

# IMPROVING THE USAGE OF ASTHMA ACTION PLANS: A QUALITY IMPROVEMENT PROJECT

## BACKGROUND

- Asthma Action Plans (AAPs) are an integral portion of asthma education<sup>1</sup>
- One guideline to preventing asthma exacerbations and risk of asthma related death is providing an AAP<sup>2</sup>
- Many hospitals (including ours) have shown AAP compliance rates below national average<sup>3</sup>
- Quality improvement (QI) project evaluated pediatric asthma electronic healthcare records (EHR) and monitored AAPs included within hospital discharge instructions.
- PDSA cycle 1 (winter 2017) demonstrated increase in AAPs at hospital discharge increased from 58% to 70%<sup>4</sup>
- The use of electronic AAPs to assist in patient education is associated with a 40% reduction in ED visits annually<sup>5</sup>
- AAPs assist in decreasing asthma-related ED visits, hospitalizations, and promote self-management skills<sup>6</sup>

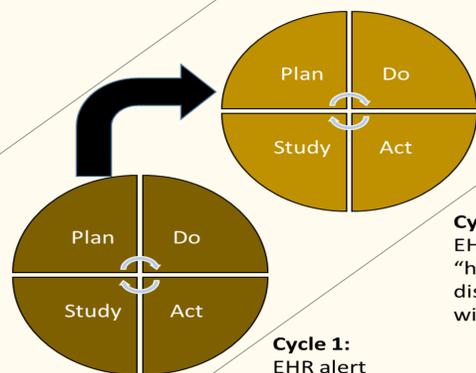
## PURPOSE & PICOT QUESTION

- P** In children 0 to 17 years of age hospitalized for asthma exacerbation in a mid-Missouri Children's Hospital's pediatric/adolescent unit
- I** how does an EHR alert coupled with medical staff education
- C** compared to current AAP processes
- O** affect utilization and documentation of an AAP at hospital discharge
- T** over a three month time frame?

## PRIMARY OBJECTIVES

- There will be a 10% increase in the provision of AAPs at hospital discharge
- There will be a 5% reduction in the number of asthma-related acute care visits (hospitalization, ED, urgent care) within 30 days post-discharge

### Plan-Do-Study-Act Cycles



**OUTCOME:**  
Improve AAP Provision at Hospital Discharge to >90%

**Cycle 2:**  
EHR alert adapted to "hard stop" for discharge diagnosis with ICD10 asthma

**Cycle 1:**  
EHR alert created to prompt AAP completion

## MATERIALS AND METHODS

**STUDY DESIGN** Longitudinal, descriptive, QI project evaluating asthma actions plans through chart reviews, post-hospital asthma related admissions from December 2017 through February 2018

**PROJECT GOAL - MEET JOINT COMMISSION GUIDELINES TO PROVIDE NEW OR UPDATED AAP TO ≥ 90% OF ALL HOSPITALIZED ASTHMA PATIENTS.<sup>7</sup>**

**SETTING** Academic medical center, not-for profit. 43-bed pediatric/adolescent floor

**TARGET POPULATION** A convenience, purposive sample of children age ≤ 17 years with a primary or secondary discharge diagnosis of asthma or wheezing with the following ICD codes: J45.2X, J45.3X, J45.4X, J45.5X, 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 by Raosoft: 95% CI, 5% margin of error, population = 60, 50% response distribution = 60 charts at baseline and follow-up. Yield: 32 charts available at baseline and 29 at follow-up.
- Nominal level data was analyzed with Chi-square of Independence, level of significance at  $p \leq .05$ .
  - Clinical significance determined using Odds Ratio (OR) and the  $\phi$  coefficient ( $\Phi$ ) with values .10, .30, and .50 corresponding to small, medium, and large
  - IBM SPSS Statistics version 23 (Chicago, IL)

## CONCLUSIONS

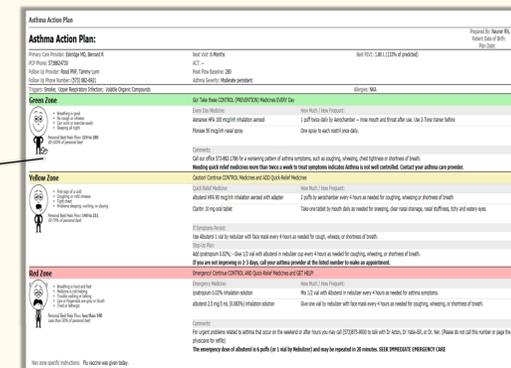
✓ **Objective 1: Met.**

The number of AAPs completed increased from 66% to 83% for hospitalized children discharged for asthma

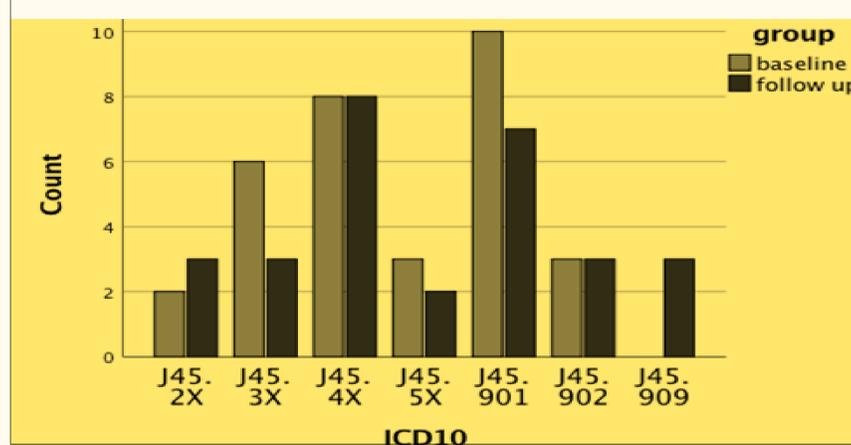
✓ **Objective 2: Partially met.**

There was a 3.8% decrease in 30-day asthma-related acute care visits in the follow-up group

### Cerner Asthma Action Plan



## ICD-10 Codes of Study Population



## RESULTS

Baseline group:  $n = 32$  Follow-up group:  $n = 29$

### Demographics

- Predominate age groups: 2 years old (16.4%,  $n = 10$ ); 4 year olds (16.4%,  $n = 10$ )
- Males (63.9%,  $n = 39$ ) and females (36.1%,  $n = 22$ )
- Caucasian (70.5%,  $n = 43$ ), African-American (21.3%,  $n = 5$ )
- Predominate specialty group was general pediatrics (63.9%,  $n = 39$ ), Pediatric Pulmonary/Critical Care (14.8%,  $n = 9$ ), and third General Internal Medicine (13.1%,  $n = 8$ )

AAPs at discharge – no statistically significant difference between groups: (83%,  $n = 24$ ),  $\chi^2 (1) = 2.308$   $p = .13$

- Baseline: 66% of hospital discharges received an AAP,  $n = 21$
- Follow-up: 83% of hospital discharges received an AAP,  $n = 24$

\*\*\* Clinically significant increase in AAP at discharge

- $\Phi = .2$ , small to moderate increase in use of AAPs at hospital discharge in follow-up group with  $OR = 1.7$ , 95% CI [.79 – 3.71]
- Patient depart summary provided to family did not match the AAP 100% of the time
- Poor documentation of asthma severity on AAP (44.8%,  $n = 13$ )

## DISCUSSION

- AAPs must be recognized as a standard of care for hospitalized asthma patients.
- Continue education to providers on asthma action plans
- Monitor the discharge summary
  - Medications on patient depart summary should match the medications on the AAP
- Even though most patients were given an AAP, many medications were not correct (dose, route, equipment used, wrong medication for diagnosis)
- Third PDSA cycle in progress targeted at medical residents to:
  - AAP is easy to read and includes correct information.
  - ensure AAP medications match patient depart summary instructions to avoid confusion for family.
  - asthma severity listed on asthma action plan.

## REFERENCES

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