Evaluating the Impact of a Pediatric Asthma Clinical Pathway

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Background

Clinical Pathways are an increasingly common feature of modern healthcare. Introducing standardization of thought between healthcare providers and non-provider members of the healthcare team allows for greater consistency of care and – ideally – improved patient outcomes and satisfaction. This fall the inpatient pediatric department at Lehigh Valley Health Network is implementing a clinical pathway around treatment of asthma inpatients. The objective of the pathway is to eliminate inconsistency between providers and encourage evidence based practice, while simultaneously increasing patient understanding and reinforcing staff teamwork competencies. It does this in a number of ways. First, it utilizes an algorithm for scoring patients and determining the frequency of therapy with beta-agonists and corticosteroids. The pathway also standardizes treatment with multi-dose inhalers (MDI) rather than nebulizer therapy (when possible). Finally, the pathway involves respiratory therapy with every patient admitted for asthma. This project sought to assess the success of the pathway in improving outcomes and reducing waste in the care of pediatric asthma patients.

Methodology

We did this by measuring the average length of stay (ALOS) of asthma inpatients for the six months before and the six months after the implementation of the pathway. We selected patients based on their discharge diagnosis and time of discharge. In order to avoid any confounding of the data based on seasonal variation, we compared the volume of asthma patients in each of these time periods. We divided these patients into those admitted for observation and those admitted for a full inpatient admission. We also examined the frequency of respiratory therapy consults on asthma patients during the period in question.

Results

The patient volumes for the pre and post-pathway periods were comparable at 108 and 93 patients respectively. We found that the ALOS in the full admission group fell by 0.48 days (p=0.0002) from 3.8 to 3.2, and rose in the observation group by 0.09 days (p=0.062) from 1.16 to 1.25. When pooled, the overall ALOS fell by 0.67 days (p=0.0003) from 2.92 to 2.25 (Fig 1). This shows a statistically significant decrease in the ALOS during inpatient admissions and overall admissions when pooled with observations. The difference in ALOS of observations is not statistically significant. In the pre-pathway period 38.9% of asthma patients received respiratory consults (Table 1).

Conclusions and Future Implications

The pathway that led to these results was not just a simple algorithm, but was rather a comprehensive suite of adjustments to the status quo of asthma care, including changes to the type of therapy, the frequency, the involvement of respiratory therapists, and the criteria for discharge. It is important to note that the pathway was not a static document during the experimental period, but rather was subject to continuous improvement beginning immediately after implementation. Continuing to improve patient care based on interdisciplinary feedback and objective results is essential to the successful implementation of clinical pathways. This experiment shows that this clinical pathway is improving the care of patients while simultaneously reducing healthcare costs on our inpatient unit. The improvements can be attributed to increasing uniformity of care, transitioning to MDI therapy, and increasing involvement of respiratory therapy. One significant limitation to this experiment is the fact that data on readmissions during the pathway period were not available, which could change the conclusions drawn from these data.