Asthma Disease Management
HEDIS® Measures & Improvement Strategies

Bryan Davis, PharmD
<table>
<thead>
<tr>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe HEDIS asthma metrics and formulate a plan to achieve target goals</td>
</tr>
<tr>
<td>Consider and apply performance improvement methodologies for education and adherence</td>
</tr>
<tr>
<td>Employ Kaiser Permanente tools and resources to outreach to non-compliant patients</td>
</tr>
</tbody>
</table>
HEDIS Asthma Metrics
Asthma Medication Ratio (AMR)

Measure established by NCQA’s HEDIS specifications

- Patients age 5-85
- With persistent asthma (re-identified each year)
- Had ratio of controller medications to total asthma medications of $\geq 0.50$
## Asthma Medication Ratio (AMR)

### Definitions

**Persistent asthma**
- At least one encounter in an inpatient/emergency room setting with a principal diagnosis of asthma or
- Four office visits with any diagnosis of asthma and at least two asthma medication dispensing events or
- At least four asthma medication dispensing events

**One dispensing event**
- Amount lasting 30 days or less
  - For prescriptions longer than 30 days, divide days’ supply by 30 and round down
- Multiple prescriptions for different medications dispensed on same day counted separately
- Inhalers of same med dispensed on same day = one dispensing event
- Each injection counted separately
## Asthma Medication Ratio (AMR)

### Medications

### Controller

<table>
<thead>
<tr>
<th>Antiasthmatic combinations</th>
<th>Dyphylline-guaifenesin</th>
<th>Guaifenesin-theophylline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibody inhibitor</td>
<td>Omalizumab</td>
<td></td>
</tr>
<tr>
<td>Inhaled steroid combinations</td>
<td>Budesonide-formoterol</td>
<td>Mometasone-formoterol</td>
</tr>
<tr>
<td>Inhaled corticosteroids</td>
<td>Beclomethasone</td>
<td>Flunisolide</td>
</tr>
<tr>
<td></td>
<td>Budesonide</td>
<td>Fluticasone CFC free</td>
</tr>
<tr>
<td></td>
<td>Ciclesonide</td>
<td>Mometasone</td>
</tr>
<tr>
<td>Leukotriene modifiers</td>
<td>Montelukast</td>
<td>Zileuton</td>
</tr>
<tr>
<td>Mast cell stabilizers</td>
<td>Cromolyn</td>
<td></td>
</tr>
<tr>
<td>Methylxanthines</td>
<td>Aminophylline</td>
<td>Theophylline</td>
</tr>
</tbody>
</table>

### Reliever

<table>
<thead>
<tr>
<th>Short-acting, inhaled beta-2 agonists</th>
<th>Albuterol</th>
<th>Levalbuterol</th>
<th>Pirbuterol</th>
</tr>
</thead>
</table>

One medication unit equals one inhaler canister, one injection, or a 30-day or less supply of an oral medication.
Asthma Medication Ratio (AMR)

Case study calculation

- JJ changed health plans in January and arrives as a new patient in February. He has been classified as intermittent asthmatic in the past and fills his albuterol regularly.
- You perform a spirometry test and after your assessment he is identified to have mild-persistent asthma. You prescribe him QVAR.
- You check back with JJ in March to make sure he has filled his 2nd month of controller medication and see how he is doing. He says he’s doing fine.

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispenses</td>
<td>1 albuterol canister</td>
<td>1 albuterol canister</td>
<td>1 albuterol canister</td>
</tr>
<tr>
<td></td>
<td>1 QVAR canister</td>
<td>1 QVAR canister</td>
<td>1 QVAR canister</td>
</tr>
</tbody>
</table>
# Asthma Medication Ratio (AMR)

## Calculating Ratio

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 albuterol canister</td>
<td>1 albuterol canister</td>
<td>1 albuterol canister</td>
<td>1 albuterol canister</td>
</tr>
<tr>
<td>1 QVAR canister</td>
<td>1 QVAR canister</td>
<td>1 QVAR canister</td>
<td></td>
</tr>
</tbody>
</table>

Controller medication units dispensed per year

Total asthma medication units dispenses per year

\[
\frac{2}{5} = 40\% \\
\text{Non-Compliant}
\]
High albuterol use is correlated with increased risk of emergency care for asthma.

Source: Am J Manag Care. 2010;16(5):327-333
## Asthma Medication Ratio (AMR)

### Patient Management

<table>
<thead>
<tr>
<th>Confirm diagnosis</th>
<th>Engage patient</th>
<th>Ongoing management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure diagnosis accuracy</td>
<td>Educate on condition</td>
<td>Follow-up visit</td>
</tr>
<tr>
<td>Verify treatment plan</td>
<td>Establish care plan</td>
<td>Check-in outreach</td>
</tr>
<tr>
<td></td>
<td>Identify barriers</td>
<td>Assess non-compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No PRN refills for albuterol (or limit 1-2)</td>
</tr>
</tbody>
</table>
Medication Management for People with Asthma (MMA)

- Patients age 5-85
- With persistent asthma (re-identified each year)
- Dispensed appropriate medications that they remained on for at least 50% or 75% of the treatment period (two separate rates reported)
  - Treatment period: earliest dispensing event for any controller medication during the measurement year through the end of the year.
Medication Management of Asthma (MMA)
Proportion of Days Covered (PDC)

Proportion of days covered = 
Days covered by controller meds ÷ Days in treatment period

Example:
90 days of medication dispensed Apr 1 (first date) +
90 days of medication dispensed Sep 15 = 180 days covered

April 1 through Dec 31 = 274 days
180 days covered ÷ 274 day treatment period = 65.7%
## Medication Management of Asthma (MMA)

### Patient Management

<table>
<thead>
<tr>
<th>Engage patient</th>
<th>Reduce barriers</th>
<th>Ongoing management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate on condition</td>
<td>Prescribe formulary agents (lower copay)</td>
<td>Follow-up visit</td>
</tr>
<tr>
<td>Establish care plan</td>
<td>Encourage mail order (lower copay, ease)</td>
<td>Check-in outreach</td>
</tr>
<tr>
<td>Identify barriers</td>
<td>Default quantity 90 days for chronic medications</td>
<td>Assess non-compliance</td>
</tr>
</tbody>
</table>
# Asthma measures

**Code for exclusions**

<table>
<thead>
<tr>
<th>Exclusion</th>
<th>ICD-9</th>
<th>ICD-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPD</td>
<td>493.20, 493.21, 493.22, 496</td>
<td>J44.0, J44.1, J44.9</td>
</tr>
<tr>
<td>Emphysema</td>
<td>492.0, 492.8, 518.1, 518.2</td>
<td>J43.0-2, J43.8, J43.9</td>
</tr>
<tr>
<td>Obstructive Chronic Bronchitis</td>
<td>491.20, 491.21, 491.22</td>
<td>J98.2, J98.3</td>
</tr>
<tr>
<td>(Interstitial emphysema, Compensatory emphysema)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cystic Fibrosis</td>
<td>277.00, 277.01, 277.02, 277.03, 277.09</td>
<td>E84.0, E84.11, E84.19, E84.8, E84.9</td>
</tr>
<tr>
<td>Acute Respiratory Failure</td>
<td>518.81</td>
<td>J96.00, J96.01, J96.02, J96.20, J96.21, J96.22</td>
</tr>
<tr>
<td>Chronic Respiratory Conditions Due to Fumes/Vapors</td>
<td>506.4</td>
<td>J68.4</td>
</tr>
</tbody>
</table>
Performance Improvement Methodologies
Steps to Provide Quality Asthma Care

**INITIAL VISIT**

1. Diagnose asthma
2. Assess asthma severity
3. Initiate medication & demonstrate use
4. Develop written asthma action plan
5. Schedule follow-up appointment

**FOLLOW-UP VISITS**

1. Assess & monitor asthma control
2. Schedule next follow-up appointment
3. Review asthma action plan, revise as needed
4. Review medication technique & adherence; assess side effects; review environmental control
5. Maintain, step up, or step down medication

Source: NHLBI Asthma Care Quick Reference
Asthma is a dynamic disease which can progress or remit and can result in step-up therapy as well as step-down therapy.

Exclude alternate diagnoses: many conditions can produce asthma-like symptoms.

Recent studies show large portion of patients misdiagnosed:

- Cohort study of 701 patients diagnosed with asthma ≤ 5 years found that 1/3 had a misdiagnosis of asthma.
- Approximately 25% of patients using asthma controller medications had asthma ruled out or were tapered off all or some of their medications and remained free of asthma symptoms 12 months later.
- A similar study found that 1/3 of 242 patients with BMI > 30 kg/m² and physician diagnosis of asthma did not have asthma.

## Establish Diagnosis

### Patients with No Air-flow Obstruction after Medication Taper

<table>
<thead>
<tr>
<th>Top Diagnoses (N=203)</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
<td>61 (28.6)</td>
</tr>
<tr>
<td>Allergic or non-allergic rhinitis</td>
<td>54 (25.3)</td>
</tr>
<tr>
<td>GERD</td>
<td>18 (8.5)</td>
</tr>
<tr>
<td>Anxiety or hyperventilation</td>
<td>8 (3.8)</td>
</tr>
<tr>
<td>Deconditioning</td>
<td>7 (3.3)</td>
</tr>
<tr>
<td>Obesity or Eosinophilic bronchitis</td>
<td>6 (2.8)</td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td>4 (1.9)</td>
</tr>
<tr>
<td>COPD</td>
<td>4 (1.9)</td>
</tr>
<tr>
<td>Chronic cough due to ACE inhibitors</td>
<td>4 (1.9)</td>
</tr>
<tr>
<td>Post-viral cough</td>
<td>4 (1.9)</td>
</tr>
<tr>
<td><strong>Serious Cardiorespiratory Conditions</strong>*</td>
<td>12 (5.9)</td>
</tr>
</tbody>
</table>

*4 ischemic heart disease, 2 subglottic stenosis, 2 bronchiectasis, 1 interstitial lung disease, 1 pulmonary hypertension, 1 sarcoidosis, 1 tracheobronchomalacia

*JAMA. 2017; 317(3):269-279*
Establish Diagnosis
Characteristics of patients with confirmed asthma vs. ruled-out asthma

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th>Confirmed Asthma</th>
<th>Ruled-Out Asthma</th>
<th>Absolute Difference (%)†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Post-bronchodilator improvement in FEV$_1$*</td>
<td>86 (21.0)</td>
<td>0</td>
<td>21.0</td>
</tr>
<tr>
<td>Patient had spirometry at time of diagnosis</td>
<td>298 (72.7)</td>
<td>119 (58.6)</td>
<td>14.1</td>
</tr>
<tr>
<td>Currently using asthma medications</td>
<td>370 (90.2)</td>
<td>161 (79.3)</td>
<td>10.9</td>
</tr>
<tr>
<td>Using asthma-controlling medications daily</td>
<td>202 (49.3)</td>
<td>71 (35.0)</td>
<td>14.3</td>
</tr>
<tr>
<td>Wheezing during past 12 months</td>
<td>337 (82.2)</td>
<td>137 (67.5)</td>
<td>14.7</td>
</tr>
</tbody>
</table>

* FEV1=forced expiratory volume in the first second of expiration, with improvement by ≥12% and ≥200 mL
† All had a p value of <0.001

JAMA. 2017; 317(3):269-279
Asthma is by definition an episodic disorder. Spirometry obtained while patient is symptomatic can help to confirm diagnosis or if symptoms are from another cause.

Spirometry can ensure correct disease management:
- at minimum every two years
- every 6 months if a daily controller is needed.
Asthma Assessment
Asthma Assessment

Rule of “twos”

If “yes” to any of these, asthma MAY NOT BE CONTROLLED: consider step-up in treatment

Using albuterol more than TWO times a week? (not counting pre-exercise)

Awakening at night with asthma more than TWO times a month?

TWO or more steroid bursts within 12 months?

Obtaining an albuterol canister more than TWO times a year?
Asthma Assessment

Asthma Control Test (ACT) standardized questionnaire

ACT (12+ years, 5 questions) and Childhood ACT (4-11 years, 7 questions)

1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?
   - All of the time (1)
   - Most of the time (2)
   - Some of the time (3)
   - A little of the time (4)
   - None of the time (5)

2. During the past 4 weeks, how often have you had shortness of breath?
   - More than once a day (1)
   - Once a day (2)
   - 3 to 6 times a week (3)
   - Once or twice a week (4)
   - Not at all (5)

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?
   - 4 or more nights a week (1)
   - 2 or 3 nights a week (2)
   - Once a week (3)
   - Once or twice (4)
   - Not at all (5)

4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?
   - 3 or more times per day (1)
   - 1 or 2 times per day (2)
   - 2 or 3 times per week (3)
   - Once a week or less (4)
   - Not at all (5)

5. How would you rate your asthma control during the past 4 weeks?
   - Not controlled at all (1)
   - Poorly controlled (2)
   - Somewhat controlled (3)
   - Well controlled (4)
   - Completely controlled (5)

Scoring
- 20-25: Well controlled
- 16-19: Not well controlled
- 0-15: Very poorly controlled

Significantly correlated to % predicted FEV₁ (r=0.29, P<0.001)

Scores ≤19 have 71% sensitivity (true + result) and 71% specificity (true – result) to detect uncontrolled asthma

Copyright 2002, by QualityMetric Incorporated. Asthma Control Test is a trademark of QualityMetric Incorporated.

Asthma Control Test (ACT)

Integrate into workflows

- GSK Copyright - OK for non-commercial use if copyright statement included on printed copies
- Integrate into EHR - additional permission may be required (www.asthma.com)
- Can be performed by RN or MA quickly during phone follow-up
  - If ACT ≤19: schedule patient for follow-up visit
Patient Education
Patient Education

**Inhaler technique**
- Patient knowledge gap
  - Use “show and tell”

**Action plan**
- Educate on symptoms for each level

**Teach back**
- Albuterol vs. controller, adherence importance
Patient Education

Inhaler Technique

Many demonstrations available online. Have patients watch and demonstrate.

Metered dose inhaler (MDI) with or without spacers

- Slow deep inhalation to total lung capacity, breath hold
- Requires hand-breath coordination!
- **Common errors:** incorrect assembly, waiting too long to inhale, inhaling too rapidly, firing multiple puffs into reservoir, failing to take mouth piece cap off

Dry powder inhaler (DPI)

- Rapid deep inhalation to total lung capacity; breath hold
- Dependent on patient’s inspiratory flow!
- **Common errors:** improper positioning, exhaling into device before inhaling, storage in high humidity, failure to load dose properly

Nebulizer

- Normal tidal breathing with the occasional deep breath and/or breath hold
- Wash hands before handling to minimize infection risk
Patient Education

Reservoir Devices

Spacer: an extension tube, with no valves to hold aerosol plume

- Even a toilet paper roll can improve drug delivery

Valved holding chamber: a chamber with one-way inspiratory valve to hold aerosol until inspiration

- Wash once a week to reduce static charge and improve drug availability
Patient Education

Asthma Action Plan

- Use of asthma action plans reduce:
  - Hospitalizations
  - Urgent care and ED visits
  - Work absences
  - Nocturnal asthma in adults

- Many sites provide different options
  - Available in Spanish
Patient Education

Asthma Action Plan

- Important that patient recognizes symptoms for each level
- Peak flow meters are a useful tool if patients are willing

Red Zone: Get Help Now!

Symptoms: Lots of problems breathing – Cannot work or play – Getting worse instead of better – Medicine is not helping

Peak Flow Meter _____ (less than 50% of personal best)

Take Quick-relief Medicine NOW! □ Albuterol/levalbuterol ___ puffs, ____________________________ (how frequently)

Call 911 immediately if the following danger signs are present

- Trouble walking/talking due to shortness of breath
- Lips or fingernails are blue
- Still in the red zone after 15 minutes
Patient Education

Perception of Breathlessness

- Poor perception of breathlessness is a risk factor for poor outcome in asthma patients
- Especially elderly
- Can identify with spirometry and help the patient manage with peak flow


Figure 3. Kaplan-Meier curves for survival of patients according to the perception of dyspnea. Reprinted with permission from Ibihara et al.24
Kaiser Permanente
Tools & Resources
The Kaiser Permanente MFA program is one of the most generous in the health care industry and is available to those patients in greatest need.
Medication Financial Assistance (MFA)

Why patients may seek financial assistance

- Young adults > 26 years “aged out” of parents’ coverage or ≤ 26 without any coverage
- Unexpected job loss
- Homelessness
- Patients who leave jobs to care for family members
- Chronically low income or fixed income patients
- Large families with insufficient income to cover all needs
- Catastrophic or chronic illness
- Patients with mental health issues
- Divorce, separation, domestic violence
Medication Financial Assistance (MFA)

Member eligibility

- Gross household income \( \leq \) 300% FPL
- Out of pocket expenses >10% of gross household income
  - Includes copays, coinsurance, deductibles, dental care and medication costs

Refer patients to KPWA Member Services to determine eligibility or to apply
Medication Financial Assistance (MFA)

Medication criteria

- Accepted prescriptions written by:
  - Kaiser Permanente providers and **contracted providers**
  - Non-Kaiser Permanente emergency department/urgent care providers
  - Non-Kaiser Permanente providers if written for Kaiser Permanente member who is under care of Kaiser Permanente providers

- Excluded drugs:
  - **Non-formulary medications**
  - OTC’s (unless prescribed)
  - Drugs for fertility, cosmetics, or sexual dysfunction
# Medication Financial Assistance (MFA)

## Asthma Formulary medications

<table>
<thead>
<tr>
<th>Short-Acting</th>
<th>ICS</th>
<th>ICS/LABA</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Albuterol (Ventolin HFA*)</td>
<td>• Beclomethasone (QVAR)*&lt;br&gt;• Mometasone** (Asmanex)†&lt;br&gt;• Fluticasone (Flovent)†&lt;br&gt;• Budesonide — Respules only</td>
<td>• Mometasone-formoterol (Dulera)*&lt;br&gt;• Fluticasone-salmeterol (Advair)†</td>
<td>• Montelukast (Singulair)&lt;br&gt;• Theophylline</td>
</tr>
</tbody>
</table>

*Preferred 1st<br>**Preferred 2nd<br>† PA Required

ICS: Inhaled Corticosteroid<br>LABA: Long-Acting Beta Agonist
Kaiser Permanente Tools

Provider.ghc.org
- HEDIS® Insight: Provider Communications > HEDIS® Insight
- Clinical guidelines: Patient Care > Clinical Guidelines
- Patient education: Patient Care > Patient Health Education
- Newsletters: Provider Communications
- Drug Formulary, Clinician Prescribing Tools: Patient Care > Pharmacy

Care Gap Report: Ask your Provider Services Consultant for regular patient lists for your practice.

Suggestions? Email suggestions that would work for your organization: davis.ba@ghc.org
Questions?

thrive
Kaiser Permanente

escape the gravitational pull of the couch.

since you can't take it with you,

be pro-antioxidant.

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stay longer.

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