

USING THE ELECTRONIC MEDICAL RECORD TO IMPROVE IMPLEMENTATION OF INDIVIDUALIZED ASTHMA ACTION PLANS AT HOSPITAL DISCHARGE

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INTRODUCTION

- Asthma is a leading chronic illness and frequent cause of hospitalizations among children in the United States (Centers for Disease Control, 2015).
- Currently 6.2 million children in the U.S have asthma (CDC, 2017).
- Costs associated to treat asthma are high (CDC, 2015; Missouri Department of Health and Senior Services, 2015).
- Providing asthma action plans (AAPs) is integral to patient education and reducing risk (National Heart Lung Blood Institute, 2007).
- Lack of an AAP can increase the risk of asthma related death (Global Initiative for Asthma, 2016).
- The Joint Commission (2016) recommends a Home Management Plan of Care (e.g. AAP) be provided as a separate document to the patient/family prior to discharge to help reduce asthma readmission rates.
- Many hospitals have struggled to achieve compliance with providing AAPs; in 2009 the national average was 65% (Kuhlmann, Mason, & Ahlers-Schmidt, 2013).
- Our mid-Missouri Children's Hospital has demonstrated rates below the national average.**
 - A chart audit of 10 pediatric patients looking at asthma best practices during hospitalization demonstrated only one of 10 charts with an AAP (Rood, November 2014);
 - A QI project summer 2014 provided resident physician education to add AAPs to patient depart documentation increased AAPs from 35% (12/34) to 57% (16/28) (R. Nevel, personal communication, July 6, 2016).
- Literature review revealed multiple studies to support use of EMR interventions to increase AAPs (Bell et al., 2010; Gold, Reyes-Gastelum, Turner, Davies, & Pediatric Asthma Quality Team, 2013; Kuhlmann, Mason, and Ahlers-Schmidt, 2013; Kuhn et al., 2015; Okelo et al., 2013, Patel et al., 2012 and Zipkin, et al., 2015)

PURPOSE & PICOT QUESTION

The purpose of this project was to evaluate how an EMR alert affects provider compliance with documenting an AAP.

PICOT: In children 0 to 17 years of age hospitalized for asthma exacerbation (P), how does addition of an EMR alert (I) compared to current EMR documentation of AAP processes (C) affect utilization and documentation of an AAP at hospital discharge (O) over a five month time frame (T)?

The primary objectives were:

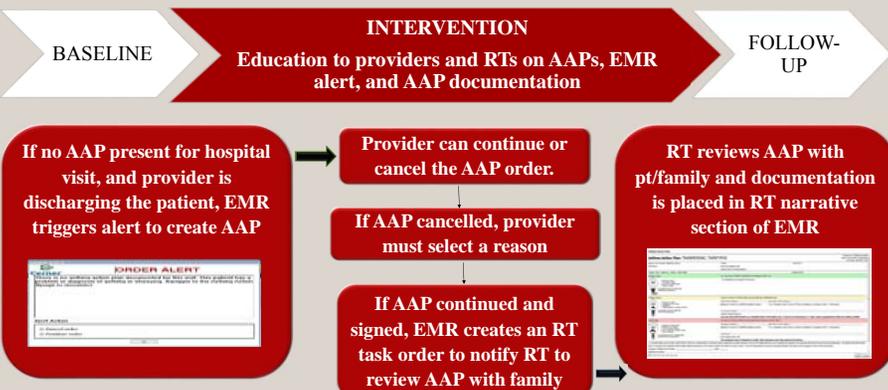
- Increase the number of AAPs for hospitalized children discharged after asthma exacerbation to > 68% (a 10% increase from baseline)
- A 5% reduction in the number of asthma-related post-discharge acute care visits (hospitalization, ED, urgent care) within 30 days.

ACKNOWLEDGEMENTS

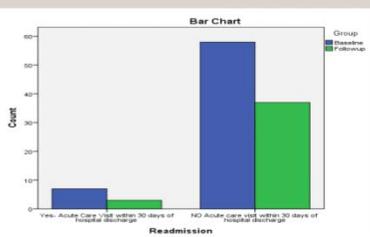
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METHODS

- This quality improvement project was planned to use an EMR alert to improve provider compliance with documenting AAPs.
- Study Design** A longitudinal descriptive design evaluated through chart review to assess documentation of AAPs and subsequent asthma-related readmissions of asthma patients before and after EMR alert implementation (December 2015-April 2016 and December 2016-April 2017).
- Target Population** Purposive convenience sample of pediatric patients on an inpatient 27-bed pediatric unit and 16-bed adolescent unit ages zero to <18 years with a primary or secondary discharge diagnosis of asthma or wheezing with the following ICD codes: J45.20, J45.21, J45.22, J45.30, J45.31, J45.32, J45.40, J45.41, J45.42, J45.50, J45.51, J45.52, J45.901, J45.902, J45.998, J45.909, and R06.02.
- Tools/Measures** For the chart review, the Enterprise Analytics Department- Clinical generated a report with the number of patients with the aforementioned ICD codes.
 - Sample size calculated using the Raosoft Calculator; recommended 60 charts minimum for each group.
 - Analyzed in IBM SPSS Statistics version 23 using descriptive statistics to compare changes in outcomes
 - Nominal level data was analyzed with the Chi-square of Independence, level of significance at $p \leq .05$.
 - The phi coefficient (ϕ) was used to describe the magnitude of clinical effect
 - .10, .30, and .50 corresponding to small, medium, and large respectively.



RESULTS



Acute care visits within 30 days of hospital discharge.

- There was an **increase in the percentage of AAPs** provided at hospital discharge from the baseline group 58% (38/65) to the follow-up group 70% (28/40), which was not statistically significant, $\chi^2 (1) = 1.072, p = .30, \phi = .5$.
- There was a **decrease in 30-day asthma-related acute care visits** within same institution from baseline (6.7%, $n = 7$) to follow-up group (2.9%, $n = 3$) which was not statistically significant, $\chi^2 (1) = .307, p = .58, \phi = .1$.
- While statistical significance was not demonstrated in this project, there were clinically significant increases in use of the AAPs ($\phi = .5$) and reductions in readmissions ($\phi = .1$).**

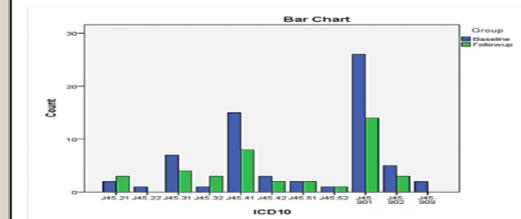
✓ **Objective 1: Met.** The number of AAPs completed **increased to > 68%** for hospitalized children being discharged for asthma.

✓ **Objective 2: Partially met.** There was a **3.8% decrease** in 30-day asthma-related acute care visits in the follow-up group.

CONCLUSIONS

Discussion:

- EMR alerts worked appropriately to identify children hospitalized for asthma as a primary or secondary diagnosis.
- If a patient had a prior visit's AAP in EMR, a few providers used the previous AAP and did not update AAP during hospitalization.
- One-third of providers cancelled the EMR alert and did not complete an AAP, most commonly entering reason "will monitor as recommended".
- The eAAP should block signing AAP if asthma severity is not selected, but 84% of signed AAPs (42/50) did not include asthma severity.
- Almost half of providers chose unspecified asthma codes (J45.901, J45.902, J45.909) that could affect visit reimbursement and appropriate treatment.



Recommendations:

- AAPs must be recognized as a standard of care for hospitalized asthma patients.**
- More specific language in EMR alert to force an updated AAP for current hospitalization.
- Consider starting AAP earlier in admission, and/or allowing other disciplines (RT, nursing) to begin the AAP for the provider.
- Educate providers on greater specificity in coding asthma visits.
- Continued collaboration with Cerner is necessary to ensure all steps in the alert process are working (e.g. AAP can't be signed unless asthma severity is selected).

Next steps to further improve AAP compliance:

- Create an asthma care pathway for hospitalization; a follow-up QI study is recommended and planned; and project presentation to providers scheduled on December 1, 2017 at Child Health Grand Rounds.

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