

## IMPROVING RESOURCE UTILIZATION WITH NEW TECHNOLOGIES

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**Background:** To meet patient care needs during the peak respiratory season using levalbuterol (LEV) (Sepracor Inc., Marlboro, MA) and **AeroEclipse™** Breath Actuated Nebulizer (“BAN”) ( Monaghan Medical Corp., Plattsburgh, NY). Both pilot projects were approved by the Respiratory Care Advisory Committee.

**Methods:** LEV 1.25mg delivered via nebulization q6h was substituted for albuterol 2.5mg ordered q4h in October 1999. Patients could also receive LEV as needed. A standardized subjective questionnaire to determine side effects of LEV was completed. BANs were utilized on patients meeting specified criteria during November 1999. Standard nebulizers were used for all other patients who required nebulized treatments. Treatment times were extracted from the CliniVision Information Management System database.

**Results:** LEV was substituted for albuterol in 25 patients. Indications for nebulizer therapy included asthma (8%), COPD (32%), community acquired pneumonia (20%), and other (40%). The average number of LEV treatments per day was 3.7. This compared favorably to albuterol, which historically required  $\geq 6$  treatments per day. No patients requested breakthrough treatments or noted side effects due to LEV. A total of 298 treatments were delivered using BANs versus 322 delivered using a standard nebulizer. The average time per treatment using BANs was 9.9 minutes versus 14.76 minutes with the standard nebulizer. The results of these pilot programs prompted changes in respiratory therapy practice throughout the hospital. LEV was added to the Patient Driven Protocols and BANs are now used for nebulizer treatments in patients meeting criteria. Hospital census data indicate a 13.5% increase for 2000 versus 1999. Thus, total treatments for January and February 1999 and 2000 were 30,089 and 32,923, respectively. During this period, 16,000 LEV vials were dispensed from an automated dispensing unit vs 8,900 vials of albuterol. Concurrently, overtime (OT) hours utilized in 2000 were decreased by 693 hours, resulting in a savings of \$16,632, despite the increased number of treatments. Therefore, treatments were delivered to more patients with less OT utilized in 2000.

**Conclusion:** These data illustrate the cost-effectiveness of two technologies utilized in our hospital, while patient care and satisfaction were maintained. OT hours decreased by 25% while treatments were delivered to more patients throughout the hospital. The use of LEV has resulted in a 33% decrease in the number of treatments per day with few “pm” treatments, while BAN has decreased the time to deliver therapy by 33%.