CAPQuaM PQMP Asthma Measure II:
Distribution of Emergency Department Visit Use for Children Managed
for Identifiable Asthma
Detailed Measure Specifications

A. Description

This measure describes four aspects of the population of children who have persistent for asthma: the number who have emergency department visits; the distribution of visits; and the number of children with persistent asthma and the amount of time each contributes to the person-time denominator of the incidence rate measure in the same set.

B. Eligible Population

This measure reports how many children have persistent asthma at any time during the year, the number who have a visit to an Emergency Department for asthma in the reporting year, the distribution of the number of such visits per child, and the number of months in the year that they met both clinical eligibility and consecutive enrollment criteria

Descriptive definitions for being managed for persistent asthma 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 (age is age at 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 means 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.

This is not a ratio measure, so there are no true numerators and denominators. It is comprised of two count measures and two distributions.

The counts are the number of unique children who meet criteria for persistent asthma and the number of those children who have at least one visit to the emergency department.

The first distribution is the number of visits to the ED experienced by each of these children during the reporting year and is described by the 1st, 10th, 25th, 50th, 75th, 90th, and 99th percentiles of that distribution. The interquartile range should also be reported.

The second distribution is the number of person-months that all eligible children with persistent asthma are eligible during the reporting year. This should be reported as the 10th, 25th, 50th, 75th, and 90th percentiles and the interquartile range.

Persistent asthma is defined in Table 1, and the *assessment period i*s defined below.

Person-Time Elements:
1) Age of the child
2) Recent evidence of being managed for persistent asthma in the *assessment period*, including any of the combinations listed in the descriptive definitions above..:

Notes*:*
The *assessment period* includes the full year before the reporting year and each full calendar month before the month being assessed.

If pharmacy data are not available to be used, the measure should be reported with notation that pharmacy data were not used for the assessment of eligibility.

Table 1. Children meeting the criteria for having persistent asthma can by identified by the following:

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.*

EXCLUDE:

Events occurring in patients who do not meet criteria for person-time for the month in which the event occurred.

Events occurring in patients who not have been enrolled in the reporting plan for at least 2 consecutive months before the index reporting month.

Events for which asthma is not listed as the primary or secondary diagnosis. For the purposes of this measure, asthma diagnosis includes all diagnoses with 3 digit ICD-9 of 493. For entities that prefer to use AHRQ's Clinical Classifications Software, the asthma definition (before exclusions) is CCS class 128.

Exclude for concurrent or pre-existing diagnosis of cystic fibrosis (ICD-9 CM codes of 277.0, 277.01. 277.02, 277.03, 277.09), COPD (3 digit ICD-9 code 496) or Emphysema (3 digit ICD-9 code of 492).

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. Zip code or State and County of residence (Please record FIPS where available)
   v. Race and ethnicity (from hospital administrative data or charts if not in administrative data from plan)

D. **CALCULATION**

Step 1   Measure person-time eligibility for each patient 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 above (using indicated exclusions) as of the last day of the month prior to the reporting month.

Identify and maintain a unique patient identifier and 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 criteria, and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010. This total represents the number of person-months (child-months) for January.

Next, one would identify children with persistent asthma using the criteria, and analyze 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.

Record the unique number of children who contribute person-time over the course of the year. This is the Count measure of the number of children with persistent asthma.

Step 2   Month by month, identify the number of ED visits with asthma as a primary or secondary diagnosis among those children who are eligible for that reporting month. Maintain stratification variables and unique identifiers.

Step 3   Report the number of unique children who, in months that they were eligible for the person time measure had an ED visit. (This should be identical to the number of unique children who are identified in Step 2). This is the Count measure of the number of children with ED visits.

Step 4   Sum the number of eligible (Step 2) ED visits with asthma as the primary or secondary diagnosis and associate that number with the appropriate patient identifier.

Step 5   Using the sums obtained in Step 4, report the median (50th percentile), 1st, 10th, 25th, 75th, 90th and 99th percentiles, assuming the sample size is greater than 10 children. Omit the 1st and 99th percentiles for smaller sample sizes (<20). Calculate and report the interquartile range as the difference between the value of the 75th percentile and of the 25th percentile. Report also the 5 highest values for this count measure. This is the first distribution (number of qualifying ED visits per child).

Step 6   Sum the number of months that each child with at least one month of eligibility is eligible and associate that number with the appropriate patient identifier.

Step 7   Using the sums obtained in Step 6, report the median (50th percentile), 1st, 10th, 25th, 75th, 90th and 99th percentile, assuming the sample size is greater than 10 children. Omit the 1st and 99th percentiles for smaller sample sizes (<20). Calculate and report the interquartile range as the difference between the value of the 75th percentile and of the 25th percentile. This is the second distribution (number of months of contribution of person time per eligible child with persistent asthma).

Step 8 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

Step 9   Repeat Steps 2-6 by strata – age, race/ethnicity, UIC, County Poverty Level, Insurance type, Benefit Type. Report by race/ethnicity within age strata and repeat that analysis by UIC, and also by County Poverty Level. Report by insurance type and benefit type within race/ethnicity.

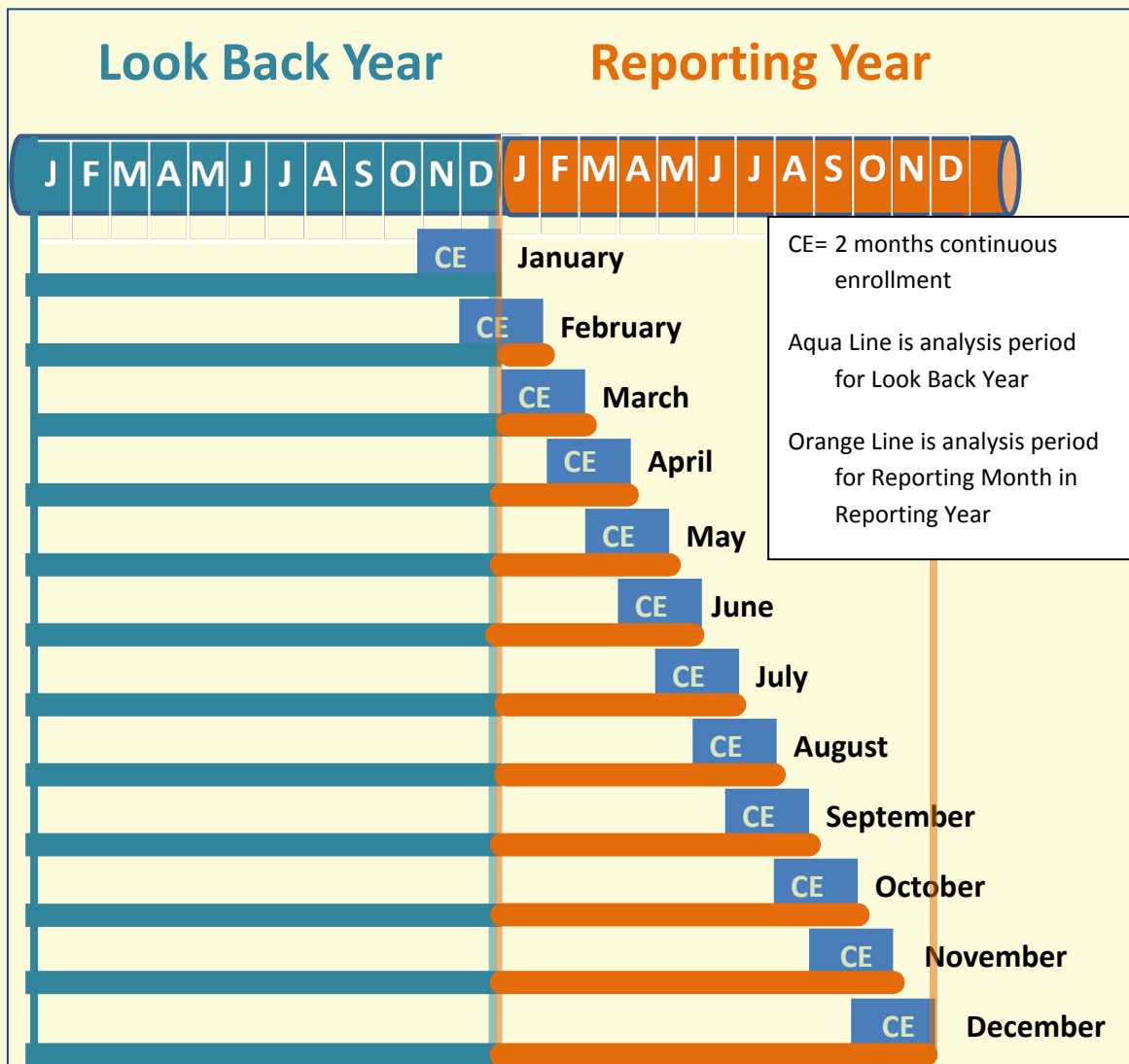Figure 1 illustrates the calculation of person-time.

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)