OPIOID SAFETY

The CDC reports that deaths from opioid overdoses in the US have quadrupled since 1999 with over 28,000 deaths in 2014 alone, of which half were attributed to prescription pain relievers. At UCSF we recognize that opioid overuse is a national patient safety issue. Since 2014, we have conducted at least 5 Root Cause Analyses on opioid safety and are tracking inpatient naloxone administration to better understand the scope of the problem. We are actively engaged in a number of activities to improve opioid safety for patients and to better support our providers in managing pain.

What happened?

A 37 year-old, opioid naïve, patient is admitted to the ICU for septic shock of unclear etiology. The ICU admission order set includes orders for oral oxycodone 5-15mg Q2H prn moderate pain and IV hydromorphone 1mg Q3H prn for severe pain. While in the ICU, the patient is monitored on continuous pulse oximetry (CPO). The next day, he is transferred out of ICU with both the oxycodone and hydromorphone continued. Over the next 24 hours the patient reports diffuse joint pain ranging from a 6 to 9 out of 10 and receives 15mg of oxycodone every 2 hours and 1mg of IV hydromorphone every 3 hours. During routine vital signs the next morning, he is noted to be somnolent. Oxygen saturation is 75%. A rapid response is called, naloxone is administered and the patient is transferred back to the ICU. Both oxycodone and hydromorphone are discontinued. Ultimately, he made a full recovery but his hospitalization was prolonged and complicated as the result of opioid overdose.

What went wrong?

This case illustrates the challenges associated with inpatient pain management. Opioid naïve patients may be sensitive to high doses of opioids. The default doses in certain order sets may not be appropriate for such patients. While CPO was available, it was not ordered on transfer and would have been appropriate given the high doses of opioids needed to manage this patient’s pain. Furthermore, the amount of pain medication administered was not communicated among clinicians. Dose equivalents of opioids can be confusing. The total amount administered in 24 hours was equal to over 600mg of oral morphine. Ordering multiple short-acting opioids simultaneously for different pain severities can lead to unintentional overdose, as it did in this patient’s case. Lastly, it is important to note that it can be difficult to distinguish a patient who is sleeping restfully from one who is over-sedated.

Improvements: Opioid Safety

Provider and nursing education:
“Pain Assessment: Beyond the Number,” class is available for all nurses. Pain resource nurses are available on most units to assist with general pain, medication, and policy/procedure questions. Service specific protocols and education for providers are being developed and disseminated (e.g. neurosurgery and kidney transplant).

Monitoring and order sets:
CPO is required for kidney and liver transplant patients on PCAs and epidurals. Plans for CPO monitoring for all patients on PCAs and epidurals are in progress. Admission orders are being revised to encourage multi-modal analgesia, reduce default doses for opioids, and instruct nurses to page the primary provider when > 3 opioid doses are administered in 8 hours.

Recommended best practices for providers:
1) Avoid ordering multiple short-acting opioids via different routes of administration
2) If switching opioids, dose reduce by 30-50% to account for incomplete cross-tolerance
3) Start low in opioid-naïve patients and consider a multi-modal approach to analgesia (NSAIDs, acetaminophen)
4) Consider consulting the acute or chronic pain service for assistance with pain management, especially for patients on more than 100 oral morphine equivalents per day.
5) Utilize the following opioid equivalence table to facilitate dose determination: UCSF Opioid Equivalence Table

Contacting the pain services:
- Moffitt-Lang Acute Pain SVC by page at 443-6689.
- Mission Bay Acute Pain SVC by page at 443-2676
- Chronic Pain SVC by page at 443-4332

From the UCSF Patient Safety Committee. Editors: Adrienne Green MD (Professor of Medicine, Chief Medical Officer), Jim Stotts RN (Assistant Clinical Professor of Nursing, Patient Safety Manager), and Kiran Gupta, MD, MPH (Assistant Clinical Professor of Medicine, Assistant Medical Director for Patient Safety). Please contact Kiran Gupta at Kiran.Gupta@ucsf.edu with questions. Disclaimer: Clinical details of cases have been altered to protect patient & provider confidentiality.