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Improving Perinatal Care: An art or a machine learning based sciences?

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Statement of the Problem: There are 31 specific harm categories identified based on evidence-based findings that can reduce the occurrence of hospital harm. Obstetrics is a high-risk area of clinical practice as maternal-fetal health incidents are amongst the most sever patient safety incidents. These incidents account for a quarter of the liability claims received by HIROC and the CMPA across Canada.

Given this data, one of the most interesting findings reporting by HIROC and the CMPA are related to provider factor – the 2 main overarching themes were provider decision-making, which included lack of situational awareness on the part of the provider and breakdown in team communication. HRH data illustrates similar themes that provide an opportunity to utilize the artificial intelligence and machine learning to help create triggers and intervention points to help provide early intervention and reduce neonatal harm.

Methodology & Theoretical Orientation: HRH began their high reliability organization journey in 2018 with the implementation of their Generation 2 - NASA style Command Center. This journey led to the development of identifying teams that would focus on harm reduction in specific populations. Obstetrics was selected as a key priority. The group then designed several algorithms based on the Society of Obstetricians and Gynecologists in Canada and with the Canadian Paediatric Society. These early warning system algorithms were implemented in obstetrics, post-partum, paediatrics and NICU. The workflow encompassed a bed side component along with the HRH Command Center support to help expedite patient are.

Findings: The organization measured a year over year reduction in neonatal harm. The implementation of the perinatal tile – web application led to increased alerts and a decrease in neonatal harm. These findings were sustained for 4 years, despite the increased volume and acuity of in-patient during the COVID-19 pandemic.

Conclusion & Significance: Over a course of 4 years we show that bed side tools and the command center as a back stop showed a significant change in clinical compliance with monitoring protocols, adherence with clinical guidelines and a reduction in NICU admissions and maternal and neonatal morbidity and mortality and improvement in unit staff satisfaction and patient safety culture survey

Biography

Jhanvi Solanki has a keen interest in innovation and system disruption in the healthcare sector. As a seasoned leader with 15 years of experience in acute and ambulatory care, she has led many multidisciplinary teams to maximize operational capacity, enhancing service delivery models to improve patient and provider experience alike and create systems that are targeted at improving patient outcomes using a high reliability approach. Jhanvi currently is currently Vice President – Clinical Programs at Humber River Hospital.

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