World Academy of Science, Engineering and Technology
International Journal of Health and Medical Engineering
Vol:16, No:06, 2022

Utilization of Informatics to Transform Clinical Data into a Simplified Reporting System to Examine the Analgesic Prescribing Practices of a Single Urban Hospital's Emergency Department

Authors : Rubaiat S. Ahmed, Jemer Garrido, Sergey M. Motov

Abstract : Clinical informatics (CI) enables the transformation of data into a systematic organization that improves the quality of care and the generation of positive health outcomes.Innovative technology through informatics that compiles accurate data on analgesic utilization in the emergency department can enhance pain management in this important clinical setting. We aim to establish a simplified reporting system through CI to examine and assess the analgesic prescribing practices in the EDthrough executing a U.S. federal grant project on opioid reduction initiatives. Queried data points of interest from a level-one trauma ED's electronic medical records were used to create data sets and develop informational/visual reporting dashboards (on Microsoft Excel and Google Sheets) concerning analgesic usage across several pre-defined parameters and performance metrics using CI. The data was then qualitatively analyzed to evaluate ED analgesic prescribing trends by departmental clinicians and leadership. During a 12-month reporting period (Dec. 1, 2020 – Nov. 30, 2021) for the ongoing project, about 41% of all ED patient visits (N = 91,747) were for pain conditions, of which 81.6% received analgesics in the ED and at discharge (D/C). Of those treated with analgesics, 24.3% received opioids compared to 75.7% receiving opioid alternatives in the ED and at D/C, including non-pharmacological modalities. Demographics showed among patients receiving analgesics, 56.7% were aged between 18-64, 51.8% were male, 51.7% were white, and 66.2% had government funded health insurance. Ninety-one percent of all opioids prescribed were in the ED, with intravenous (IV) morphine, IV fentanyl, and morphine sulfate immediate release (MSIR) tablets accounting for 88.0% of ED dispensed opioids. With 9.3% of all opioids prescribed at D/C, MSIR was dispensed 72.1% of the time. Hydrocodone, oxycodone, and tramadol usage to only 10-15% of the time, and hydromorphone at 0%. Of opioid alternatives, non-steroidal anti-inflammatory drugs were utilized 60.3% of the time, 23.5% with local anesthetics and ultrasound-guided nerve blocks, and 7.9% with acetaminophen as the primary non-opioid drug categories prescribed by ED providers. Non-pharmacological analgesia included virtual reality and other modalities. An average of 18.5 ED opioid orders and 1.9 opioid D/C prescriptions per 102.4 daily ED patient visits was observed for the period. Compared to other specialties within our institution, 2.0% of opioid D/C prescriptions are given by ED providers, compared to the national average of 4.8%. Opioid alternatives accounted for 69.7% and 30.3% usage, versus 90.7% and 9.3% for opioids in the ED and D/C, respectively.There is a pressing need for concise, relevant, and reliable clinical data on analgesic utilization for ED providers and leadership to evaluate prescribing practices and make data-driven decisions. Basic computer software can be used to create effective visual reporting dashboards with indicators that convey relevant and timely information in an easy-to-digest manner. We accurately examined our ED's analgesic prescribing practices using CI through dashboard reporting. Such reporting tools can quickly identify key performance indicators and prioritize data to enhance pain management and promote safe prescribing practices in the emergency setting.

Keywords : clinical informatics, dashboards, emergency department, health informatics, healthcare informatics, medical informatics, opioids, pain management, technology
Conference Title : ICHITM 2022 : International Conference on Healthcare Informatics, Technology and Management
Conference Location : New York, United States
Conference Dates : June 02-03, 2022