

Process of Care Measure: NMB 1

Train of Four Monitor Documented After Last Dose of Non-depolarizing Neuromuscular Blocker

Measure Summary:

The Train of Four Documented measure tells you the percentage of your cases where you documented a Train of Four count or acceleromyography results after the last dose of a non-depolarizing muscle relaxant. The purpose of this quality measure is to help reduce the number of patients who have residual neuromuscular blockade after extubation. Several older studies have been published that found associations between the use neuromuscular blockade agents and anesthesia related mortality. A more recent study found an association between use of neuromuscular blockers and adverse postoperative respiratory outcomes, but did not find benefit from the use of Train of Four monitoring or administration of neostigmine. Still, a mainstay of residual blockade prevention is continues to be monitoring to allow for detection.

Inclusions:

All patients that have received either by bolus or infusion a non-polarizing neuromuscular blocker (NMB) AND were extubated post-operatively or in the PACU. The following NMBs were included:

- Atracurium
- Cisatracurium
- Pancuronium
- Rocuronium
- Vecuronium

Older drugs (Mivacurium and Doxacurium) were not included

Exclusions:

- Cardiac Cases
- Liver Transplant Cases

The responsible provider is the provider signed in at time of extubation or anesthesia end if extubation time is not available.

Success counted as documentation of either a Train of Four count (1, 2, 3, or 4) or TOF ratio provided by acceleromyography AFTER last dose or stopping of infusion of neuromuscular blocker.

References

Pedersen T, Viby-Mogensen J, Ringsted C. Anaesthetic practice and postoperative pulmonary complications. *Acta Anaesthesiol Scand* 1992; 36:812-8.

Beecher HK, Todd DP. A study of the deaths associated with anesthesia and surgery: based on a study of 599, 548 anesthetics in ten institutions 1948-1952, inclusive. *Ann Surg* 1954; 140:2-35.

Harrison GG. Death attributable to anaesthesia. A 10-year survey (1967-1976). *Br J Anaesth* 1978; 50:1041-6.

Lunn JN, Hunter AR, Scott DB. Anaesthesia-related surgical mortality. *Anaesthesia* 1983; 38:1090-6.

Grosse-Sundrup M, Henneman JP, Sandberg WS, Bateman BT, Uribe JV, Nguyen NT, Ehrenfeld JM, Martinez EA, Kurth T, Eikermann M. Intermediate acting non-depolarizing neuromuscular blocking agents and risk of postoperative respiratory complications: prospective propensity score matched cohort study. *BMJ* 2012; 345:e6329