**BACKGROUND**

- Quality improvement (QI) interventions often require labor-intensive clinical staff training as well as considerable data collection and processing effort.
- An online clinical process support system (CHADIS) has been used to support QI activities using patient generated data resulting in patient-specific decision support
- MOC-4 QI sessions are held including graphics of patient/collaborator data and QI commitments through PDSA methodology. The example here is a QI module for pediatric asthma care for implementation of National Heart, Lung, and Blood Institute (NHLBI) guidelines.

**OBJECTIVE**

To explore the impact of an online Asthma Intervention Module for Quality Improvement (AIM-QI) on asthma control and healthcare utilization via a cluster randomized control study.

**DESIGN/METHODS**

- **Sample:** 24 community pediatric practices across the US over 27 months (2015-17) used the CHADIS web system for collecting data.
- **Data:** Parents of 4860 children 0-18 years with asthma completed the Pediatric Asthma Control and Communication Instrument (PACCI) online before visits. PACCI assesses asthma severity/control, controller use and adherence, ED visits, hospitalizations, attacks, trajectory and burden.
- **Design:** Practices were randomized to control or use of AIM-QI.
- **Intervention (AIM-QI) patients completed PACCI monthly from home and had access to individualized patient education and Asthma Treatment Plans in an online portal.
- **Controls:** Care as usual.
- **MOC-4 program:** AIM-QI clinicians had training on and access to decision support: NHLBI guideline tips, a teleprompter for problem solving counseling specific to individual barriers to adherence, guideline-based medication suggestions, and alert reports between visits of patients with uncontrolled asthma.
- **Analysis:** For AIM-QI group, "Post" was defined as the last PACCI 30+ days after starting use of AIM-QI and "Pre" as the first PACCI showing persistent asthma 14+ days prior to Post (n=444). For Controls, Post was the last completed PACCI and Pre was first PACCI with persistent asthma 14+ days prior to Post (n=513). Data was analyzed for children who had >1 PACCI showing persistent asthma and also a PACCI 30+ days after intervention start.

**RESULTS & DISCUSSION**

- There was no Pre difference between groups in PACCI problem index.
- AIM-QI group had more days of no quick relief medication use (p = .022) and fewer steroid bursts (p = .01) implying fewer asthma attacks.
- Those "poorly controlled" at Pre were more likely to be appropriately on controller at Post in the AIM-QI group (100% vs. 81%, p = .01).
- Mean number of acute asthma visits in the past 3 months was lower in the AIM-QI group (p = .009).
- AIM-QI group was more likely to be on a steady trajectory and already controlled (p = .042) at the end. Control group was more likely to be rated as getting better at the end, but those getting better were more likely to not be controlled than those in the AIM-QI group (p < .004).
- Patients in the AIM-QI condition tended to have fewer hospitalizations, fewer ED or urgent care visits, and tended to have larger Pre-Post drops in utilization.

**ASTHMA RESEARCH CONCLUSIONS**

- A model MOC-QI program using an asthma online clinical process support system by pediatricians showed benefits with less rescue medicine and steroid burst use suggesting fewer attacks and also fewer acute asthma visits.
- Children in the AIM-QI group with initially "poorly controlled" asthma were more often appropriately treated with controller medication.
- Patients with controlled asthma at Post came more from AIM-QI group whether they were rated as (getting) Better or the Same at Post.

**MOC QI CONCLUSIONS**

- Live interactive webinar MOC-QI sessions supported by automated run charts were feasible and required little staff time.
- Patient generated data entered online before and between visits can improve guideline-based care.
- Decision support specific to patients created by patient generated data may be an advance in clinical process support over EHR templates.
- This web system has potential for supporting a variety of other guideline based QI interventions.

**LIMITATIONS**

- More Control practices had co-located asthma experts but more AIM-QI practices had case management available. Use of these is unknown.

**KEY REFERENCE**


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The CHADIS study was supported by National Institutes of Health (NIH) grants HD062827 and HD062828 and the Children’s Center for Asthma, Allergy, and Asthma Research (CHADIS). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

The authors report no disclosures relevant to the manuscript.


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