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Role of CDSS in neonatal care

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CDSS may help manage illness and the survival of newborns in the first 28 days of life. Prof Dr R Kishore Kumar, Founder & Chairman, Cloudnine Group of Hospitals, India and Senior Consultant Neonatologist at Cloudnine Hospital, Bengaluru, reveals more about how CDSS can analyse data within EHRs to provide prompts and reminders to assist healthcare providers in implementing evidence-based clinical guidelines



In the last two years, COVID-19 has impacted the country's different industries in one way or another. While most of the sectors are gradually reinstating themselves, the disruption in healthcare is here to stay. The adoption of technological advancements in the medical sector is a new standard of healthcare delivery in the country and beyond. As pandemic ushered the use of digital technology, it demonstrated its effectiveness in the last-mile delivery of essential services, in reach and underserved areas, and how they should be used in case of supply chain disruptions. This is especially evident in healthcare services. Several important health services in India were affected during the early months of the lockdown, with maternal health care being a critical cause for concern. Childbirth does not wait for anyone or anything - therefore the ecosystem must adjust almost instantly to meet the new demands of providing neonatal care.

Clinical decision support systems (CDSS) are computer-based programmes that analyse data within EHRs to provide prompts and reminders to assist healthcare providers in implementing evidence-based clinical guidelines at the point of care, which has made a huge contribution to neonatal care.

Challenges in Neonatal Care

More than a quarter of global neonatal deaths are reported from India. The current Neonatal Mortality Rate (NMR) in India is 28.77 per 1000 live births and it also registered a 4.5 per cent annual rate of reduction in under-five mortality (U5M) between 1990-2019. According to a bottleneck analysis, the lack of skilled human resources, service delivery challenges, insufficient financial resources, and a lack of community ownership are the most significant impediments to effective scale-up of neonatal interventions in reducing NMRs. Due to gaps in the public health sector's coverage and quality of services, the rural population still seeks healthcare from informal health care providers (IHCPs). Not only this but there are numerous medical errors due to which neonatal care is affected. For instance, the amount of drug dosage is different for babies and children, since the babies are given their doses according to their weight.

Similarly, the drugs given to the neonates are different. Many times, paediatricians infuse different drugs and give them to different neonates according to their sickness & weight. It should be noted that the amount and type of drugs given to neonates are calculated per kilogram per minute. Whereas, for older children, we calculate per kilogram per day. So, calculating per minute per day can be a challenge, especially for a doctor who is working throughout the day and night alike. Another example could be a doctor who is doing locum and lacks the knowledge of the number of doses that should be given to the babies, they could give milligrams of morphine instead of micrograms of morphine. However, a large proportion of these neonatal errors could be preventable with the help of CDSS like UpToDate.

Scope of CDSS integration in Neonatal Care

CDSS is a tool that can be used at the point of care, which empowers a clinician to make informed decisions. CDSS provides individual-specific information to the doctors, clinicians, staff, and patients at appropriate times. This information is filtered appropriately and thereby used to increase the quality of care provided to the patients and uplift the health outcomes. CDSS may help manage illness and the survival of newborns in the first 28 days of life. They may also influence the performance of

doctors with fewer to negligible errors in neonatal drug dosing. It also improves efficiency, cost-benefit and provides overall patient satisfaction. In India, CDSS has been slowly percolating in one way or the other. It produces recommendations for problems as per the available data. On many occasions, it is observed that CDSS accuracy has been more than the human accuracy level. With the help of CDSS and tools like UpToDate, doctors can radically reduce medical errors by informing the nurses on time and saving patients' life. Integration of CDSS and EMR is very practical and essential to improving the quality of care and even for research purposes. As it makes the documentation process easier and more accessible with just a few clicks.