patients raises the possibility of preventable delays that could lead to adverse outcomes. This topic merits further investigation.

86 Continuous Positive Airway Pressure (CPAP) Improves Pulmonary Function in Pediatric Acute Asthma
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Objectives: Although noninvasive ventilation has shown promise in acute obstructive lung disease, use of continuous positive airway pressure (CPAP) in pediatric asthma has not been examined prospectively. This study assessed the efficacy of CPAP in acute pediatric asthma exacerbations.

Methods: Prospective, randomized, controlled trial at an urban emergency department (ED). A convenience sample of patients age 8 to 21 was enrolled. Peak expiratory flow (PF), Borg scale of dyspnea, and other vital signs were recorded. All patients received oral steroids and nebulized albuterol and ipratropium. The control group received nebulizers via standard facemask, and the CPAP group used the Boussignac mask (an open, positive pressure ventilatory valve) with in-line nebulization, at a pressure of 5cm H2O. Vital signs were recorded at the start of treatment and at the end of the one-hour study period. Changes in PF (percent of predicted based on age and height), Borg score change, length of stay in the ED, and final disposition were compared using the t-test.

Results: 41 patients were randomized to the CPAP group and 42 to the control. Mean age for the entire sample was 15.1 years (standard deviation [SD] 4.3), 60% were female, 45% Hispanic, 50% Black, and 5% other. At baseline, there were no significant differences between the control and the CPAP groups in age, height, blood pressure, pulse, respiratory rate, oxygen saturation, PF (mean 0.71 of predicted, SD 0.29) or Borg score (mean 4.96, SD 2.52). After treatment, there was a greater improvement in PF as percent predicted for the CPAP group compared to the control (0.23 [SD 0.15] vs. 0.1 [SD 0.15]; p<0.0001). There were no differences in rate of discharge, hospital admission, number returning to the ED, or ED length of stay.

Conclusions: CPAP is safe, and appears to improve initial ED treatment of pediatric acute asthma. This has not been previously studied in a randomized, prospective fashion.

87 Improved Overall Trends but Persistent Racial Disparities in Emergency Department Visits for Acute Asthma, 1993-2005
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Objectives: To describe the epidemiology of emergency department visits for acute asthma.

Methods: We obtained data from the National Hospital Ambulatory Medical Care Survey, 1993-2005, and used the primary diagnosis code for asthma (493) to identify cases. We calculated national estimates using assigned patient visit weights and national rates per 1,000 US population, using demographic-specific population data from the US Census Bureau. We analyzed trends using a nonparametric test for trends based on the Wilcoxon-Mann-Whitney test.

Results: From 1993-2005, there were approximately 23,800,000 asthma visits, representing 1.8% of all emergency department visits, or an average rate of 6.7 visits per 1,000 US population. The national visit rate rose between 1993-1998 (p trend=0.05), but was stable (or possibly decreasing) from 1998-2005 (p trend=0.07). While rates for whites decreased by 25% from 1998 to 2005 (p trend=0.02), the rates for blacks was stable (p trend=0.80). Overall, blacks had asthma visit rates almost four times higher than whites (19 versus 5.0). Visit rates were also higher among the following groups: age<10 (13); women (7.2); Hispanics (7.1); and in the Northeast (9.2). Inhaled β -agonists and systemic steroids were the most commonly administered or prescribed asthma medications during visits. Over the study period, emergency department administration of systemic corticosteroids increased 2-fold and inhaled anticholinergic agents increased 20-fold (p trend=0.04 and 0.03, respectively), while inhaled agonists and inhaled corticosteroids remained stable (p trend=0.09 and 0.34, respectively).

Conclusions: Though asthma-related emergency department visit rates showed a significant upward trend from 1993-1998, our results support the emerging view that the asthma epidemic may have reached a plateau. Nevertheless, the higher visit rates observed among specific demographic groups and widening disparities, particularly among blacks, remain problematic and warrant intervention.

88 Asthma Presentations by Adults to Emergency Departments in Alberta, Canada: A Population-Based Study
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Objectives: Asthma is a widespread disease with a prevalence of approximately 7-10% in adults; exacerbations to the emergency department (ED) are common. The objective of this study was to describe the epidemiology of asthma presentations to EDs made by adults in the province of Alberta, Canada.

Methods: The Ambulatory Care Classification System of Alberta and provincial administrative databases were used to obtain all ED encounters for asthma during six fiscal years (04/99-03/05). Information extracted included demographics, ED visit timing, and subsequent visits to physicians; all data were coded by trained medical records nosologists. Data analysis included descriptive summaries and directly standardized visit rates (DSR).