Primary Care Connection After Emergency Department Visits for Asthma

Section 1. Basic Measure Information

1.A. Measure Name

Primary Care Connection After Emergency Department Visits for Asthma

1.B. Measure Number

0137

1.C. Measure Description

Please provide a non-technical description of the measure that conveys what it measures to a broad audience.

This measure seeks to capture important aspects of follow-up after emergency department (ED) visits for asthma, including prompt follow-up with primary care clinicians and prescription fills for controller medications.

1.D. Measure Owner

Collaboration for Advancing Pediatric Quality Measures (CAPQuaM).

1.E. National Quality Forum (NQF) ID (if applicable)

Not applicable.

1.F. Measure Hierarchy

Please note here if the measure is part of a measure hierarchy or is part of a measure group or composite measure.

1. **Please identify the name of the collection of measures to which the measure belongs (if applicable). A collection is the highest possible level of the measure hierarchy. A collection may contain one or more sets, subsets, composites, and/or individual measures.**

   This measure belongs to the PQMP CAPQuaM Measures of Emergency Department Use for Children with Asthma – Process I Collection.

2. **Please identify the name of the measure set to which the measure belongs (if applicable). A set is the second level of the hierarchy. A set may include one or more subsets, composites, and/or individual measures.**

   This measure belongs to the PQMP CAPQuaM Measures of Emergency Department Use for Children with Asthma – Connection Measure Set.

3. **Please identify the name of the subset to which the measure belongs (if applicable). A subset is the third level of the hierarchy. A subset may include one or more composites, and/or individual measures.**

   Not applicable.

4. **Please identify the name of the composite measure to which the measure belongs (if applicable). A composite is a measure with a score that is an aggregate of scores from other measures. A composite may include one or more other composites and/or individual measures. Composites may comprise component measures that can or cannot be used on their own.**

   Not applicable.

1.G. Numerator Statement

Evidence of connection to the primary care medical system following ED visits that have a primary or secondary diagnosis of asthma among children, overall and stratified by whether the child had identifiable asthma at the time of the ED visit.

Numerator Elements:

1. Visit(s) to a primary care provider that occurred within 14 days following the ED visit.
2. Visit(s) to a primary care provider that occurred within 30 days following the ED visit.
3. At least one fill of an asthma controller medication within 2 months after the ED visit (including the day of visit).

1.H. Numerator Exclusions

Events occurring in patients who meet numerator but not denominator criteria (including 2 months of continuous enrollment following the month in which the ED visit occurred (minimum is 3 months total).

1.I. Denominator Statement

All ED visits in which asthma was a primary or secondary diagnosis, identified using the technical specifications for this measure (see Supporting Documents), in children who are continuously enrolled for at least the 2 months following the ED visit.

1.J. Denominator Exclusions

- Children with concurrent or pre-existing: Chronic Obstructive Pulmonary Disease (COPD) diagnosis (ICD 9 Code: 496); Cystic Fibrosis diagnosis (ICD-9 code 277.0, 277.01. 277.02, 277.03, 277.09); Emphysema diagnosis (ICD-9 code 492xx).
- Children who have not been consecutively enrolled with the reporting entity for at least 2 months following the ED visit.
- Children who do not meet the denominator criteria.

1.K. Data Sources

Check all the data sources for which the measure is specified and tested.

Administrative data (e.g., claims data).

If other, please list all other data sources in the field below.

Not applicable.

Section 2: Detailed Measure Specifications

Provide sufficient detail to describe how a measure would be calculated from the recommended data sources, uploading a separate document (+ Upload attachment) or a link to a URL. Examples of detailed measure specifications can be found in the CHIPRA Initial Core Set Technical Specifications Manual 2011 published by the Centers for Medicare & Medicaid Services. Although submission of formal programming code or algorithms that demonstrate how a measure would be calculated from a query of an appropriate electronic data source are not requested at this time, the availability of these resources may be a factor in determining whether a measure can be recommended for use.

See Supporting Documents for detailed technical specifications.

Section 3. Importance of the Measure

In the following sections, provide brief descriptions of how the measure meets one or more of the following criteria for measure importance (general importance, importance to Medicaid and/or CHIP, complements or enhances an existing measure). Include references related to specific points made in your narrative (not a free-form listing of citations).

3.A. Evidence for General Importance of the Measure

Provide evidence for all applicable aspects of general importance:

- **Addresses a known or suspected quality gap and/or disparity in quality (e.g., addresses a socioeconomic disparity, a racial/ethnic disparity, a disparity for**

Children with Special Health Care Needs (CSHCN), a disparity for limited English proficient (LEP) populations).

- **Potential for quality improvement (i.e., there are effective approaches to reducing the quality gap or disparity in quality).**
- **Prevalence of condition among children under age 21 and/or among pregnant women.**
- **Severity of condition and burden of condition on children, family, and society (unrelated to cost).**
- **Fiscal burden of measure focus (e.g., clinical condition) on patients, families, public and private payers, or society more generally, currently and over the life span of the child.**
- **Association of measure topic with children's future health – for example, a measure addressing childhood obesity may have implications for the subsequent development of cardiovascular diseases.**
- **The extent to which the measure is applicable to changes across developmental stages (e.g., infancy, early childhood, middle childhood, adolescence, young adulthood).**

Asthma matters for pediatrics (Bollinger, Mudd, Boldt, 2013; Cabana, 2005; Camargo, Ramachandran, Ryskina, et al., 2007; Cloutier, Hall, Wakefield, et al., 2005; de Blic, Ogorodova, Klink, et al., 2009; Kone, Rivard, Laurier, 2007; Lozano, Finkelstein, Carey, et al., 2004; Leickly, Wade, Crain, et al., 1998; National Asthma Education and Prevention Program [NAEPP], 2007; Nino, Grunstein, 2010; Samnaliev, Baxter, Clark, 2009; Stanford, Shah, D'Souzza, 2013; Tan, Sarawate, Singer, et al., 2009). It is one of the most common chronic conditions among children. It is also the second most common reason (after allergies) for children to be classified as having a special healthcare need, accounting for nearly 38.8 percent of such children. Using national estimates from the Federal Healthcare Cost and Utilization Project (HCUP) data for 2009, children between the ages of 1 and 17 had more than 673,000 of the 1.9 million emergency department (ED) visits with asthma as the first diagnosis; almost 11 percent (or >71,000) of these pediatric visits resulted in hospitalization (Barrett, Wier, Washington, 2014). Our analysis of New York State Medicaid data for 2011-2012 confirmed that ED visits for asthma are all too common, and that they vary by age, race, and ethnicity. ED visits are often linked to the management of a child's asthma.

The Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare & Medicaid Services (CMS) assigned to CAPQuaM the topic of overuse of the ED for asthma for measure development. Within this topic we developed a conceptual model that articulates a series of dichotomies. Children are either sick enough that the ED is an appropriate level of care or they are not. If they are not, they may be there because of reasons that are primarily attributable to the healthcare system (e.g., no available primary care after hours) or to the family (e.g., prefer the ED over an available primary care clinician). Among those who were sick enough to need the ED, their asthma was well managed prior to the visit or it was not. Among those whose asthma was not well managed before the ED visit, some will clearly have had

system reasons for the lack of management, and others will have family reasons. For many, the reasons will be multiple or unclear. While the model is developed around dichotomies, our work has demonstrated that the measurement of these constructs is more complicated. Although we are guided by the model, our measures depend upon the 360 degree method, including our expert panels to identify where we can make valid distinctions. Further, the research literature suggests that not having a primary care provider (PCP) visit for asthma maintenance, especially in instances where an ED visit is the end result, is a sign of poorly managed asthma (Kone, et al., 2007).

Two literature reviews as well as focused reviews that we have done to supplement the extensive review of the literature confirms the importance of an integrated approach to managing the healthcare of children with asthma. Primary care coordination can be critical: physicians who offer better communication, use and implementation of asthma action plans, and other primary care services can reduce asthma-related ED visits and hospitalizations compared to physicians who only prescribe appropriate asthma medication (Cabana, 2005). The action plan becomes a tool that leads the management of care and around which communications occur to improve asthma outcomes. Enhanced primary care has been noted to contribute to improvements in asthma care and better health for asthmatic children (Lozano, et al., 2004). Better primary care, including asthma action plans and appropriate prescribing, reduced ED visits substantially (Cloutier, et al., 2005).

Successful primary care for asthma requires visits with primary care providers and encourages adherence to appropriate medication regimens, specifically, filling prescriptions and using them properly (Bollinger, et al., 2013; Cabana, 2005; NAEPP, 2007; Camargo, et al., 2007; Leickly, et al., 1998; Samnaliev, et al., 2009). Tracking of prescription and pharmaceutical records to show if the asthma medications prescribed are being filled within the recommended amount of time is an accurate way to assess asthma care (Bollinger, et al., 2013; Camargo, et al., 2007; Leickly, et al., 1998). Prescription and use of controller medications or rescue medications are signs of well-managed asthma (Bollinger, et al., 2013; Brouwer, Brand, 2008; Burns, 2005; Cabana, 2005; Chipps, Murphy, 2005; Courtney, McCarter, Pollart, 2005; de Blic, et al., 2009; Farber, 2010; NAEPP, 2007; Nino, Grunstein, 2010; Stanford, et al., 2013; Tan, et al., 2009). Failures of asthma care management may lie with clinicians (e.g., by failure to prescribe appropriate medications), the broader system or context (e.g., when caregivers lack resources to purchase potentially valuable preventive medications such as an inhaled corticosteroid [ICS]), or the families (e.g., potentially through medication non-adherence, which can happen for a variety of reasons). Although a PCP may prescribe the combination of ICS and long-acting beta-agonist drugs as one of the more effective methods of asthma control, these prescriptions can go unfilled or not be refilled (Bollinger, et al., 2013). When prescriptions for both controller and rescue medications are not filled, it can be interpreted as a sign of poorly managed asthma and potentially a failure of the primary care clinician to educate or motivate patients (especially in circumstances such as Medicaid, where there are not profound financial barriers to medication fulfillment). Failure in adequate asthma management can also occur when children with asthma control their condition by relying too heavily on rescue medications as a method of management in preference to controller medications (Bollinger, et al., 2013). This also is another aspect that may relate to the issue of communication and the relationship between the primary care clinician

and the family. Our other connection measure (primary care connection before an ED visit: https://www.ahrq.gov/sites/default/files/wysiwyg/pqmp/measures/chronic/chipra-136-asthma-primary-care-report.pdf) builds from these principles.

After an exacerbation, follow-up with the PCP is central for ongoing management (Burns, 2004; Kripalani, LeFevre, Phillips, et al., 2007; Leickly, et al, 1998; Liberman, Shelef, He, et al., 2012; Mansour, 2009; Seid, 2008; Williams, Word, Streck, et al., 2013; Withy, Davis, 2008). If the child was in the ED and did not have a meaningful exacerbation, follow-up is critical to establish or re-establish the centrality of primary care for the management of the asthmatic child. The literature suggests that a PCP follow-up within 30 days of the ED discharge is important (Burns, 2004; Cabana, Bruckman, Bratton, 2003; Children's Health Council [CHC], 2002; Chipps, Murphy, 2005; Zorc, Sarfone, Li, et al., 2003). Recent literature has identified the potential contribution of the medical home to enhance primary pediatric asthma care (American Academy of Pediatrics [AAP], 2002; Cooley, McAllister, Sherrieb, et al., 2009; Diedhiou, Probst, Hardin, et al., 2010). The involvement of a PCP contributes to the maintenance and control of asthma symptoms and is a characteristic of well-managed asthma (Allcock, 2009; Diedhiou, et al., 2010; Greineder, Loane, Parks, 1995; Kone, et al., 2007; Mellon, Parasuraman, 2004; Newcomb, 2006; Sin, Bell, Man, 2004; Yawn, 2011). Characteristics of sufficient primary care involvement may include having an identified site of regular care, an identified PCP, and regular PCP visits with asthma follow-up (Diedhiou, et al., 2010; Greineder, et al., 1995; Kone, et al., 2007; Newcomb, 2006; Sin, et al., 2004). The medical home model in primary care may contribute to positive outcomes in children with asthma (Auger, Kahn, Davis, et al., 2013; Cooley, et al., 2009; Homer, Klatka, Romm, et al., 2008). When children with asthma experience adequate management of chronic conditions and have access to coordinated care, a reduction in hospital rates is likely to occur; likewise, children who are linked to continuous care utilize less overall care, including ED care (Cooley, et al., 2009).

This measure captures connection with primary care after an ED visit. In an effective system of care, the ED would arrange for appropriate and prompt follow-up with a PCP for most patients who present with asthma in the ED. This is not typical in the United States or for Medicaid patients. Guided by our expert panel, this measure considers prompt follow-up with a PCP after an ED visit and filling a prescription for controller medication as suggestive that appropriate connections may have been made. Absence of these processes of care suggests insufficient coordination of care, especially in known asthmatics.

Finally, we note the importance of creating and implementing a new, innovative method to develop quality measures. This method allows for measure development amidst uncertainty. It engages scientists, clinicians, consumers, payers, and others in a defined process, even if not all areas of science related to a topic are firmly resolved. This is needed to foster accountability in large areas of practice for which science has not forged a consensus. By explicitly modeling evidence and uncertainty, the CAPQuaM process can open up new clinical areas for quality measurement.

3.B. Evidence for Importance of the Measure to Medicaid and/or CHIP

Comment on any specific features of this measure important to Medicaid and/or CHIP that are in addition to the evidence of importance described above, including the following:

- **The extent to which the measure is understood to be sensitive to changes in Medicaid or CHIP (e.g., policy changes, quality improvement strategies).**
- **Relevance to the Early and Periodic Screening, Diagnostic and Treatment benefit in Medicaid (EPSDT).**
- **Any other specific relevance to Medicaid/CHIP (please specify).**

Children with asthma comprise a critically important population of high interest to Medicaid. Low income urban minority children are an important component of this population.

Our analysis of National Survey of Children's Health (NSCH) 2011-2012 data estimates that 10.3 million children in the United States have been told that they have asthma. Of these children, 7.6 million live in more urban areas that are characterized as metropolitan statistical areas (MSAs), with an asthma prevalence rate of 15.4 percent. These data indicate that an absolute difference of 15.8 percent fewer parents of children with asthma report that child's health as very good or excellent compared to those with no asthma. Black or Latino children with asthma show an absolute difference of about 13 percent fewer with very good or excellent health compared to white children with asthma. Effective delivery of guideline-based care can reduce the gap and decrease consequences of uncontrolled asthma, such as ED use and hospitalizations; better asthma care is beneficial and needed across the spectrum of children and primary care settings (Bollinger, et al., 2013; Cloutier, et al., 2005; Cabana, 2005; Camargo, et al., 2007; Kone, et al., 2007; Lozano, et al., 2004; NAEPP, 2007). About 60 percent of children with asthma who use the ED are low income and have public insurance.

We have done extensive analysis of various approaches to identifying asthmatic children and counting ED visits using New York State Medicaid data. Depending upon specifics of definitional issues, we have found substantial numbers of children that can be identified as having asthma, with more than 196,000 found to have identifiable asthma in 2011 and nearly 60,000 ED visits for asthma by these eligible children. This is a substantial issue for New York State Medicaid and beyond. Its importance has been validated by a previous measure having been included as a core Medicaid measure (Mangione-Smith, Schiff, Dougherty, 2011). Our partners in the New York State Medicaid program have been instrumental in the development of this measure set.

The potential for racial and ethnic disparities is high; this is an important priority for Medicaid (Leickly, et al., 1998). The Survey for Children with Special Health Care Needs (CSHCN), conducted by the Centers for Disease Control and Prevention (CDC), and available at www.childhealthdata.org, showed that black children in particular, but also Hispanic children, are overrepresented with asthma. Thirty-eight percent of children with asthma have public insurance, and one-quarter (26 percent) live in households under the Federal poverty line (28 percent of these are under twice the Federal poverty line). Only 24 percent have incomes four times as high as the Federal poverty line. Nearly three-quarters of these children have at least one

sibling, and nearly one-third have a sibling who also has a special healthcare need, using HRSA's screening tool. Manice's careful analysis of the 2005-2006 survey from which these data are taken also found that racial minorities, a lower income, and lower household educational attainment were independent predictors of ED use among children with asthma (Manice, 2013). Our analysis of New York Medicaid data shows about a 2.5-fold increase in the rate of using the ED for non-Hispanic blacks when compared to non-Hispanic whites (non-Hispanic black > all Hispanic > non-Hispanic white > Asian).

3.C. Relationship to Other Measures (if any)

Describe, if known, how this measure complements or improves on an existing measure in this topic area for the child or adult population, or if it is intended to fill a specific gap in an existing measure category or topic. For example, the proposed measure may enhance an existing measure in the initial core set, it may lower the age range for an existing adult-focused measure, or it may fill a gap in measurement (e.g., for asthma care quality, inpatient care measures).

This measure is part of a measure set developed by CAPQuaM and intended to represent an enhancement to an existing measure in the Medicaid Core Measure Set that was developed by the Alabama Medicaid program. The old measure is a count of all ED visits with a diagnosis of asthma, whether or not the patient was known to be an asthmatic before the event. Numerator events alone can qualify children for inclusion in the denominator. Our partners in the New York State Medicaid program have described this characteristic as highly undesirable.

The decision not to require some evidence of asthma in advance of the numerator ED visit has advantages and disadvantages. The biggest advantage is that children for whom receiving any care is challenging are incorporated into the measure, adding a fundamental aspect of access to the measure. We perceive this to be a conflation of two concepts in related but non-identical populations. The two concepts are the management of children with asthma and access to care for children with asthma. The two populations are those children being treated for asthma and those children who have and/or develop asthma. We suggest that this argues for a direct measure of access or availability for children with asthma.

We have previously submitted two outcomes measures that provide:

- True epidemiological rate (in visits per 100 child years) of asthma among children who have used sufficient services for asthma that they may be reasonably concluded to have asthma requiring ongoing treatment.
- A count of the number of asthmatic children with ED visit distribution of how many ED visits each experiences for asthma.

The current measure provides a description of specific services that are related conceptually to primary care for asthma, considering connections after the ED visit for asthma. It is to be reported stratified by pre-existing asthma according to our specifications and indicates:

- Proportion of ED visits followed by a primary care appointment within 14 and 30 days; and
- Proportion of ED visits followed by a prescription fill for a controller medication within 2 months of the ED visit (including the day of the visit).

A previous measure considers connection to primary care before the ED visits (https://www.ahrq.gov/sites/default/files/wysiwyg/pqmp/measures/chronic/chipra-136-asthma-primary-care-report.pdf) and evaluates the proportion of first ED visits for asthma in the reporting year that are associated with:

- Visits to PCPs for asthma within 6 months prior to the first ED visit experienced by that child in the reporting year.
- Filling of a prescription for a rescue medication within a 1-year period before the ED visit.
- Filling a prescription for controller medication within a 6-month period before the ED visit.

These measures of connection with primary care are designed as floor rather than ceiling measures; that is, they capture a basic level of service that when not met may indicate insufficient primary care management of a child with asthma.

Section 4. Measure Categories

CHIPRA legislation requires that measures in the initial and improved core set, taken together, cover all settings, services, and topics of health care relevant to children. Moreover, the legislation requires the core set to address the needs of children across all ages, including services to promote healthy birth. Regardless of the eventual use of the measure, we are interested in knowing all settings, services, measure topics, and populations that this measure addresses. These categories are not exclusive of one another, so please indicate "Yes" to all that apply.

Does the measure address this category?

a. **Care Setting – ambulatory:** Yes.
b. **Care Setting – inpatient:** No.
c. **Care Setting – other – please specify:** No.
d. **Service – preventive health, including services to promote healthy birth:** No.
e. **Service – care for acute conditions:** Yes.
f. **Service – care for children with special health care needs/chronic conditions:** Yes.
g. **Service – other (please specify):** No.
h. **Measure Topic – duration of enrollment:** No.
i. **Measure Topic – clinical quality:** Yes.
j. **Measure Topic – patient safety:** No.
k. **Measure Topic – family experience with care:** No.
l. **Measure Topic – care in the most integrated setting:** No.
m. **Measure Topic other (please specify):** No.
n. **Population – pregnant women:** No.

o. **Population – neonates (28 days after birth) (specify age range):** No.
p. **Population – infants (29 days to 1 year) (specify age range):** No.
q. **Population – pre-school age children (1 year through 5 years) (specify age range):** Yes; ages 2-5 years.
r. **Population – school-aged children (6 years through 10 years) (specify age range):** Yes; ages 6-10 years.
s. **Population – adolescents (11 years through 20 years) (specify age range):** Yes; ages 11-20 years.
t. **Population – other (specify age range):** No.
u. **Other category (please specify):** Not applicable.

Section 5. Evidence or Other Justification for the Focus of the Measure

The evidence base for the focus of the measures will be made explicit and transparent as part of the public release of CHIPRA deliberations; thus, it is critical for submitters to specify the scientific evidence or other basis for the focus of the measure in the following sections.

5.A. Research Evidence

Research evidence should include a brief description of the evidence base for valid relationship(s) among the structure, process, and/or outcome of health care that is the focus of the measure. For example, evidence exists for the relationship between immunizing a child or adolescent (process of care) and improved outcomes for the child and the public. If sufficient evidence existed for the use of immunization registries in practice or at the State level and the provision of immunizations to children and adolescents, such evidence would support the focus of a measure on immunization registries (a structural measure).

Describe the nature of the evidence, including study design, and provide relevant citations for statements made. Evidence may include rigorous systematic reviews of research literature and high-quality research studies.

ED visits for children with identifiable asthma is an intermediate outcomes measure of intrinsic value. It represents utilization of expensive services. There is abundant evidence that ED visits are common, may be reduced through improved primary care or community-based interventions, and demonstrate disparities (Bollinger, et al., 2013; Burns, 2004; Cabana, 2005; Camargo, et al., 2007; Chips, Murphy, 2005; Cloutier, et al., 2005; Courtney, et al., 2005; de Blic, et al., 2009; Farber, 2010; Leickly, et al., 1998; Liberman, et al., 2012; Mansour, 2009; NAEPP, 2007; Nino, Grunstein, 2010; Samnaliev, et al., 2009; Stanford, et al., 2013; Tan, et al., 2009; Williams, et al., 2013; Withy, Davis, 2008). ED visits for asthma, with or without identifiable asthma at the time of the visit, is an important driver of utilization and costs and can serve as a trigger to integrate the child into the primary care system for comprehensive management, including asthma care (see Appendix in the Supporting Documents).

This measure and its specifications result from a formal development process that includes stakeholder input including: a parent focus group, The Mount Sinai Pediatrics Department's Parent Advisory Council, interviews with primary care clinicians, the CAPQuaM's multidisciplinary scientific team, a national multidisciplinary expert panel that established key clinical criteria, and a broad group of organizational stakeholders, including the New York State Medicaid Program.

The validity of our work has benefited from our use of a formal method, a pragmatic adaptation of the CAPQuaM 360 degree method. The method, as adapted to asthma and described in the next paragraph, was specifically designed to develop valid and reliable measures in the face of pragmatic epistemological uncertainty. That is, recognizing that practice extends well beyond the research base, we designed this method to allow us to develop reliable and valid state of the science measures, in part by explicitly modeling and accounting for uncertainties in the measure development and in part by the conceptualization and implementation of a Boundary Guideline (explained below). We have shared and refined this approach in a number of venues including within the PQMP, which comprises the various PQMP AHRQ-CMS CHIPRA Centers of Excellence, the State PQMP participants, and AHRQ and CMS participants. All presentations have invited dialogue and feedback. This work has been similarly presented at a number of Grand Rounds / weekly conferences in the New York-New Jersey area as well as to national/international audiences including the bioethics and children's health services communities. These latter venues include:

- 2012 Pediatric Academic Societies State of the Science Plenary Boston. This presentation is included in the Appendix (see Supporting Documents).
- 2012 Oxford-Mount Sinai Bioethics Consortium (Amsterdam).
- 2012 Child Health Services Research Interest Group at Academy Health (Orlando).

Feedback from these presentations was extremely positive. The Boundary Guideline construct generated particular enthusiasm. We asked the Bioethics Consortium to extrapolate the primum non nocere (first, do no harm) principle to apply regarding this aspect of performance measurement. We received strong feedback that not only is it ethical to measure using systematically developed measures (even in the context of some uncertainty), but that it is ethically preferable to use such measures compared with the alternative of providing care that is not assessed (and perhaps not assessable) because of residual uncertainty.

In the case of this measure, we can present both a systematically developed measure and evidence to support its use.

5.B. Clinical or Other Rationale Supporting the Focus of the Measure (optional)

Provide documentation of the clinical or other rationale for the focus of this measure, including citations as appropriate and available.

ED visits for asthma care are a common, costly, and potentially preventable health service that may serve as a marker for both insufficiency of primary care and insufficiency of clinical management of asthma by the partnership of the family and the healthcare team. (See detailed literature review in Appendix presented in the Supporting Documents.) Also, the current core measure on this topic has calculation/validity concerns in the State Medicaid programs. This suggests why CAPQuaM was assigned to develop this suite of measures for the PQMP by AHRQ-CMS.

Clinically, ongoing primary care with semi-annual or more frequent follow-up may prevent ED visits, as may the judicious use of rescue medications and the appropriate use of controller medications. Once an ED visit for asthma occurs, it may be considered a trigger that should stimulate prompt follow-up with a PCP, as well as ongoing management, often including controller medications. This outlines broadly the clinical importance of the current measure.

Section 6. Scientific Soundness of the Measure

Explain the methods used to determine the scientific soundness of the measure itself. Include results of all tests of validity and reliability, including description(s) of the study sample(s) and methods used to arrive at the results. Note how characteristics of other data systems, data sources, or eligible populations may affect reliability and validity.

6.A. Reliability

Reliability of the measure is the extent to which the measure results are reproducible when conditions remain the same. The method for establishing the reliability of a measure will depend on the type of measure, data source, and other factors.

Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., the Kappa statistic). Provide appropriate citations to justify methods.

The basis for the scientific soundness of this measure lies in the literature discussed above, in clinical expertise, and with administrative and encounter data. Though they have their limitations, these data types have been shown in multiple studies to be a reliable source of information for population level quality measurement. They are currently used for all of the analogous measures of which we are aware, including the current Core Measure.

Quality measures that can be calculated using administrative data have been shown to have higher rates of performance than indicated by a review of the medical record alone: claims data are more accurate for identifying services with a high likelihood of documentation due to reimbursement, such as physician visits, ED visits, hospitalizations, and reimbursed prescription drug use (Cabana, et al., 2003). While data systems and their contents are imperfect (Diamond, Rask, Kohler, 2001), it is well recognized that there are tradeoffs that need to be made and that both feasibility and accuracy are important considerations (Peabody, Luck, Jain, et al., 2004).

Most databases contain consistent elements, are available in a timely manner, provide information about large numbers of individuals, and are relatively inexpensive to obtain and use. Validity of many databases has been established, and their strengths and weaknesses relative to data abstracted from medical records and obtained via survey have been well-documented. Administrative data are supported, if not encouraged by Federal agencies, such as the National Institutes of Health (NIH), AHRQ, CMS, and the Department of Veterans Affairs (VA). CMS made clear to the participating AHRQ-CMS CHIPRA Centers of Excellence funded to develop measures in the Pediatric Quality Measures Program that it places a premium on feasibility when assessing those measures that it will most highly recommend to States to complete. The sources of data for the existing measure and other similar measures are typically based upon administrative data as well, providing consensual validation for the appropriate primary data source.

The use of 2 years of data to validate the diagnosis of asthma has been found to produce substantial agreement with patient surveys and improves performance over the use of 1 year of data (Chubak, Pocobelli, Weiss, 2012). Others have reported that using administrative databases to identify asthma is both sensitive and specific compared to review of the PCP's office chart (Virnig, McBean, 2001).

The constructs underlying these measures are:

- Identifying the subset of children who have had an ED visit for asthma and ensuring that they were enrolled for the 6 months following the month in which they had that visit.
- Specifying children whose utilization of services suggests that they have identifiable asthma as described in the technical specifications (see Supporting Documents).
- Identifying specific services that they received in specified time frames following their ED visit, including primary care visits and specified medications.

We have been guided in our definition of identifiable asthma by the results of a formal RAND/UCLA modified Delphi process conducted with a multidisciplinary panel of national experts, which included pediatricians, asthma specialists, a family physician, and ED physicians. The definitions were specified to allow their use with data elements that are typically available in electronic form to a responsible entity, such as a health plan or State Medicaid program.

Potential exceptions to this are elements such as zip code of residence and race and ethnicity of the child. We understand race and ethnicity are generally available from clinical charts as is zip code, and our work and the field converge on the idea that such structured abstraction of specific data is highly reliable. We have data from a feasibility study conducted at more than a dozen hospitals that demonstrates that these data elements are generally available in the chart, although the definition of race and ethnicity, as well as how it is determined, may vary by institution. Nonetheless, the CHIPRA legislation (2009) directs for measures to be capable of identifying disparities, and we have specified it to be so, despite concerns about potential reliability in the collection and assessment of race and ethnicity by healthcare-providing institutions and practices. We encourage the development of data systems that record parent reported race and

ethnicity and inclusion of these data in administrative data sets (which currently is done but is not universal).

As part of our validation process in the New York State Medicaid data, we assessed how stable various measures were to small changes in their specifications and have identified measures that we found to be robust to such changes and consistent with the recommendations of our Expert Panel.

6.B. Validity

Validity of the measure is the extent to which the measure meaningfully represents the concept being evaluated. The method for establishing the validity of a measure will depend on the type of measure, data source, and other factors.

Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., R2 for concurrent validity).

Note: The reliability section also contains information related to validity.

CAPQuaM's 360 degree method engages collaborators and partners and is informed by the literature. It seeks to have measures emerge from a systematic process. In developing the asthma method, we incorporate:

- A high level of engagement with partnered institutions and senior advisors that include a wide diversity of stakeholders.
- A detailed literature review, updated and supplemented as needed.
- A focus group with parents, using a guide informed by conversation with an existing Family Advisory Council at Mount Sinai Medical Center.
- Interviews with clinicians (family physicians, pediatricians, and ED specialists).
- The CAPQuaM scientific team: ED physician; internist asthma expert; pediatricians (primary care, pulmonology, ED); social workers; pediatrician-child psychiatrist expert in patient adherence; and experts in patient safety, quality measurement and improvement, and public health.
- Geographically diverse, multidisciplinary expert panel who participated in a 2-Round RAND/UCLA modified Delphi process, with enhanced follow-up.
- Development of a Boundary Guideline that simultaneously accounts for a variety of gradients, including gradients of importance, relevance, and certainty, as appropriate to the construct being represented.
- Specification and review of approaches to measurement by stakeholders and experts.
- Testing and assessment of measure performance to the extent feasible given resources and available time.

From previous submissions we incorporate the definition of children with identifiable asthma. The denominator for this measure is children with an ED visit or hospitalization for asthma (as first or second diagnosis) who are continuously enrolled for 6 months following the ED visit. Rather than identifiable asthma being intrinsic to the denominator, for this measure it is a stratifying variable. This enhances the capacity of this measure to examine follow-up practices after ED visits, while preserving the capacity to focus in on the distinct population with identifiable asthma. Such an approach also supports harmony among the various CAPQuaM asthma measures.

Pretesting included iterative analyses in New York State Medicaid data that demonstrated our definition of identifiable asthma (termed persistent asthma by the expert panel) was selective but not overly restrictive and less restrictive than the HEDIS persistent asthma definition. It achieves our dual goals of selecting from among all children who show signs or symptoms of asthma and being more inclusive than existing measures.

Testing revealed the importance of using revenue codes as well as CPT codes to identify ED visits. Consultation with a coding expert confirmed our findings, and we have incorporated revenue codes into our case finding.

We incorporate validated NCQA code sets into this measure for numerator determinations, unmodified for medication and slightly modified for primary care visits to restrict to outpatient visits.

We do not include hospitalizations in this measure even though Medicaid data are not sensitive for identifying ED visits that result in hospitalizations. Our rationale for excluding hospitalizations from this measure and not from other measures in this measure set is substantive: expectations for follow-up after a hospitalization may be different from those following an ED visit; and, we did not address such issues specifically with our Expert Panel or during our input development phase (literature reviews and interviews). We make this decision aware that our analysis of 2009 National Emergency Department Sample (NEDS) showed that nationwide around 11 percent of Medicaid ED visits for asthma result in admissions.

Use of Expert Panels has been demonstrated to be useful in measure development and healthcare evaluation, including for children (Mangione-Smith, DeCristofaro, Setodji, et al., 2007). Practitioners have been identified as a resource for researchers in developing and revising measures, since they are on the frontlines working with the populations who often become research participants. Involving practitioners can assist researchers in the creation of measures that are appropriate and easily administered (Rubio, Berg-Weger, Tebb, et al., 2003). Our expert panel supported measures that assessed the presence of prompt follow-up with primary care following ED visits for asthma. We used 14 and 30 days rather than the even shorter time frames that would have been allowed by our panel because pretesting revealed such low levels of adherence to follow-up within a week that we were concerned about the capacity of the measure to be sensitive to real variations in performance, rather than artifact. The expert panel also considered timely fills of controller medications as indicative on a population level of the extent of connection between the ED and primary care.

From pretesting in New York State Medicaid data we concluded:

- Criteria were infrequently met when we used shorter time frames of 2 or 7 days for PCP visits. While we support the desirability of measuring follow-up after short time frames, it is clearly not current practice, and we specify here only the 14 and 30 day time frames.
- Measurement of fills of controller medications within a time frame after the ED visit was feasible. Results varied on the basis of a history of identifiable asthma in a manner that supports the validity of our capture of the prescription fills and that supports the validity of our identifiable asthma specifications.
- The measures were feasible with Medicaid data.

In New York State Medicaid data:

- 76.7 percent of ED visits occurred in children who met the criteria for identifiable asthma.
- Controller medications were filled within 2 months after the ED visit for 34.4 percent of visits for children with and 13.5 percent of those without identifiable asthma.
- ED visits for white children were most likely to have associated fills for controllers within 2 months after the visit and those for black children least.
- On average, 5.0 percent of ED visits for asthma had follow-up visits with primary care within 14 days after the visit (5.5 percent for white children, 4.7 percent for black children, and 5.1 percent for Hispanic children).
- Children age 7-18 were most likely to have 14-day follow-up visits (5.4 percent).
- For other age groups (2-4, 4-7, 18-21), 14-day follow-up visits ranged from 4.5 - 4.9 percent.
- Patterns were similar for 30-day follow-up visits.
- 30-day follow-up was most common in children who lived in rural counties (10.4 percent) compared to suburban (8.2 percent) and urban (7.7 percent) areas.
- Nearly 97 percent of visits were for urban children.

Section 7. Identification of Disparities

CHIPRA requires that quality measures be able to identify disparities by race, ethnicity, socioeconomic status, and special health care needs. Thus, we strongly encourage nominators to have tested measures in diverse populations. Such testing provides evidence for assessing measure's performance for disparities identification. In the sections below, describe the results of efforts to demonstrate the capacity of this measure to produce results that can be stratified by the characteristics noted and retain the scientific soundness (reliability and validity) within and across the relevant subgroups.

7.A. Race/Ethnicity

This measure was tested in New York State Medicaid data. We found variations by race; for example, for the 30-day follow up measure, Hispanics and blacks were similar with 7.6 percent performance; whites were at 8.3 percent. Using New York State Medicaid data for reporting year 2011 and look back year 2010, we found that the measure is practical and sensitive to small racial variations.

7.B. Special Health Care Needs

The Maternal and Child Health Bureau (MCHB) has defined children with special healthcare needs (CSHCN) as children "[w]ho have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally" (McPherson, Arango, Fox, et al., 1998). Considering this definition, children with identifiable asthma typically are children with special healthcare needs. This measure describes the care for such children.

7.C. Socioeconomic Status

Our analyses were conducted in Medicaid data. The measure is specified to be stratified in two ways to assess aspects related to socioeconomic status: Public versus Commercial Insurance, and by five strata defined by the percent of the population in poverty in the county of residence. As we expect this measure primarily to be generated by insuring entities, these data are expected to be present and available in the administrative data. Zip codes of residence are typically available in both medical records and administrative data sets and can be linked to county of residence as described in the specifications. We have identified five distinct strata based on the proportion of persons living beneath the poverty line. Such ecological data have been found to be independent predictors of health outcomes and are readily available using U.S. Department of Agriculture (USDA) data (Kawachi, Berkman, 2003). The five strata represent the 3 quartiles of lowest poverty each as one stratum, and the highest quartile divided into two strata, the 75th to 90th percentiles and the highest 10 percent. In New York State, only quartiles 1 through 3 are present, so we were not able to demonstrate the sensitivity of the measure specifically, but we were able to demonstrate the practicality of the method.

7.D. Rurality/Urbanicity

Those interested in care specific to large cities may wish to aggregate the rural area and analyze UIC 1 and 2 separately. Frontier healthcare may be approximated by analysis of the remote rural categories (Hart, 2012). The New York State Medicaid data were sensitive to urbanicity, with higher rates of ED utilization in the most urban areas and lowest in the most rural areas and other areas intermediate between the two.

For aggregation and as an imperfect approximation, one can also group as urban (1 and 2), suburban (3-6) and rural (7-9). This is what we have used for our New York Medicaid analysis to demonstrate that variations are observed for this measure using UIC codes. For example, 30-day

follow-up rates ranged from 10.4 percent for ED visits by children who live in rural counties, 8.2 percent in suburban counties, and 7.7 percent in urban counties.

7.E. Limited English Proficiency (LEP) Populations

We have not tested or specified this measure for this specific purpose. There are no barriers to stratifying on this variable if data have been collected in charts or elsewhere.

Section 8. Feasibility

Feasibility is the extent to which the data required for the measure are readily available, retrievable without undue burden, and can be implemented for performance measurement. Using the following sections, explain the methods used to determine the feasibility of implementing the measure.

8.A. Data Availability

1. What is the availability of data in existing data systems? How readily are the data available?

The definitions were specified to allow their use with data elements that ought to be available in electronic form as administrative data to a responsible entity, such as a health plan or State Medicaid program. While zip code is sometimes a hidden or non-public variable when such data sets are released, it generally is available to a responsible entity, such as an insurer or a Medicaid program. While race and ethnicity are typically available to Medicaid programs and are on institutional medical records (e.g., hospitals), they may or may not be on an individual physician practice's chart. They are often but not always recorded in insurance databases. We have data from a feasibility study conducted at more than a dozen hospitals confirming that both data elements are generally available in the hospital chart, frequently electronically. The CHIPRA legislation that funded this work indicates that measures are to be able to assess racial and ethnic disparities; hence, these data points need to be specified in this measure.

2. If data are not available in existing data systems or would be better collected from future data systems, what is the potential for modifying current data systems or creating new data systems to enhance the feasibility of the measure and facilitate implementation?

Not applicable.

8.B. Lessons from Use of the Measure

1. Describe the extent to which the measure has been used or is in use, including the types of settings in which it has been used, and purposes for which it has been used.

Implementation of the measure is beginning, and its implications are emerging but are not yet well-defined.

2. If the measure has been used or is in use, what methods, if any, have already been used to collect data for this measure?

Medicare data; all-payer encounter data.

3. What lessons are available from the current or prior use of the measure?

None yet.

Section 9. Levels of Aggregation

CHIPRA states that data used in quality measures must be collected and reported in a standard format that permits comparison (at minimum) at State, health plan, and provider levels. Use the following table to provide information about this measure's use for reporting at the levels of aggregation in the table.

For the purpose of this section, please refer to the definitions for provider, practice site, medical group, and network in the Glossary of Terms.

If there is no information about whether the measure could be meaningfully reported at a specific level of aggregation, please write "Not available" in the text field before progressing to the next section.

Level of aggregation (Unit) for reporting on the quality of care for children covered by Medicaid/ CHIP†:

State level* Can compare States

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
New York State had more than 40,000 ED visits for asthma in a single year (2011) among Medicaid children with identifiable asthma. The SPARCs database shows that in 2012, more than 118,000 ED visits for asthma occurred among children in New York State.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
None anticipated; designed for reporting at this level.

Other geographic level: Can compare other geographic regions (e.g., MSA, HRR)

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
New York State Medicaid has more than 40,000 asthma-related ED visits annually for children with identifiable asthma. In New York State, 45 counties each reported more than 1,000 child-days of denominator time.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
None anticipated; designed for reporting at this level.

Medicaid or CHIP Payment model: Can compare payment models (e.g., managed care, primary care case management, FFS, and other models)

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample**

size?
Not assessed; New York State has more than 40,000 ED visits for asthma.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
None anticipated; designed for use at this level.

Health plan*: Can compare quality of care among health plans.

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
Not assessed; New York State has more than 40,000 ED visits for asthma.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
None anticipated; designed for use at this level.

Provider Level
Individual practitioner: Can compare individual health care professionals

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
No.

Data Sources: **Are data sources available to support reporting at this level?**

No.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
Not applicable.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
Bias; imprecision.

Provider Level
Hospital: Can compare hospitals

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
Not assessed.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
Intended to be used at this level; small sample size would lead to imprecision.

Provider Level

Practice, group, or facility:** Can compare: (i) practice sites; (ii) medical or other professional groups; or (iii) integrated or other delivery networks

Intended use: **Is measure intended to support meaningful comparisons at this level? (Yes/No)**
Yes.

Data Sources: **Are data sources available to support reporting at this level?**
Yes.

Sample Size: **What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**
Not assessed.

In Use: **Have measure results been reported at this level previously?**
No.

Reliability & Validity: **Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**
No.

Unintended consequences: **What are the potential unintended consequences of reporting at this level of aggregation?**
Imprecision and bias are possible.

Section 10. Understandability

CHIPRA states that the core set should allow purchasers, families, and health care providers to understand the quality of care for children. Please describe the usefulness of this measure toward achieving this goal. Describe efforts to assess the understandability of this measure (e.g., focus group testing with stakeholders).

We have had conversations surrounding this measure and its understandability with our broad stakeholder partnership. Our collective conclusion is that using all ED visits for asthma is most consistent with the specification of a follow-up measure and that stratification to evaluate separately only those children who were known to be asthmatic prior to the index ED visit is important for both understandability and acceptability. Our definition of identifiable asthma was not only intended to be a filter, but also to be inclusive. Our analysis in New York State Medicaid suggests that we have achieved this goal, allowing us to conclude that we have identified a meaningful and inclusive group of children known to have asthma who are at risk for ED visits, contributing to the measure's understandability.

This measure complements our measure of primary care connection before the ED visit (https://www.ahrq.gov/sites/default/files/wysiwyg/pqmp/measures/chronic/chipra-136-asthma-primary-care-report.pdf). It provides information on straightforward constructs: how many of

these children receive timely follow-up with a PCP (defined as within 14 and 30 days) and how many fill a prescription for a controller medication within 2 months after the visit. Although our expert panel felt that follow-up in the first week is important, this measure is new to the market, and our pretesting suggests that performance for the follow-up measures is well below 50 percent and much lower if it is specified in the first week, so we chose to use more relaxed rather than more stringent standards to promote acceptability and usefulness of the measure.

The panel calls for the regular and ongoing use of a controller medication for those children who are being managed for ongoing asthma. This reflects the panel's belief that the large majority of children who meet the specified criteria for identifiable asthma are likely to meet clinical criteria for persistent asthma. We did find that adherence to the controller following ED visit specification is meaningfully higher in children with identifiable asthma than in those who do not have identifiable asthma, providing some empirical validation for our construct. This finding also drives our instructions to stratify primarily on the variable of identifiable asthma in order to provide better data for accountability and improvement purposes and to drive further empirical work to understand who the children are who are seen in the ED and do not have identifiable asthma according to CAPQuaM criteria.

We have not specifically tested the understandability of this measure with patients.

Section 11. Health Information Technology

Please respond to the following questions in terms of any health information technology (health IT) that has been or could be incorporated into the measure calculation.

11.A. Health IT Enhancement

Please describe how health IT may enhance the use of this measure.

The capacity to add more clinical data from accessible Health IT systems would enhance this measure.

11.B. Health IT Testing

Has the measure been tested as part of an electronic health record (EHR) or other health IT system?

No.

If so, in what health IT system was it tested and what were the results of testing?

Not applicable.

11.C. Health IT Workflow

Please describe how the information needed to calculate the measure may be captured as part of routine clinical or administrative workflow.

The technical specifications for this measure indicate how to use administrative data to calculate the measure.

11.D. Health IT Standards

Are the data elements in this measure supported explicitly by the Office of the National Coordinator for Health IT Standards and Certification (ONC) criteria (see healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__standards_ifr/1195)?

No.

If yes, please describe.

Not applicable.

11.E. Health IT Calculation

Please assess the likelihood that missing or ambiguous information will lead to calculation errors.

Prescription fills and encounter data are needed for unbiased calculation.

11.F. Health IT Other Functions

If the measure is implemented in an EHR or other health IT system, how might implementation of other health IT functions (e.g., computerized decision support systems in an EHR) enhance performance characteristics on the measure?

Not applicable.

Section 12. Limitations of the Measure

Describe any limitations of the measure related to the attributes included in this CPCF (i.e., availability of measure specifications, importance of the measure, evidence for the focus of the measure, scientific soundness of the measure, identification of disparities, feasibility, levels of aggregation, understandability, health information technology).

Administrative data are imperfect and at times may imperfectly describe clinical reality. Nevertheless, using those imperfect data enhances feasibility, and our preliminary results do indicate that the measure performs well in spite of the potential limitations. Further, the literature supports specifically the use of administrative data to describe asthma care and indicates that the use of more than 1 year of data (as we include) enhances validity.

We acknowledge that some States may be unable to include prescription fills in their data. Our formative analysis suggests that less than 5 percent of children who are identified with asthma

are included specifically because of medication fills. The two numerators regarding follow-up do not require prescription fills, and in situations where the controller medication data are not available, the two follow-up visit numerators should still be calculated. The use of county rather than individual data on poverty is both a strength (in that it can be reliably assessed and has substantive meaning as a contextual variable) and a limitation, in that it is an ecological variable.

The measure requires that PCP visits can be identified. If they cannot, our pretesting suggests that visits to clinicians with other than the specified specialties are infrequent, so the measure can be used, but values will be somewhat inflated.

The validity of the measure is based upon a systematic process that incorporates the literature and expert panel review. The panel attempted to integrate widely accepted and evidence-grounded guidelines as it translated that information into criteria. The CAPQuaM team in turn translated the panel's criteria into this measure, which is a proxy for an underlying construct.

Section 13. Summary Statement

Provide a summary rationale for why the measure should be selected for use, taking into account a balance among desirable attributes and limitations of the measure. Highlight specific advantages that this measure has over alternative measures on the same topic that were considered by the measure developer or specific advantages that this measure has over existing measures. If there is any information about this measure that is important for the review process but has not been addressed above, include it here.

This measure and its specifications result from a formal development process that includes stakeholder input throughout. ED visits/hospitalizations for asthma are common, costly, and potentially preventable. They may serve as a marker for both insufficiency of primary care and insufficiency of clinical management of asthma by the partnership of the family and the healthcare team. This measure considers practices that follow asthma-related ED visits for children 2-21 years, with and without identifiable asthma, a construct that our expert panel used to operationalize ongoing asthma that was likely to require ongoing management. It seeks to describe independently and in combination the connection of children to primary care practices by measuring whether or not children who have ED visits and/or hospitalizations for asthma have had:

1. Visit(s) to a primary care provider that occurred within 14 days following the ED visit.
2. Visit(s) to a primary care provider that occurred within 30 days following the ED visit.
3. At least one fill of an asthma controller medication within 2 months after the ED visit (including the day of visit).

The literature demonstrates that clinical, system, and community interventions may improve care for asthma and reduce ED visits/hospitalizations. ED visits are a marker for the need to manage the asthma more closely moving forward. The potential for racial and ethnic disparities is high.

We found large racial and ethnic differences in New York State Medicaid. Poverty may also be associated with increased ED use for children with asthma, as higher incomes were associated with better performance on this measure. More than 196,000 children had identifiable asthma (using our definition) in New York State Medicaid data in 2011 (almost 11 percent), and nearly 60,000 ED visits for asthma were for those children.

As a part of the CAPQuaM measure set, this measure offers a number of advantages over existing measures. The definition of identifiable asthma is more inclusive than other existing definitions. The linkage of this process measure to the previously submitted outcomes measure and the other connection measure offers an opportunity to provide better insight into clinical practices as articulated in our conceptual model, which acknowledges that some proportion of ED visits/hospitalizations result from failures of processes of care before the ED visit and/or hospitalization.

Our analyses in New York State Medicaid data confirmed feasibility, usability, and responsiveness of the measures to substantive constructs, including race/ethnicity, and county level measures of poverty and urbanicity.

We find these data and their consistency with expected findings to be persuasive that the measure is both valid and sensitive to real differences.

The measure is based on administrative data and therefore is very feasible with generally available data. It can readily be aggregated up from the level of a single insurance plan or purchaser.

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Section 14: Identifying Information for the Measure Submitter

First Name:	Lawrence
Last Name:	Kleinman
Title:	Director, Mount Sinai CAPQuaM
Organization:	Icahn School of Medicine at Mount Sinai
Mailing Address:	One Gustave L Levy Place, Box 1077
City:	New York
State:	NY
Postal Code:	10029
Telephone:	212-659-9556
Email:	Lawrence.kleinman@mssm.edu

The CHIPRA Pediatric Quality Measures Program (PQMP) Candidate Measure Submission Form (CPCF) was approved by the Office of Management and Budget (OMB) in accordance with the Paperwork Reduction Act.

The OMB Control Number is 0935-0205 and the Expiration Date is December 31, 2015.

Public Disclosure Requirements

Each submission must include a written statement agreeing that, should U.S. Department of Health and Human Services accept the measure for the 2014 and/or 2015 Improved Core Measure Sets, full measure specifications for the accepted measure will be subject to public disclosure (e.g., on the Agency for Healthcare Research and Quality [AHRQ] and/or Centers for Medicare & Medicaid Services [CMS] websites), except that potential measure users will not be permitted to use the measure for commercial use. In addition, AHRQ expects that measures and full measure specifications will be made reasonably available to all interested parties. "Full measure specifications" is defined as all information that any potential measure implementer will need to use and analyze the measure, including use and

analysis within an electronic health record or other health information technology. As used herein, "commercial use" refers to any sale, license or distribution of a measure for commercial gain, or incorporation of a measure into any product or service that is sold, licensed or distributed for commercial gain, even if there is no actual charge for inclusion of the measure. This statement must be signed by an individual authorized to act for any holder of copyright on each submitted measure or instrument. The authority of the signatory to provide such authorization should be described in the letter.

AHRQ Publication No. 19-0014
September 2019