[OS1-97] Appropriate Dosing of Naloxone in the Children’s Hospital: A retrospective review

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Background
Each year hundreds of thousands of opioid doses are prescribed to children in hospitals to treat pain. Opioids can cause many adverse effects such as sedation and respiratory depression. The opioid reversal agent naloxone has been identified as a useful indicator for quality improvement based on the incidence and nature of the administration1. Childs et al suggested the development of an electronic resource to capture medication uses, however, did not assess the impact on compliance on clinical outcomes2. A literature search of naloxone did not produce any papers currently published describing the collection of naloxone events and whether or not the appropriate doses were given.

Objectives

A naloxone event occurs when naloxone is given for opioid reversal when a patient is hypoxic and or non-responsive, requiring naloxone administration to reverse the opioid given to the patient. The primary objective of this study is to describe the dosing discrepancies identified from the naloxone events reported at our institution by utilizing the reports generated by the hospital’s electronic medical record (EMR). For each event, we identified the type of provider and dose of naloxone administered. We hypothesize that the patients managed on the pain service would have fewer naloxone events and more appropriate dosing of naloxone during an event.

Methods

A retrospective chart review was conducted on 63 children who were given naloxone for respiratory depression or over sedation over a period of one year. Patients were separated into two groups: those that were managed by the pain service at the time of the naloxone event, and those that were not managed by the pain service. Our primary outcomes were provider service and appropriate naloxone dosing as defined by PALS guidelines and the manufacturer’s recommendations3.

Results
Of the 63 charts that met inclusion criteria, 11 patients were managed by the pain service and 52 patients were not. The rate of inappropriate dosing of naloxone for patients cared by the pain service vs. non-pain service was 11.5% vs. 45.5%, p=0.017 respectively.

Discussion/Conclusion

Patients who had a Naloxone event and who were managed by the pain service were given the appropriate dose more frequently than patients who were not managed by the pain service. In addition, patients who were managed by the pain service had fewer naloxone events than those not managed by the pain service. More analysis of the data needs to be done to include information such as pain diagnosis, opioid requirements at the time of the event, numeric pain score, and whether or not escalation of care occurred. We believe the difference in doses and events for patients managed by the pain service occurred because of the expertise of the pain providers in prescribing appropriate doses of opioids and the use of order sets that include appropriate doses of naloxone in case of respiratory depression or over sedation.

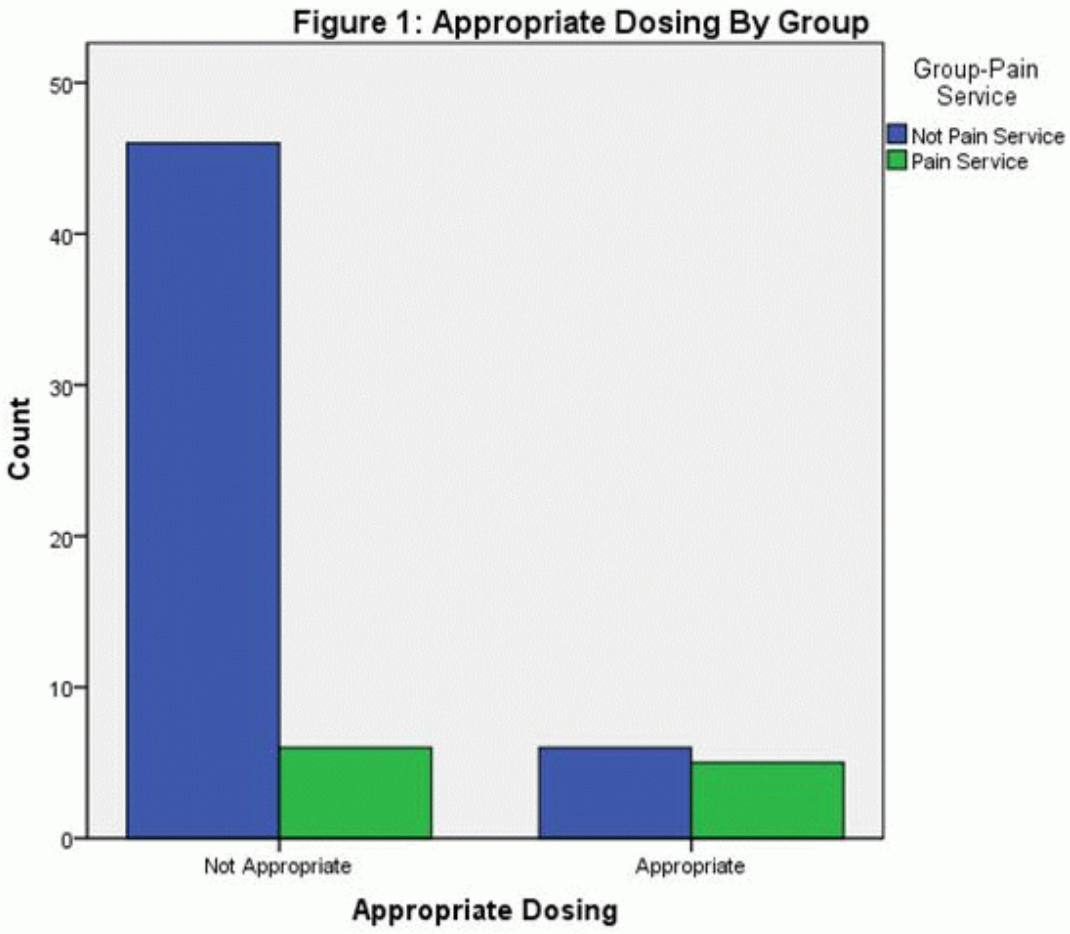
Figure 1: Appropriate Dosing By Group
Group-Pain Service
Not Pain Service
Pain Service
Count
50
40
30
20
10
0
Not Appropriate
Appropriate
Appropriate Dosing