Inclusion Criteria
- Children with persistent asthma

Critically Analyze the Evidence

The GRADE criteria were used to evaluate the quality of evidence presented in research articles reviewed during the development of this guideline. The table below defines how the quality of evidence is rated and how a strong versus a weak recommendation is established.

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<tr>
<th>Recommendation</th>
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<td>Desirable effects clearly outweigh undesirable effects or vice versa</td>
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PICO Question 1: For children with persistent asthma, does administering ≥2 Asthma Control Tests (ACTs) each year impact asthma control and/or quality of life?

Recommendation(s): Strong recommendation with low quality evidence to administer ≥2 Asthma Control Tests (ACTs) each year (at least 4 months apart) for children with persistent asthma to track changes in the patient’s level of asthma control. We value greater sensitivity of detection of seasonal variation and changes over time that may be missed if only 1 ACT is administered each year. (1-7)

Four prospective cohort studies and one retrospective cohort study concluded that changes in patient ACT scores correlate with changes in asthma control status, disease severity, and FEV1, and these changes could be used to predict exacerbation risk. (1-8) Another multicenter, cross-sectional study found that providers should evaluate asthma control with the ACT on a regular basis regardless of the reason for the visit. (6) Only one of the seven studies concluded that a single ACT measurement was better than serial measurements; however, this study looked at serial measurements within a 3-month time period. (7)

PICO Question 2: For children with persistent asthma, do in-home environmental assessments and/or interventions improve asthma-related outcomes?

Recommendation(s): Strong recommendation with moderate quality evidence to not routinely provide home visits for environmental assessments and remediation for children with persistent asthma; these home visits may be appropriate and beneficial for children with life-threatening or poorly controlled asthma. An environmental history should always be taken to identify potential asthma triggers. (8-14)

Remarks: The benefits of home visits do not outweigh the associated costs for most children with persistent asthma. Additionally, caregivers may misinterpret these in-home visits and remediation efforts as a cure for asthma, which they are not.

Two observational studies investigated the value of in-home environmental assessments only. (8-9) In Barnes 2010, though implementation of suggested improvements varied, the 25 patients included achieved a 62% reduction in ER visits, an 86% reduction in hospitalizations, and a 38% reduction in clinic visits. Bracken 2009 showed that simply providing information on potentially modifiable factors (e.g., allergen exposure, smoking, medication adherence) led to the adoption of solutions in 55% of children included in the study. Five studies (one RCT, two systematic reviews, and two pre-/post-design studies) tracked outcomes after remediation was provided. (10-14) These studies consistently showed positive asthma-related outcomes associated with remediation efforts. However, the cost of the remediation efforts ranged from $492/child to $2,836/child, depending on the extent of the interventions offered. At this time, the cost of the intervention is a limiting factor for the routine provision of in-home visits and remediation. Instead, these in-home visits should be reserved for children with life-threatening or poorly controlled asthma.
Critical Points of Evidence*

**Evidence Supports**
- Administer ≥2 Asthma Control Tests (ACTs) each year (at least 4 months apart) for children with persistent asthma to track changes in the patient’s level of asthma control. We value greater sensitivity of detection of seasonal variation and changes over time that may be missed if only 1 ACT is administered each year. *(1-7)* — Strong recommendation, low quality evidence

**Evidence Against**
- Do not routinely provide home visits for environmental assessments and remediation for children with persistent asthma; these home visits may be appropriate and beneficial for children with life-threatening or poorly controlled asthma. An environmental history should always be taken to identify potential asthma triggers. *(8-14)* — Strong recommendation, moderate quality evidence

*NOTE: The references cited represent the entire body of evidence reviewed to make each recommendation.*
References

Clinical Standards Preparation
This clinical standard was prepared by the Evidence-Based Outcomes Center (EBOC) team in collaboration with content experts at Texas Children’s Hospital. Development of this clinical standard supports the TCH Quality and Patient Safety Program initiative to promote clinical standards and outcomes that build a culture of quality and safety within the organization.

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Development Process
This clinical standard was developed using the process outlined in the EBOC Manual. The literature appraisal documents the following steps:

1. Review Preparation
   - PICO questions established
   - Evidence search confirmed with content experts

2. Review of Existing External Guidelines
   - N/A

3. Literature Review of Relevant Evidence
   - Searched: PubMed, Cochrane

4. Critically Analyze the Evidence
   - 2 meta-analyses/systematic reviews, 1 randomized controlled trial, 11 nonrandomized studies

5. Summarize the Evidence
   - Materials used in the development of the clinical standard, literature appraisal, and any order sets are maintained in a Chronic Asthma Management evidence-based review manual within EBOC.

Evaluating the Quality of the Evidence
Published clinical guidelines were evaluated for this review using the AGREE II criteria. The summary of these guidelines are included in the literature appraisal. AGREE II criteria evaluate Guideline Scope and Purpose, Stakeholder Involvement, Rigor of
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Development, Clarity and Presentation, Applicability, and Editorial Independence using a 4-point Likert scale. The higher the score, the more comprehensive the guideline.

This clinical standard specifically summarizes the evidence in support of or against specific interventions and identifies where evidence is lacking/inconclusive. The following categories describe how research findings provide support for treatment interventions.

“Evidence Supports” provides evidence to support an intervention
“Evidence Against” provides evidence against an intervention.
“Evidence Lacking/Inconclusive” indicates there is insufficient evidence to support or refute an intervention and no conclusion can be drawn from the evidence.

The GRADE criteria were utilized to evaluate the body of evidence used to make practice recommendations. The table below defines how the quality of the evidence is rated and how a strong versus weak recommendation is established. The literature appraisal reflects the critical points of evidence.

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Recommendations
Practice recommendations were directed by the existing evidence and consensus amongst the content experts. Patient and family preferences were included when possible. The Content Expert Team and EBOC team remain aware of the controversies in the management of asthma in children. When evidence is lacking, options in care are provided in the clinical standard and the accompanying order sets (if applicable).

Approval Process
Clinical standards are reviewed and approved by hospital committees as deemed appropriate for its intended use. Clinical standards are reviewed as necessary within EBOC at Texas Children’s Hospital. Content Expert Teams are involved with every review and update.

Disclaimer
Practice recommendations are based upon the evidence available at the time the clinical standard was developed. Clinical standards (guidelines, summaries, or pathways) do not set out the standard of care and are not intended to be used to dictate a course of care. Each physician/practitioner must use his or her independent judgment in the management of any specific patient and is responsible, in consultation with the patient and/or the patient’s family, to make the ultimate judgment regarding care.

Version History
Date          Action          Comments
Oct 2014      Originally completed

DATE: October 2014