

## Development of Naloxone Usage Guidelines Based on Medication Use Evaluation Results

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### Purpose

Naloxone is a potent opioid antagonist indicated for the reversal of known or suspected opioid overdose, including opioid induced respiratory depression. Historically, naloxone was felt to be a benign drug when given to opioid naïve patients. However, inappropriate administration of naloxone can be associated with patient harm, producing rapid opioid withdrawal, reversal of analgesia, and possible significant adverse effects. A study conducted by Osterwalder in *Clinical Toxicology* in 1996<sup>1</sup>, reported severe adverse reactions to naloxone in 1.3% of subjects. A medication use evaluation was conducted to assure appropriate use of naloxone in our institution.

### Method

A retrospective medication use evaluation (MUE) of naloxone was conducted to assess appropriate usage as defined in the current opioid policy at Abington Memorial Hospital, a 600 bed community teaching institution. The current policy recommends administration of naloxone for respiratory rate <8 AND oxygen saturation <90%. Three months of naloxone use were reviewed for compliance to the recommendations in the policy. Patients were identified by a report identifying naloxone orders entered into Horizons Medication Manager, the hospital pharmacy computer system. Respiratory rates prior to administration of naloxone or notations of responsiveness following naloxone administration will be assessed for appropriateness of naloxone use. In patients who had naloxone ordered in patients with RR >8, documentation of reason for ordering will be reported. In addition, incidence of adverse events will be determined by this retrospective chart review.

### Results

Over a three month period, a total of 44 patients received naloxone, nineteen of which received naloxone in the emergency room with the remainder receiving the medication as an inpatient. The MUE determined that the majority of naloxone administration did not meet the criteria outlined in the IV opioid policy. Naloxone was commonly ordered to reverse mental status changes or oversedation and was administered as an IV push dose of 0.4 mg. Side effects and reversal of analgesia was seen. Based on these results, guidelines for naloxone use were created. In addition, an order set based on the recommendations will be put in place to guide physician ordering and provide decision support based on the clinical situation.

### Conclusions

In our institution, naloxone administration was often inappropriate and being given to patients with respiratory rates greater than 8. The most common order for IV naloxone was a 0.4 mg IV push dose, which caused reversal of analgesia and side effects in approximately 16% of patients receiving the medication. Development of guidelines and order sets defining appropriate naloxone use will help guide physicians on appropriate ordering and administration of naloxone based on the clinical situation of the patient.