INFANT Centre at University College Cork to use IBM Big Data & Analytics for real time monitoring of babies in neonatal intensive care

January 27, 2015 -- IBM (NYSE: IBM) today announced it is working with the Irish Centre for Fetal and Neonatal Translational Research (INFANT) at University College Cork (UCC) to help improve long-term outcomes for babies in neonatal intensive care through early and accurate detection of neurological problems.</p>

The INFANT Centre at UCC and Cork University Maternity Hospital has pooled its extensive database of newborn electroencephalogram (EEG) recordings and machine learning expertise with IBM's Big Data Analytics stream processing capability to create a unique clinical decision support platform.

Through the support platform, seizures and other brain complications associated with small, sick and premature infants can now be automatically detected and alarms sent to on-call specialists to assist in providing the highest quality of care.

1Seizures or fits in newborn babies are classed as a medical emergency and require urgent treatment. However, they are impossible to detect without continuous brain monitoring using EEG. Specialist expertise is required for EEG interpretation and, all too often, no such expert is on-hand in neonatal intensive care units, which can result in important brain events being missed. Continuous monitoring of major vital signs is critical to aiding the clinical management of frequent complications associated with sick infants.

Professor Geraldine Boylan, Director at INFANT, said "The approach we've adopted in collaboration with IBM will help shape the Neonatal Intensive Care Unit (NICU) of the future, where we can integrate all vital signs monitoring including heart rate, blood pressure, oxygenation, and brain activity into measures that provide useful information for the clinician."

She added, "Computers can process this vast amount of information faster than humans. Analytics that can interrogate this data could change the face of neonatology and improve outcomes for the sickest and most vulnerable members of society."

IBM is providing a stream computing platform to aid decision support in the NICU through the ''Babylink"

project. Using IBM Big Data & Analytics based on InfoSphere Streams technology, this platform will allow the transmission of raw physiological data from the cot-side.

The platform takes the stream of data from sensors monitoring the baby, interprets that data using algorithms created by INFANT engineers, and then sends alerts back to an NICU monitor. This surveillance service can be provided to multiple hospital rooms, or even multiple wards, in one location. Therefore the data moves and not the baby – crucial in saving time and minimising disturbance when dealing with infants in intensive care. To protect patient confidentiality, individual patient data is de-coupled from the monitoring alert data. Results can be securely viewed from any user authorised web-enabled terminal, PC, tablet or smartphone.

The initial phase of the Babylink project has focused on establishing the infrastructure for connecting EEG data on to the stream computing platform and integration with INFANT's Neonatal Seizure Detection Algorithm (NSDA). INFANT Engineers have developed the NSDA which will identify the threshold at which action needs to be taken (ie: what is a seizure and what is not). This algorithm is the best performing algorithm available for neonatal seizure detection today. The integration of other physiological signals in the NICU can be easily incorporated into this architecture. INFANT is a recognised world leader in this space, and their algorithm research is funded by Science Foundation Ireland and the Wellcome Trust.

 "The continuing transformation of the healthcare industry puts greater emphasis than ever before on the role of technology in helping provide higher standards of patient care. IBM is working with several healthcare organisations to shape a more patient-centric health system, by using advanced analytics technology to generate, track and share accurate information in real-time", said Dixit Shah, Big Data and Analytics Leader, IBM UK and Ireland.

IBM's Big Data Analytics stream processing capability is based on IBM InfoSphere Streams technology capturing and analysing data in motion. It's an advanced analytic platform that allows user-developed applications to quickly ingest, analyse and correlate information as it arrives from thousands of real-time sources. The solution can handle very high data throughput rates, up to millions of events or messages per second.

For more information about IBM Big Data Analytics, visit: https://ibm.biz/BdFq55

For more information about IBM InfoSphere Streams technology, visit: https://ibm.biz/BdESvb

For more information about the Irish Centre for Fetal and Neonatal Translational Research (INFANT) at University College Cork, visit: http://www.infantcentre.ie

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