Compliance of Corticosteroid and Albuterol Treatment in the Emergency Department Based on Patient Disposition

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Introduction: Asthma is a leading cause of pediatric emergency department (ED) visits, with over 700,000 cases annually. Effective and timely treatment is crucial to prevent clinical deterioration. This study evaluates adherence to the St. Louis Children's Hospital (SLCH) ED asthma guidelines and identifies opportunities for process improvement in asthma exacerbation management.

Methods: A retrospective analysis was conducted on pediatric patients (≤21 years old) treated with albuterol in the SLCH ED between April 1, 2022, and May 31, 2023. Data was collected from electronic medical records, including demographics, asthma severity scores, medication administration, and hospital disposition. Compliance with SLCH guidelines was assessed for albuterol and corticosteroid administration, with statistical analyses performed to identify factors associated with non-compliance.

Results: Of 975 identified patient encounters, 683 met inclusion criteria. Among these, 68.1% were admitted to the floor, while 31.9% required intensive care unit (ICU) admission. The median ED length of stay (LOS) was six hours. Corticosteroids were administered in 576 cases, with first-dose compliance at 94.7% for floor admissions and 88.8% for ICU admissions ($p=0.007$). Albuterol dose compliance was 83% for floor admissions and 77.7% for ICU admissions ($p=0.112$). Albuterol overrides and non-order set prescriptions were associated with non-compliant dosing ($p<0.05$). Timing of albuterol administration aligned with guideline recommendations, with a median of 0.4 hours to initial treatment.

Conclusion: While overall adherence to SLCH ED asthma protocols was high, areas for improvement were identified, particularly in corticosteroid selection for severe exacerbations (1/3 of patients going to the ICU receiving dexamethasone) and increasing compliance through order set utilization. Enhancing provider education and standardizing asthma severity scoring documentation may further optimize pediatric asthma care.