

An Evidence-Based Orthopaedic Nursing Practice Initiative: Standardized Postoperative Order Set for Patient's Receiving Intraoperative Injectable Cocktails



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INTRODUCTION and STUDY DESIGN

A growing number of postoperative knee and hip replacement patients began arriving on the orthopaedic unit in a deeper state of sedation. Thus, necessitating more oxygen to maintain appropriate saturation levels in these patients. Some patients required medications to reverse anesthesia/analgesia effects after arriving on the unit. The occurrence of three orthopaedic rapid response team calls in one month focused attention on this issue. At CVMC our rapid response intervention is called Code Purple. It was discovered that orthopaedic surgeons were injecting a cocktail into muscle surrounding newly introduced prosthetics intraoperatively. The cocktail, which is a synthetic narcotic and anesthetic mixture for pain control, followed by narcotics administered in PACU, appeared to be responsible for over sedation.

PURPOSE:

This study was designed to investigate over sedation of patient's receiving injectable cocktails along with narcotics given in PACU, and the occurrence of code purple events associated with over sedation.

METHODS:

Data was collected over a 12-month period of time (October 01, 2008 to September 30, 2009) using retrospective chart reviews, nursing data tools, and risk management reports. A multidisciplinary team was formed to develop counteractive measures.

BACKGROUND

Narcotics and sedatives provide patients pain relief and discomfort measures. However, dosing must be selected carefully and patients monitored closely to prevent accidental overdoses and adverse drug events. This requires physicians, nursing, pharmacy, and other health care professionals to work diligently together to obtain optimal standard of practice for postoperative patients receiving intraoperative cocktails.

PULSE OXIMETRY and ITS BENEFITS

How do pulse oximeters work? They measure the light absorption properties of hemoglobin utilizing red-infrared light. The proportion of oxygenated hemoglobin molecules in the blood affects the amount of light absorbed. Light absorption is analyzed, and the pulse oximeter generates a numerical saturation reading (Ingram & Munro, 2005).

Ingram G, Munro, N. The use (or otherwise) of pulse oximetry in general practice. *Br J Gen Pract*. 2005; 55(516): 501-502. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1472779/>. Accessed October 20, 2009.

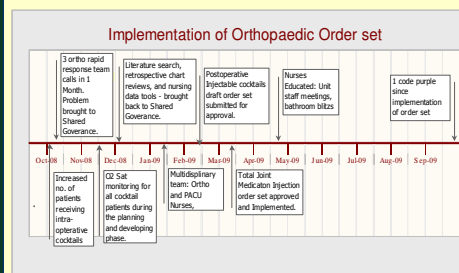
- Reliability, accurate oxygenation, & heart monitoring
- Diagnostic tool
- Alarms with decrease in saturation
- Provides indirect measurements of the percentage of oxygenated hemoglobin in capillary blood

IMPLEMENTATION

Armed with published evidence and clinical observations, a multidisciplinary team of orthopaedic nurses, surgeons, PACU nurses, and pharmacists developed an order set addressing standardized medication administration, nursing care, monitoring, and emergency treatment.



EBP INITIATIVE TIMELINE



STANDARDIZED ORDER SET

REORDER: 0309
Catawba Valley Medical Center

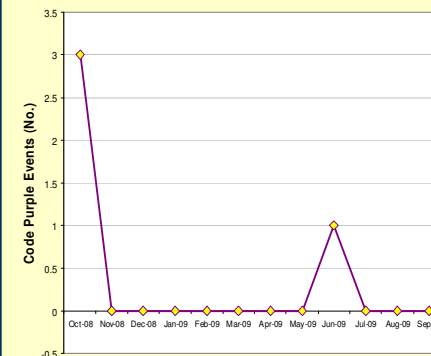
ROUTINE ORDERS - Total Joint Medication Injection

Height: _____ Weight: _____ Allergies: _____
Diagnosis: _____
By CNMP Administration Policy PC-23 Vital/Intake orders should be marked back to the appropriate clinician.

INTERVIEW	ORDER STATUS	ORDERS
		<p>KEY: <input type="checkbox"/> No option checked has MD to check if the order is to be implemented. <input type="checkbox"/> A Mark: MD needs to fill in the blank. If the box is blank or empty, it is not ordered and will not be completed. Orders with the MD label will be implemented when ordered out for the day.</p> <p><input checked="" type="checkbox"/> Cocktail #1 Injection <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> <input type="checkbox"/> 1 syringe <input type="checkbox"/> 2 syringes</p> <p>Standard mixture in one 60 ml syringe: Toradol injection 7.5 mg Epiduraline 1 mg/ml 0.15 mg Ropivacaine 0.5% 15 ml total Sodium Chloride 0.9% 34.6 ml</p> <p>Additional medications:</p> <p><input checked="" type="checkbox"/> Cocktail #2 Injection <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> <input type="checkbox"/> 1 syringe <input type="checkbox"/> 2 syringes</p> <p>Standard mixture in one 60 ml syringe: Toradol injection 7.5mg Epiduraline 1 mg/ml 0.25 mg Ropivacaine 0.5% 20 ml total Sodium Chloride 0.9% 29.5 ml</p> <p>Additional medications:</p> <p>1. Continuous pulse oximetry monitoring for 24 hours post-op. 2. Maintain IV access for at least 24 hours. 3. Oxygen PRN to maintain oxygen saturation >92%. If SpO2 remains <90% call Respiratory Therapy to assess patient. 4. Respiratory Depression: If Respirate < 8 per minute give Narcan 0.2 mg IV and call MD. If resp rate does not increase above 8 per minute in 5 minutes, may repeat Narcan 0.2 mg IV x 1. 5. Give only narcotics/pain medications prescribed by Orthopedic surgeon for pain management.</p>

Physician Signature: _____
PHYSICIAN'S ORDERS

REDUCTION OF CODE PURPLE EVENTS



- 3 code purple events with sedated patients highlighted the problem
- Standard Order Set fully implemented March 17, 2009
- 67% code purple reduction since problem identified
 - 0 events in 5 out of 6 months post-implementation
 - the one event, since implementation, occurred in a sedated patient with PCA

IMPLICATIONS for NURSING

- Enhance physician to nurse communication
- Improve patient outcomes
- Enhance standard of practice
- Reinforce collaboration and teamwork
- Empowers nurses
- Performance improvement

CONTACT INFORMATION

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