovation in improving the quality of care provided to new-borns. The visits provided an immersive experience into the neonatal care in the NICU. The participants got a chance to interact with staff of NICU and understand their pain-points that could be solved with better design or better technology. A vast variety of needs were identified and discussed. This transformative experience instilled a commitment to enhancing neonatal care among participants. The visit served as a crucial step in participants' journeys toward becoming healthcare innovators. A great learning from the visits was that even small design changes could make a huge difference in care delivery.

Day 2 of the bootcamp began with a clinical discussion led by Prof. Ramesh, encouraging participants to synthesize and share insights from their previous day's clinical visits. This peer-led learning session facilitated a collaborative exploration of practical challenges and innovative solutions in neonatal care. Day 3 of the bootcamp set into motion with second clinical discussion led by experts Prof Ramesh, Dr. Deepika, Dr. Vivek, and Dr. Satya, which involved an interactive and technical discussion which provided a platform for participants to engage in deep and brainstorm innovative solutions for identified challenges. Moreover, ideas from all innovators were briefly discussed and clinical insights were provided.

Conclusion

The bootcamp ended with an **Interaction with Director of AIIMS (Feedback/ Collaboration)**. The Director engaged in one-on-one interaction with participants. Through his interaction, he shared his views on the need for deep technical insights into critical

aspects such as validation, gold standards, industry-academia collaboration, needs assessments, feedback mechanisms, and innovation scope analysis in healthcare innovations.

The **concluding session** featured profound technical reflections and visionary insights from esteemed experts—Prof. Ramesh, Prof. Rajesh, Prof. Dinda, and Prof. Alok Thakar. Their emphasis on technical knowledge, resilience, innovation, and collaboration underscored the commitment required to advance neonatal care. The session provided a shared technical vision for the future, emphasizing continuous learning and collaboration as key drivers for progress in healthcare. The technical insights served as an inspiring conclusion, motivating participants to contribute to the ongoing technical evolution of neonatal care.

The CMIE Healthcare Innovation Bootcamp on Newborn Care, spanning November 6th to 8th, 2023, meticulously addressed the technical facets of neonatal care innovation. With a focus on establishing a robust technical foundation, participants gained crucial insights from clinical exposure, emphasizing validation and gold standards in real-world neonatal care settings. The event emphasized the indispensability of technical expertise, industry-academia collaboration, and innovation to address complex challenges, offering profound insights into the technical intricacies of innovation and regulatory compliance. The bootcamp concluded with a shared technical vision, highlighting the necessity of resilience, continuous learning, and collaborative innovation to propel advancements in neonatal care, stressing the commitment to technical excellence and the collaborative efforts essential for significant strides in neonatal healthcare.

Summarized video is available at - <https://www.youtube.com/watch?v=WRIJA3uNRYU>

The group photo:



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