

UCLA Relies on Breakthrough ‘Big Data’ Technology from IBM To Help Patients with Traumatic Brain Injuries

IBM

IBM (NYSE:[IBM](#) [1]), and Excel Medical Electronics (EME) are collaborating with the UCLA Department of Neurosurgery in a study to test the effectiveness of a real-time alarm intended to predict rising brain pressure in patients with traumatic brain injuries. The experimental system uses big data analytics software developed by IBM Research and EME that analyzes in real-time streams of vital signs continuously collected from the bedside monitor to spot subtle changes in the patient’s pulse, blood and intracranial pressure, heart activity, and respiration, signaling that dangerous high-risk increases in brain pressure are on the way.



[2]Today, patients with traumatic brain injuries are under constant surveillance by bedside monitors measuring the patient’s vital signs, but nurses are only alerted by the bedside monitor alarm when brain pressure crosses a critical threshold. At that point, an instant decision must be made by the nurse or physician to determine if the alarm is false, if the condition is life-threatening, or if immediate action is needed to prevent brain damage or death.

UCLA’s study aims to address these questions. UCLA neurointensives will use real-time analysis from thousands of vitals collected and flowing from patients’ bedside monitor inside the intensive care unit at Ronald Reagan UCLA Medical Center. The technology’s goal is to provide advance warning to physicians and nurses of pending changes in the patient’s condition, allowing them to take preventive action to keep patients safe from rising brain pressure.

The Centers for Disease Control estimates 1.7 million people in the United States sustain a traumatic brain injury every year. Of those individuals, about 52,000 die,

275,000 are hospitalized, and 1.365 million are treated and released from an emergency department. Research has been underway for several years to monitor and predict critical changes in these patients, but until now it has been difficult to analyze all of the patient data that flows in real-time. UCLA study's will be testing whether recent advances in streaming analytics software can now make this possible in the critical care setting.

UCLA's Department of Neurosurgery was awarded a \$1.2 million grant from the National Institute of Neurological Disorders and Stroke to study intracranial pressure and develop a predictive alarm system. The department has been studying the effect of rising intracranial pressure on brain trauma patients for the past eight years. This research is now being expanded with the collaboration of IBM and Excel Medical Electronics.

IBM InfoSphere Streams software, part of IBM's big data platform, can analyze and share data in motion, providing real-time decision making in environments where thousands of decisions can be made every second. EME BedMasterEx analytics software collects, stores, reviews, and distributes patient data from hospital monitors and medical devices. EME collaborated with researchers from IBM's T.J. Watson Laboratory to integrate its application with IBM software and develop an easy-to-use interface for medical staff.

"The field of big data analytics is evolving to include new kinds of data from sources such as medical monitors, giving us insights into patients that weren't previously possible," said Martin Kohn, MD, chief medical scientist, IBM Research. "We believe that UCLA's promising research may one day transform the way that doctors and nurses interact with patients inside the neuro-intensive care unit."

"Through its research, UCLA is changing the way that analytics may eventually be used inside hospitals, and how we think about using data to improve patient outcomes," said John Hoffman, President, Excel Medical Electronics. "We hope that teaming Excel Medical Electronics and IBM analytics technologies with UCLA's expertise will lead to new ways to save lives."

EME develops innovative clinical and research software for hospital patient monitoring systems. The company's flagship BedMasterEx platform is in use by more than 80 percent of the top ranked medical centers and children's hospitals in America.

The UCLA Brain Injury Research Center and the UCLA Stroke Center are among the world's leaders in the diagnosis, treatment and management of vascular diseases of the brain, spinal cord and traumatic brain injury.

The UCLA Department of Neurosurgery is committed to providing the most comprehensive patient care through innovative clinical programs in minimally invasive brain and spinal surgery; neuroendoscopy; neuro-oncology for adult and pediatric brain tumors; cerebrovascular surgery; stereotactic radiosurgery for brain and spinal disorders; surgery for movement disorders such as Parkinson's disease; and epilepsy surgery. For 21 consecutive years, the department has been ranked

UCLA Relies on Breakthrough 'Big Data' Technology from IBM To Help Patients

Published on Medical Design Technology (<http://www.mdtmag.com>)

among the top neurosurgery programs in the nation by U.S. News & World Report, including No. 1 in Los Angeles and No. 2 on the West Coast.

For more information about IBM, visit: <http://www.ibmbigdatahub.com/> [3] and <http://www.ibm.com/bigdata> [4].

For IBM Big Data Analytics news, visit: <http://www-03.ibm.com/press/us/en/presskit/27163.wss> [5] and YouTube channel.

Source URL (retrieved on 08/21/2014 - 2:58pm):

<http://www.mdtmag.com/news/2013/03/ucla-relies-breakthrough-%E2%80%98big-data%E2%80%99-technology-ibm-help-patients-traumatic-brain-injuries>

Links:

[1] <http://www.ibm.com/investor>

[2] http://www.flickr.com/photos/ibm_media/8592884992/

[3] <http://www.ibmbigdatahub.com/>

[4] <http://www.ibm.com/bigdata>

[5] <http://www-03.ibm.com/press/us/en/presskit/27163.wss>