

Asthma Measures

Core and Optional Process and Outcome

National Improvement Partnership Network



AcademyHealth

These measures were prepared by AcademyHealth under contract with the
National Improvement Partnership Network (NIPN)
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Asthma Core Measures

Introduction

As a step towards strengthening the reporting of improvement partnership (IP) outcomes, the National Improvement Partnership Network (NIPN) established a set of standard process and outcome measures for IPs. Establishing a set of core measures for each topic area is important for standardizing and measuring improvement across all IPs and to aid in the reporting of outcomes and impact. The core measures for asthma listed in this document are based on asthma guidelines from the National Heart, Lung and Blood Institute (NHLBI)¹, measures from the Healthcare Effectiveness Data and Information Set (HEDIS)², and the Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set)³.

These measures were developed in collaboration with IPs involved in NIPN, especially the IPs in Vermont, Oregon and Maine, and were selected because they are relevant, feasible, and measurable.

Measures

Measures #1-6 are **core measures** for each asthma IP initiative. NIPN recommends that each IP initiating an asthma improvement project use these six measures for tracking process and outcome data. Optional measures are also provided (measures #7-19). If sites choose to use optional measures, it is recommended that they first consider the HEDIS or CHIPRA optional measures (these measures are labeled Recommended”).

Data Sources

Data for the measures included in this document can be obtained from:

- Conducting chart reviews
- Practices' electronic health records (EHRs)
- Claims for some measures if available

Sampling Strategy

Based on collective experience and the methodology referenced below, many IPs approach data collection in the following manner. Data should be collected from 30 charts at the beginning of the project and at the end of the project (pre- and post-test data), with 10 charts selected for at least two review periods (10 charts reviewed one-third of the way through the project and then 10 charts reviewed two-thirds of the way through

¹ National Heart, Lung and Blood Institute (2011). Asthma care Quick Reference: Diagnosing and Managing Asthma. Retrieved from http://www.nhlbi.nih.gov/guidelines/asthma/asthma_qrg.pdf

² National Committee for Quality Assurance (2012). Healthcare Effectiveness Data and Information Set: Technical Specifications for Health Plans. Volume 2.

³ Centers for Medicare and Medicaid Services. (May 2013). Core Set of Children's Health Care Quality Measures for Medicaid and CHIP: Technical Specifications and Resource Manual for Federal Fiscal Year 2013 Reporting.

the project period) to gauge progress.⁴ Many sites select 10 charts for review each month of the project, in order to increase the number of Plan-Do-Study-Act (PDSA) cycles and are able to demonstrate achievement gained by the project's end.

If practices have a pediatric asthma registry or they are able to pull up a full list of pediatric patients diagnosed with asthma in their EHR, they should randomly select 30 patient charts using a [random number generator](#) (at the beginning and end of the project, with a certain number selected at the mid-point) from the child and adolescent population diagnosed with asthma. The patients included for selection should be under the care of the participating practice for at least 6 months (or had at least two visits to the practice) prior to measurement. If sites do not have a registry or EHR, they should select charts by choosing every *n*th chart, where *n* is a randomly selected number.⁵ If there are less than 30 pediatric patients with asthma at the site, the site should select all of the charts that fit the aforementioned criteria for data collection.

Target Goals (Possible Methods)

IPs and participating practices should agree on target goals for the asthma initiative. For core and optional **process** measures (measures #1-4 and #7-12), sites should aim for achieving a high target goal, between 60% and 80% of each targeted measure, depending on the baseline scores. An 80% of each targeted measure has been attained by some IP sites and is often a benchmark for these indicators.

For core and optional **outcome** measures (measures #5-6 and #13-15), less rigid standards may be applied. One method for choosing target goals for outcome measures is to adapt a method developed by the Minnesota Department of Health's Quality Incentive Payment System⁶ and used by the Oregon Health Authority.⁷ This methodology "requires participants to have had at least a 10% reduction in the gap between its baseline and the benchmark to qualify for incentive payments."⁸ For example, if at baseline, a practice performs 50% on a particular measure, the IP may assign a target of 75%. There is a 25% difference between the baseline and the target, and the practice must reduce this gap by 10%, or by 2.5 percentage points (25 x 0.10) to meet the improvement target. In this example, the practice must improve to 52.5% to meet the improvement target.

Oregon has added improvement "floors" to cases where the improvement target is minimal. Under this option, the IP could institute a floor of 1-3 percentage points improvement, depending on the measure. In this example, if the IP chose an improvement floor of 3 percentage points, the practice would need to improve from 50% to 53% to meet the improvement target, rather than to 52.5%.

⁴ Thirty charts were chosen based on sample size calculations using the following assumptions: 1) Power of 0.80; 2) P-value of 0.05; Standard deviation of 0.50; and 3) Effect size of 0.40. The calculation uses the sample size formula provided in, "Kadam, P., & Bhalarao, S. (2010). Sample size calculation. *International journal of Ayurveda research*, 1(1), 55" and the assumptions were based on results reported in, "Shaw, J. S., Norlin, C., Gillespie, R. J., Weissman, M., & McGrath, J. (2013). The National Improvement Partnership Network: State-Based Partnerships That Improve Primary Care Quality. *Academic pediatrics*, 13(6), S84-S94." If estimated effect sizes are below 0.36, a larger sample size will be necessary.

⁵ Gearing, R. E., Mian, I. A., Barber, J., & Ickowicz, A. (2006). A methodology for conducting retrospective chart review research in child and adolescent psychiatry. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 15(3), 126

⁶ Additional details on this report are available online at www.dhs.stat.mn.us [click here](#).

⁷ Oregon Health Authority. June 20, 2013. CCO Incentive Measures Methodology. Available at www.oregon.gov [click here](#).

⁸ Oregon Health Authority. June 20, 2013. CCO Incentive Measures Methodology; page 3.

Definitions

ACT: Asthma Control Test for ages 4-11 years old and ≥ 12 years old. See **Appendix B** (ages ≥ 12) and **Appendix C** (ages 4-11).

Asthma Education: Measure #11 refers to “asthma education.” Asthma education includes teaching patients about: self-monitoring to assess level of asthma control and to recognize signs of worsening asthma; taking medications correctly (long-term control or quick-relief medications); avoiding environmental factors that worsen asthma; agreeing on treatment goals; teaching patients how to use the asthma action plan and encouraging adherence to the asthma action plan.⁹

Asthma Visit: Measure #10 refers to “asthma visits.” The types of interactions that can be counted as part of an asthma visit depend on the severity of a given patient’s asthma. For patients with intermittent asthma, a phone visit about their asthma will suffice. For patients with persistent asthma who use controller medication, a face-to-face visit about asthma is necessary for this interaction to count as an “asthma visit.” If asthma was specifically assessed / addressed during a well-child visit or if asthma was addressed during an encounter for illness, this would also count as an “asthma visit.”

ATAQ: Asthma Therapy Assessment Questionnaire. See **Appendix E** for Pediatric/Adolescent ATAQ and **Appendix F** for the Adult ATAQ.

TRACK: Test for Respiratory and Asthma Control in Kids for children ≤ 5 years old. See **Appendix D**.

Appendices

Appendix A – Asthma Care Quick Reference: Diagnosing and Managing Asthma

Appendix B – Asthma Control Test™ (ACT)

Appendix C – Childhood Asthma Control Test for children 4-11 years

Appendix D – Test for Respiratory and Asthma Control in Kids (TRACK™)

Appendix E – Pediatric/Adolescent Asthma Therapy Assessment Questionnaire (ATAQ)

Appendix F – Adult Asthma Therapy Assessment Questionnaire (ATAQ)

Appendix G – Asthma Action Plan

Appendix H – CAHPS® Clinician & Group Surveys, version: 12-Month Survey with Patient-Centered Medical Home (PCMH) Items

⁹ National Heart, Lung and Blood Institute (2011). Asthma care Quick Reference: Diagnosing and Managing Asthma; page 3. Retrieved from http://www.nhlbi.nih.gov/guidelines/asthma/asthma_qrg.pdf

Core Process and Outcome Measures

Measure	#	Measure Steward	Core Asthma Process Measure Definitions	Ages	Target Goal
Asthma Severity Documented	1	NHLBI	<p>Percentage of children with asthma whose asthma severity was documented during the defined measurement period.</p> <p>Numerator: Number of patients 2 - 21 years with a diagnosis of asthma whose severity was documented during the defined measurement period.</p> <p>Denominator: Number of patients between the ages of 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma</p> <p>See Appendix A page 5 for specifications on asthma severity, excerpt from NHLBI's Asthma Care Quick Reference Guide.</p>	2 - 21	
Asthma Control Assessed with Validated Tool	2	NHLBI	<p>The percentage of children with asthma whose control has been assessed with a validated tool during the defined measurement period. Examples of tools include ACT, TRACK, and ATAQ.</p> <p>Numerator: Number of patients between the ages of 4 - 21 years with a diagnosis of asthma who completed an ACT and/or patients 2 - 4 who completed the TRACK; patients 5 - 17 years who completed the Pediatric/Adolescent ATAQ; or patients ≥ 18 years who completed the Adult ATAQ during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See Appendix B (ages ≥ 12) and Appendix C (ages 4 - 11) for examples of an ACT and Appendix D for the TRACK Appendix E for Pediatric/Adolescent ATAQ and Appendix F for the Adult ATAQ</p>	2 - 21	
Inhaled Corticosteroids Prescribed	3	NHLBI , HEDIS & MU	<p>Percentage of children with persistent asthma that were prescribed inhaled corticosteroids (ICSs) during the defined measurement period. Include prescriptions from elsewhere (e.g. ED).</p> <p>Numerator: Number of patients between the ages of 2 - 21 years with a diagnosis of persistent asthma who were prescribed ICSs during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of persistent asthma.</p>	2 - 21	

<p>Asthma Action Plan Updated</p>	<p>4</p>	<p>NHLBI</p>	<p>Percentage of children with asthma whose asthma action plan was updated during the defined measurement period.</p> <p>Numerator: Number of patients between the ages of 2 - 21 years with a diagnosis of asthma whose asthma action plan was updated during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See Appendix G for specifications of an asthma action plan.</p>	<p>2 - 21</p>	
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Measure	#	Measure Steward	Core Asthma Outcome Measure Definitions	Ages	Target Goal
<p>Standardized Tests of Asthma Control</p> <p>e.g. Asthma Control Test (ACT), Test for Respiratory and Asthma Control in Kids (TRACK), Asthma Therapy Assessment Questionnaire (ATAQ)</p>	5	NHLBI	<p>Percentage of children with asthma that have ACT scores ≥ 19 during the defined measurement period.</p> <p>Numerator: Number of patients between 4 - 21 years with a diagnosis of asthma who have ACT scores ≥ 19 during the defined measurement period.</p> <p>Denominator: Number of patients between 4 - 21 years who had a visit to the participating practice during the defined measurement period and have completed an ACT test.</p> <p>Percentage of children with asthma that have TRACK scores ≥ 80 during the defined measurement period.</p> <p>Numerator: Number of patients between 2 - 4 years with a diagnosis of asthma who have TRACK scores ≥ 80 during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 4 years who had a visit to the participating practice during the defined measurement period and have completed a TRACK test.</p> <p>Percentage of children with asthma that have Pediatric/Adolescent ATAQ of zero during the defined measurement period.</p> <p>Numerator: Number of patients between 5 - 17 years with a diagnosis of asthma who have Pediatric/Adolescent ATAQ scores of zero during the defined measurement period.</p> <p>Denominator: Number of patients between 5 - 17 years who had a visit to the participating practice during the defined measurement period and have completed a Pediatric/Adolescent ATAQ test.</p> <p>Percentage of children with asthma that have Adult ATAQ of zero during the defined measurement period.</p> <p>Numerator: Number of patients ≥ 18 years with a diagnosis of asthma who have Adult ATAQ scores of zero during the defined measurement period.</p> <p>Denominator: Number of patients ≥ 18 years who had a visit to the participating practice during the defined measurement period and have completed a Adult ATAQ test.</p> <p>See Appendix B (ages ≥ 12) and Appendix C (ages 4 - 11) for examples of an ACT and Appendix D for the TRACK Appendix E for Pediatric/Adolescent ATAQ and Appendix F for the Adult ATAQ</p>	4 - 21	

Asthma Well Controlled	6	NHLBI	<p>Percentage of children with asthma whose asthma is well-controlled.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma whose asthma is well controlled.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and whose asthma control has been assessed.</p> <p>See Appendix A page 6 for asthma control specifications, excerpt from NHLBI's Asthma Care Quick Reference Guide.</p>	2 - 21	
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Optional Process and Outcome Measures

In order to more fully evaluate progress and measure the impact of asthma initiatives, optional measures are provided below.

- Measures #7-14 are optional process measures
- Measures #15-18 are optional outcome measures
- Measures #19-22 are optional surveys that sites can use to track improvement

Since the HEDIS and CHIPRA measures have been developed for national reporting purposes and are commonly used and are tied to increased reimbursement in some states and communities, we recommend that sites first consider using these optional measures. These recommended measures are labeled below.

Measure	#	Measure Steward	Optional Asthma Process Measure Definitions	Ages	Target Goal
Asthma patients remained on medications	7	HEDIS & CHIPRA	<p>Percentage of children between the ages 2 – 21 years who were identified as having persistent asthma and were dispensed appropriate medications that they have continued taking. Two rates are reported: Percentage of children that remained on an asthma controller medication for at least 50% of the project period. Percentage of children that remained on an asthma controller medication for at least 75% of the project period.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who were dispensed appropriate medications that they have continued taking.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have been prescribed asthma controller medications.</p> <p>See Core Set of Children's Health Care Quality Measures for Medicaid and CHIP, page 93 from www.medicaid.gov</p> <p><i>Note: This measure may be more appropriate later in the project period.</i></p>	2 - 21	
Received influenza vaccine	8	HEDIS & CHIPRA	<p>The percentage of children with asthma between 2 - 21 years of age who have had influenza (flu) vaccine.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who received a flu vaccine.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See Core Set of Children's Health Care Quality Measures for Medicaid and CHIP, page 24 from www.medicaid.gov</p> <p><i>Note: Project staff should consider using this measure for yearlong projects that begin and end in the late fall/winter, due to the seasonality of influenza vaccine administration. Or if sites implement a project that is</i></p>	2 - 21	

Measure	#	Measure Steward	Optional Asthma Process Measure Definitions	Ages	Target Goal
			<i>either less than a year or does not begin in the fall, that data from the same time period (e.g. fall) be used to measure the impact of the project.</i>		
Assessment of Tobacco Exposure and Use	9	Bridges to Excellence	<p>The percentage of children with asthma between 2 - 21 years of age who have been assessed for exposure to tobacco or use of tobacco.</p> <p>Numerator: Number of patients: a) ages 2 - 21 years with a documentation assessment of tobacco exposure¹⁰ and; b) ages 10 - 21 years assessed for tobacco use within the last 12 months.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p>	2 - 21	
Have an annual asthma visit	10	NHLBI	<p>Percentage of children with asthma that have had at least one asthma visit within the past year. The visit should be a planned asthma encounter where management and control are discussed.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who had at least one asthma visit.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See definition of asthma visit on page 5.</p>	2 - 21	
Asthma patients received education	11	NHLBI	<p>Percentage of children and caregivers of children with asthma that were provided education about their asthma (e.g. information about asthma triggers and self-management).</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who received education about their asthma during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See Appendix A: NHLB's Asthma Care Quick Reference Guide, page 3.</p> <p>See definition of asthma education on page 5.</p>	2 - 21	
Device teaching	12	NA	<p>Percentage of children with asthma who were provided instruction on how to use their asthma medication delivery device.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who were provided instruction on how to use their asthma medication delivery device.</p>	2 - 21	

¹⁰ Tobacco exposure is defined as someone who uses tobacco who lives in the patient's household or is a primary caregiver.

Measure	#	Measure Steward	Optional Asthma Process Measure Definitions	Ages	Target Goal
			Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period, have a documented diagnosis of asthma, and are using an asthma medication delivery device.		
Self-management support	13	NA	<p>Percentage of children or caregivers with asthma that were provided self-management support. Self-management support is based on two questions from the CAHPS measure set.</p> <ol style="list-style-type: none"> 1. In the last 12 months, did anyone in this provider's office talk with you about specific goals for you (if question directed to patient) or your child's health (if question directed to the caregiver)? Answer "yes" or "no". 2. In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of yourself (if question directed to patient) or your child's health(if question directed to the caregiver)? Answer "yes" or "no". <p>Providers should combine these two measures to achieve a composite score.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who received self-management support.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p>	2 - 21	
Spirometry test completed	14	NHLBI	<p>Percentage of children with asthma that completed a spirometry test at least once within the last 24 months.</p> <p>Numerator: Number of patients 5 - 21 years with a diagnosis of asthma who received a spirometry test at least once during the last 24 months.</p> <p>Denominator: Number of patients between 5 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p>	5 - 21	

Measure	#	Measure Steward	Optional Asthma Outcome Measure Definitions	Ages	Target Goal
ER Visits	15	CHIPRA & HEDIS	<p>Percentage of children between the ages of 2 - 21 diagnosed with asthma during the defined measurement period with one or more asthma-related emergency room (ER) visit (<i>note that this question is part of the ACT test, see Appendix B</i>).</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma with one or more asthma-related ER visit during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p>	2 - 21	
Hospital Admission	16	CHIPRA & HEDIS	<p>Percentage of children between the ages of 2 - 21 diagnosed with asthma during the defined measurement period with one or more asthma-related hospital visit (<i>note that this question is part of the ACT test, see Appendix B</i>).</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma with one or more asthma-related hospital visit during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 years who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p>	2 - 21	
Ratio of controller to total medication of 0.50	17	HEDIS	<p>Percentage of children who were identified as having persistent asthma and had a ratio of controller medications to total asthma medication of 0.50 or greater during the defined measurement period.</p> <p>Numerator: Number of patients between 2 - 21 years with a diagnosis of asthma who have a ratio of controller medications to total asthma medications of 0.50 or greater during the defined measurement period.</p> <p>Denominator: Number of patients between 2 - 21 who had a visit to the participating practice during the defined measurement period and have a documented diagnosis of asthma.</p> <p>See HEDIS 2014, Volume 3: Technical Specifications for Health Plans for additional details</p>	2 - 21	

Measure	#	Measure Steward	Optional Asthma Outcome Measure Definitions	Ages	Target Goal
Spirometry Scores	18	NHLBI	<p>Percentage of children that completed a spirometry test and have a forced expiratory volume (FEV) in the first second (1) over 80% during the defined measurement period.</p> <p>Numerator: Number of patients between the ages of 8 to 21 years with a diagnosis of asthma with a FEV1 over 80% during the defined measurement period.</p> <p>Denominator: Number of patients between 8 - 21 years who had a visit to the participating practice during the defined measurement period and have completed a spirometry test.</p>	8 - 21	

Optional Asthma Surveys on Experience of Care and Quality of Life

Measure	#	Measure Steward	Optional Asthma Surveys on Experience of Care and Quality of Life	Ages	Target Goal
Care for Chronic Conditions	19	HEDIS	<p>Children with Chronic Conditions: Survey measures on</p> <ol style="list-style-type: none"> 1) Access to specialized services 2) Family centered care: Personal doctor who knows child 3) Coordination of care for children with chronic conditions (<i>Note: This measure is not specific to asthma</i>). <p>See HEDIS 2013, Volume 3: Specifications for Survey Measures for details on this measure or see the Agency for Healthcare Research and Quality CAHPS Item Set for Children with Chronic Conditions.</p>	2 - 21	
CAHPS	20	HEDIS	Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey. See Appendix H for the CAHPS Child PCMH Survey.	2 - 21	
Peds-QL Asthma	21	NA	Pediatric Quality of Life (Peds-QL) Inventory – Asthma module (developed by Dr. James W. Varni). The Peds-QL Asthma Module can be downloaded from MAPI Research TRUST at www.mapi-trust.org .	2 - 21	
Child Health Questionnaire	22	NA	Child Health Questionnaire Parent Form 50 (developed by Jeanne M. Landgraf). The Child Health Questionnaire Parent Form 50 can be downloaded after registering, from healthacthq.com .	2 - 21	

Asthma Care Quick Reference

DIAGNOSING AND MANAGING ASTHMA

Guidelines from the National Asthma Education and Prevention Program

EXPERT PANEL REPORT 3

The goal of this asthma care quick reference guide is to help clinicians provide quality care to people who have asthma.

Quality asthma care involves not only initial diagnosis and treatment to achieve asthma control, but also long-term, regular follow-up care to maintain control.

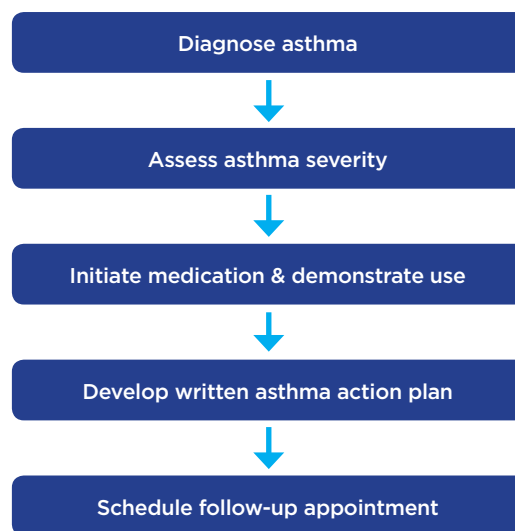
Asthma control focuses on two domains: (1) **reducing impairment**—the frequency and intensity of symptoms and functional limitations currently or recently experienced by a patient; and (2) **reducing risk**—the likelihood of future asthma attacks, progressive decline in lung function (or, for children, reduced lung growth), or medication side effects.

Achieving and maintaining asthma control requires providing appropriate medication, addressing environmental factors that cause worsening symptoms, helping patients learn self-management skills, and monitoring over the long term to assess control and adjust therapy accordingly.

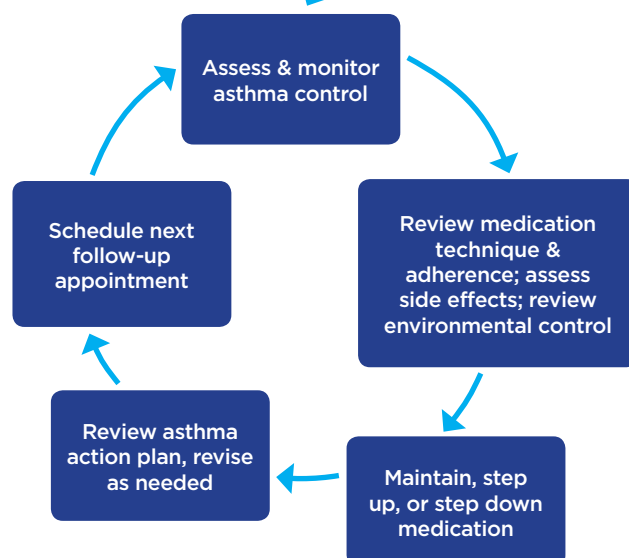
The diagram (right) illustrates the steps involved in providing quality asthma care.

This guide summarizes recommendations developed by the National Asthma Education and Prevention Program's expert panel after conducting a systematic review of the scientific literature on asthma care. See www.nhlbi.nih.gov/guidelines/asthma for the full report and references. Medications and dosages were updated in September 2011 for the purposes of this quick reference guide to reflect currently available asthma medications.

INITIAL VISIT



FOLLOW-UP VISITS



KEY CLINICAL ACTIVITIES FOR QUALITY ASTHMA CARE

(See complete table in *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma* [EPR-3])

Clinical Issue	Key Clinical Activities and Action Steps
→ ASTHMA DIAGNOSIS	
	<p>Establish asthma diagnosis.</p> <ul style="list-style-type: none"> Determine that symptoms of recurrent airway obstruction are present, based on history and exam. <ul style="list-style-type: none"> History of cough, recurrent wheezing, recurrent difficulty breathing, recurrent chest tightness Symptoms occur or worsen at night or with exercise, viral infection, exposure to allergens and irritants, changes in weather, hard laughing or crying, stress, or other factors In all patients ≥ 5 years of age, use spirometry to determine that airway obstruction is at least partially reversible. Consider other causes of obstruction.
→ LONG-TERM ASTHMA MANAGEMENT	
GOAL: Asthma Control	<p>Reduce Impairment</p> <ul style="list-style-type: none"> Prevent chronic symptoms. Require infrequent use of short-acting beta₂-agonist (SABA). Maintain (near) normal lung function and normal activity levels. <p>Reduce Risk</p> <ul style="list-style-type: none"> Prevent exacerbations. Minimize need for emergency care, hospitalization. Prevent loss of lung function (or, for children, prevent reduced lung growth). Minimize adverse effects of therapy.
Assessment and Monitoring	<p>INITIAL VISIT: Assess asthma severity to initiate treatment (see page 5).</p> <p>FOLLOW-UP VISITS: Assess asthma control to determine if therapy should be adjusted (see page 6).</p> <ul style="list-style-type: none"> Assess at each visit: asthma control, proper medication technique, written asthma action plan, patient adherence, patient concerns. Obtain lung function measures by spirometry at least every 1–2 years; more frequently for asthma that is not well controlled. Determine if therapy should be adjusted: Maintain treatment; step up, if needed; step down, if possible. <p>Schedule follow-up care.</p> <ul style="list-style-type: none"> Asthma is highly variable over time. See patients: <ul style="list-style-type: none"> Every 2–6 weeks while gaining control Every 1–6 months to monitor control Every 3 months if step down in therapy is anticipated
Use of Medications	<p>Select medication and delivery devices that meet patient's needs and circumstances.</p> <ul style="list-style-type: none"> Use stepwise approach to identify appropriate treatment options (see page 7). Inhaled corticosteroids (ICSs) are the most effective long-term control therapy. When choosing treatment, consider domain of relevance to the patient (risk, impairment, or both), patient's history of response to the medication, and willingness and ability to use the medication. <p>Review medications, technique, and adherence at each follow-up visit.</p>

KEY CLINICAL ACTIVITIES FOR QUALITY ASTHMA CARE (continued)

Clinical Issue	Key Clinical Activities and Action Steps
Patient Education for Self-Management	<p>Teach patients how to manage their asthma.</p> <ul style="list-style-type: none"> Teach and reinforce at each visit: <ul style="list-style-type: none"> Self-monitoring to assess level of asthma control and recognize signs of worsening asthma (either symptom or peak flow monitoring) Taking medication correctly (inhaler technique, use of devices, understanding difference between long-term control and quick-relief medications) <ul style="list-style-type: none"> Long-term control medications (such as inhaled corticosteroids, which reduce inflammation) prevent symptoms. Should be taken daily; will not give quick relief. Quick-relief medications (short-acting beta₂-agonists or SABAs) relax airway muscles to provide fast relief of symptoms. Will not provide long-term asthma control. If used >2 days/week (except as needed for exercise-induced asthma), the patient may need to start or increase long-term control medications. Avoiding environmental factors that worsen asthma <p>Develop a written asthma action plan in partnership with patient/family (sample plan available at www.nhlbi.nih.gov/health/public/lung/asthma/asthma_actplan.pdf).</p> <ul style="list-style-type: none"> Agree on treatment goals. Teach patients how to use the asthma action plan to: <ul style="list-style-type: none"> Take daily actions to control asthma Adjust medications in response to worsening asthma Seek medical care as appropriate Encourage adherence to the asthma action plan. <ul style="list-style-type: none"> Choose treatment that achieves outcomes and addresses preferences important to the patient/family. Review at each visit any success in achieving control, any concerns about treatment, any difficulties following the plan, and any possible actions to improve adherence. Provide encouragement and praise, which builds patient confidence. Encourage family involvement to provide support. <p>Integrate education into all points of care involving interactions with patients.</p> <ul style="list-style-type: none"> Include members of all health care disciplines (e.g., physicians, pharmacists, nurses, respiratory therapists, and asthma educators) in providing and reinforcing education at all points of care.
Control of Environmental Factors and Comorbid Conditions	<p>Recommend ways to control exposures to allergens, irritants, and pollutants that make asthma worse.</p> <ul style="list-style-type: none"> Determine exposures, history of symptoms after exposures, and sensitivities. (In patients with persistent asthma, use skin or in vitro testing to assess sensitivity to perennial indoor allergens to which the patient is exposed.) <ul style="list-style-type: none"> Recommend multifaceted approaches to control exposures to which the patient is sensitive; single steps alone are generally ineffective. Advise all asthma patients and all pregnant women to avoid exposure to tobacco smoke. Consider allergen immunotherapy by trained personnel for patients with persistent asthma when there is a clear connection between symptoms and exposure to an allergen to which the patient is sensitive. <p>Treat comorbid conditions.</p> <ul style="list-style-type: none"> Consider allergic bronchopulmonary aspergillosis, gastroesophageal reflux, obesity, obstructive sleep apnea, rhinitis and sinusitis, and stress or depression. Treatment of these conditions may improve asthma control. Consider inactivated flu vaccine for all patients >6 months of age.

ASTHMA CARE FOR SPECIAL CIRCUMSTANCES

Clinical Issue	Key Clinical Activities and Action Steps
Exercise-Induced Bronchospasm	<p>Prevent EIB.*</p> <ul style="list-style-type: none"> Physical activity should be encouraged. For most patients, EIB should not limit participation in any activity they choose. Teach patients to take treatment before exercise. SABAs* will prevent EIB in most patients; LTRAs,* cromolyn, or LABAs* also are protective. Frequent or chronic use of LABA to prevent EIB is discouraged, as it may disguise poorly controlled persistent asthma. Consider long-term control medication. EIB often is a marker of inadequate asthma control and responds well to regular anti-inflammatory therapy. Encourage a warm-up period or mask or scarf over the mouth for cold-induced EIB.
Pregnancy	<p>Maintain asthma control through pregnancy.</p> <ul style="list-style-type: none"> Check asthma control at all prenatal visits. Asthma can worsen or improve during pregnancy; adjust medications as needed. Treating asthma with medications is safer for the mother and fetus than having poorly controlled asthma. Maintaining lung function is important to ensure oxygen supply to the fetus. ICSs* are the preferred long-term control medication. Remind patients to avoid exposure to tobacco smoke.

MANAGING EXACERBATIONS

Clinical Issue	Key Clinical Activities and Action Steps
Home Care	<p>Develop a written asthma action plan (see Patient Education for Self-Management, page 3).</p> <p>Teach patients how to:</p> <ul style="list-style-type: none"> Recognize early signs, symptoms, and PEF* measures that indicate worsening asthma. Adjust medications (increase SABA* and, in some cases, add oral systemic corticosteroids) and remove or withdraw from environmental factors contributing to the exacerbation. Monitor response. Seek medical care if there is serious deterioration or lack of response to treatment. Give specific instructions on who and when to call.
Urgent or Emergency Care	<p>Assess severity by lung function measures (for ages ≥ 5 years), physical examination, and signs and symptoms.</p> <p>Treat to relieve hypoxemia and airflow obstruction; reduce airway inflammation.</p> <ul style="list-style-type: none"> Use supplemental oxygen as appropriate to correct hypoxemia. Treat with repetitive or continuous SABA,* with the addition of inhaled ipratropium bromide in severe exacerbations. Give oral systemic corticosteroids in moderate or severe exacerbations or for patients who fail to respond promptly and completely to SABA. Consider adjunctive treatments, such as intravenous magnesium sulfate or heliox, in severe exacerbations unresponsive to treatment. <p>Monitor response with repeat assessment of lung function measures, physical examination, and signs and symptoms, and, in emergency department, pulse oximetry.</p> <p>Discharge with medication and patient education:</p> <ul style="list-style-type: none"> Medications: SABA, oral systemic corticosteroids; consider starting ICS* Referral to follow-up care Asthma discharge plan Review of inhaler technique and, whenever possible, environmental control measures

*Abbreviations: EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; LTRA, leukotriene receptor antagonist; PEF, peak expiratory flow; SABA, short-acting beta₂-agonist.

INITIAL VISIT: CLASSIFYING ASTHMA SEVERITY AND INITIATING THERAPY (in patients who are not currently taking long-term control medications)

Level of severity (Columns 2–5) is determined by events listed in Column 1 for both impairment (frequency and intensity of symptoms and functional limitations) and risk (of exacerbations). Assess impairment by patient's or caregiver's recall of events during the previous 2–4 weeks; assess risk over the last year. Recommendations for initiating therapy based on level of severity are presented in the last row.

Components of Severity		Intermittent			Mild			Persistent			
		Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	
Impairment	Symptoms	≤2 days/week			>2 days/week but not daily			Daily			
	Nighttime awakenings	0	≤2x/month			1-2x/month			3-4x/month		
	SABA* use for symptom control (not to prevent EIB*)	≤2 days/week			>2 days/week but not daily			3-4x/month			
	Interference with normal activity	None			Minor limitation			Some limitation			
	Lung function	Normal FEV ₁ between exacerbations			Normal FEV ₁ between exacerbations			Extremely limited			
Risk	→ FEV ₁ * (% predicted)	Not applicable	>80%	>80%	Not applicable	>80%	>80%	Not applicable	60-80%	Not applicable	
	→ FEV ₁ /FVC*		>85%	Normal†		>80%	Normal†		75-80%	Reduced 5%†	
	Asthma exacerbations requiring oral systemic corticosteroids‡	0-1/year			≥2 exacerb. in 6 months, or wheezing ≥4x per year lasting >1 day AND risk factors for persistent asthma			Generally, more frequent and intense events indicate greater severity.			
					≥2/year			Generally, more frequent and intense events indicate greater severity.			
Consider severity and interval since last asthma exacerbation. Frequency and severity may fluctuate over time for patients in any severity category.											
Relative annual risk of exacerbations may be related to FEV ₁ *.											
Recommended Step for Initiating Therapy (See "Stepwise Approach for Managing Asthma Long Term," page 7) The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.	Step 1			Step 2			Step 3 medium-dose ICS* option			Step 3 medium-dose ICS* option or Step 4	
	Consider short course of oral systemic corticosteroids.										
In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed. For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.											

* Abbreviations: EIB, exercise-induced bronchospasm; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroid; SABA, short-acting beta₂-agonist.

† Normal FEV₁/FVC by age: 8–19 years, 85%; 20–39 years, 80%; 40–59 years, 75%; 60–80 years, 70%.

‡ Data are insufficient to link frequencies of exacerbations with different levels of asthma severity. Generally, more frequent and intense exacerbations (e.g., requiring urgent care, hospital or intensive care admission, and/or oral corticosteroids) indicate greater underlying disease severity. For treatment purposes, patients with ≥2 exacerbations may be considered to have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

FOLLOW-UP VISITS: ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY

Level of control (Columns 2-4) is based on the most severe component of impairment (symptoms and functional limitations) or risk (exacerbations). Assess impairment by patient's or caregiver's recall of events listed in Column 1 during the previous 2-4 weeks and by spirometry and/or peak flow measures. Symptom assessment for longer periods should reflect a global assessment, such as inquiring whether the patient's asthma is better or worse since the last visit. Assess risk by recall of exacerbations during the previous year and since the last visit. Recommendations for adjusting therapy based on level of control are presented in the last row.

Components of Control	Well Controlled			Not Well Controlled			Very Poorly Controlled		
	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years
Symptoms	≤2 days/week	≤2 days/week but not more than once on each day	≤2 days/week	>2 days/week	>2 days/week or multiple times on ≤2 days/week	>2 days/week	>1x/week	≥2x/week	≥4x/week
Nighttime awakenings	≤1x/month		≤2x/month	>1x/month	≥2x/month	1-3x/week			
Interference with normal activity	None			Some limitation			Extremely limited		
SABA* use for symptom control (not to prevent EIB*)	≤2 days/week			>2 days/week			Several times per day		
Lung function									
▶ FEV ₁ * (% predicted) or peak flow (% personal/best)	Not applicable	>80%	>80%	Not applicable	60-80%	60-80%	Not applicable	<60%	<60%
▶ FEV ₁ /FVC*		>80%	Not applicable		75-80%	Not applicable		<75%	Not applicable
Validated questionnaires†									
▶ ATAQ*	Not applicable	Not applicable	0	Not applicable	Not applicable	1-2	Not applicable	Not applicable	3-4
▶ ACQ*			≤0.75‡			≥1.5			Not applicable
▶ ACT*			≥20			16-19			≤15
Asthma exacerbations requiring oral systemic corticosteroids§	0-1/year			2-3/year	≥2/year	≥2/year	>3/year		≥2/year
Reduction in lung growth/Progressive loss of lung function	Not applicable	Evaluation requires long-term follow-up care.		Not applicable	Evaluation requires long-term follow-up care.		Not applicable	Evaluation requires long-term follow-up care.	
Treatment-related adverse effects	The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.			Consider severity and interval since last asthma exacerbation.					
Recommended Action for Treatment (See "Stepwise Approach for Managing Asthma Long Term," page 7) The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.	Maintain current step. Regular follow-up every 1-6 months. Consider step down if well controlled for at least 3 months.			Step up 1 step	Step up at least 1 step	Step up 1 step	Consider short course of oral systemic corticosteroids. Step up 1-2 steps. Reevaluate in 2 weeks to achieve control.		
							Before step up in treatment: Review adherence to medication, inhaler technique, and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.		

* **Abbreviations:** ACQ, Asthma Control Questionnaire; ACT, Asthma Control Test™; ATAQ, Asthma Therapy Assessment Questionnaire; EIB, exercise-induced bronchospasm; FVC, forced vital capacity; FEV₁, forced expiratory volume in 1 second; SABA, short-acting beta₂-agonist.

† Minimal important difference: 1.0 for the ATAQ; 0.5 for the ACQ; not determined for the ACT.

‡ ACQ values of 0.76-1.4 are indeterminate regarding well-controlled asthma.

§ Data are insufficient to link frequencies of exacerbations with different levels of asthma control. Generally, more frequent and intense exacerbations (e.g., requiring urgent care, hospital or intensive care admission, and/or oral corticosteroids) indicate poorer asthma control.

STEPWISE APPROACH FOR MANAGING ASTHMA LONG TERM

The stepwise approach tailors the selection of medication to the level of asthma severity (see page 5) or asthma control (see page 6). The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.

ASSESS CONTROL:		STEP UP IF NEEDED (first, check medication adherence, inhaler technique, environmental control, and comorbidities)					
		STEP DOWN IF POSSIBLE (and asthma is well controlled for at least 3 months)					
		STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
At each step: Patient education, environmental control, and management of comorbidities							
0-4 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 3 care or higher is required. Consider consultation at step 2.				
	Preferred Treatment [†]	SABA* as needed	low-dose ICS*	medium-dose ICS*	medium-dose ICS* + either LABA* or montelukast	high-dose ICS* + either LABA* or montelukast	high-dose ICS* + either LABA* or montelukast + oral corticosteroids
	Alternative Treatment ^{†,‡}		cromolyn or montelukast				
If clear benefit is not observed in 4-6 weeks, and medication technique and adherence are satisfactory, consider adjusting therapy or alternate diagnoses.							
Quick-Relief Medication		<ul style="list-style-type: none"> SABA* as needed for symptoms; intensity of treatment depends on severity of symptoms. With viral respiratory symptoms: SABA every 4-6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if asthma exacerbation is severe or patient has history of severe exacerbations. Caution: Frequent use of SABA may indicate the need to step up treatment. 					
5-11 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred Treatment [†]	SABA* as needed	low-dose ICS*	low-dose ICS* + either LABA*, LTRA*, or theophylline ^(b)	medium-dose ICS* + LABA*	high-dose ICS* + LABA*	high-dose ICS* + LABA* + oral corticosteroids
	Alternative Treatment ^{†,‡}		cromolyn, LTRA*, or theophylline [§]	OR medium-dose ICS	medium-dose ICS* + either LTRA* or theophylline [§]	high-dose ICS* + either LTRA* or theophylline [§]	high-dose ICS* + either LTRA* or theophylline [§] + oral corticosteroids
Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.**							
Quick-Relief Medication		<ul style="list-style-type: none"> SABA* as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments every 20 minutes as needed. Short course of oral systemic corticosteroids may be needed. Caution: Increasing use of SABA or use >2 days/week for symptom relief (not to prevent EIB*) generally indicates inadequate control and the need to step up treatment. 					
≥12 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred Treatment [†]	SABA* as needed	low-dose ICS*	low-dose ICS* + LABA* OR medium-dose ICS*	medium-dose ICS* + LABA*	high-dose ICS* + LABA* AND consider omalizumab for patients who have allergies ^{††}	high-dose ICS* + LABA* + oral corticosteroid ^{§§} AND consider omalizumab for patients who have allergies ^{††}
	Alternative Treatment ^{†,‡}		cromolyn, LTRA*, or theophylline [§]	low-dose ICS* + either LTRA*, theophylline [§] , or zileuton ^{‡‡}	medium-dose ICS* + either LTRA*, theophylline [§] , or zileuton ^{‡‡}		
Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.**							
Quick-Relief Medication		<ul style="list-style-type: none"> SABA* as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments every 20 minutes as needed. Short course of oral systemic corticosteroids may be needed. Caution: Use of SABA >2 days/week for symptom relief (not to prevent EIB*) generally indicates inadequate control and the need to step up treatment. 					

* Abbreviations: EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroid; LABA, inhaled long-acting beta₂-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta₂-agonist.

† Treatment options are listed in alphabetical order, if more than one.

‡ If alternative treatment is used and response is inadequate, discontinue and use preferred treatment before stepping up.

§ Theophylline is a less desirable alternative because of the need to monitor serum concentration levels.

** Based on evidence for dust mites, animal dander, and pollen; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults.

†† Clinicians who administer immunotherapy or omalizumab should be prepared to treat anaphylaxis that may occur.

‡‡ Zileuton is less desirable because of limited studies as adjunctive therapy and the need to monitor liver function.

§§ Before oral corticosteroids are introduced, a trial of high-dose ICS + LABA + either LTRA, theophylline, or zileuton, may be considered, although this approach has not been studied in clinical trials.

ESTIMATED COMPARATIVE DAILY DOSAGES: INHALED CORTICOSTEROIDS FOR LONG-TERM ASTHMA CONTROL

Daily Dose	0-4 years of age			5-11 years of age			≥12 years of age		
	Low	Medium*	High*	Low	Medium*	High*	Low	Medium*	High*
MEDICATION									
Beclomethasone MDI†	N/A	N/A	N/A	80-160 mcg	>160-320 mcg	>320 mcg	80-240 mcg	>240-480 mcg	>480 mcg
40 mcg/puff				1-2 puffs 2x/day	3-4 puffs 2x/day		1-3 puffs 2x/day	4-6 puffs 2x/day	
80 mcg/puff				1 puff 2x/day	2 puffs 2x/day	≥3 puffs 2x/day	1 puff am, 2 puffs pm	2-3 puffs 2x/day	≥4 puffs 2x/day
Budesonide DPI†	N/A	N/A	N/A	180-360 mcg	>360-720 mcg	>720 mcg	180-540 mcg	>540-1,080 mcg	>1,080 mcg
90 mcg/inhalation				1-2 inh† 2x/day	3-4 inh† 2x/day		1-3 inh† 2x/day		
180 mcg/inhalation					2 inh† 2x/day	≥3 inh† 2x/day	1 inh† am, 2 inh† pm	2-3 inh† 2x/day	≥4 inh† 2x/day
Budesonide Nebules	0.25-0.5 mg	>0.5-1.0 mg	>1.0 mg	0.5 mg	1.0 mg	2.0 mg	N/A	N/A	N/A
0.25 mg	1-2 nebs†/day			1 neb† 2x/day					
0.5 mg	1 neb†/day	2 nebs†/day	3 nebs†/day	1 neb†/day	1 neb† 2x/day				
1.0 mg		1 neb†/day	2 nebs†/day		1 neb†/day	1 neb† 2x/day			
Ciclesonide MDI†	N/A	N/A	N/A	80-160 mcg	>160-320 mcg	>320 mcg	160-320 mcg	>320-640 mcg	>640 mcg
80 mcg/puff				1-2 puffs/day	1 puff am, 2 puffs pm-2 puffs 2x/day	≥3 puffs 2x/day	1-2 puffs 2x/day	3-4 puffs 2x/day	
160 mcg/puff				1 puff/day	1 puff 2x/day	≥2 puffs 2x/day		2 puffs 2x/day	≥3 puffs 2x/day
Flunisolide MDI†	N/A	N/A	N/A	160 mcg	320-480 mcg	≥480 mcg	320 mcg	>320-640 mcg	>640 mcg
80 mcg/puff				1 puff 2x/day	2-3 puffs 2x/day	≥4 puffs 2x/day	2 puffs 2x/day	3-4 puffs 2x/day	≥5 puffs 2x/day

* It is preferable to use a higher mcg/puff or mcg/inhalation formulation to achieve as low a number of puffs or inhalations as possible.

† Abbreviations: DPI, dry powder inhaler (requires deep, fast inhalation); inh, inhalation; MDI, metered dose inhaler (releases a puff of medication); neb, nebulizer.

ESTIMATED COMPARATIVE DAILY DOSAGES: INHALED CORTICOSTEROIDS FOR LONG-TERM ASTHMA CONTROL (continued)

Daily Dose	0-4 years of age			5-11 years of age			≥12 years of age		
	Low	Medium*	High*	Low	Medium*	High*	Low	Medium*	High*
MEDICATION									
Fluticasone MDI†	176 mcg	>176-352 mcg	>352 mcg	88-176 mcg	>176-352 mcg	>352 mcg	88-264 mcg	>264-440 mcg	>440 mcg
	2 puffs 2x/day	3-4 puffs 2x/day		1-2 puffs 2x/day	3-4 puffs 2x/day		1-3 puffs 2x/day		
		1 puff 2x/day	≥2 puffs 2x/day		1 puff 2x/day	≥2 puffs 2x/day		2 puffs 2x/day	3 puffs 2x/day
								1 puffs 2x/day	≥2 puffs 2x/day
Fluticasone DPI†	N/A	N/A	N/A	100-200 mcg	>200-400 mcg	>400 mcg	100-300 mcg	>300-500 mcg	>500 mcg
				1-2 inh† 2x/day	3-4 inh† 2x/day		1-3 inh† 2x/day		
				1 inh† 2x/day	2 inh† 2x/day	>2 inh† 2x/day		2 inh† 2x/day	≥3 inh† 2x/day
						1 inh† 2x/day		1 inh† 2x/day	≥2 inh† 2x/day
Mometasone DPI†	N/A	N/A	N/A	110 mcg	220-440 mcg	>440 mcg	110-220 mcg	>220-440 mcg	>440 mcg
				1 inh†/day	1-2 inh† 2x/day	≥3 inh† 2x/day	1-2 inh† pm	3-4 inh† pm or 2 inh† 2x/day	≥3 inh† 2x/day
					1-2 inh†/day	≥3 inh† divided in 2 doses	1 inh† pm	1 inh† 2x/day or 2 inh† pm	≥3 inh† divided in 2 doses

* It is preferable to use a higher mcg/puff or mcg/inhalation formulation to achieve as low a number of puffs or inhalations as possible.

† Abbreviations: DPI, dry powder inhaler (requires deep, fast inhalation); inh, inhalation; MDI, metered dose inhaler (releases a puff of medication); neb, nebulizer.

Therapeutic Issues Pertaining to Inhaled Corticosteroids (ICSs) for Long-Term Asthma Control

- **The most important determinant of appropriate dosing is the clinician's judgment of the patient's response to therapy.** The clinician must monitor the patient's response on several clinical parameters (e.g., symptoms; activity level; measures of lung function) and adjust the dose accordingly. Once asthma control is achieved and sustained at least 3 months, the dose should be carefully titrated down to the minimum dose necessary to maintain control.
 - Some doses may be outside package labeling, especially in the high-dose range. Budesonide nebulizer suspension is the only inhaled corticosteroid (ICS) with FDA-approved labeling for children <4 years of age.
 - Metered-dose inhaler (MDI) dosages are expressed as the actuator dose (amount leaving the actuator and delivered to the patient), which is the labeling required in the United States. This is different from the dosage expressed as the valve dose (amount of drug leaving the valve, not all of which is available to the patient), which is used in many European countries and in some scientific literature. Dry powder inhaler (DPI) doses are expressed as the amount of drug in the inhaler following activation.
 - For children <4 years of age: The safety and efficacy of ICSs in children <1 year of age has not been established. Children <4 years of age generally require delivery of ICS (budesonide and fluticasone MDI) through a face mask that fits snugly over nose and mouth to avoid nebulizing in the eyes. Face should be washed after treatment to prevent local corticosteroid side effects. For budesonide, the dose may be given 1-3 times daily. Budesonide suspension is compatible with albuterol, ipratropium, and levalbuterol nebulizer solutions in the same nebulizer. Use only jet nebulizers, as ultrasonic nebulizers are ineffective for suspensions. For fluticasone MDI, the dose should be divided 2 times daily; the low dose for children <4 years of age is higher than for children 5-11 years of age because of lower dose delivered with face mask and data on efficacy in young children.

USUAL DOSAGES FOR OTHER LONG-TERM CONTROL MEDICATIONS*

Medication	0–4 years of age	5–11 years of age	≥12 years of age
Combined Medication (inhaled corticosteroid + long-acting beta₂-agonist)			
Fluticasone/Salmeterol — DPI† 100 mcg/50 mcg, 250 mcg/50 mcg, or 500 mcg/50 mcg MDI† 45 mcg/21 mcg, 115 mcg/21 mcg, or 230 mcg/21 mcg	N/A†	1 inhalation 2x/day; dose depends on level of severity or control	1 inhalation 2x/day; dose depends on level of severity or control
Budesonide/Formoterol — MDI† 80 mcg/4.5 mcg or 160 mcg/4.5 mcg	N/A†	2 puffs 2x/day; dose depends on level of severity or control	2 puffs 2x/day; dose depends on level of severity or control
Mometasone/Formoterol — MDI† 100 mcg/5 mcg	N/A†	N/A†	2 inhalations 2x/day; dose depends on severity of asthma
Leukotriene Modifiers			
Leukotriene Receptor Antagonists (LTRAs) Montelukast — 4 mg or 5 mg chewable tablet, 4 mg granule packets, 10 mg tablet	4 mg every night at bedtime (1–5 years of age)	5 mg every night at bedtime (6–14 years of age)	10 mg every night at bedtime
Zafirlukast — 10 mg or 20 mg tablet <i>Take at least 1 hour before or 2 hours after a meal. Monitor liver function.</i>	N/A†	10 mg 2x/day (7–11 years of age)	40 mg daily (20 mg tablet 2x/day)
5-Lipoxygenase Inhibitor Zileuton — 600 mg tablet <i>Monitor liver function.</i>	N/A†	N/A†	2,400 mg daily (give 1 tablet 4x/day)
Immunomodulators			
Omalizumab (Anti IgE†) — Subcutaneous injection, 150 mg/1.2 mL following reconstitution with 1.4 mL sterile water for injection <i>Monitor patients after injections; be prepared to treat anaphylaxis that may occur.</i>	N/A†	N/A†	150–375 mg subcutaneous every 2–4 weeks, depending on body weight and pretreatment serum IgE level
Cromolyn			
Cromolyn — Nebulizer: 20 mg/ampule	1 ampule 4x/day, N/A† <2 years of age	1 ampule 4x/day	1 ampule 4x/day
Methylxanthines			
Theophylline — Liquids, sustained-release tablets, and capsules <i>Monitor serum concentration levels.</i>	Starting dose 10 mg/kg/day; usual maximum: ▪ <1 year of age: 0.2 (age in weeks) + 5 = mg/kg/day ▪ ≥1 year of age: 16 mg/kg/day	Starting dose 10 mg/kg/day; usual maximum: 16 mg/kg/day	Starting dose 10 mg/kg/day up to 300 mg maximum; usual maximum: 800 mg/day
Inhaled Long-Acting Beta₂-Agonists (LABAs) – used in conjunction with ICS† for long-term control; LABA is NOT to be used as monotherapy			
Salmeterol — DPI† 50 mcg/blister	N/A†	1 blister every 12 hours	1 blister every 12 hours
Formoterol — DPI† 12 mcg/single-use capsule	N/A†	1 capsule every 12 hours	1 capsule every 12 hours
Oral Systemic Corticosteroids			
Methylprednisolone — 2, 4, 8, 16, 32 mg tablets	▪ 0.25–2 mg/kg daily in single dose in a.m. or every other day as needed for control ▪ Short course “burst”: 1–2 mg/kg/day, max 60 mg/d for 3–10 days	▪ 0.25–2 mg/kg daily in single dose in a.m. or every other day as needed for control ▪ Short course “burst”: 1–2 mg/kg/day, max 60 mg/d for 3–10 days	▪ 7.5–60 mg daily in single dose in a.m. or every other day as needed for control ▪ Short course “burst”: to achieve control, 40–60 mg/day as single or 2 divided doses for 3–10 days
Prednisolone — 5 mg tablets; 5 mg/5 cc, 15 mg/5 cc			
Prednisone — 1, 2.5, 5, 10, 20, 50 mg tablets; 5 mg/cc, 5 mg/5 cc			

* Dosages are provided for those products that have been approved by the U.S. Food and Drug Administration or have sufficient clinical trial safety and efficacy data in the appropriate age ranges to support their use.

† **Abbreviations:** DPI, dry powder inhaler; IgE, immunoglobulin E; MDI, metered-dose inhaler; N/A, not available (not approved, no data available, or safety and efficacy not established for this age group).

The most important determinant of appropriate dosing is the clinician's judgment of the patient's response to therapy. The clinician must monitor the patient's response on several clinical parameters (e.g., symptoms; activity level; measures of lung function) and adjust the dose accordingly. Once asthma control is achieved and sustained at least 3 months, the dose should be carefully titrated down to the minimum dose necessary to maintain control.

RESPONDING TO PATIENT QUESTIONS ABOUT INHALED CORTICOSTEROIDS

Questions and varying beliefs about inhaled corticosteroids (ICSs) are common and may affect adherence to treatment. Following are some key points to share with patients and families.

- ICSs are the most effective medications for long-term control of persistent asthma. Because ICSs are inhaled, they go right to the lungs to reduce chronic airway inflammation. In general, ICSs should be taken every day to prevent asthma symptoms and attacks.
- The potential risks of ICSs are well balanced by their benefits. To reduce the risk of side effects, patients should work with their doctor to use the lowest dose that maintains asthma control, and be sure to take the medication correctly.
 - Mouth irritation and thrush (yeast infection), which may be associated with ICSs at higher doses, can be avoided by rinsing the mouth and spitting after ICS use and, if appropriate for the inhaler device, by using a valved holding chamber or spacer.
- ICS use may slow a child's growth rate slightly. This effect on linear growth is not predictable and is generally small (about 1 cm), appears to occur in the first several months of treatment, and is not progressive. The clinical significance of this potential effect has yet to be determined. Growth rates are highly variable in children, and poorly controlled asthma can slow a child's growth.
- ICSs are generally safe for pregnant women. Controlling asthma is important for pregnant women to be sure the fetus receives enough oxygen.
- ICSs are not addictive.
- ICSs are not the same as anabolic steroids that some athletes use illegally to increase sports performance.

RESPONDING TO PATIENT QUESTIONS ABOUT LONG-ACTING BETA₂-AGONISTS

Keep the following key points in mind when educating patients and families about long-acting beta₂-agonists (LABAs).

- The addition of LABA (salmeterol or formoterol) to the treatment of patients who require more than low-dose inhaled corticosteroid (ICS) alone to control asthma improves lung function, decreases symptoms, and reduces exacerbations and use of short-acting beta₂-agonists (SABA) for quick relief in most patients to a greater extent than doubling the dose of ICS.
- A large clinical trial found that slightly more deaths occurred in patients taking salmeterol in a single inhaler every day in addition to usual asthma therapy* (13 out of about 13,000) compared with patients taking a placebo in addition to usual asthma therapy (3 out of about 13,000). Trials for formoterol in a single inhaler every day in addition to usual therapy* found more severe asthma exacerbations in patients taking formoterol, especially at higher doses, compared with those taking a placebo added to usual therapy. Therefore, the Food and Drug Administration placed a Black Box warning on all drugs containing a LABA.
- The established benefits of LABAs added to ICS for the great majority of patients who require more than low-dose ICS alone to control asthma should be weighed against the risk of severe exacerbations, although uncommon, associated with daily use of LABAs.
- LABAs should not be used as monotherapy for long-term control. Even though symptoms may improve significantly, it is important to keep taking ICS while taking LABA.
- Daily use should generally not exceed 100 mcg salmeterol or 24 mcg formoterol.
- It is not currently recommended that LABAs be used to treat acute symptoms or exacerbations.

* Usual therapy included a wide range of regimens, from those in which no other daily therapy was taken to those in which varying doses of other daily medications were taken.

EDUCATIONAL RESOURCES

National Heart, Lung, and Blood Institute

- Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3)
www.nhlbi.nih.gov/guidelines/asthma
- Physician Asthma Care Education (PACE): www.nhlbi.nih.gov/health/prof/lung/asthma/pace/
- National Asthma Control Initiative (NACI): <http://naci.nhlbi.nih.gov>

Allergy & Asthma Network Mothers of Asthmatics
800-878-4403
www.aanma.org

**American Academy of Allergy, Asthma,
and Immunology**
414-272-6071
www.aaaai.org

American Academy of Pediatrics
847-434-4000
www.aap.org

American Association of Respiratory Care
972-243-2272
www.aarc.org

American College of Chest Physicians
847-498-1400
www.chestnet.org

American College of Allergy, Asthma & Immunology
847-427-1200
www.acaai.org

American Lung Association
800-LUNG-USA (800-586-4872)
www.lungusa.org

American School Health Association
800-445-2742
www.ashaweb.org

Asthma and Allergy Foundation of America
800-7-ASTHMA (800-727-8462)
<http://aafa.org>

Centers for Disease Control and Prevention
800-CDC-INFO (800-232-4636)
www.cdc.gov/asthma

**Environmental Protection Agency/
Asthma Community Network**
www.asthmacommunitynetwork.org
800-490-9198 (to order EPA publications)
www.epa.gov/asthma/publications.html

National Association of School Nurses
240-821-1130
www.nasn.org

For more information contact:

NHLBI Information Center
P.O. Box 30105
Bethesda, MD 20824-0105
Phone: 301-592-8573
Fax: 301-592-8563
Web site: www.nhlbi.nih.gov



U.S. Department of Health and Human Services
National Institutes of Health

NIH Publication No. 12-5075
Originally Printed June 2002
Revised September 2012



**National Heart
Lung and Blood Institute**
People Science Health

Asthma Control Test™ Is:

- ▶ A quick test that provides a numerical score to assess asthma control.
- ▶ Recognized by the National Institutes of Health (NIH) in its 2007 asthma guidelines.¹
- ▶ Clinically validated against spirometry and specialist assessment.²

For Patients 12 Years and Older:

1. Answer each question and write the answer number in the box to the right of each question.
2. Add your answers and write your total score in the TOTAL box shown below.
3. Discuss your results with your doctor.

1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home?

All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5
-----------------	---	------------------	---	------------------	---	----------------------	---	------------------	---

SCORE

2. During the past **4 weeks**, how often have you had shortness of breath?

More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5
----------------------	---	------------	---	---------------------	---	----------------------	---	------------	---

3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5
-------------------------	---	----------------------	---	-------------	---	---------------	---	------------	---

4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5
-------------------------	---	----------------------	---	-----------------------	---	---------------------	---	------------	---

5. How would you rate your **asthma** control during the **past 4 weeks**?

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5
-----------------------	---	-------------------	---	---------------------	---	-----------------	---	-----------------------	---

If your score is 19 or less, your asthma may not be under control. Be sure to talk with your doctor about your results. The answers below should not be added to your total score. These answers should be discussed with your doctor.

In the past 12 months, how many emergency department visits have you had due to asthma (that did not result in a hospitalization)? _____

In the past 12 months, how many inpatient hospitalizations have you had due to asthma? _____

TOTAL

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Asthma Control Test is a trademark of QualityMetric Incorporated.
The Asthma Control Test is for people with asthma 12 years and older.

References: 1. US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3 2007)*. NIH Item 08-4051. <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>. Accessed September 10, 2007. 2. Nathan RA et al. *J Allergy Clin Immunol*. 2004;113:59-65.



Childhood Asthma Control Test for children 4 to 11 years.

How to take the Childhood Asthma Control Test





- ▶ **Step 1** Let your child respond to **the first 4 questions (1 to 4)**. If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining **3 questions (5 to 7)** on your own and without letting your child's response influence your answers. There are no right or wrong answers.
- ▶ **Step 2** Write the number of each answer in the score box provided.
- ▶ **Step 3** Add up each score box for the total.
- ▶ **Step 4** Take the test to the doctor to talk about your child's total score.

19
or less

If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. No matter what the score, bring this test to your doctor to talk about your child's results.

Have your child complete these questions.

1. How is your asthma today?

 0 Very bad	 1 Bad	 2 Good	 3 Very good
---	--	---	--





2. How much of a problem is your asthma when you run, exercise or play sports?

 0 It's a big problem, I can't do what I want to do.	 1 It's a problem and I don't like it.	 2 It's a little problem but it's okay.	 3 It's not a problem.
--	--	---	--

3. Do you cough because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.
--	---	---	--

4. Do you wake up during the night because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.
--	---	---	--

Please complete the following questions on your own.

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

The answers below should not be added to the total score. These answers should be discussed with your child's doctor.

In the past 12 months, how many emergency department visits has your child had due to asthma (that did not result in a hospitalization)? _____

In the past 12 months, how many inpatient hospitalizations has your child had due to asthma? _____

SCORE

TOTAL

TRACK™ Test for Respiratory and Asthma Control in Kids

Who should use TRACK?

This simple test can help determine if your child's breathing problems are not under control.

The test was designed for children who

- Are under 5 years of age **AND**
- Have a history of 2 or more episodes of wheezing, shortness of breath, or cough lasting more than 24 hours **AND**
- Have been previously prescribed bronchodilator medicines, also known as quick-relief medications (eg, albuterol, Ventolin®, Proventil®, Maxair®, ProAir®, or Xopenex®), for respiratory problems **OR** have been diagnosed with asthma

For kids
under
5 years
of age

How to take TRACK

Step 1: Make a check mark in the box below each of your selected answers.

Step 2: Write the number of your answer in the score box provided to the right of each question.

Step 3: Add up the numbers in the individual score boxes to obtain your child's total score.

Step 4: Take the test to your child's health care provider to talk about your child's total TRACK score.

Score

1	During the <u>past 4 weeks</u> , how often was your child bothered by breathing problems, such as wheezing, coughing, or shortness of breath?	Not at all <input type="checkbox"/> 20	Once or twice <input type="checkbox"/> 15	Once every week <input type="checkbox"/> 10	2 or 3 times a week <input type="checkbox"/> 5	4 or more times a week <input type="checkbox"/> 0	
2	During the <u>past 4 weeks</u> , how often did your child's breathing problems (wheezing, coughing, shortness of breath) wake him or her up at night?	Not at all <input type="checkbox"/> 20	Once or twice <input type="checkbox"/> 15	Once every week <input type="checkbox"/> 10	2 or 3 times a week <input type="checkbox"/> 5	4 or more times a week <input type="checkbox"/> 0	
3	During the <u>past 4 weeks</u> , to what extent did your child's breathing problems, such as wheezing, coughing, or shortness of breath, interfere with his or her ability to play, go to school, or engage in usual activities that a child should be doing at his or her age?	Not at all <input type="checkbox"/> 20	Slightly <input type="checkbox"/> 15	Moderately <input type="checkbox"/> 10	Quite a lot <input type="checkbox"/> 5	Extremely <input type="checkbox"/> 0	
4	During the <u>past 3 months</u> , how often did you need to treat your child's breathing problems (wheezing, coughing, shortness of breath) with quick-relief medications (albuterol, Ventolin®, Proventil®, Maxair®, ProAir®, Xopenex®, or Primatene® Mist)?	Not at all <input type="checkbox"/> 20	Once or twice <input type="checkbox"/> 15	Once every week <input type="checkbox"/> 10	2 or 3 times a week <input type="checkbox"/> 5	4 or more times a week <input type="checkbox"/> 0	
5	During the <u>past 12 months</u> , how often did your child need to take oral corticosteroids (prednisone, prednisolone, Orapred®, Prelone®, or Decadron®) for breathing problems not controlled by other medications?	Never <input type="checkbox"/> 20	Once <input type="checkbox"/> 15	Twice <input type="checkbox"/> 10	3 times <input type="checkbox"/> 5	4 or more times <input type="checkbox"/> 0	

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Total

Please see reverse side for an explanation of what your child's total TRACK score means.

What does your child's TRACK score mean?

If your child's score is

Less than 80

Your child's breathing problems may not be under control

- Make sure you are following the treatment recommendations given to you by your child's health care provider
- Talk with your child's health care provider about reasons why your child's breathing problems may not be under control
- Ask your child's health care provider what steps might be taken to improve your child's respiratory and asthma control in order to reduce daytime and nighttime symptoms and to reduce the need to use quick-relief medications

If your child's score is

80 or more

Your child's breathing problems seem to be under control

- Monitor your child's breathing problems on a regular basis and bring any concerns to the attention of his or her health care provider. Even though your child may not have breathing problems right now, these can come and go at any time
- Continue talking with the health care provider about your child's progress and which treatment plan is right for your child
- Good respiratory and asthma control can help your child sleep better, participate in everyday activities, and suffer fewer recurring flare-ups of breathing problems

Talk to your child's health care provider about your child's TRACK score

The American Academy of Pediatrics (AAP) Quality Improvement Innovation Network (QIIN) participated in the validation of this tool



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Pediatric/Adolescent Asthma Therapy Assessment Questionnaire

Patient Name: _____ Appendix E

ID Number: _____

Physician Name: _____ Date: _____

Please have the parent or guardian complete this questionnaire.

INSTRUCTIONS: Check 1 answer to each question and enter point value (0 or 1) on line

Control Issues Other Issues

1. In the past 4 weeks, did your child:

- | | | | |
|--|----------------------------------|---------------------------------|-------------------------------------|
| a) Have wheezing or difficulty breathing when exercising? | <input type="checkbox"/> Yes (1) | <input type="checkbox"/> No (0) | <input type="checkbox"/> Unsure (1) |
| b) Have wheezing during the day when not exercising? | <input type="checkbox"/> Yes (1) | <input type="checkbox"/> No (0) | <input type="checkbox"/> Unsure (1) |
| c) Wake up at night with wheezing or difficulty breathing? | <input type="checkbox"/> Yes (1) | <input type="checkbox"/> No (0) | <input type="checkbox"/> Unsure (1) |
| d) Miss days of school because of his/her asthma? | <input type="checkbox"/> Yes (1) | <input type="checkbox"/> No (0) | <input type="checkbox"/> Unsure (1) |
| e) Miss any daily activities (such as playing, going to a friend's house, or any family activity) because of asthma? | <input type="checkbox"/> Yes (1) | <input type="checkbox"/> No (0) | <input type="checkbox"/> Unsure (1) |

2. Does your child use an inhaler or a nebulizer for quick relief from asthma symptoms?*

☐ Yes ☐ No ☐ Unsure

(If Yes) In the past 4 weeks, what was the greatest number of times in 1 day your child used this inhaler/nebulizer?

- | | | | |
|--------|-------------------------------|--------------------------|------------------------------|
| 0 | <input type="checkbox"/> (0) | 5 to 6 | <input type="checkbox"/> (1) |
| 1 to 2 | <input type="checkbox"/> (0) | More than 6 | <input type="checkbox"/> (1) |
| 3 to 4 | <input type="checkbox"/> (1)* | Enter score _____ | |

3. Has your child ever had a prescription for an asthma medicine that is NOT used for quick relief but is used to control his/her asthma?

☐ Yes ☐ No ☐ Unsure

(If Yes or Unsure) What best describes how your child takes this medicine now?

- | | | | |
|--|------------------------------|--|------------------------------|
| Takes it every day | <input type="checkbox"/> (0) | Only takes it when he/she has symptoms | <input type="checkbox"/> (1) |
| Takes it some days, but not other days | <input type="checkbox"/> (1) | Never takes it | <input type="checkbox"/> (1) |
| Used to take it, but now does not | <input type="checkbox"/> (1) | Enter score _____ | |

4. Are you dissatisfied with any part of your child's current asthma treatment?

☐ Yes (1) ☐ No (0) ☐ Unsure (1)

5. Do you believe that:

- | | | | |
|---|----------------------------------|---------------------------------|-------------------------------------|
| a) Your child's asthma was well controlled in the past 4 weeks? | <input type="checkbox"/> Yes (0) | <input type="checkbox"/> No (1) | <input type="checkbox"/> Unsure (1) |
| b) Your child is able to take his/her asthma medicine(s) as directed? | <input type="checkbox"/> Yes (0) | <input type="checkbox"/> No (1) | <input type="checkbox"/> Unsure (1) |
| c) Your child's medicine(s) is useful for controlling his/her asthma? | <input type="checkbox"/> Yes (0) | <input type="checkbox"/> No (1) | <input type="checkbox"/> Unsure (1) |

6. During this office visit, would you like the doctor to discuss:

- | | |
|---|------------------------------|
| a) Different types of drugs available to control asthma? | <input type="checkbox"/> (1) |
| b) Your child's asthma treatment options? | <input type="checkbox"/> (1) |
| c) How your child prefers to take his/her asthma medicine(s)? | <input type="checkbox"/> (1) |
| d) Other issues? | <input type="checkbox"/> (1) |

Enter score _____

Add numbers in the light blue area and enter total SCORE here.

Add numbers in the dark blue area and enter total SCORE here.

If either SCORE is 1 or greater, discuss questionnaire with your doctor.

TOTAL _____
TOTAL _____

*This reflects a lower threshold to identify potential control problems than was used in the ATAQ validation studies. This modification was designed to encourage patients and providers to discuss how asthma medications are being used.



Asthma Therapy Assessment Questionnaire*

**Take a step toward control****ADULT**
(18 YEARS OR OLDER)

Patient's name: _____

ID number: _____

Physician's name: _____ Date: _____

Instructions: Check 1 answer for each question and enter point value (0 or 1) on line. _____**1. In the *past 4 weeks*, did you:**

a. Miss any work, school, or normal daily activity because of your asthma?

☐ Yes (1) ☐ No (0) ☐ Unsure (1)

b. Wake up at night because of asthma?

☐ Yes (1) ☐ No (0) ☐ Unsure (1)

c. Believe that your asthma was well controlled?

☐ Yes (0) ☐ No (1) ☐ Unsure (1)**2. Do you use an inhaler for *quick relief* from asthma symptoms?**☐ Yes ☐ No ☐ UnsureIf yes, in the **past 4 weeks**, what was the **highest number of puffs in 1 day** you took of the inhaler?☐ 0 (0)☐ 9 to 12 puffs (1)[†]☐ 1 to 4 puffs (0)☐ More than 12 puffs (1)☐ 5 to 8 puffs (1)[†]

Enter score _____

Add the numbers in the blue area and enter the total score here.**TOTAL** _____**If the score is 1 or greater, discuss the questionnaire with your doctor.**

*The control domain is 1 domain of the ATAQ instrument. Other disease management domains are included in the complete instrument.

[†]This reflects a lower threshold than was used in the ATAQ validation studies to identify potential control problems. This modification was designed to encourage patients and providers to discuss how asthma medications are being used.

20850556(5)-04/08-SNG

Patient: Detach here and keep this part.

Continue to monitor your asthma control at **asthmacontrolcheck.com**

For: _____ Doctor: _____ Date: _____
 Doctor's Phone Number _____ Hospital/Emergency Department Phone Number _____

GREEN ZONE

Doing Well

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

And, if a peak flow meter is used,

Peak flow: more than _____
 (80 percent or more of my best peak flow)

My best peak flow is: _____

Take these long-term control medicines each day (include an anti-inflammatory).

Medicine	How much to take	When to take it
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Before exercise	<input type="checkbox"/> _____ <input type="checkbox"/> 2 or <input type="checkbox"/> 4 puffs _____	5 minutes before exercise

YELLOW ZONE

Asthma Is Getting Worse

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

-Or-

Peak flow: _____ to _____
 (50 to 79 percent of my best peak flow)



Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.

_____ ☐ 2 or ☐ 4 puffs, every 20 minutes for up to 1 hour
 (short-acting beta₂-agonist) ☐ Nebulizer, once



If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:

☐ Continue monitoring to be sure you stay in the green zone.

-Or-

If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

☐ Take: _____ ☐ 2 or ☐ 4 puffs or ☐ Nebulizer

☐ Add: _____ mg per day For _____ (3–10) days

(oral steroid)

☐ Call the doctor ☐ before/ ☐ within _____ hours after taking the oral steroid.

RED ZONE

Medical Alert!

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone

-Or-

Peak flow: less than _____
 (50 percent of my best peak flow)

Take this medicine:

☐ _____ ☐ 4 or ☐ 6 puffs or ☐ Nebulizer
 (short-acting beta₂-agonist)

☐ _____ mg
 (oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

DANGER SIGNS ■ Trouble walking and talking due to shortness of breath

■ Lips or fingernails are blue



■ Take ☐ 4 or ☐ 6 puffs of your quick-relief medicine AND

■ Go to the hospital or call for an ambulance _____ **NOW!**
 (phone)

See the reverse side for things you can do to avoid your asthma triggers.

How To Control Things That Make Your Asthma Worse

This guide suggests things you can do to avoid your asthma triggers. Put a check next to the triggers that you know make your asthma worse and ask your doctor to help you find out if you have other triggers as well. Then decide with your doctor what steps you will take.

Allergens

☐ Animal Dander

Some people are allergic to the flakes of skin or dried saliva from animals with fur or feathers.

The best thing to do:

- Keep furred or feathered pets out of your home.

If you can't keep the pet outdoors, then:

- Keep the pet out of your bedroom and other sleeping areas at all times, and keep the door closed.
- Remove carpets and furniture covered with cloth from your home. If that is not possible, keep the pet away from fabric-covered furniture and carpets.

☐ Dust Mites

Many people with asthma are allergic to dust mites. Dust mites are tiny bugs that are found in every home—in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items.

Things that can help:

- Encase your mattress in a special dust-proof cover.
- Encase your pillow in a special dust-proof cover or wash the pillow each week in hot water. Water must be hotter than 130° F to kill the mites. Cold or warm water used with detergent and bleach can also be effective.
- Wash the sheets and blankets on your bed each week in hot water.
- Reduce indoor humidity to below 60 percent (ideally between 30—50 percent). Dehumidifiers or central air conditioners can do this.
- Try not to sleep or lie on cloth-covered cushions.
- Remove carpets from your bedroom and those laid on concrete, if you can.
- Keep stuffed toys out of the bed or wash the toys weekly in hot water or cooler water with detergent and bleach.

☐ Cockroaches

Many people with asthma are allergic to the dried droppings and remains of cockroaches.

The best thing to do:

- Keep food and garbage in closed containers. Never leave food out.
- Use poison baits, powders, gels, or paste (for example, boric acid). You can also use traps.
- If a spray is used to kill roaches, stay out of the room until the odor goes away.

☐ Indoor Mold

- Fix leaky faucets, pipes, or other sources of water that have mold around them.
- Clean moldy surfaces with a cleaner that has bleach in it.

☐ Pollen and Outdoor Mold

What to do during your allergy season (when pollen or mold spore counts are high):

- Try to keep your windows closed.
- Stay indoors with windows closed from late morning to afternoon, if you can. Pollen and some mold spore counts are highest at that time.
- Ask your doctor whether you need to take or increase anti-inflammatory medicine before your allergy season starts.

Irritants

☐ Tobacco Smoke

- If you smoke, ask your doctor for ways to help you quit. Ask family members to quit smoking, too.
- Do not allow smoking in your home or car.

☐ Smoke, Strong Odors, and Sprays

- If possible, do not use a wood-burning stove, kerosene heater, or fireplace.
- Try to stay away from strong odors and sprays, such as perfume, talcum powder, hair spray, and paints.

Other things that bring on asthma symptoms in some people include:

☐ Vacuum Cleaning

- Try to get someone else to vacuum for you once or twice a week, if you can. Stay out of rooms while they are being vacuumed and for a short while afterward.
- If you vacuum, use a dust mask (from a hardware store), a double-layered or microfilter vacuum cleaner bag, or a vacuum cleaner with a HEPA filter.

☐ Other Things That Can Make Asthma Worse

- Sulfites in foods and beverages: Do not drink beer or wine or eat dried fruit, processed potatoes, or shrimp if they cause asthma symptoms.
- Cold air: Cover your nose and mouth with a scarf on cold or windy days.
- Other medicines: Tell your doctor about all the medicines you take. Include cold medicines, aspirin, vitamins and other supplements, and nonselective beta-blockers (including those in eye drops).



CAHPS[®] Clinician & Group Surveys

Version: 12-Month Survey with Patient-Centered Medical Home (PCMH) Items

Population: Child

Language: English

Response Scale: 4 points

Notes

- Expanding on the 12-Month Survey:** This survey combines the Clinician & Group 12-Month Survey with the Patient-Centered Medical Home Item Set to address the domains of the medical home. The PCMH supplemental items are highlighted in yellow.
 Survey users may add more questions to this survey. A document with supplemental items developed by the CAHPS Consortium and descriptions of major item sets are available at: **Clinician & Group Surveys and Instructions** (<https://www.cahps.ahrq.gov/Surveys-Guidance/CG/Get-Surveys-and-Instructions.aspx>).
- References to “this provider” rather than “this doctor:”** This survey uses “this provider” to refer to the individual specifically named in Question 1. A “provider” could be a doctor, nurse practitioner, physician assistant, or other individual who provides clinical care. Survey users may change “provider” to “doctor” throughout the questionnaire. For guidance, please see **Preparing a Questionnaire Using the CAHPS Clinician & Group Surveys** (https://www.cahps.ahrq.gov/Surveys-Guidance/CG/~media/Files/SurveyDocuments/CG/12%20Month/Admin_Survey/1032_cg_preparing_a_questionnaire.pdf).
- Never-to-Always response scale:** This survey employs a 4-point response scale – “Never/Sometimes/Usually/Always” – which is the standard frequency scale for CAHPS surveys. The CAHPS Consortium is currently awaiting National Quality Forum (NQF) review and endorsement of this 2.0 version of the survey with a 4-point scale.



File name: 1354a_Child_12mo_with_PCMH_20.docx
 Last updated: September 1, 2011

Instructions for Front Cover

- Replace the cover of this document with your own front cover. Include a user-friendly title and your own logo.
- Include this text regarding the confidentiality of survey responses:

Your Privacy is Protected. All information that would let someone identify you or your family will be kept private. {VENDOR NAME} will not share your personal information with anyone without your OK. Your responses to this survey are also completely **confidential**. You may notice a number on the cover of the survey. This number is used **only** to let us know if you returned your survey so we don't have to send you reminders.

Your Participation is Voluntary. You may choose to answer this survey or not. If you choose not to, this will not affect the health care you get.

What To Do When You're Done. Once you complete the survey, place it in the envelope that was provided, seal the envelope, and return the envelope to [INSERT VENDOR ADDRESS].

If you want to know more about this study, please call XXX-XXX-XXXX.

Instructions for Format of Questionnaire

Proper formatting of a questionnaire improves response rates, the ease of completion, and the accuracy of responses. The CAHPS team's recommendations include the following:

- If feasible, insert blank pages as needed so that the survey instructions (see next page) and the first page of questions start on the right-hand side of the questionnaire booklet.
- Maximize readability by using two columns, serif fonts for the questions, and ample white space.
- Number the pages of your document, but remove the headers and footers inserted to help sponsors and vendors distinguish among questionnaire versions.

Additional guidance is available in **Preparing a Questionnaire Using the CAHPS Clinician & Group Survey** (https://www.cahps.ahrq.gov/Surveys-Guidance/CG/~media/Files/SurveyDocuments/CG/12%20Month/Admin_Survey/1032_cg_preparing_a_questionnaire.pdf).

Survey Instructions

Answer each question by marking the box to the left of your answer.

You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☒ Yes → **If Yes, go to #1 on page 1**

☐ No

Please answer the questions for the child listed on the envelope. Please do not answer for any other children.

Your Child's Provider

1. Our records show that your child got care from the provider named below in the last 12 months.

Name of provider label goes here

Is that right?

¹ ☐ Yes

² ☐ No → **If No, go to #55 on page 7**

The questions in this survey will refer to the provider named in Question 1 as "this provider." Please think of that person as you answer the survey.

2. Is this the provider you usually see if your child needs a check-up or gets sick or hurt?

¹ ☐ Yes

² ☐ No

3. How long has your child been going to this provider?

¹ ☐ Less than 6 months

² ☐ At least 6 months but less than 1 year

³ ☐ At least 1 year but less than 3 years

⁴ ☐ At least 3 years but less than 5 years

⁵ ☐ 5 years or more

Your Child's Care From This Provider in the Last 12 Months

These questions ask about **your child's** health care. Do **not** include care your child got when he or she stayed overnight in a hospital. Do **not** include the times your child went for dental care visits.

4. In the last 12 months, how many times did your child visit this provider for care?

☐ None → **If None, go to #55 on page 7**

☐ 1 time

☐ 2

☐ 3

☐ 4

☐ 5 to 9

☐ 10 or more times

5. In the last 12 months, did you ever stay in the exam room with your child during a visit to this provider?

¹ ☐ Yes → **If Yes, go to #7**

² ☐ No

6. Did this provider give you enough information about what was discussed during the visit when you were not there?

¹ ☐ Yes → **If Yes, go to #10**

² ☐ No → **If No, go to #10**

7. Is your child able to talk with providers about his or her health care?

¹ ☐ Yes

² ☐ No → **If No, go to #10**

8. In the last 12 months, how often did this provider explain things in a way that was easy for **your child** to understand?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

9. In the last 12 months, how often did this provider listen carefully to **your child**?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

10. Did this provider tell you that you needed to do anything to follow up on the care your child got during the visit?

¹ ☐ Yes
² ☐ No → **If No, go to #12**

11. Did this provider give you enough information about what you needed to do to follow up on your child's care?

¹ ☐ Yes
² ☐ No

12. In the last 12 months, did you phone this provider's office to get an appointment for your child for an illness, injury, or condition that **needed care right away**?

¹ ☐ Yes
² ☐ No → **If No, go to #15**

13. In the last 12 months, when you phoned this provider's office to get an appointment for care your child **needed right away**, how often did you get an appointment as soon as your child needed?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

14. In the last 12 months, how many days did you usually have to wait for an appointment when your child **needed care right away**?

☐ Same day
☐ 1 day
☐ 2 to 3 days
☐ 4 to 7 days
☐ More than 7 days

15. In the last 12 months, did you make any appointments for a **check-up or routine care** for your child with this provider?

¹ ☐ Yes
² ☐ No → **If No, go to #17**

16. In the last 12 months, when you made an appointment for a **check-up or routine care** for your child with this provider, how often did you get an appointment as soon as your child needed?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

17. Did this provider's office give you information about what to do if your child needed care during evenings, weekends, or holidays?

¹ ☐ Yes

² ☐ No

18. In the last 12 months, did your child need care during evenings, weekends, or holidays?

¹ ☐ Yes

² ☐ No → **If No, go to #20**

19. In the last 12 months, how often were you able to get the care your child needed from this provider's office during evenings, weekends, or holidays?

¹ ☐ Never

² ☐ Sometimes

³ ☐ Usually

⁴ ☐ Always

20. In the last 12 months, did you phone this provider's office with a medical question about your child during regular office hours?

¹ ☐ Yes

² ☐ No → **If No, go to #22**

21. In the last 12 months, when you phoned this provider's office during regular office hours, how often did you get an answer to your medical question that same day?

¹ ☐ Never

² ☐ Sometimes

³ ☐ Usually

⁴ ☐ Always

22. In the last 12 months, did you phone this provider's office with a medical question about your child **after** regular office hours?

¹ ☐ Yes

² ☐ No → **If No, go to #24**

23. In the last 12 months, when you phoned this provider's office **after** regular office hours, how often did you get an answer to your medical question as soon as you needed?

¹ ☐ Never

² ☐ Sometimes

³ ☐ Usually

⁴ ☐ Always

24. Some offices remind patients between visits about tests, treatment, or appointments. In the last 12 months, did you get any reminders about your child's care from this provider's office between visits?

¹ ☐ Yes

² ☐ No

25. Wait time includes time spent in the waiting room and exam room. In the last 12 months, how often did your child see this provider **within 15 minutes** of his or her appointment time?

¹ ☐ Never

² ☐ Sometimes

³ ☐ Usually

⁴ ☐ Always

26. In the last 12 months, how often did this provider explain things about your child's health in a way that was easy to understand?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

27. In the last 12 months, how often did this provider listen carefully to you?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

28. In the last 12 months, did you and this provider talk about any questions or concerns you had about your child's health?

¹ ☐ Yes
² ☐ No → **If No, go to #30**

29. In the last 12 months, how often did this provider give you easy to understand information about these health questions or concerns?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

30. In the last 12 months, how often did this provider seem to know the important information about your child's medical history?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

31. In the last 12 months, how often did this provider show respect for what you had to say?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

32. In the last 12 months, how often did this provider spend enough time with your child?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

33. In the last 12 months, did this provider order a blood test, x-ray, or other test for your child?

¹ ☐ Yes
² ☐ No → **If No, go to #35**

34. In the last 12 months, when this provider ordered a blood test, x-ray, or other test for your child, how often did someone from this provider's office follow up to give you those results?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

35. Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?

☐ 0 Worst provider possible
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7
☐ 8
☐ 9
☐ 10 Best provider possible

36. Specialists are doctors like surgeons, heart doctors, allergy doctors, skin doctors, and other doctors who specialize in one area of health care. In the last 12 months, did your child see a specialist for a particular health problem?

¹ ☐ Yes
² ☐ No → If No, go to #38

37. In the last 12 months, how often did the provider named in Question 1 seem informed and up-to-date about the care your child got from specialists?

¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

Please answer these questions about the provider named in Question 1 of this survey.

38. In the last 12 months, did you and anyone in this provider's office talk about your child's learning ability?

¹ ☐ Yes
² ☐ No

39. In the last 12 months, did you and anyone in this provider's office talk about the kinds of behaviors that are normal for your child at this age?

¹ ☐ Yes
² ☐ No

40. In the last 12 months, did you and anyone in this provider's office talk about how your child's body is growing?

¹ ☐ Yes
² ☐ No

41. In the last 12 months, did you and anyone in this provider's office talk about your child's moods and emotions?

¹ ☐ Yes
² ☐ No

- 42.** In the last 12 months, did you and anyone in this provider's office talk about things you can do to keep your child from getting injured?

¹ ☐ Yes

² ☐ No

- 43.** In the last 12 months, did anyone in this provider's office give you information about how to keep your child from getting injured?

¹ ☐ Yes

² ☐ No

- 44.** In the last 12 months, did you and anyone in this provider's office talk about how much time your child spends on a computer and in front of a TV?

¹ ☐ Yes

² ☐ No

- 45.** In the last 12 months, did you and anyone in this provider's office talk about how much or what kind of food your child eats?

¹ ☐ Yes

² ☐ No

- 46.** In the last 12 months, did you and anyone in this provider's office talk about how much or what kind of exercise your child gets?

¹ ☐ Yes

² ☐ No

- 47.** In the last 12 months, did you and anyone in this provider's office talk about how your child gets along with others?

¹ ☐ Yes

² ☐ No

- 48.** In the last 12 months, did you and anyone in this provider's office talk about whether there are any problems in your household that might affect your child?

¹ ☐ Yes

² ☐ No

- 49.** In the last 12 months, did anyone in this provider's office talk with you about specific goals for your child's health?

¹ ☐ Yes

² ☐ No

- 50.** In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of your child's health?

¹ ☐ Yes

² ☐ No

- 51.** In the last 12 months, did your child take any prescription medicine?

¹ ☐ Yes

² ☐ No → If No, go to #53

- 52.** In the last 12 months, did you and anyone in this provider's office talk at each visit about all the prescription medicines your child was taking?

¹ ☐ Yes

² ☐ No

Clerks and Receptionists at This Provider's Office

53. In the last 12 months, how often were clerks and receptionists at this provider's office as helpful as you thought they should be?

- ¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

54. In the last 12 months, how often did clerks and receptionists at this provider's office treat you with courtesy and respect?

- ¹ ☐ Never
² ☐ Sometimes
³ ☐ Usually
⁴ ☐ Always

About Your Child and You

55. In general, how would you rate your child's overall health?

- ¹ ☐ Excellent
² ☐ Very Good
³ ☐ Good
⁴ ☐ Fair
⁵ ☐ Poor

56. In general, how would you rate your child's overall **mental or emotional** health?

- ¹ ☐ Excellent
² ☐ Very Good
³ ☐ Good
⁴ ☐ Fair
⁵ ☐ Poor

57. What is **your child's** age?

☐ Less than 1 year old

_____ YEARS OLD (*write in*)

58. Is your child male or female?

- ¹ ☐ Male
² ☐ Female

59. Is your child of Hispanic or Latino origin or descent?

- ¹☐ Yes, Hispanic or Latino
²☐ No, not Hispanic or Latino

60. What is your child's race? Mark one or more.

- ¹☐ White
²☐ Black or African American
³☐ Asian
⁴☐ Native Hawaiian or Other Pacific Islander
⁵☐ American Indian or Alaska Native
⁶☐ Other

61. What is **your** age?

- ☐ Under 18
☐ 18 to 24
☐ 25 to 34
☐ 35 to 44
☐ 45 to 54
☐ 55 to 64
☐ 65 to 74
☐ 75 or older

62. Are you male or female?

- ¹☐ Male
²☐ Female

63. What is the highest grade or level of school that you have completed?

- ¹☐ 8th grade or less
²☐ Some high school, but did not graduate
³☐ High school graduate or GED
⁴☐ Some college or 2-year degree
⁵☐ 4-year college graduate
⁶☐ More than 4-year college degree

64. How are you related to the child?

- ¹☐ Mother or father
²☐ Grandparent
³☐ Aunt or uncle
⁴☐ Older brother or sister
⁵☐ Other relative
⁶☐ Legal guardian
⁷☐ Someone else

Please print: _____

65. Did someone help you complete this survey?

¹ ☐ Yes

² ☐ No → **Thank you.**

Please return the completed survey in the postage-paid envelope.

66. How did that person help you? Mark one or more.

¹ ☐ Read the questions to me

² ☐ Wrote down the answers I gave

³ ☐ Answered the questions for me

⁴ ☐ Translated the questions into my language

⁵ ☐ Helped in some other way

Please print: _____

Thank you

Please return the completed survey in the postage-paid envelope.