Asthma Free Schools: How Telemedicine is leading the way

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Introduction

• Asthma is a common, complex and costly chronic condition in the U.S. (1).
• 5-20% have poorly controlled asthma accounting for nearly 50% of all asthma-related expenditures (2).
• The overall rate of pediatric asthma in Greater Cincinnati is more than twice the national average and the hospitalization rate in some urban-core Cincinnati neighborhoods is 10 times the national rate.
• Research question: Can a school-based telehealth intervention improve asthma outcomes in children with uncontrolled asthma from economically-disadvantaged urban core neighborhoods?

Methods

This pilot study was based on feedback from community stakeholder-derived data. Ten 10-17 year old participants with uncontrolled asthma (> 1 asthma-related systemic corticosteroid treatment, urgent-care/ED visits or hospitalization or 2 asthma control test scores < 19) were enrolled and followed for 6 months. Specific interventions:

• Asthma specific questionnaires
• Use of a commercially available inhaler cap monitoring sensor (Propeller Health) tracking adherence of medications
• 7 mobile based telehealth medical visits with an asthma specialist to assess asthma control while the child is at school
• 5 mobile based telehealth adherence problem-solving interventions with a health psychologist

The proposal is funded through a Luther Foundation and Verizon Foundation philanthropic gifts. This study was approved by the CCHMC IRB.

Results

• Demonstrated a significant 23% improvement in adherence
• At the end of the pilot study, 100% of the parents and adolescents reported that they were satisfied with the telehealth visits and rated their participation in the study as good to excellent similar to other telehealth studies
• 100% of the parents and 90% of the adolescents would be willing to refer a friend or family member to the study
• The study was also well received by the school nurses, school staff and PCPs
• The 11-18 year olds had a low loss and damage rate for inhalers caps (< 4 budgeted caps/person) and phones (10%)

Conclusions

• This study capitalized on innovative technology:
  • Employing telehealth medical and self-management visits with participants in their schools
  • Real-time electronic adherence monitoring of inhaler use and sharing of data via cell phones
• By working in the community school system, we improve access to care and address asthma health outcomes important to our stakeholders
• Increased rate of phone and inhaler caps loss/damage and difficulty in self-management engagement in 10 year olds.
• Recommend minimum age 11 years.

References