

# STRONG CHILDREN'S RESEARCH CENTER

## Summer 2014 Research Scholar

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### ABSTRACT

**Title:** *Implementation of an integrated care pathway decreases length of stay for children with asthma*

**Background:** Since childhood asthma is one of the leading causes of pediatric hospitalization, the delivery of asthma care has become an important area for needed improvement. The standardization of asthma treatment through the implementation of clinical care pathways may lead to a variety of benefits, including a decreased length of hospitalization, more efficient management of patients, and improved resource utilization. In 2013, Golisano Children's Hospital (GCH) implemented an integrated asthma care pathway that included standardized asthma education and treatment based on objective Pediatric Asthma Scores (PAS). These scores are assessed periodically by GCH nurses and are assigned on the basis of respiratory rate, retractions, air movement, wheezing, and oxygen requirement to determine further intervention. Overall, this asthma care pathway is anticipated to benefit both the patients and GCH through a reduction in the length of hospitalization.

**Objective:** To compare inpatient length of stay (LOS) for children admitted with asthma exacerbation before and after the implementation of the asthma pathway (2012 and 2013, respectively).

**Methods:** This retrospective cohort study targeted pediatric patients  $\geq 2$  years of age admitted to the general pediatric care units with a primary problem of asthma exacerbation from January 1, 2012 to December 31, 2013. Children who were  $< 2$  years of age, were admitted to the ICU, or had co-morbid conditions were excluded. The main outcome measure, LOS, was defined as the number of days of inpatient hospitalization from the time of the inpatient admission request to the time of the completion of the After-Visit Summary by a physician, indicating that the patient was ready for discharge. Dichotomous variables were compared with Pearson's chi square, and nonparametric continuous variables were compared with the Wilcoxon test.

**Results:** A total of 195 patients met study criteria. In 2012, there were 121 patients, 40% of which were female. In 2013, there were 74 patients, 43% of which were female. Chi square analysis found no significant difference in gender ( $p = 0.622$ ) and weight ( $p = 0.230$ ) between 2012 and 2013. Overall, patients admitted to the hospital for asthma exacerbation in 2013 had a significantly shorter LOS than patients in 2012 (M: 34.3 SD: 22.5; M: 42.7 SD: 26.3;  $p = 0.007$ ). The LOS was significantly shorter for children placed on the pathway than for those not placed on the pathway (M: 26.8 SD: 12.9; M: 41.5 SD: 26.0;  $p = 0.001$ ). Across both years, the LOS of all patients not placed on the pathway did not change (M: 42.6 SD: 26.3; M: 38.3, SD: 25.2;  $p = 0.244$ ). For all patients admitted to unit 4-1400 in 2013, no significant difference in LOS was found between those placed on the pathway and those that were not (M: 25.7 SD: 11.2; M: 38.3 SD: 27.4;  $p = 0.197$ ).

**Conclusion:** The overall LOS for children admitted for asthma exacerbation was found to have significantly decreased after the implementation of the integrated care pathway at GCH. These findings suggest that standardization of asthma treatment may improve the overall efficiency and quality of treatment.