



**Measure Abbreviation:** MED 01

**Measure Description:** Percentage of cases that avoided medication overdose requiring the use of nalaxone or flumazenil.

**NQS Domain:** Patient Safety

**Measure Type:** Outcome

**Scope:** Calculated on a per case basis.

**Measure Summary:** MED 01 is an outcome measure that identifies intraoperative medication overdose by monitoring the administration of opioids and/or benzodiazepines and the administration of their reversals: flumazenil and naloxone. Flumazenil is given for benzodiazepine overdose. Naloxone is given for opioid overdose. The time period for this measure is Anesthesia Start to Anesthesia End. PACU time is not included currently.

**Rationale:** Opioid and/or benzodiazepine administration can lead to respiratory depression, brain damage, and even death. Judicious use of opioids for patients that have planned extubation at end of case can avoid use of reversal agents and their side effects. For patients not meeting extubation requirements due to opioids or benzodiazepines, waiting until the effects wear off is preferable to reversal administration.

**Inclusions:** All cases in which opioids or benzodiazepines were administered during the intraoperative period.

**Exclusions:**

- ASA 5 and 6 cases.
- Patients not given opioids or benzodiazepines during the intraoperative period.
- Cases where naloxone or flumazenil is administered before the first dose of opioid/benzodiazepine.
- Patients that are still intubated at anesthesia end.
- ECT cases.

**MPOG Concept IDs Required:**

Opioid MPOG Concept IDs		Benzodiazepine MPOG Concept IDs		Reversal Medication MPOG Concept IDs	
10306	Morphine	10301	Midazolam	10191	Flumazenil
10186	Fentanyl	10154	Diazepam	10312	Naloxone
10219	Hydromorphone				
10414	Sufentanil				

**Data Diagnostics Affected:**

- Percentage of Cases with Bolus Medications
- Percentage of Cases with an Intubation Note
- Percentage of Cases with an Extubation Note
- Percentage of Medications with a Meaningful Medication Mapping
- Percentage of Cases with any Staff Tracking
- Percentage of Anesthesia Provider Sign-Ins that are Timed

**Collations Used:**

- AsaNotes
- MpogCaseld
- StaffRoles
- AnesthesiaEnd
- AnesthesiaStart
- Asa5or6
- EndotrachealTube
- ExtubationTimes
- PrimaryProvider

**Other Measure Build Details:**

Algorithm for determining Case Duration:

Case Start:

1. Anesthesia Induction End. If not available, then
2. Anesthesia Induction Begin. If not available, then
3. Procedure Start. If not available, then
4. Patient in Room. If not available, then
5. Anesthesia Start

Case End:

1. Patient Extubated. If not available, then
2. Procedure End. If not available, then

## MED 01 Measure Specification (Page 3 of 3)

3. Patient Out of Room. If not available, then
4. Anesthesia End.

**Success:** The percentage of cases with no administration of naloxone or flumazenil.

*Special Considerations:* If naloxone was given as an infusion AND as a bolus, the case fails due to the bolus. If naloxone is only given as an infusion, then the case is still evaluated for flumazenil. Patients receiving naloxone as in infusion indicate naloxone is being infused for pruritus for neuraxial technique.

**Threshold:** 95%.

**Responsible Provider:** The provider who is signed in for the longest portion of the case between Case Start and Case End. See 'Other Measure Build Details' section of this specification to view the algorithm used for determining case duration.

**Method for determining Responsible Provider:**

In the event that two or more providers in the same class are signed in for the same duration, all providers signed in for the longest duration will be attributed.

**Risk Adjustment (for outcome measures):**

*Not Applicable.*

**References:**

1. Lee LA, Caplan RA, Stephens LS, Posner KL, Terman GW, Voepel-Lewis T, Domino KB. Postoperative opioid- induced respiratory depression: A closed claims analysis. *Anesthesiology*. 2015;122(3):659-665.
2. Ramachandran SK, Haider N, Saran KA, Mathis M, Kim J, Morris M, O'Reilly M. Life-threatening critical respiratory events: A retrospective study of postoperative patients found unresponsive during analgesic therapy. *J Clin Anesth*. 2011;23:207–13.