MEASURE 1

A. Description

This measure describes the incidence rate of emergency department visits for children ages 2 to 21 who are being managed for persistent asthma.

B. Eligible Population

Numerator: Number of visits to the emergency department in the reporting year with a primary or secondary diagnosis of asthma among the eligible population, which includes children who are being managed for persistent asthma.

Denominator: Children age 2-21 who meet criteria for being managed for persistent asthma in the assessment period. The assessment period includes the full year before the reporting year and each full calendar month before the month in which the ED visit (which is referred to as the reporting month). Excluded are children who have NOT been continuously enrolled in the index plan for the 2 months immediately prior to the reporting month. Change(s) in eligibility criteria and/or benefit package or plan do(es) not relieve the reporting entity of the need to determine denominator eligibility – all available sources should be linked.   For health plans, this includes utilizing any existing data sharing arrangements. For State Medicaid plans, this requires that the unit of analysis for eligibility assessment is the child, not the child-insurer pair.

Descriptive definitions of persistent asthma management are as follows. Specifications follow the descriptive definitions:

Any prior hospitalization with asthma as primary or secondary diagnosis
Other qualifying events after the fifth birthday at time of event):

    One or more prior ambulatory visits with asthma as the primary diagnosis (this criterion implies an asthma ED visit in the reporting month), **OR**
    Two or more ambulatory visits with asthma as a diagnosis, **OR**
    One ambulatory visit with asthma as a diagnosis **AND** at least One asthma related prescription, **OR**
    Two or more ambulatory visits with a diagnosis of bronchitis
Other qualifying events, any age:

    Three or more ambulatory visits with diagnosis of asthma or bronchitis, **OR**
    Two or more ambulatory visits with a diagnosis of asthma and/or bronchitis **AND** one or more asthma related prescriptions

For eligibility purposes, asthma-related medicine refers to long acting beta agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination), and/or mast cell stabilizers.

Use the definitions/specifications in the table for this measure:

TABLE 1.

Criteria for assessing "persistent asthma" (Evidence must include all readily available data regarding whether or not a child used a service. CPT and revenue codes are indicated as appropriate.)	Codes
Hospitalization	**CPT Codes:** CPT 99238 CPT 99232 CPT 99239 CPT 99233 CPT 99221 CPT 99234 CPT 99222 CPT 99235 CPT 99223 CPT 99236 CPT 99356 CPT 99218 CPT 99357 CPT 99219 CPT 99231 CPT 99220 **Or Revenue Codes:** 0110 0133 0111 0134 0112 0137 0113 0139 0114 0150 0117 0151 0119 0152 0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206
Office visits	CPT 99201 CPT 99211 CPT 99202 CPT 99212 CPT 99203 CPT 99213 CPT 99204 CPT 99214 CPT 99205 CPT 99215

Criteria for assessing "persistent asthma" (Evidence must include all readily available data regarding whether or not a child used a service. CPT and revenue codes are indicated as appropriate.)	Codes

Previous ED Visits	**CPT Codes:**
	  CPT 99281 CPT 99284
	  CPT 99282 CPT 99285
	  CPT 99283
	
	Revenue Codes:
	0450 Emergency Room
	0451 Emergency Room: EM/EMTALA
	0452 Emergency Room:
	      ER/Beyond EMTALA
	0456 Emergency Room: Urgent Care
	0459 Emergency Room: Other
	      Emergency Room
	450 Emergency Room
	451 Emergency Room: EM/EMTALA
	452 Emergency Room:
	      ER/Beyond EMTALA
	456 Emergency Room: Urgent Care
	459 Emergency Room: Other
	      Emergency Room
	0981 Professional Fees (096x)
	      Emergency Room
	981 Professional Fees
	      emergency room

Diagnoses of asthma	**ICD-9 Codes:** All codes beginning with 493
Filled prescriptions **for** **Asthma related medications**	*Use NCQA NDC list (ASM-C_DASM-C_final_2012, found by clicking through at (http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2012/HEDIS2012FinalNDCLists.aspx) Eliminate medications in the following 2 categories: leukotriene modifiers, short-acting inhaled beta-2 agonists). May use equivalent updated lists when provided by NCQA.*

Excluded from the denominator are:

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 in the reporting plan for at least two months prior to the index reporting month.

C. DATA and SOURCES

A. General data elements include:
   i.   Age
   ii. Race and ethnicity
   iii. Insurance type (Medicaid, Private, Uninsured)
   iv. Benefit type among insured – (HMO, PPO, FFS, Medicaid Primary Care Case Management Plan (PCCM), Other)
   v.   Zip code or State and County of residence (Please record FIPS where available)

B. Administrative data with billing and diagnosis codes, utilized to identify:
   i.   Asthma-related visits to an emergency department, outpatient office, or hospitalization
   ii. Asthma medication prescriptions
   iii. Insurance benefit type
   iv. Medicaid or CHIP benefit category or benefit plan (if applicable)
   v.   Zip code or State and County of residence (Please record FIPS where available)
   vi. Race and ethnicity (from hospital administrative data or charts if not in administrative data from plan)

D. CALCULATION

Step 1.   Measure the denominators and record by month.

For each month in the reporting year, identify all children ages 2 – 21 years who meet the criteria for persistent asthma as defined in the denominator (using indicated exclusions) as of the last day of the month prior to the reporting month.

Identify and maintain all stratification variables described below.

For example, if the goal is to report for January 2011, first one would identify children with persistent asthma using the denominator criteria, and analyzing all of calendar year 2010 when doing so.

Continuous enrollment criterion requires that the child was enrolled in November and December of 2010. The total represents the number of person-months (child-months) for January.

Next, one would identify children with persistent asthma using the denominator criteria, and analyzing all of calendar year 2010 AND January 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011. This is the number of person-months (child-months) for February.

Repeat this progression monthly so that for December, one would identify children with persistent asthma, and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in October 2011 and November 2011. This is the number of person-months (child-months) for December.

Sum all month denominators. This is denominator in people-months. Divide by 1200. This is denominator in 100 people-years. This is the denominator for the year.

Step 2. Month by month, identify the number of numerator events among those children who are eligible for that reporting month. Maintain stratification variables. Sum for the year.

Step 3. Calculate rate as Numerator / Denominator. While this measure is specified for the year, it has also been validated to demonstrate seasonality using monthly rates.

Step 4. Repeat by strata: age, race/ethnicity, Urban Influence Code (UIC), county poverty level, insurance type, benefit type. Report by race/ethnicity within age strata and repeat that analysis by UIC, and by county poverty level. Report by insurance type and benefit type within race/ethnicity.

Eliminate any strata with less than 40 person-months in any month's denominator OR less than 1000 person-months for the year.

Step 5. Specification of Stratification Variables:

a. Identify County equivalent of child's residence. If County and State or FIPS code are not in the administrative data, the zip codes can be linked to County indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/). These data will link to County or County equivalents as used in various states.

b. Identify the Urban Influence Code[1] or UIC for the County of child's residence. (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 .

c. Identify the Level of Poverty in the child's county of residence. The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx . Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3. Using child's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

   i. Lowest Quartile of Poverty if percent in poverty is <=12.5%
   ii. Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
   iii. Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
   iv. First upper quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
   v. Second upper quartile (>90th percentile)

d. Categorize age by age at the last day of the prior month. Aggregate into age categories ages 2-4, ages 5 through 11, ages 12-18, ages 19-21.

   e. Categorize Race/Ethnicity as Hispanic, non-Hispanic White, Non-Hispanic Black, non-Hispanic Asian/Pacific Islander, and Non-Hispanic Other.

   f. Insurance as Private (Commercial), Public, None or Other
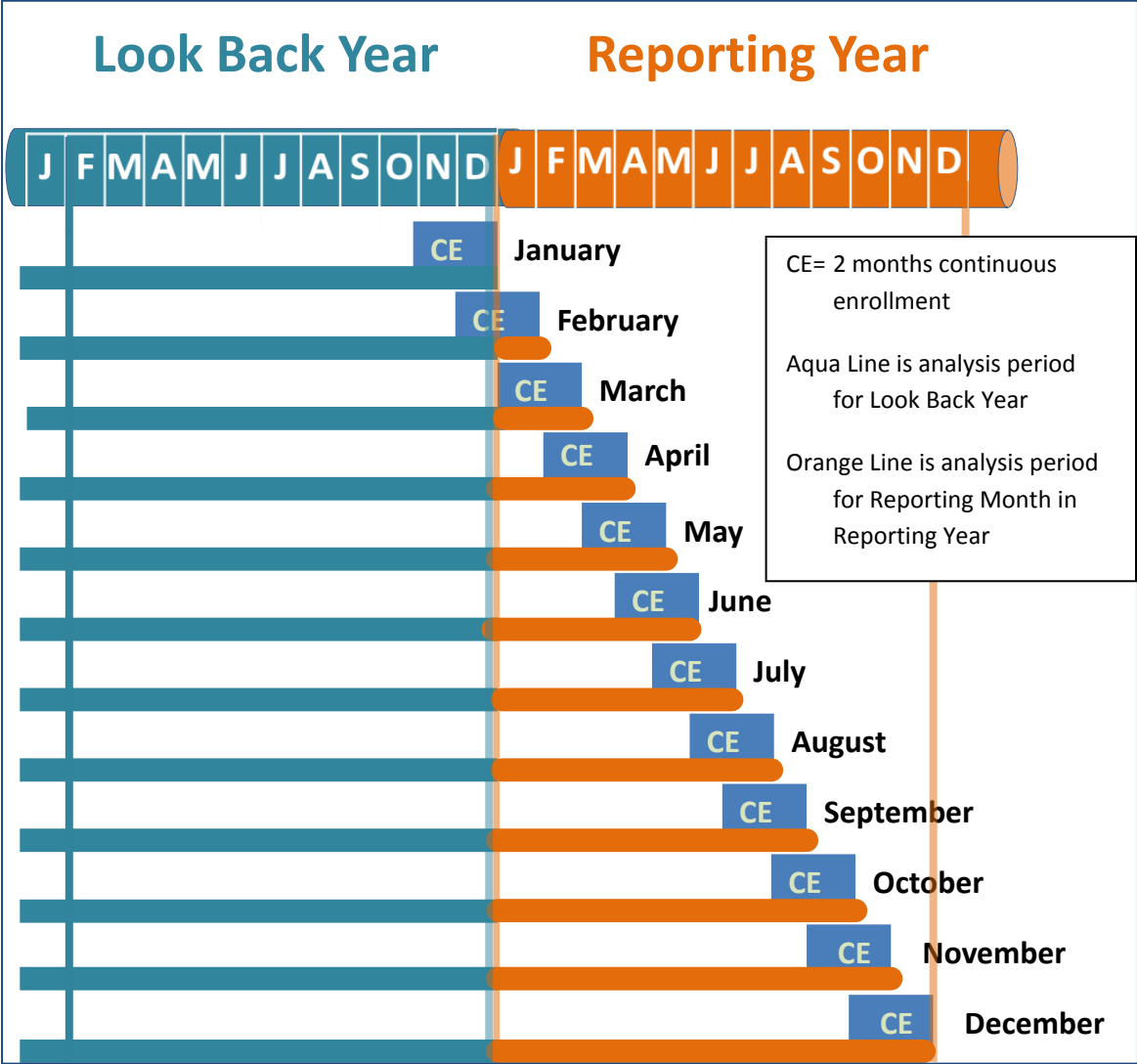
   g. Benefit Type as HMO, PPO, FFS, PCCM, Other

Figure 1.

Diagram of Eligibility Requirements for Asthma Measure
Description of Diagram Components
Aqua: Look Back Year
Orange: Reporting Year
Blue: Continuous Enrollment (CE) period must be met to be eligible in a given reporting month
Black: Label of Reporting Month

Description of Eligibility Criteria Assessment
Eligibility Criteria are assessed month by month, using both the entire Look Back Year and the Reporting Year.

For any given reporting month, assess eligibility on 2 criteria. Eligible children are those that meet both of the following:

1) Has the child been continuously enrolled (CE) for the two months prior to the Reporting Month (3 months of continuous enrollment including the current Reporting Month)
2) Does the child meet the criteria for having been managed for persistent asthma in the assessment period (Aqua + Orange Lines)

Description of Calculation Based on Eligibility Criteria

Add one (1) child-month to the denominator for every child found to be eligible in each Reporting Month.

Add one numerator event to the numerator for each ED visit with asthma as a primary or secondary diagnosis in any month for which that child was eligible.

The measure is calculated as #ED visits per 12 child months for 100 children. This is an incidence rate, also called incidence density.