AN EVALUATION OF AN EXISTING PROGRAM: A PEDIATRIC ASTHMA MANAGEMENT PATHWAY

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INTRODUCTION

- Asthma is a chronic lung disease that affects approximately 25 million people (American Academy of Allergy Asthma and Immunology [AAAAI], 2017).
- Approximately 1 in 10 children suffer from asthma (AAAAI, 2017).
- Asthma is the most common reason for preventable hospitalizations in the pediatric population (Nkoy et al., 2015).
- The average cost per hospital visit is $6,688 (Kaur et al., 2015).
- Parents and families lose up to $5.9 billion per year due to lost days at work while their child is hospitalized (AHRQ, 2014).
- Children with asthma miss more than 10.5 million days of school secondary to severe exacerbations or hospitalizations
- This also suggests missed opportunities with friends, athletic events, and extracurricular activities (AHRQ, 2014).
- Use of an asthma management pathway (AMP) is recommended to standardize patient care and reduce length of stay (LOS).

PICOT

In children hospitalized for asthma exacerbation (**P**), how does the implementation of an asthma management pathway (**I**), affect protocol adherence (**O**), over a six month period (**T**)?

OBJECTIVES

1. The new AMP will have been implemented in 30% of hospitalized pediatric asthma patients.
2. 10% reduction in LOS for pediatric asthma patients since the initiation of the AMP.
3. 50% of staff will provide feedback on a survey to determine strengths and limitations of the new AMP.

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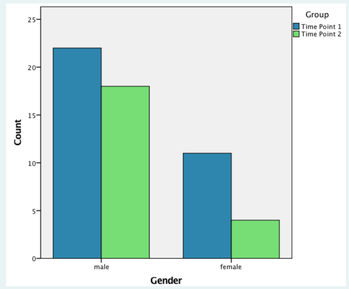
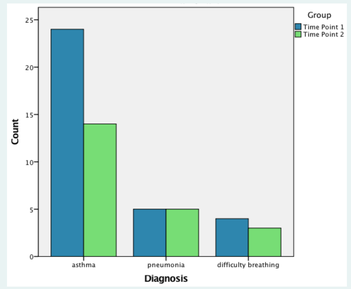
MATERIALS AND METHODS

•**Design**: Descriptive, longitudinal, quality improvement design.
•**Tools**: AMP protocol was evaluated.
- ✦ Includes a respiratory scoring tool to determine severity of respiratory distress.
- ✦ Guideline for treatments, medications, and nursing/respiratory interventions based on patient scores.

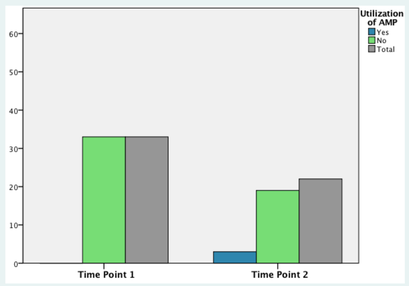
•**Measures**: Using a 95% confidence interval, a maximum of 5% margin of error, a population size of 125, with a 50% response distribution, a minimum of 95 charts were required at baseline and at follow-up. Per the stakeholders request, data was collected at two time points (March – May 2015 and March – May 2016). At the time of data collection, the calculated sample size of 95 charts was not available for either time point so all charts were utilized for data analysis (time point 1, $n = 33$ and time point 2, $n = 22$).
- ✦ Nominal level data was analyzed using the Chi-square test of Independence.
- ✦ Ratio level data was analyzed using the Independent t-test.
- ✦ Cohen's d coefficient was used as an index to describe the magnitude of the effect from the intervention with values .20, .50, and .80 corresponding with small, medium, and large respectively.
- ✦ The level of significance was set at $p \leq .05$.

RESULTS



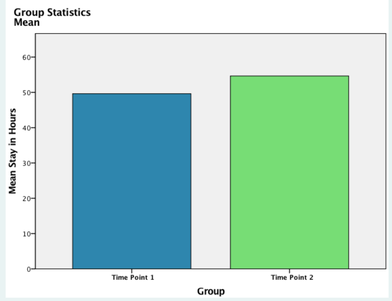


- **Demographics:** Patient diagnoses included asthma (69.1%, $n = 38$), pneumonia (18.2%, $n = 10$), and difficulty breathing (12.7%, $n = 7$).
- No statistical significance found between diagnoses at the two time points, χ^2 (2) = .598, $p = .74$.
- Males had a higher incidence of asthma (72.5%, $n = 29$) than females (60%, $n = 9$). This was not statistically significant, χ^2 (2) = .598, $p = .74$.



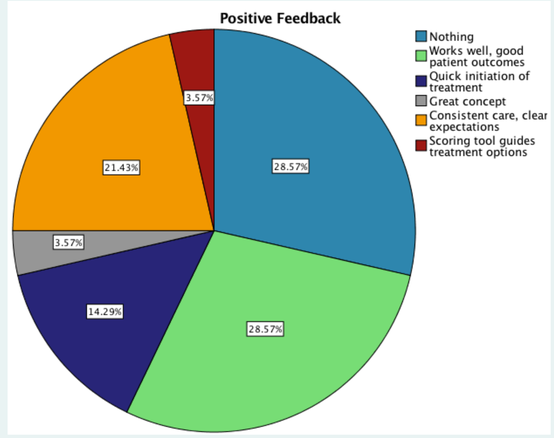
- **Utilization of the AMP:** A total of 55 children ($n = 40$ males and $n = 15$ females) were admitted with respiratory conditions during the evaluation period. There was zero utilization of the AMP at time point 1 and only three charts showed utilization of the AMP at time point 2 (13.6%). Of note, the AMP was only used on male patients which was statistically significant for gender, χ^2 (1) = 3.964, $p = .05$.

- **Length of Stay:** An independent-samples t-test was conducted to evaluate the impact of the pathway on LOS in hours. Analysis showed an increase mean LOS from time point 1 ($M = 49.6$, $SD = 32.94$) to time point 2 ($M = 54.7$, $SD = 32.97$). While this increase was not statistically significant, $t(53) = -.555$, $p = .58$, 95% CI [-23.22, 13.16], the Cohen's d of .2 indicates that this was a small, clinically significant increase in LOS. With an average national cost of $6,688 per hospitalization (Kaur et al., 2015), this additional five hours would cost approximately $648 per patient.



RESULTS

•**Staff Survey:** Survey provided to pediatric staff nurses, respiratory therapists (RT), and providers to determine the perceived strengths and needed improvements of the AMP. Feedback obtained from 54% of staff
•**Needed Improvements:** 28.6% of staff reported no benefits to AMP implementation, and 39.3% noted a need for further education on AMP use. Additional barriers identified were the AMP was too complicated and difficult to understand (17.9%), providers are not ordering the AMP (10.7%), and the scoring tool needs to be revised (10.7%).
•**Positive Feedback**. Responses from 85.7% of staff reported being familiar with the AMP, 28.6% reported the AMP works well and promotes good patient outcomes. Another benefit reported from 21.4% of staff was the AMP provides consistent care. Quick initiation of treatment with AMP use was noted by 14.3%.



CONCLUSIONS

- Objective #1 not met: AMP was only used in 14% of patients, not 30% as per the objectives.
  - ✦ Use of AMP did increase from time point 1 to time point 2.
- Objective #2 not met: LOS was not reduced by 10%.
- Objective #3 met: more than 50% of staff completed a survey providing strengths and barriers of the new AMP.
  - ✦ Based on survey results, suggestions were made to stakeholders to improve AMP use and promote sustainability.

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