

**Salter Labs NebuTech® HDN®
Small Volume Nebulizer**

AEROSOL WORKLOAD REDUCTION.

Edward R. Hoisington¹, Robert L. Chatburn¹, Marianne Zirzow¹, James K. Stoller²;
¹Respiratory Therapy, Cleveland Clinic, Cleveland, OH; ²Pulmonary Allergy & Critical Care, Cleveland Clinic, Cleveland, OH

Aerosol therapy using small volume nebulizers (SVN) accounts for a large proportion of respiratory care (RC) clinical workload. Treatment time is mostly nebulization time, which is highly variable depending on SVN design. Our study purpose was to compare the effect of reducing nebulization time on workload distribution. The specific hypothesis was that time saved on aerosol workload could be used to increase time spent on other value-added patient care activities. **METHODS:** RC workload distribution was compared on a post-operative floor for two consecutive 30-day periods (7:00 am to 3:30 pm). SVNs were used to deliver single-drug bronchodilators (3 mL unit dose). In the control period, we used the Vixone SVN. Nebulization time was at the therapists' discretion (average 10 min). For the study period, we used the Salter 8960 Nebutech HDN with nebulization time limited to 3 minutes. The same group of 8 therapists participated during both periods. Daily volumes were recorded for 21 possible procedures assigned standard times. Daily procedure times were compared with Mann Whitney Rank Sum test, with $p < 0.05$ considered significant. **RESULTS:** Protocol compliance rate was 82% (i.e., some SVN treatments ran > 3 min). Total procedures and times (in hours, assuming 100% compliance) for the two periods are shown in the table. For the same number of SVN treatments, workload time was significantly reduced ($p < 0.001$). Times spent on other ordered procedures were not different ($p = 0.29$). The time savings in the study period (72 minutes/day) allowed an increase ($p = 0.039$) in time spent doing optional activities (patient assessments, rounds, home-O₂ qualifications) which were seldom performed in the control period. But only 18 of 72 minutes/day were reallocated. No SVN treatment stacking occurred during the study period while stacking was observed during the control period. There were no adverse aerosol events. Several patients who used both devices preferred the shorter treatment. Cost analysis showed that conversion of all aerosol treatments to Nebutech would increase supply cost by \$12,000 but potentially reduce labor cost by \$140,000. **CONCLUSIONS:** SVN workload can be substantially reduced without adverse events by reducing nebulization time. Workload savings were converted into value-added patient care activities. Concurrent SVN therapy was eliminated. Appropriate selection of technology and retraining can play a large role in coping with the national labor shortage.

	Period 1			Period 2		
	Procedures	Time	% Time	Procedures	Time	% Time
SVN	358	54	39	353	18	17
Other ordered procedures	624	72	52	592	68	64
Optional procedures	32	13	9	54	20	19
Total	1014	139		999	106	