

## **Implementation of a Pediatric Asthma Pathway in the ED**

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**Introduction:** Asthma is a chronic medical condition resulting in episodic, reversible airway constriction, which affects approximately 7% of the children in the United States. Recently, pediatric asthma scoring pathways have been used to assess need for hospitalization, and to track the condition of pediatric asthma patients. Previous studies show that there is significant variation in provider use of nebulized albuterol and corticosteroids. Additionally, the use of a standardized pathway results in decreased time to medication administration.

**Objective:** 1.) To implement a standardized pediatric asthma pathway and 2.) To assess time to administration of albuterol and corticosteroids; medication/dose variation among providers; emergency department (ED) length of stay; admission rate for acute asthma exacerbations; and provider knowledge of pediatric asthma and the asthma pathway.

**Methods:** This was a quality improvement project with a pre-post design. For baseline data, we conducted a retrospective chart review of asthma patients from 12/1/2017-11/30/2019. We implemented an established pathway in our ED on 12/1/2019 and collected data on its effectiveness through December 31st, 2020. Data collected included patient age and weight, time to albuterol/steroids, dose of medications given, ED length of stay, and final disposition. Data were analyzed using chi-squared analysis and Student's t-test.

**Results:** There were 2831 total cases identified, with 2212 pre-pathway implementation and 619 post-pathway. The mean time to albuterol was  $52.0 \pm 31.3$  minutes in the pre-pathway vs  $54.4 \pm 34.0$  min after pathway implementation ( $p=0.11$ ). Albuterol delivery within 20 minutes of ED arrival was 8.6% pre vs 8.6% post ( $p=0.96$ ). The mean time to steroid administration was  $59.9 \pm 44.8$  pre vs  $60.8 \pm 44.1$  minutes post ( $p=0.67$ ). Steroids were received within 20 minutes in 7.9% of the pre-pathway group vs 8.8% of the post-pathway group ( $p=0.5$ ).

**Conclusion:** Our implementation of the pediatric asthma pathway did not lead to improvement in time to administration of albuterol or steroids, or with compliance with the goal of receipt of medications within 20 minutes of ED arrival. More data analysis is planned.