Standardizing Asthma Care to Reduce Admissions from the Emergency Department

**Background:** An OCQI hospital capacity management analysis found opportunities to improve asthma care in the ED: 64% of ED asthma admissions to inpatient/EDECU stay < 1 night, with wide variation in admission rates across ED attending providers. We sought to standardize key elements related to ED asthma practice to reduce variation in short stay admissions rates.

**Objective:** Reduce the rate of ED asthma patients admitted to IP/EDECU for < 1 night by 10% relative to baseline by January 2018 (approximately 180 admission reduction per year).

**Methods:** We assembled a multi-disciplinary group of providers, reviewed current data and selected charts of ED asthma short-stay admissions, and considered best practices from the medical literature. We developed a multi-faceted intervention focused on key drivers of asthma admissions including: increasing use of metered dose inhaler for mild-moderate patients, improving timeliness of corticosteroid administration, standardizing reassessment and ongoing continuous albuterol treatment for moderate-severe patients, and communication to a case manager for post-discharge follow-up. We educated ED staff about the changes with presentations and computer screensavers and revised the ED pathway during October, 2017. Ongoing processes and outcomes were measured using a previously developed analytics application and communicated to ED staff, and ED attending providers received feedback about their asthma admission rate trends as part of their mid-year review.

**Results:** 2,873 asthma patients were seen in the ED between November, 2017 and March 19th, 2018. Analysis of process measures showed a reduction in the use of continuous albuterol for mild-moderate patients and reduced use of ongoing continuous albuterol for moderate-severe patients. Short stay admission rates varied widely month to month and did not change, but the overall asthma admission rate declined with special cause variation from a baseline of 31% to 26% following the intervention. Revisit/readmission rates and ED length of stay have not changed significantly. Calculation of the impact of the intervention on inpatient days after adjustment for acuity and outliers showed a reduction of 4.6 inpatient days per 100 ED asthma patients, corresponding to an annual rate of approximately 285 inpatient days per year.

**Conclusions:** An intervention to standardize asthma admission practice in the ED safely reduced the admission rate with an associated reduction in inpatient days for asthma.

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To reduce the rate of emergency department (ED) asthma patients admitted for ≤ 1 night to an inpatient (IP) unit or the ED Extended Care Unit (EDECU, a 24-hour observation unit in the ED) by 10% relative to baseline by January 2018 (approximately 180 admission reduction per year).

**Aim**

**Background**

- The ED Asthma Care Committee (ACC, a multidisciplinary team of physicians, nurse practitioners, respiratory therapists, and nurses) works to improve asthma care in the ED. As front line providers, the ED nurse practitioners play a leading role in treating asthma patients by initiating and managing their care.
- 64% of ED asthma admissions to IP/EDECU units stay ≤ 1 night, with a wide variation in admission rates across ED attendings.
- We sought to standardize key elements related to ED asthma practice to reduce variation in short stay admissions (SSA) rates.

**Key Drivers and Interventions**

The ED ACC assembled a multi-disciplinary group of providers and reviewed current data and selected charts of ED asthma SSA, and considered best practices from the medical literature.

We developed a multi-faceted intervention focused on key drivers of asthma admissions including:

- Increase use of albuterol metered dose inhaler (MDI) for mild-moderate patients.
- Improve timeliness of corticosteroid administration (within 20 mins of arrival to room).
- Standardize reassessment and ongoing continuous albuterol treatment (1-hour unineb) for moderate-severe patients.
- Communicate with case management for post-discharge follow-up.

**Performance Measures and Results**

**Intervention launch - October 2017**

- % of ED Patients Receiving 2nd Unineb
- # IP Days/100 ED Asthma Pts: Acuity Adjusted

**Process measures**

- MDI and 2nd unineb use decreased.
- Rates vary with season and acuity.

**Outcome measures**

- SSA rate varies widely by season and acuity mix. Also impacted by IP/EDECU capacity.
- Revised outcome: # of IP days per 100 ED asthma patients, adjusted for triage acuity.
- November - April: Saved 2.8 IP days per 100 ED patients.
- 173 IP days reduction per year.

**Balancing Measures**

- Revisits & ED length of stay unchanged.

**Conclusions**

- An intervention to standardize ED asthma admission practices reduced the admission rate with an associated reduction in inpatient days for asthma.
- Future considerations would include having further interventions ongoing to standardize admission practices for asthma and other conditions.