

## 152 Improving the Assessment of Overweight/Obesity in Asthmatic Pediatric Patients in a Quality Improvement Project

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**RATIONALE:** Overweight/obesity is a known co-morbid condition with asthma. Overweight asthmatic children have increased risk of developing asthma exacerbations versus those of average weight. Objective: The aim of this quality improvement project was to facilitate the identification of overweight/obesity in asthmatic pediatric patients.

**METHODS:** Consecutive patients presenting to an academic-based pediatric allergy clinic in Southeastern United States were included. This clinic was not electronic medical record based. Exclusion criteria included inability to obtain weight. Initially, a random chart audit of asthmatic patients for body mass index (BMI, a marker of overweight/obesity) assessment was performed. Providers and nursing staff were educated about BMI, overweight/obesity, and asthma and asked to record these assessments on checklists. Checklists were collected in 4 phases (1-2 weeks/phase) from June - August 2014. Before proceeding to the next phase, modifications were implemented to facilitate the recording of BMI, overweight/obesity, and asthma.

**RESULTS:** In the audit period, 4% of patients had their BMI assessed. In phase 1, after education of staff and implementation of checklists, BMI assessments increased to 43%. BMI assessments increased to 44% after repeat education in phase 2. BMI assessments increased to 79% after checklist modification in phase 3. By the end of the monitoring period phase 4, BMI assessments increased from 4% to 83% overall.

**CONCLUSIONS:** Assessment of an asthmatic pediatric patient's BMI, to identify those with the co-morbid condition of obesity, is paramount to the optimal care of this chronic disease. Incorporating this specific data in a patient's chart increases the likelihood of addressing this important issue.

## 153 Cost-Effectiveness of Bronchial Thermoplasty in Patients with Poorly Controlled, Severe, Persistent Asthma

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**RATIONALE:** Despite many pharmacological and immunological treatments for asthma, some patients remain not well-controlled and continue to experience asthma exacerbations. Existing FDA-approved treatments for asthma do not address excessive airway smooth muscle mass (ASM), an anatomical feature associated with increased asthma severity and morbidity in some patients. We sought to examine the cost-effectiveness of Bronchial Thermoplasty (BT) to treat poorly controlled, severe, persistent asthma patients. This novel technology uses thermal energy to target and reduce ASM, resulting in a durable reduction in asthma exacerbations.

**METHODS:** We adopted a payer perspective cost-effectiveness analysis framework, which modeled costs associated with healthcare utilization, patient quality-of-life, and adverse events over a 5-year time horizon, and compared BT plus standard care to standard care among poorly controlled, severe, persistent asthma patients – those patients requiring high dose combination therapy to manage their asthma yet still experiencing asthma exacerbation(s) requiring ER visit(s) in the past 12 months. We utilized Markov model methods to estimate the future costs and quality-of-life impact associated with BT. The model was populated using data from published literature and randomized clinical trials that described exacerbation rates, treatment effects of BT, and patient quality-of-life.

**RESULTS:** We estimated the cost-effectiveness of BT to be \$5,495 USD per QALY; further, approximately 22% of sensitivity analyses estimated

BT to be both cost-saving and quality-of-life increasing. These results are favorable when compared to other treatments for this population.

**CONCLUSIONS:** BT is a cost-effective treatment option for patients with poorly controlled, severe, persistent asthma.

## 154 Improvement in Asthma Control in Asthmatic Children Following Asthma Camp Attendance

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**RATIONALE:** We hypothesized asthma control and airway inflammation would improve in children who attended a week long asthma camp. This was measured by spirometry, the Asthma Control Test (ACT), the Mini Asthma Quality of Life Questionnaire (Mini AQLQ), and fractional excretion of nitric oxide (FENO).

**METHODS:** Spirometry, Mini AQLQ, and FENO were performed on the first and sixth day of camp; the ACT was given on the first day of camp only. Our cohort included 40 children diagnosed with asthma who attended asthma camp; IRB approval and informed consent were obtained from all participants. The Mini AQLQ and ACT surveys were also mailed to participants one month after the completion of asthma camp. Significance was determined by paired t-test, correlation between FENO and ACT was determined by Spearman's rank correlation coefficient.

**RESULTS:** There was significant improvement in mean FENO 25.7 ppb to 17.6 ppb ( $p=0.001$ ). There was significant negative correlation between ACT score and FENO obtained the first day of camp ( $R=-0.45$ ,  $p=0.005$ ). There was no significant change in FVC ( $p=0.70$ ) and FEV1 ( $p=0.82$ ) or in Mini AQLQ scores ( $p=0.95$ ) after one week. The results of the one month follow-up Mini AQLQ and ACT surveys are still pending.

**CONCLUSIONS:** While repeat Mini AQLQ and ACT results one month after asthma camp are pending, the improvement in FENO may suggest an improvement in airway inflammation after attending asthma camp. Daily classes and medication administration may explain these findings. Asthma camp may provide opportunities for children to obtain better control of their asthma.