

## Use of Appropriate Medications for Asthma (NQF 0036)

<b>EMeasure Name</b>	Use of Appropriate Medications for Asthma	<b>EMeasure Id</b>	Pending
<b>Version Number</b>	1	<b>Set Id</b>	Pending
<b>Available Date</b>	No information	<b>Measurement Period</b>	January 1, 20xx through December 31, 20xx
<b>Measure Steward</b>	National Committee for Quality Assurance		
<b>Endorsed by</b>	National Quality Forum		
<b>Description</b>	The percentage of patients 5-50 years of age during the measurement year who were identified as having persistent asthma and were appropriately prescribed medication during the measurement year. Report three age stratifications (5-11 years, 12-50 years, and total).		
<b>Measure scoring</b>	Proportion		
<b>Measure type</b>	Process		
<b>Rationale</b>	This measure assesses the appropriate and timely use of medications for long-term control of asthma symptoms and offers meaningful and actionable information to health care providers and consumers. Asthma is the most common chronic childhood disease, affecting an estimated 6.2 million children and resulting in more than 6.5 million office visits, 500,000 hospitalizations, 1.51 million nonemergency outpatient department visits and 1.81 million ER visits for children and adults. In 1998, over \$10 billion was spent on related medical expenditures in the United States. The financial and disease burden can be alleviated if patients have appropriate medications and medical management. This measure facilitates efforts toward effective disease management and prevention of traumatic outcomes.		
<b>Clinical Recommendation Statement</b>	The US DHHS National Asthma Education Program Expert Panel Report-2 recommends inhaled corticosteroids over other long-term control medications in improving asthma outcomes, with the acknowledgement of a potential but small risk of adverse events with use of inhaled corticosteroids. Bronchodilators (e.g., beta <sub>2</sub> -adrenergic agonists, methylxanthines) act to relieve the symptoms of the disease during acute events, but do not lead to long-term improvement. Studies cited by the Expert Panel Report 2002 Update demonstrate inhaled corticosteroids improve asthma control compared to as-needed beta <sub>2</sub> -agonists without any other long-term control medication. Therefore, disease management relies on the use of combination therapy including anti-inflammatory medications to ensure clinical improvement of patient care.		
<b>References</b>	National Asthma Education Program, Expert Panel Report. <i>Guidelines for the diagnosis and management of asthma-Updated on Selected Topics 2002</i> . Bethesda, MD: U.S. Department of Health and Human Services; 2002. No. 97-4051.		
<b>Definitions</b>			

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*Please refer to the spreadsheet for this measure for detail regarding data criteria and code lists.*

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### **Population criteria 1**

- **Initial Patient Population =**
  - AND: “Patient characteristic: birth date” (age)  $\geq 4$  and  $\leq 10$  before the “measurement period” to capture all patients who will reach the age of 5 through 11 during the “measurement period”;
- **Denominator =**
  - AND: All patients in the initial population;
  - OR:
    - AND: “Encounter: encounter ED”  $\leq 1$  years before or simultaneously to the “measurement period”;
    - AND: “Diagnosis active: asthma”  $\leq 1$  years before or simultaneously to the “measurement period”;
  - OR:
    - AND: “Encounter: encounter acute inpt”  $\leq 1$  years before or simultaneously to the “measurement period”;
    - AND: “Diagnosis active: asthma”  $\leq 1$  years before or simultaneously to the “measurement period”;
  - OR:
    - AND:  $\geq 4$  count(s) of “Encounter: encounter outpatient”  $\leq 1$  years before or simultaneously to the “measurement period”;
    - AND: “Diagnosis active: asthma”  $\leq 1$  years before or simultaneously to the “measurement period”;
    - AND:  $\geq 2$  count(s) of:
      - OR: “Medication dispensed: antiasthmatic combinations”  $\leq 1$  years before or simultaneously to the “measurement period”;
      - OR: “Medication order: antiasthmatic combinations”  $\leq 1$  years before or simultaneously to the “measurement period”;
      - OR: “Medication active: antiasthmatic combinations”  $\leq 1$  years before or simultaneously to the “measurement period”;
      - OR: “Medication dispensed: antibody inhibitor”  $\leq 1$  years before or simultaneously to the “measurement period”;

- OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";

- OR: "Medication dispensed: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR: >=4 count(s) of:
  - OR: "Medication dispensed: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";

- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist <= 1 years before or simultaneously to the "measurement period";
- OR:
  - AND: >=4 count(s) of:
    - OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
  - AND: "Diagnosis active: asthma" <= 1 years before or simultaneously to the "measurement period";
- **Numerator =**
  - AND: >=1 count(s) of:
    - OR: "Medication dispensed: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication order: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication active: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication dispensed: antibody inhibitor" during the "measurement period";
    - OR: "Medication order: antibody inhibitor" during the "measurement period";
    - OR: "Medication active: antibody inhibitor" during the "measurement period";
    - OR: "Medication dispensed: inhaled corticosteroids" during the "measurement period";
    - OR: "Medication order: inhaled corticosteroids" during the "measurement period";
    - OR: "Medication active: inhaled corticosteroids" during the "measurement period";
    - OR: "Medication dispensed: inhaled steroid combinations" during the "measurement period";
    - OR: "Medication order: inhaled steroid combinations" during the "measurement period";
    - OR: "Medication active: inhaled steroid combinations" during the "measurement period";
    - OR: "Medication dispensed: leukotriene inhibitors" during the "measurement period";

- OR: "Medication order: leukotriene inhibitors" during the "measurement period";
- OR: "Medication active: leukotriene inhibitors" during the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" during the "measurement period";
- OR: "Medication order: mast cell stabilizer" during the "measurement period";
- OR: "Medication active: mast cell stabilizer" during the "measurement period";
- OR: "Medication dispensed: methylxanthines" during the "measurement period";
- OR: "Medication order: methylxanthines" during the "measurement period";
- OR: "Medication active: methylxanthines" during the "measurement period";
- **Exclusions =**
  - OR: "Diagnosis active: COPD";
  - OR: "Diagnosis active: cystic fibrosis";
  - OR: "Diagnosis active: emphysema";
  - OR: "Diagnosis active: acute respiratory failure";

## **Population criteria 2**

- **Initial Patient Population =**
  - "Patient characteristic: birth date" (age)  $\geq 11$  and  $\leq 49$  before the "measurement period" to capture all patients who will reach the age of 12 through 50 during the "measurement period";
- **Denominator =**
  - AND: All patients in the initial population;
  - OR:
    - AND: "Encounter: encounter ED"  $\leq 1$  years before or simultaneously to the "measurement period";
    - AND: "Diagnosis active: asthma"  $\leq 1$  years before or simultaneously to the "measurement period";
  - OR:
    - AND: "Encounter: encounter acute inpt"  $\leq 1$  years before or simultaneously to the "measurement period";
    - AND: "Diagnosis active: asthma"  $\leq 1$  years before or simultaneously to the "measurement period";
  - OR:
    - AND:  $\geq 4$  count(s) of "Encounter: encounter outpatient"  $\leq 1$  years before or simultaneously to the "measurement period";
    - AND: "Diagnosis active: asthma"  $\leq 1$  years before or simultaneously to the "measurement period";
    - AND:  $\geq 2$  count(s) of:

- OR: "Medication dispensed: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";

- OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: >=4 count(s) of:
  - OR: "Medication dispensed: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";



- OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR:
  - AND: >=4 count(s) of:
    - OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
  - AND: "Diagnosis active: asthma" <= 1 years before or simultaneously to the "measurement period";
- **Numerator =**
  - AND: >=1 count(s) of:
    - OR: "Medication dispensed: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication order: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication active: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication dispensed: antibody inhibitor" during the "measurement period";
    - OR: "Medication order: antibody inhibitor" during the "measurement period";
    - OR: "Medication active: antibody inhibitor" during the "measurement period";
    - OR: "Medication dispensed: inhaled corticosteroids" during the "measurement period";
    - OR: "Medication order: inhaled corticosteroids" during the "measurement period";
    - OR: "Medication active: inhaled corticosteroids" during the "measurement period";

- OR: "Medication dispensed: inhaled steroid combinations" during the "measurement period";
- OR: "Medication order: inhaled steroid combinations" during the "measurement period";
- OR: "Medication active: inhaled steroid combinations" during the "measurement period";
- OR: "Medication dispensed: leukotriene inhibitors" during the "measurement period";
- OR: "Medication order: leukotriene inhibitors" during the "measurement period";
- OR: "Medication active: leukotriene inhibitors" during the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" during the "measurement period";
- OR: "Medication order: mast cell stabilizer" during the "measurement period";
- OR: "Medication active: mast cell stabilizer" during the "measurement period";
- OR: "Medication dispensed: methylxanthines" during the "measurement period";
- OR: "Medication order: methylxanthines" during the "measurement period";
- OR: "Medication active: methylxanthines" during the "measurement period";
- **Exclusions =**
  - OR: "Diagnosis active: COPD";
  - OR: "Diagnosis active: cystic fibrosis";
  - OR: "Diagnosis active: emphysema";
  - OR: "Diagnosis active: acute respiratory failure";

### **Population criteria 3**

- **Initial Patient Population =**
  - "Patient characteristic: birth date" (age)  $\geq 4$  and  $\leq 49$  before the "measurement period" to capture all patients who will reach the age of 5 through 50 during the "measurement period";
- **Denominator =**
  - AND: All patients in the initial population;
  - OR:
    - AND: "Encounter: encounter ED"  $\leq 1$  years before or simultaneously to the "measurement period";
    - AND: "Diagnosis active: asthma"  $\leq 1$  years before or simultaneously to the "measurement period";
  - OR:
    - AND: "Encounter: encounter acute inpt"  $\leq 1$  years before or simultaneously to the "measurement period";

- AND: "Diagnosis active: asthma" <= 1 years before or simultaneously to the "measurement period";
- OR:
  - AND: >=4 count(s) of "Encounter: encounter outpatient" <= 1 years before or simultaneously to the "measurement period";
  - AND: "Diagnosis active: asthma" <= 1 years before or simultaneously to the "measurement period";
  - AND: >=2 count(s) of:
    - OR: "Medication dispensed: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication dispensed: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";

- OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: >=4 count(s) of:
  - OR: "Medication dispensed: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antiasthmatic combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: antibody inhibitor" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication active: inhaled corticosteroids" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication dispensed: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
  - OR: "Medication order: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";

- OR: "Medication active: inhaled steroid combinations" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: long acting inhaled beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: mast cell stabilizer" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: methylxanthines" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication dispensed: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication order: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR: "Medication active: short acting beta 2 agonist" <= 1 years before or simultaneously to the "measurement period";
- OR:
  - AND: >=4 count(s) of:
    - OR: "Medication dispensed: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication order: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
    - OR: "Medication active: leukotriene inhibitors" <= 1 years before or simultaneously to the "measurement period";
  - AND: "Diagnosis active: asthma" <= 1 years before or simultaneously to the "measurement period";
- **Numerator =**
  - AND: >=1 count(s) of:
    - OR: "Medication dispensed: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication order: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication active: antiasthmatic combinations" during the "measurement period";
    - OR: "Medication dispensed: antibody inhibitor" during the "measurement period";

- OR: "Medication order: antibody inhibitor" during the "measurement period";
- OR: "Medication active: antibody inhibitor" during the "measurement period";
- OR: "Medication dispensed: inhaled corticosteroids" during the "measurement period";
- OR: "Medication order: inhaled corticosteroids" during the "measurement period";
- OR: "Medication active: inhaled corticosteroids" during the "measurement period";
- OR: "Medication dispensed: inhaled steroid combinations" during the "measurement period";
- OR: "Medication order: inhaled steroid combinations" during the "measurement period";
- OR: "Medication active: inhaled steroid combinations" during the "measurement period";
- OR: "Medication dispensed: leukotriene inhibitors" during the "measurement period";
- OR: "Medication order: leukotriene inhibitors" during the "measurement period";
- OR: "Medication active: leukotriene inhibitors" during the "measurement period";
- OR: "Medication dispensed: mast cell stabilizer" during the "measurement period";
- OR: "Medication order: mast cell stabilizer" during the "measurement period";
- OR: "Medication active: mast cell stabilizer" during the "measurement period";
- OR: "Medication dispensed: methylxanthines" during the "measurement period";
- OR: "Medication order: methylxanthines" during the "measurement period";
- OR: "Medication active: methylxanthines" during the "measurement period";
- **Exclusions =**
  - OR: "Diagnosis active: COPD";
  - OR: "Diagnosis active: cystic fibrosis";
  - OR: "Diagnosis active: emphysema";
  - OR: "Diagnosis active: acute respiratory failure";

#### **Data criteria (QDS Data Elements)**

- **Initial Patient Population =**
  - "Patient characteristic: birth date" using "birth date code list" before the "measurement period";
- **Denominator =**
  - "Diagnosis active: asthma" using "asthma code list grouping" before or simultaneously to "measurement end date";

- “Encounter: encounter ED” using “encounter ED code list” before or simultaneously to “measurement end date”;
- “Encounter: encounter acute inpt” using “encounter acute inpt code list” before or simultaneously to “measurement end date”;
- “Encounter outpatient” using “encounter outpatient code list grouping” before or simultaneously to “measurement end date”;
- “Medication dispensed: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication order: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication active: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication order: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication active: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication order: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication active: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication order: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication active: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication order: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication active: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: long acting inhaled beta 2 agonist” using “long acting inhaled beta 2 agonist code list” before or simultaneously to “measurement end date”;
- “Medication order: long acting inhaled beta 2 agonist” using “long acting inhaled beta 2 agonist code list” before or simultaneously to “measurement end date”;
- “Medication active: long acting inhaled beta 2 agonist” using “long acting inhaled beta 2 agonist code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;
- “Medication order: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;
- “Medication active: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;

- “Medication dispensed: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
- “Medication order: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
- “Medication active: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: short acting beta 2 agonist” using “short acting beta 2 agonist code list” before or simultaneously to “measurement end date”;
- “Medication order: short acting beta 2 agonist” using “short acting beta 2 agonist code list” before or simultaneously to “measurement end date”;
- “Medication active: short acting beta 2 agonist” using “short acting beta 2 agonist code list” before or simultaneously to “measurement end date”;

• **Numerator =**

- “Medication dispensed: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication order: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication active: antiasthmatic combinations” using “antiasthmatic combinations code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication order: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication active: antibody inhibitor” using “antibody inhibitor code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication order: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication active: inhaled corticosteroids” using “inhaled corticosteroids code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication order: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication active: inhaled steroid combinations” using “inhaled steroid combinations code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication order: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication active: leukotriene inhibitors” using “leukotriene inhibitors code list” before or simultaneously to “measurement end date”;
- “Medication dispensed: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;



- “Medication order: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;
  - “Medication active: mast cell stabilizer” using “mast cell stabilizer code list” before or simultaneously to “measurement end date”;
  - “Medication dispensed: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
  - “Medication order: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
  - “Medication active: methylxanthines” using “methylxanthines code list” before or simultaneously to “measurement end date”;
- **Exclusions =**
    - “Diagnosis active: COPD” using “COPD code list grouping” before or simultaneously to “measurement end date”;
    - “Diagnosis active: cystic fibrosis” using “cystic fibrosis code list grouping” before or simultaneously to “measurement end date”;
    - “Diagnosis active: emphysema” using “emphysema code list grouping” before or simultaneously to “measurement end date”;
    - “Diagnosis active: acute respiratory failure” using “acute respiratory failure code list grouping” before or simultaneously to “measurement end date”;

### **Summary calculation**

Calculation is generic to all measures:

- Calculate the final denominator by adding all that meet denominator criteria.
- Subtract from the final denominator all that do not meet numerator criteria yet also meet exclusion criteria. Note some measures do not have exclusion criteria.
- The performance calculation is the number meeting numerator criteria divided by the final denominator.
- For measures with multiple patient populations, repeat this process for each patient population and report each result separately.
- For measures with multiple numerators, calculate each numerator separately within each population using the paired exclusion.

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<b>Measure set</b>	CLINICAL QUALITY MEASURE SET 2011-2012
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