



COST REDUCTION USING AERONEB SOLO IN A MEDICAL ICU VENTILATOR POPULATION

John S. Emberger BS RRT FAARC, Joel M. Brown II BS RRT, Lori Killian MBA RRT-NPS RPFT AE-C,
Respiratory Care, Christiana Care Health System, Newark, DE



BACKGROUND

Aeroneb Solo (Aerogen, Galway Ireland) is a vibrating mesh nebulizer designed specifically for ventilated patients which adds no flow to the ventilator circuit and is protected from contamination. Albuterol sulfate with ipratropium bromide is a common bronchodilator combination for our medical population with chronic respiratory disease. We previously used Combivent MDI over standard nebulizers, because standard nebulizers add flow to the ventilator circuit and increase the risk of circuit contamination. Sixteen Aeroneb Solo (SOLO) devices were purchased for use. We wanted to determine if implementing SOLO would result in clinical and/or cost benefits.

METHODS

A performance improvement project was initiated to switch Combivent MDI to albuterol sulfate with ipratropium bromide by protocol using SOLO for ventilator patients in our mechanically ventilated medical population. We analyzed respiratory care electronic documentation for the first 5 months of using SOLO, November 2010 - March 2011 (SOLO period) and the prior year, November 2009 - March 2010 (PRE period). Clinical data as well as bronchodilator usage were analyzed.

RESULTS

471 and 455 ventilator patients were identified in the medical population during PRE period and SOLO period. Combivent MDI was used on 55% of the PRE patients and 20% of the SOLO patients. Standard nebulizer was used in 14% of patients in the PRE period and SOLO was used in 48% of patients in the SOLO period. In comparing patients using only Combivent MDI in the PRE period to patients using only SOLO in the SOLO period, there were no significant differences in average ventilator days, patients with air-trapping, patients with wheezing, airway resistance, age, tracheostomy placement or length of stay in hospital. See table for medication use and medication costs. One hundred twenty four canisters of Combivent MDI (costing \$13,640) were still used in the SOLO period because of the limited number of SOLO devices available.

	PRE Period (Nov2009-Mar2010)	SOLO Period (Nov2010-Mar2011)
Total Ventilator Patients	471	455
# (%) on MDI	257 (55%)	91 (20%)
# (%) on Neb	64 (14%)	218 (48%)
# Unit Dose Meds Used	2855	8391
# MDI Canisters Used	658	124
Total (5 Month) Drug Cost	\$72,836.80	\$14,982.56

CONCLUSIONS

There were no detectable changes in clinical outcomes measured when switching from Combivent MDI to bronchodilator therapy with SOLO. We noted a five month \$57,854.24 drug cost reduction when converting from Combivent MDI to unit dose medication using the Aeroneb Solo. Due to the limited number of SOLO devices, Combivent MDIs were still used in the SOLO period. Further drug cost reduction could be realized with acquisition of additional SOLO devices.