

Measure Title:

MEDNAX53: Use of Capnography for non-Operating Room anesthesia

Measure Description

Percentage of patients receiving anesthesia in a non-operating room setting who have end-tidal carbon dioxide (E_TCO₂) monitored using capnography.

Instructions:

This measure is to be reported each time a patient receives anesthesia in a non-operating room setting. End-tidal carbon dioxide (E_TCO₂) can be recorded in the medical record with either a qualitative (“+”) or quantitative measure (numerical value).

Measure Reporting via the Qualified Clinical Data Registry

CPT codes, type of anesthesia, and patient location are used to identify patients who are included in the measure's denominator. Registry codes are used to report the numerator of the measure.

Denominator

All patients receiving anesthesia in a non-operating room setting for whom select CPT codes are reported.

Denominator Criteria (Eligible Cases):

Patients receiving anesthesia in a non-operating room setting.

AND Patient encounter reported with one of the following applicable setting anesthesia services: CPT 00104, 00410, 00731, 00732, 00811, 00812, 00813, 01922.

Denominator Exclusions:

Patients receiving anesthesia in an operating room setting.

OR

Patients receiving general anesthesia

Numerator:

Numerator Definition: Patients receiving anesthesia in a non-operating room applicable setting who have end-tidal carbon dioxide (E_TCO₂) monitored using capnography.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

Mednax 53A: Clinician monitored end-tidal carbon dioxide (E_TCO₂) using capnography. End-tidal carbon dioxide can be recorded in the medical record with either a qualitative (“+”) or quantitative measure (numerical value).

Performance Not Met:

Mednax 53B: Clinician did not monitor end-tidal carbon dioxide using capnography.

Measure Type: Process
NQF Number: Not applicable
eCQM Number: Not applicable

Rationale

The use of capnography when administering anesthesia in non-operating room sites is highly variable. To assess current use of capnography in non-OR settings, MEDNAX conducted a random audit of 100 anesthesia cases among all MEDNAX group practices participating in the MEDNAX QCDR. These cases were performed during the first 6 months of 2018 and represented either anesthesia for screening colonoscopy (CPT 00812) or anesthesia for non-invasive radiologic imaging (CPT 01922). In 76% of these cases, anesthesiologists documented use of end-tidal CO₂ monitoring while in 24% of cases, such monitoring was not documented.

Anecdotally, monitoring of end-tidal carbon dioxide (E_TCO₂) occurs in a minority of cases outside of the operating room. This is despite evidence that it reduces hypoxemic events: “Meta-analysis of RCTs indicate that the use of continuous end-tidal carbon dioxide monitoring (*i.e.*, capnography) is associated with a reduced frequency of hypoxemic events (*i.e.*, oxygen saturation less than 90%) when compared to monitoring without capnography (*e.g.*, practitioners were blinded to capnography results) during procedures with moderate sedation (category A1-B evidence).”¹

Capnography use helps avoid adverse events in numerous settings, including the pediatric emergency room: “Hypoventilation is common during sedation of pediatric emergency department patients. This can be difficult to detect by current monitoring methods other than capnography. Providers with access to capnography provided fewer but more timely interventions for hypoventilation. This led to fewer episodes of hypoventilation and of oxygen desaturation.”³ In addition, monitoring of end-tidal carbon dioxide reduces complications in advanced endoscopic procedures: “Capnographic monitoring of respiratory activity improves patient safety during procedural sedation for elective ERCP/EUS by reducing the frequency of hypoxemia, severe hypoxemia, and apnea.”⁴

Finally, the use of capnography is not only cost efficient, it may create cost savings: “Capnography is estimated to be cost-effective if not cost saving during PSA (procedural sedation/analgesia) for gastrointestinal endoscopy. Savings were driven by improved patient safety, suggesting that capnography may have an important role in the safe provision of PSA.”⁶

References:

1. ASA Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018: http://anesthesiology.pubs.asahq.org/article.aspx?articleid=2670190&_ga=2.238907456.1334756999.1531922211-1495262938.1525547862
2. Beitz, A, Riphhaus, A, Meining, A, Kronshage, T, Geist, C, Wagenpfeil, S, Weber, A, Jung, A, Bajbouj, M, Pox, C, Schneider, G, Schmid, RM, Wehrmann, T, von Delius, S . Capnographic monitoring reduces the incidence of arterial oxygen desaturation and hypoxemia during propofol sedation for colonoscopy: A randomized, controlled study (ColoCap Study). *Am J Gastroenterol* 2012; *107*:1205–12
3. Langan, ML, Shabanova, V, Li, FY, Bernstein, SL, Shapiro, ED . A randomized controlled trial of capnography during sedation in a pediatric emergency setting. *Am J Emerg Med* 2015; *33*:25–30

4. Qadeer, MA, Vargo, JJ, Dumot, JA, Lopez, R, Trolli, PA, Stevens, T, Parsi, MA, Sanaka, MR, Zuccaro, G . Capnographic monitoring of respiratory activity improves safety of sedation for endoscopic cholangiopancreatography and ultrasonography. *Gastroenterology* 2009; *136*:1568–76
5. Slagelse, C, Vilmann, P, Hornslet, P, Jørgensen, HL, Horsted, TI . The role of capnography in endoscopy patients undergoing nurse-administered propofol sedation: A randomized study. *Scand J Gastroenterol* 2013; *48*:1222–30
6. Saunders, R, Erslon, M, Vargo, J. Modeling the costs and benefits of capnography monitoring during procedural sedation for gastrointestinal endoscopy. *Endosc Int Open* 2016; *4*(3): E340–E351

Data Source: Claims, Medical Record, Registry

Measure Steward: MEDNAX Services, Inc.

Number of Multiple Performance Rates: Not applicable

Inverse Measure: Proportion No

Measure Scoring: Continuous Yes

Measure Scoring: Risk Adjustment: No

NQS Domain: Patient Safety No

High Priority Measure: Yes

High Priority Type: Patient Safety

Meaningful Measure: Preventable

Healthcare Harm