

**NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE**

**Measure Information Form**  
**Collected For:**  
**The Joint Commission Only**

**Measure Set:** Children's Asthma Care (CAC)

**Set Measure ID#:** CAC-2

Set Measure ID#	Performance Measure Name
<b>CAC-2a</b>	Systemic Corticosteroids for Inpatient Asthma (age 2 years <b>through</b> 17 years) -Overall Rate
<b>CAC-2b</b>	Systemic Corticosteroids for Inpatient Asthma (age 2 years <b>through</b> 4 years)
<b>CAC-2c</b>	Systemic Corticosteroids for Inpatient Asthma (age 5 years <b>through</b> 12 years)
<b>CAC-2d</b>	Systemic Corticosteroids for Inpatient Asthma (age 13 years <b>through</b> 17 years)

**Performance Measure Name:** Systemic corticosteroids for inpatient asthma

**Description:** Use of systemic corticosteroids in pediatric patients admitted for inpatient treatment of asthma.

**Rationale:** Asthma is the most common chronic disease in children and a major cause of morbidity and increased health care expenditures nationally (Adams, et al., 2001). According to the 2006-2008 data from the Centers for Disease Control and Prevention (CDC), 9.3% of the United States population is composed of children suffering from asthma (CDC Health Disparities and Inequalities Report, 2011). In 2005, 5.2% of children with asthma had at least one asthma attack in the previous year (3.8 million children). Nearly two of every three children who currently have asthma had at least one attack in the past 12 months. Asthma admissions account for 3% of all childhood hospitalizations (Akinbami, L, 2006).

Chronic asthma in children can account for an annual loss of more than 14 million school days per year, according to the Asthma and Allergy Foundation, and has also been known to create more childhood hospitalizations than any other childhood disease in this decade (Asthma Facts and Figures). Less effective treatment modalities such as under treatment, or over treatment of chronic asthmatic children contributes to morbidity and mortality, and has affected the already overwhelmed healthcare system in the United States.

Use of systematic corticosteroids has been common practice since the early 1900's when the first discussion of oral steroid use was published in the JAMA (Solis-Cohen, 1900). Schuh, S., et al (2000) reviewed data that showed superior efficacy with systemic corticosteroids in their research study when compared to inhaled steroid therapy. Guidelines for the diagnosis and management of asthma in children developed by the National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung and Blood Institute (NHLBI), as well as by the American Academy of Pediatrics, recommend the use of systemic corticosteroids to gain control of acute asthma exacerbation and reduce severity as quickly as possible in children with mild, moderate and severe persistent asthma. Guideline recommendations for therapies such as systematic corticosteroid use in inpatient asthma maintenance programs will relieve the bronchoconstriction that children suffer during acute asthmatic exacerbation during hospitalization.

**Type of Measure:** Process

**Improvement Noted As:** An increase in the rate

**Numerator Statement:** Pediatric asthma inpatients who received systemic corticosteroids during hospitalization.

**Included Populations:**

Patients who were administered systemic corticosteroids during this hospitalization.

**Excluded Populations:** None

**Data Elements:**

*Systemic Corticosteroids Administered*

**Denominator Statement:** Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.

**Included Populations:** Discharges with:

- An ICD-9-CM Principal Diagnosis Code of asthma (as defined in Appendix A, Table 6.1)
- An age of 2 through 17 years

**Excluded Populations:**

- Patients with an age less than 2 years or 18 years or greater
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients with a documented *Reason for Not Administering Systemic Corticosteroids*

**Data Elements:**

- *Admission Date*
- *Birthdate*
- *Clinical Trials*

- *Discharge Date*
- *ICD-9-CM Principal Diagnosis Code*
- *Reason for Not Administering Systemic Corticosteroids*

**Risk Adjustment:** No

**Data Collection Approach:** Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-9-CM diagnosis and procedure codes, which require retrospective data entry.

**Data Accuracy:** Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

**Measure Analysis Suggestions:** Based on these data, healthcare organizations would be able to determine the overall percentage of pediatric asthma inpatients that do not receive appropriate systemic corticosteroid treatment. This measure provides opportunity to assess differences, if any, in treatment modality for the different age groups.

**Sampling:** Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Section.

**Data Reported As:** Aggregate rate generated from count data reported as a proportion.

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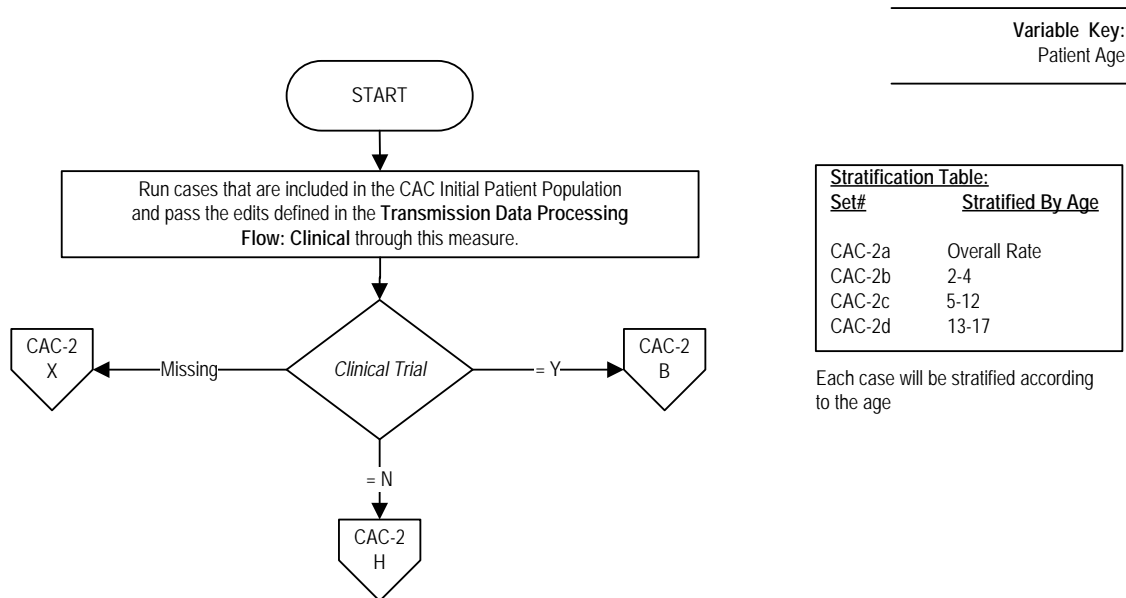
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## CAC-2: Systemic Corticosteroids for Inpatient Asthma by AAP Age Groups.

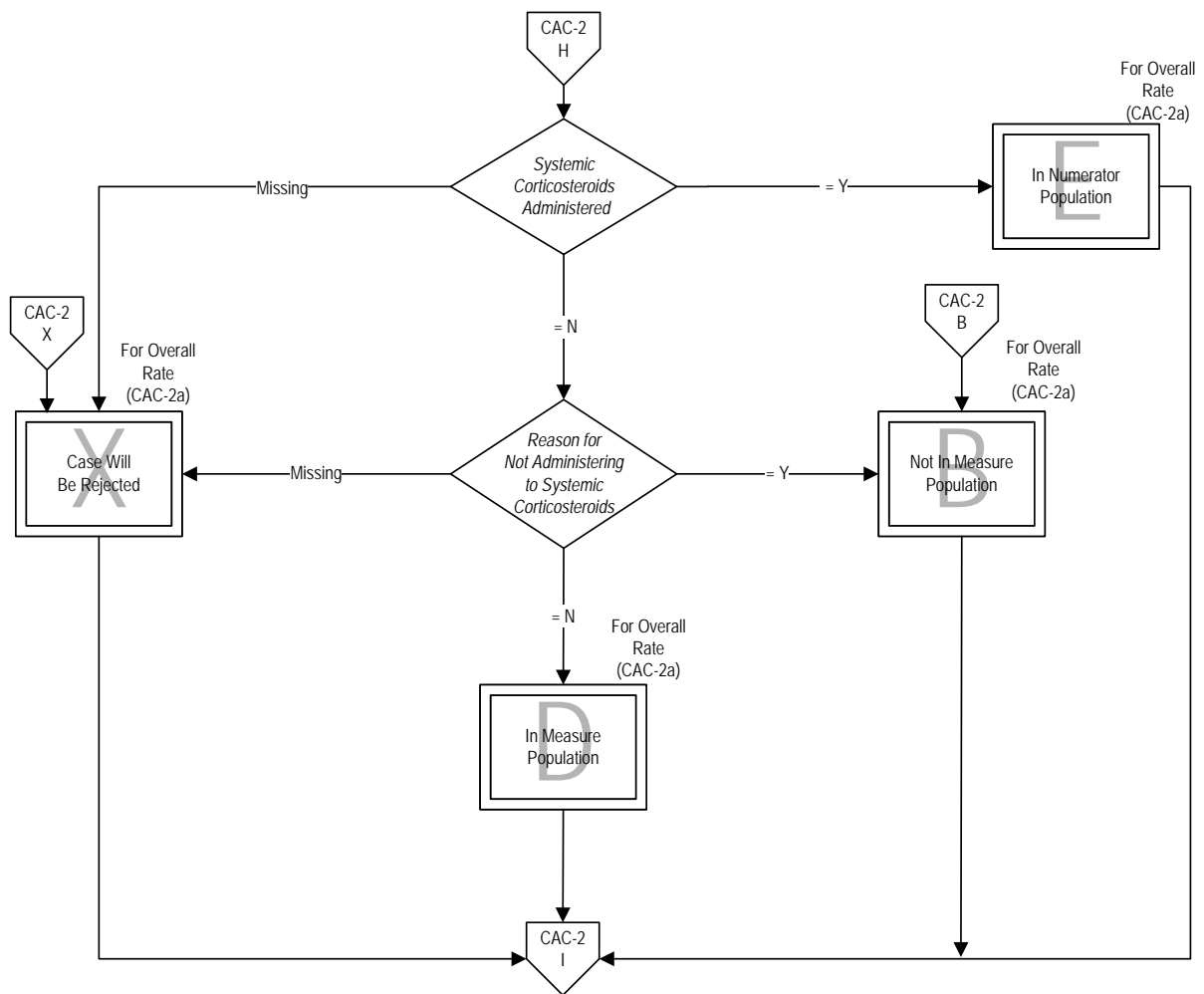
**Numerator:** Pediatric asthma inpatients who received systemic corticosteroids during hospitalization

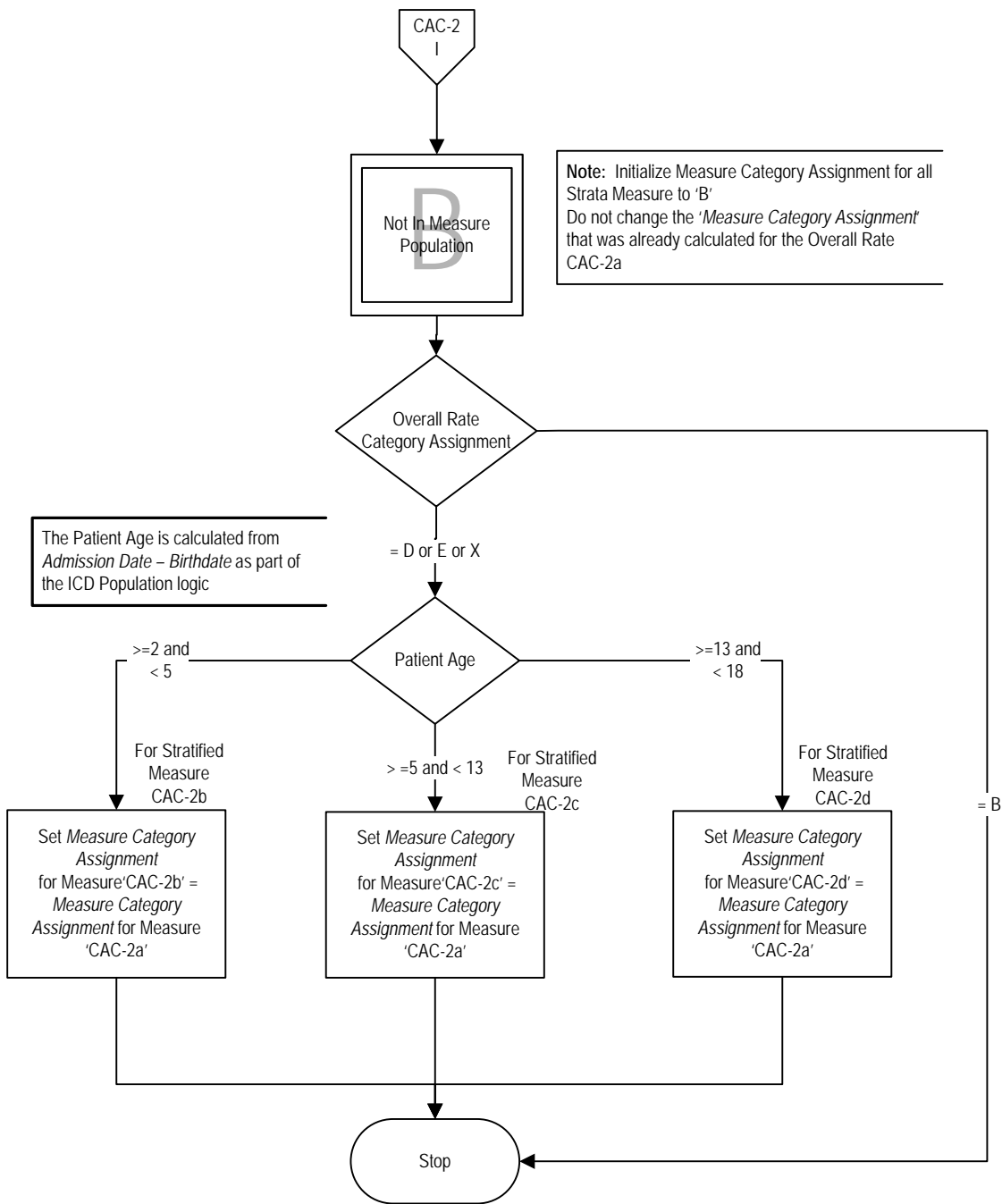
**Denominator:** Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma



<b>Stratification Table:</b>	
<b>Set#</b>	<b>Stratified By Age</b>
CAC-2a	Overall Rate
CAC-2b	2-4
CAC-2c	5-12
CAC-2d	13-17

Each case will be stratified according to the age







## Children’s Asthma Care-2: Systemic Corticosteroids For Inpatient Asthma

**Numerator:** Pediatric asthma inpatients who received systemic corticosteroids during hospitalization.

**Denominator:** Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.

**Variable Key:** Patient Age

### Stratification Table

The Stratification Table includes the Set Number, Stratified By, and the Age Strata (Allowable Value). The Age Strata refers to Patient Age which is calculated by the data element Admission Date minus the data element Birthdate. Each case will be stratified according to the patient age, after the Category Assignments are completed and the overall rate is calculated.

Set Number	Stratified By	Age Strata
CAC-2a	Overall Rate	No allowable value exists for the overall rate. It includes all patients greater than or equal to 2 years and less than 18 years.
CAC-2b	Age 2 years through 4 years	A Patient Age ( <i>Admission Date</i> minus <i>Birthdate</i> ) greater than or equal to 2 years and less than 5 years.
CAC-2c	Age 5 years through 12 years	A Patient Age ( <i>Admission Date</i> minus <i>Birthdate</i> ) greater than or equal to 5 years and less than 13 years.
CAC-2d	Age 13 years through 17 years	A Patient Age ( <i>Admission Date</i> minus <i>Birthdate</i> ) greater than or equal to 13 years and less than 18 years.

1. Start processing. Run cases that are included in the CAC Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check Clinical Trial
  - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - c. If Clinical Trial equals No, continue processing and proceed to Systemic Corticosteroids Administered.
3. Check Systemic Corticosteroids Administered

- a. If Systemic Corticosteroids Administered is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-2a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - b. If Systemic Corticosteroids Administered equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - c. If Systemic Corticosteroids Administered equals No, continue processing and proceed to Reason for Not Administering Systemic Corticosteroids.
4. Check Reason for Not Administering Systemic Corticosteroids
- a. If Reason for Not Administering Systemic Corticosteroids is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-2a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - b. If Reason for Not Administering Systemic Corticosteroids equals Yes, the case will proceed to a Measure Category Assignment of B for Overall Rate (CAC-2a) and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
  - c. If Reason for Not Administering Systemic Corticosteroids equals No, the case will proceed to a Measure Category Assignment of D for Overall Rate (CAC-2a) and will be in the Measure Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).
5. Continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for all Strata Measure to equal 'B.' Do not change the Measure Category Assignment that was already calculated for the overall rate (CAC-2a).
6. Check Overall Rate Category Assignment
- a. If the Overall Rate Category Assignment is equal to B, keep Measure Category Assignment for the strata measures equal B, not in the Measure Population. Stop processing.
  - b. If the Overall Rate Category Assignment is equal to D or E or X, continue processing and check the Patient Age. Note: The Patient Age is calculated from Admission Date minus Birthdate as part of the ICD Population logic.
7. Check The Patient Age
- a. If the Patient Age is greater than or equal to 2 years and less than 5 years for Stratified Measure CAC-2b, set the Measure Category Assignment for measure CAC-2b to equal the Measure Category Assignment for measure CAC-2a. Stop processing.

- b. If the Patient Age is greater than or equal to 5 years and less than 13 years for Stratified Measure CAC-2c, set the Measure Category Assignment for measure CAC-2c to equal the Measure Category Assignment for measure CAC-2a. Stop processing.
- c. If the Patient Age is greater than or equal to 13 years and less than 18 years for Stratified Measure CAC-2d, set the Measure Category Assignment for measure CAC-2d to equal the Measure Category Assignment for measure CAC-2a. Stop processing.