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Measure Title:
MEDNAX54: Labor Epidural Failure when Converting from Labor Analgesia to Cesarean Section Anesthesia

Measure Description
The percentage of patients who have pre-existing labor epidurals who require either supplemental sedation, spinal or general anesthesia for cesarean section.

Instructions:
This measure is to be reported each time a patient with an existing labor epidural requires delivery by cesarean section.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes and patient demographics 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 parturients with an existing labor epidural who require delivery by cesarean section.

DENOMINATOR:
All parturients with an existing labor epidural who require delivery by cesarean section.

Denominator Criteria (Eligible Cases):
Parturient

AND with labor epidural in place (CPT code 01967)

AND requires delivery by cesarean section (CPT code +01968)

Denominator Exceptions:

None

Numerator:

Numerator Definition: Patients who have pre-existing labor epidurals who require either supplemental sedation, spinal, or general anesthesia for cesarean section. For the purposes of this measure, "supplemental sedation" is defined as any dose of propofol, etomidate, ketamine, or nitrous oxide.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

Mednax 54A: Patient who has pre-existing labor epidural who requires either supplemental sedation, spinal, or general anesthesia for cesarean section.

Performance Not Met:

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Mednax 54B: Patients who has pre-existing labor epidural who **did not** require either supplemental sedation, spinal, or general anesthesia for cesarean section.

Measure Type: Outcome

NQF Number: Not applicable

eCQM Number: Not applicable

Rationale

The Royal College of Anaesthetists states that an acceptable rate of general anesthesia in a parturient receiving labor epidural analgesia should be no more than 3%. (1,2). In a 2012 systematic review, Bauer et al. found that the percentage of all cesarean deliveries performed with general anesthesia with a pre-existing labor epidural was 5% (95% CI 3.5 to 6.5%). The requirement for a second anesthetic, including repeat epidural, spinal or general anesthetic was 7.7% (95% CI 5.0 to 10.5%) and overall, 10.7% (95% CI 4.2 to 17.3) of patients were given supplementation (intravenous, inhalational or not specified) for cesarean sections. (3).

To assess current conversion of labor epidural to either spinal or general anesthesia for cesarean section, MEDNAX conducted a random audit of 100 cesarean following labor epidural cases among all MEDNAX obstetrical anesthesia group practices participating in the MEDNAX QCDR. These cases were performed during the first 6 months of 2018. In 17% of these cases, anesthesiologists converted the labor epidural to either spinal or general anesthesia in performing the cesarean section.

Based on published literature, one notable risk factor for conversion failure was being a non-obstetrical (general) anesthesiologist (4,5). They posited that obstetrical anesthesiologists may be more aware of the quality of labor analgesia and more likely to replace dysfunctional catheters or perform manipulations of the existing catheter or performing another neuraxial technique to avoid general anesthesia (3). Campbell reported an 84.6% success rate of converting labor epidurals by withdrawing the catheter 1cm before further drug administration. (4). Riley reported that obstetrical anesthesiologists had more success than general anesthesiologists in conversion (5). This metric could identify performance gaps and the need for dedicated obstetrical anesthesia staff rather than cross coverage by general anesthesiologists.

References:

1. Russell I. Technique of anesthesia for cesarean section. In: Colvin J, editor. *Raising the standard: a compendium of audit recipes.* London: The Royal College of Anaesthetists; 2000. p. 6 – 8.
2. Russell I. Technique of anesthesia for cesarean section. In: Colvin J, editor. *Raising the standard: a compendium of audit recipes for continuous quality improvement in anaesthesia.* 2nd ed. London: The Royal College of Anaesthetists; 2006. p. 166 – 7.
3. M.E. Bauer, J.A. Kountanis, L.C. Tsen, M.L. Greenfield, J.M. Mhyre. Risk factors for failed conversion of labor analgesia to cesarean delivery anesthesia: a systematic review and meta-analysis of observational trials. International *J of Obstet Anesth*(2012) 21, 294 – 309.
4. Campbell DC, Tran T. Conversion of epidural labour analgesia to epidural anaesthesia for intrapartum cesarean delivery. *Can J Anesth* 2009; 56:19 – 26.

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5. Riley ET, Papasin J. Epidural catheter function during labor predicts anesthetis efficacy for subsequent cesarean delivery. *Int J Obstet Anesth* 2002; 11:81 – 4.

Data Source: Claims, Medical Record, Registry

Measure Steward: MEDNAX Services, Inc.

Number of Multiple Performance Rates: 1 Overall Performance Rate

Inverse Measure: Yes

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Ratio Measure: No

Risk Adjustment: No

NQS Domain: Efficiency and Cost Reduction

High Priority Measure: Yes

High Priority Type: Appropriate Use

Meaningful Measure Area: Appropriate Use of Healthcare