State of Illinois
Illinois Department of Public Health

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Asthma Burden Update

ASTHMA BURDEN BRIEF

This edition focuses on the burden of asthma and the quality of asthma care in emergency departments across Illinois as reported by the Illinois Emergency Department Asthma Surveillance Project.

Emergency department (ED) visits for asthma are a serious problem both in terms of patient morbidity and health care utilization. Many such ED visits for asthma are potentially avoidable. This review highlights a distinct asthma population, which are not captured in broader surveys of asthma patients.

Project Description

The Illinois Emergency Department Asthma Surveillance Project (IEDASP) is an innovative and unique statewide asthma surveillance effort based in EDs. IEDASP, which is Internet-based surveillance, gathers information from EDs across the state about the burden of asthma and how it is treated in the ED. Surveillance involves a patient/caregiver completed questionnaire for recent measures of asthma burden and a staff chart review of the ED and discharge care. These data are used to inform quality improvement initiatives in the ED in order to align care with national guidelines. Following each surveillance cycle, a series of asthma quality improvement collaborative teleconferences are hosted for the ED leadership and staff to review these data and address system level changes.

Asthma Severity, Control and ED Utilization

Asthma severity is based on symptoms and frequency of rescue medicines for all patients in the ED. About 75 percent of adult and 50 percent of pediatric patients report *moderate to severe* asthma symptoms in the previous four weeks leading up to the ED visit. This suggests most ED asthma patients have chronically severe disease and not simply episodic worsening at the time of an ED visit.

FIGURE 1. Adult Asthma Characteristics

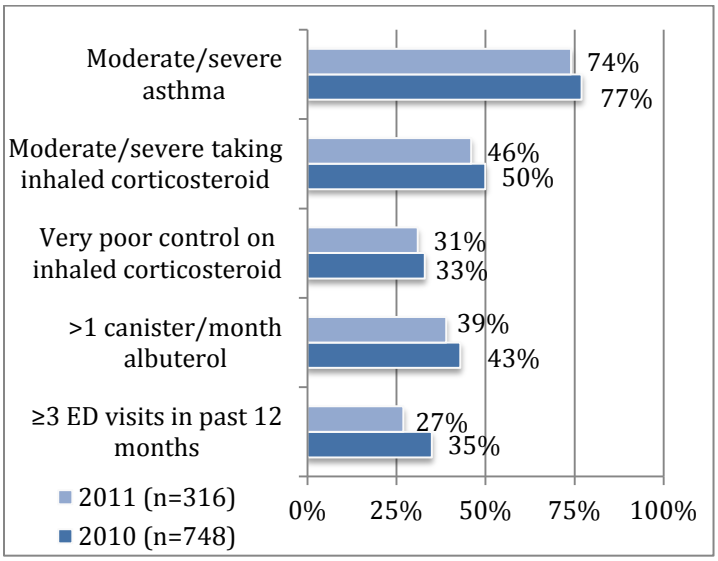


FIGURE 2. Pediatric Asthma Characteristics

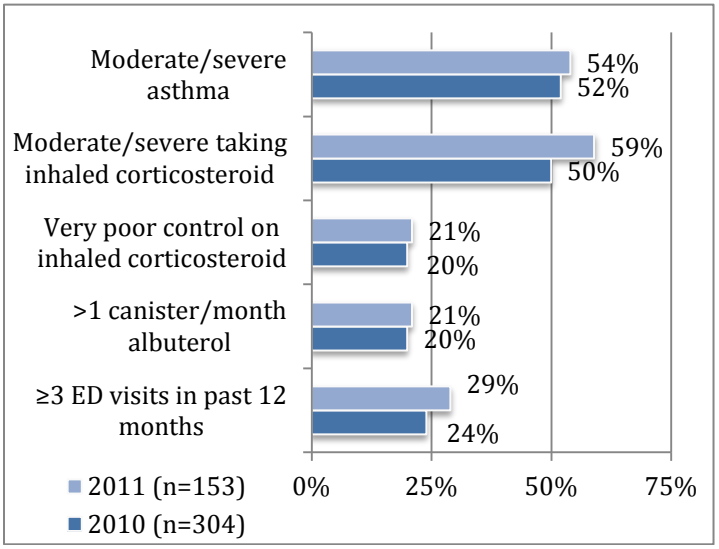


Figure 1 and 2 source: Illinois Emergency Department Asthma Surveillance Project, 2010-2011
Figure 1 and 2 note: Survey questions are structured to match the severity classification in Expert Panel Report 3 (EPR-3). The questions are also structured to match control categories in the Asthma Control Test (ACT). *Very poor control* is <16.

Asthma Control is measured only for those patients who report using inhaled corticosteroids (ICS). *Very poor control* is reported in 32 percent of adult and 20 percent of pediatric patients. This indicates that even for those patients whom report taking ICS, a large number remain in very poor control.

High ED utilization is reported as the proportion of patients with three or more ED visits in the previous 12 months, not including the index ED visit. By this dramatic standard about 30 percent of adult and 25 percent of pediatric patients report such frequent visits. These findings are indicative of asthma patients with severe, uncontrolled disease with frequent ED visits. The degree of suffering and limited life activities for patients is remarkable and stresses the health care system.

Medication Use Before the ED Visit

ICS use is reported for those who have *moderate-to-severe* asthma. *Moderate-to-severe* asthma is well above the threshold for starting ICS (first line medications). These patients should be on a controller medication, of which ICS has been shown to be the most efficacious. Only half of patients reported using ICS in the past four weeks.

Using more than one can of albuterol type rescue medicine has been associated with poor outcomes and even an increased frequency of death. About 40 percent of adult and 20 percent of pediatric patients report using more than one can per month, which identifies a symptomatic poorly controlled population at risk for poor asthma outcomes

ED Treatment

Peak flow was measured in about 50 percent of adult and 30 percent of pediatric patients (7 years of age and greater). Systemic steroids are reported for those who received more than one bronchodilator treatment or received continuous "nebs." More than 85 percent of adult and pediatric patients received systemic steroids in the ED.

FIGURE 3. Adult Care in the ED and at Discharge

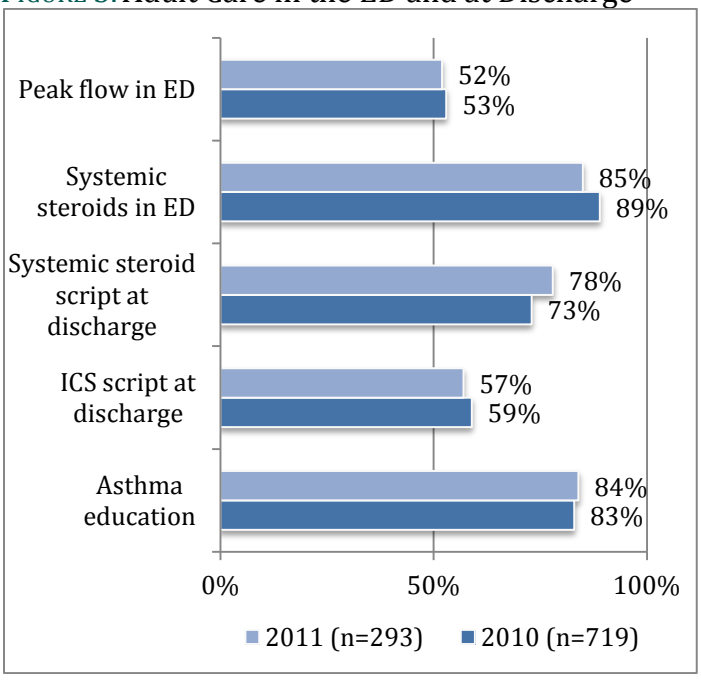


FIGURE 4. Pediatric Care in the ED and at Discharge

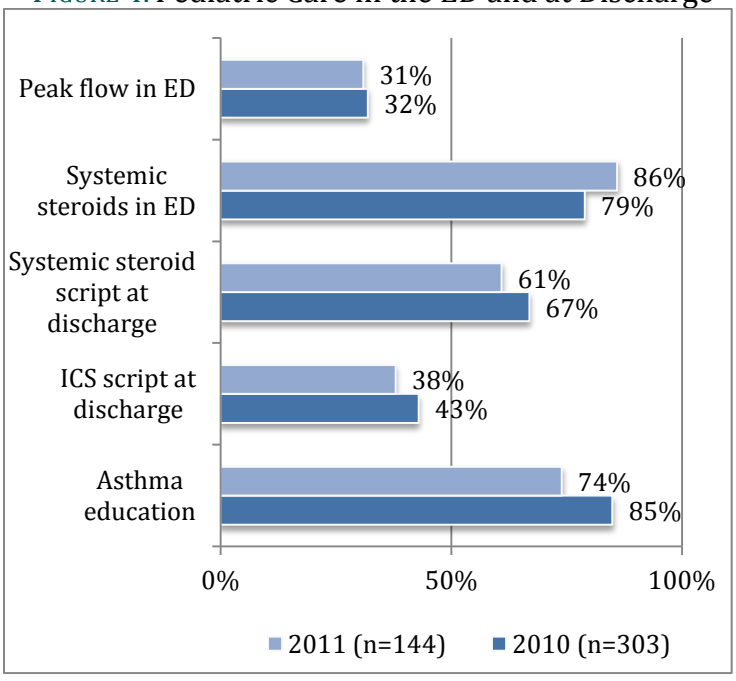


Figure 3 and 4 source: Illinois Emergency Department Asthma Surveillance Project, 2010-2011

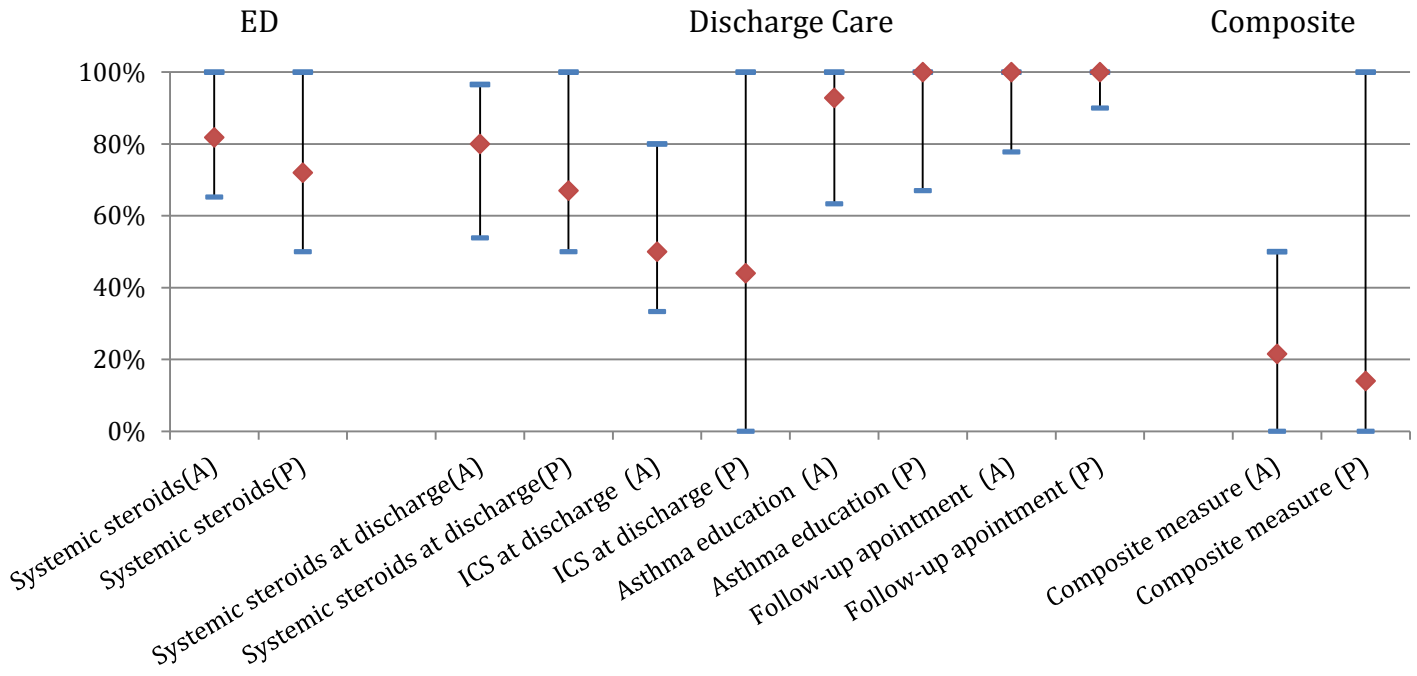
DISCHARGE ACTIVITIES

At ED discharge, about 75 percent of adult and 65 percent of pediatric patients received a systemic steroid prescription. These rates are less than what was administered during ED treatment indicating that some percentage of patients were treated with but not discharged on systemic steroids. ICS should be continued or considered to be initiated at discharge. Surveillance showed 60 percent of adult and 40 percent of pediatric patients received this medication or instructions to continue it at discharge. Overall, asthma education is conducted almost 75 percent or more of the time for both pediatric and adult patients. Asthma discharge education included such topics as pathophysiology, medications, action plan for worsening symptoms, metered dose inhaler instruction and return demonstration.

VARIATION BETWEEN EDS

There was marked variation between EDs across asthma care measures for both adult and pediatric patients. The diamond in the figure below represents the median percentage of patient receiving an asthma care measure. The lines extending from this value represent the interquartile range (25-75 percentiles). For example, a quarter of EDs gave more than 95 percent of their adult patients systemic steroids at discharge while a quarter of EDs gave less than 55 percent of their adult patients these medications. Even greater variation exists for ICS at discharge. For adults, a quarter of EDs gave less than 35 percent of patients ICS and a quarter gave more than 80 percent of patients ICS at discharge. For pediatric patients, a quarter of EDs gave no ICS while a quarter gave this medication almost 100 percent of the time.

FIGURE 5. Adult (A) and Pediatric (P) Asthma Care Measures across Emergency Departments



Source: Illinois Emergency Department Asthma Surveillance Project, 2008-2009

The composite measure aggregates all the indicated elements within ED care and also whether such patients received guideline recommended care, including systemic steroids, inhaled corticosteroids, education and documentation for a follow up appointment at discharge. National guidelines recommend ICS be considered at ED discharge and, in general, all patients with any level of persistent asthma should receive these as part of their care.

SUMMARY

Asthma patients visiting many EDs in Illinois are poorly controlled and are often on inadequate controller therapy, resulting in frequent return visits to the ED. EDs treat most asthma patients with systemic steroids in accordance with national guidelines. However, significant variation exists among EDs with regard to discharge care. The wide variation in practice that exists between ED's is not clearly understood but may stem from local and system factors, as well as culture. In order to improve the quality of care provided to asthma patients in the ED, it will be important to understand these factors so that they may be targeted by focused quality initiatives.

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IEDASP website: www.iedasp.org

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