



Neuromuscular Blocker Safety

Case Examples



- ⌘ Versed – Vecuronium Error
- ⌘ Atracurium – Vancomycin Error
- ⌘ Rocuronium Error

Formulary Management and Product Selection



- ☞ Procurement managers should preferentially select commercial products that have distinctive labeling and packaging to differentiate these products.

Formulary Management and Product Selection



- ☞ As part of the competitive bidding process, procurement managers should evaluate product labeling and avoid purchasing NMBA's with similar trade dress or an appearance similar to that of other medications that will be used in the institution.

Formulary Management and Product Selection



- ☞ Pharmacy and therapeutics committees should conduct a failure-mode and effects analysis on all new high-alert medications, including NMBAs, before they are added to the formulary.

Product Storage



- ☞ Hospital and other personnel should store NMBAs separately from other medications.

Product Storage



- ☞ Hospital and other personnel should limit the availability of NMBAs to the pharmacy and patient care areas that routinely care for mechanically ventilated patients.

Product Storage



- ☞ Hospital and other personnel should carefully scrutinize (e.g., by conducting a failure-mode and effects analysis) any perceived need to store NMBAs in settings where mechanical ventilation is used occasionally or only emergently, such as emergency departments, procedure and clinic areas, and general nursing units.

Limiting or Controlling Access (Restricting Availability)



- ☞ Practitioners should use sealed “intubation kits” or “anesthesia kits” in areas outside of the OR to restrict access to paralyzing agents until an intubation procedure has begun.

Limiting or Controlling Access (Restricting Availability)



- ☞ Practitioners should immediately discard open vials of NMBA or ensure that the vials are returned to an intubation kit or special storage area after use.

Limiting or Controlling Access (Restricting Availability)



- ☞ Practitioners should not dispense NMBAs in unit dose medication carts or send NMBAs to a general nursing unit outside a sealed kit.

Limiting or Controlling Access (Restricting Availability)



- ☞ When NMBAs are stored in automated dispensing machines, practitioners should use an isolated drawer (single-item access) rather than a drawer that allows access to multiple products, including nonparalyzing agents. They should consider the use of an on-screen warning prior to removal of an NMBA from an automated dispensing machine.

Limiting or Controlling Access (Restricting Availability)



- ☞ Practitioners should consider separate locked storage for refrigerated NMBAs. If this is not possible, a box or other means of sequestering these products should be designed.

Use of Overwraps and Auxiliary Labeling



- ☞ All institutionally prepared syringes or infusion containers of NMBAs should contain a clearly visible, brightly colored alert stating, “Warning: Paralyzing Agent (Use Requires Mechanical Ventilatory Assistance).”

Use of Overwraps and Auxiliary Labeling



- Overwraps should be considered for individual vials of NMBA's stored outside the pharmacy or the anesthesia area. An overwrap can be particularly beneficial if these agents are stored in a refrigerator.



Use of Overwraps and Auxiliary Labeling



- ☞ Medications in unlabeled syringes should not be administered to patients. Preprinted syringe labels—either commercially available or institutionally generated—should be affixed to syringes of NMBAs when the medication is drawn up, unless the dose will be administered immediately (i.e., in an emergency), without setting the syringe down.

Implementing and Monitoring Guidelines



- ☞ Practitioners should ensure that patient selection, dosing, monitoring, and weaning of NMBAs are consistent with the current evidence and national practice guidelines. Practitioners should prescribe adequate sedation along with pain relief, without paralysis whenever feasible, for mechanically ventilated critical care patients.

Implementing and Monitoring Guidelines



- ☞ NMBA's should not be administered in the critical care setting (for reasons other than placement of an endotracheal tube) without concurrently medicating the patient for pain or anxiety, despite the lack of obvious symptoms or signs.

Implementing and Monitoring Guidelines



- ☞ Practitioners should monitor the depth of neuromuscular blockade to allow use of the lowest NMBA dose and potentially minimize adverse effects.

Ordering Practices



- Practitioners should automatically discontinue all orders for NMBAs when the patient is transferred out of the critical care area. These orders should also be limited to the duration of mechanical ventilation.

Ordering Practices



- NMBAs should never be used “p.r.n. for agitation” or referred to as muscle relaxants.