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Title: Does technology matter? One intensive care unit's experience

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Body: Background: Pneumatic nebulizers (PN) can add significant flow to the circuit and can harbor harmful pathogens.[1] Use of a PN with mechanical ventilation (MV) often results in incomplete nebulization with retrograde contamination from the patient. Vibrating mesh nebulizers (VMN) have a physical barrier between the aerosol pathway and the medication reservoir, reducing risk of contamination. We hypothesized VMN would provide more effective therapy and potentially reduce the risk of VAP. Method: The Neuroscience ICU Respiratory Therapists initiated a QI project, trialing a VMN (Aerogen, Galway, Ireland), locating one controller in each room to avoid cross-contamination issues as part of a VAP reduction strategy. All medicated aerosol was perormed by VMN. Cumulative data was compiled for the 12 months prior. The new method (VMN) was used for 9 months, resuming the old method for an additional 60 day period (to act as an additional control) Results:

Table 1

	12 Months Prior (Old Method)	9 Months (New Method)	60 Days Post (Old Method - Control)
Average Ventilator Days	5.62	3.95	4.87
ICU Length of Stay	4.52	3.51* ($p<0.05$)	3.72
VAP Rate (1000 Vent Days)	4.05	3.87	3.83

Use of VMN resulted in a 15% drop in vent days, with a 19% increase during the 60 day return. LOS decreased by 28.7% during the study period. There was no statistically significant change in VAP rate, possibly due to the change in weighted value from the decreased vent days. Conclusions: VMN was

preferred by the therapists. In this instance, the advent of technology was felt to make a significant impact on patient care. Further study of the impact of choice of aerosol delivery device on patient outcome is indicated. [1] Respir Care 2005;50(6):725-741.