Measure Abbreviation: PUL 03

Description: Percentage of cases in which Positive End Expiratory Pressure (PEEP) is used for patients undergoing mechanical ventilation during anesthesia.

Measure Type: Process

Measure Summary: PUL 03 is an informational measure that analyzes PEEP usage across patients undergoing mechanical ventilation during anesthesia. PUL 03 will determine if PEEP was administered (as defined by median PEEP ≥ 2) and also analyze distribution of PEEP levels:

- No PEEP (<2 cm H_2O)
- Low PEEP (2-4 cm H_2O)
- Moderate PEEP (≥ 4 to < 8 cm H_2O)
- High PEEP (≥8 cm H_2O)

Inclusions:

Patients undergoing endotracheal intubation.

Exclusions:

- ASA 5 and 6 cases
- Patients < 12 years of age
- Patients <20kg.
- Cases in which patients are mechanically ventilated for less than 45 cumulative minutes.
- One lung ventilation procedures as indicated by intraoperative notes or note details mapped to one of the following MPOG concepts:
    - 50501: Thoracic: Single-lung ventilation
    - 50202: Thoracic: Single-lung ventilation, side detail

Success: Median PEEP ≥ 2 cm H_2O (Assuming values less than 2 cm H_2O is equivalent to no PEEP administered)

Threshold: This measure is informational only- threshold not yet defined by the MPOG Quality Committee.

Responsible Provider: This measure is informational only. Attribution not yet determined by the MPOG Quality Committee.

Risk Adjustment (for outcome measures): *Not applicable.*

References:

1. Fernandez-Perez ER, Keegan MT, Brown DR, Hubmayr RD, Gajic O. Intraoperative tidal volume as a risk factor for respiratory failure after pneumonectomy. *Anesthesiology.* 2006;105(1):14-18.
2. Futier E, Constantin JM, Paugam-Burtz C, et al. A trial of intraoperative low-tidal-volume ventilation in abdominal surgery. *The New England journal of medicine.* 2013;369(5):428-437.
3. Guldner A, Kiss T, Serpa Neto A, et al. Intraoperative protective mechanical ventilation for prevention of postoperative pulmonary complications: a comprehensive review of the role of tidal volume, positive end-expiratory pressure, and lung recruitment maneuvers. *Anesthesiology.* 2015;123(3):692-713.
4. Serpa Neto A, Hemmes SN, Barbas CS, et al. Protective versus Conventional Ventilation for Surgery: A Systematic Review and Individual Patient Data Meta-analysis. *Anesthesiology.* 2015;123(1):66-78.
5. Severgnini P, Selmo G, Lanza C, et al. Protective mechanical ventilation during general anesthesia for open abdominal surgery improves postoperative pulmonary function. *Anesthesiology.* 2013;118(6):1307-1321.