

Abstract

Title: A Quality Improvement Project to Reduce Sugammadex Cost and Waste by Using Aliquots

Authors: S Haberkorn, M Twite, K Klockau, G Whitney, D Faulk

Background: Sugammadex is supplied in 200mg/2ml manufacturer vials that potentially contain enough medication for multiple patient doses. However, vials are single use, resulting in medication waste. The aim of this QI project was to reduce medication cost and waste by aliquoting sugammadex into 50mg/0.5ml pre-filled syringes from larger vials (500mg/5ml). Quantitative neuromuscular blockade (NMB) monitoring was used to guide sugammadex dosing and ensure complete reversal.

Methodology: All patients undergoing procedures in the general ORs and cardiac catheterization labs, who required rocuronium and reversal with sugammadex, were included. Exclusion criteria were patients expected to remain intubated and emergency cases. The OR pharmacy aliquoted sugammadex into 50mg/0.5ml syringes at a cost of \$21.01 per syringe. Standard vials of sugammadex (200mg/2ml) cost \$109.79 each. Quantitative NMB monitoring was conducted using Senzime Tetragraph™ monitors, which require a \$27 sensor per case.

Results: From October 10th to December 9th, 2022, 203 procedures were included in the analysis: 87 used 50mg/0.5ml aliquots, 75 used standard 200mg/2ml vials, and 41 did not require sugammadex because the patient achieved reversal without an agent. Mean cost of sugammadex was \$1.65/kg for aliquot cases and \$2.58/kg for vial cases. Net savings was \$4,203.04 for aliquot cases and \$3,723.76 for cases not requiring reversal. Had vial cases used aliquots, those cases would have saved an additional \$1,433.19, for a total net savings of \$9,359.99 or \$46.11 per patient.

Conclusions: Use of sugammadex aliquots (50mg/0.5ml), in combination with quantitative NMB monitoring, resulted in \$46.11 net savings per patient. Approximately 8,000 patients receive NMB and reversal at our institution per year, which could result in an estimated \$368,866.60 annual cost savings. True annual savings may be higher or lower than this, depending on several factors.