Improving Outcomes: Practical Asthma Management
Continuing education

• Refer to the continuing education handout for information on:
  – Financial disclosures
  – Continuing medical education (CME)
  – Nursing contact hours
  – Continuing respiratory care credits (CRCE)
Program purpose

To improve asthma diagnosis and management through use of the NIH asthma guidelines, emphasizing family education and teach-back technique.
Learning objectives

1. Increase the ability to appropriately diagnose asthma
2. Increase ability to appropriately manage asthma
3. Increase understanding of the key asthma education components to counsel patients and families, including use of the teach-back method
4. Increase understanding of asthma triggers and avoidance strategies
Wisconsin Asthma Coalition

- **Vision:** Taking control of asthma
- **Mission:** Fostering partnerships to improve asthma management, enhance quality of life, reduce disparities and prevent asthma-related deaths
Wisconsin Asthma Coalition

- Executive committee
- **Chair:** Michelle Mercure, CHES, American Lung Association in Wisconsin

- **** NEW - Add Michelle’s picture
Wisconsin Asthma Coalition

- Initiative teams
- 10 local coalition members
- More than 200 individual members
  - Community-based organizations
  - Clinics
  - Health plans
  - Pharmacists
  - Schools
  - State and local government
Burden of asthma in Wisconsin

Asthma is deadly

Emergency Department Visit & Hospitalization Rates

- 6X more African-Americans
- 2X more Native Americans & Hispanics
- 3X more children younger than age 5

1 person dies every 5 days
Burden of asthma in Wisconsin

- Counties with highest rates of emergency department visits and hospitalizations
  - Milwaukee
  - Menominee
  - Kenosha
  - Racine
  - Rock
Burden of asthma in Wisconsin

ASTHMA IS EXPENSIVE

18,642 EMERGENCY DEPARTMENT VISITS

+ 4,992 HOSPITALIZATIONS

= EXCEEDING $100 MILLION ANNUALLY
Guidelines

The four components of asthma management:

1. Assessing and monitoring asthma severity and asthma control
2. Medications
3. Education for a partnership in care: Key educational components
4. Environmental factors and comorbid conditions that affect asthma
Assessment of severity and control
Assessment of severity and control

• Key asthma indicators
  • Wheezing
    • High pitched whistling when breathing out, especially in children
  • History of recurrent:
    • Cough
    • Wheeze
    • Difficulty breathing
    • Chest tightness
Assessment of severity and control

• Symptoms occur or worsen:
  • At night, awakening the patient
  • In the presence of:
    • Exercise
    • Viral Infection
    • Animals with fur/hair
    • House dust mites
    • Mold
    • Pollen
  • Smoke (tobacco, wood)
  • Changes in weather
  • Strong emotional expression (laughing or crying hard)
  • Airborne chemicals or dusts
  • Menstrual cycles
Assessment of severity and control

• Determine that:
  • Episodic sx of airflow obstruction or airway hyper-responsiveness are present
  • Airflow obstruction is at least partially reversible
  • Alternative diagnoses are excluded
Assessment of severity and control

Establish the diagnosis

- Detailed medical history
- Exam: Upper respiratory tract, chest and skin
- Spirometry
  - Assess obstruction/reversibility, >5 years
  - Reversibility: Increase in FEV1 ≥ 12% from baseline and 200ml
- Additional studies to exclude alternate diagnosis
<table>
<thead>
<tr>
<th><strong>Severity</strong></th>
<th><strong>Control</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic intensity of disease during patient’s initial presentation</td>
<td>Degree to which manifestations of asthma are minimized and goals of long-term control therapy are met</td>
</tr>
<tr>
<td><strong>Application:</strong> Used for initiating appropriate medication</td>
<td><strong>Application:</strong> Guides decisions to maintain or adjust therapy</td>
</tr>
<tr>
<td></td>
<td>Responsiveness to treatment: ease with which asthma control is achieved by therapy</td>
</tr>
<tr>
<td>Severity and Control are defined in terms of current impairment and future risk</td>
<td></td>
</tr>
</tbody>
</table>
Impairment and risk

• Impairment
  • Measure:
    • Frequency of symptoms
    • Nighttime awakenings
    • Need for SABA
    • Normal activities (school/work days missed, QOL)
    • Quality of life assessment
  • Assess lung function by spirometry in age ≥5 yrs

Impairment and risk

• Risk
  • Likelihood of asthma attacks and lung function loss over time
  • Possible predictors of risk:
    • Severe/persistent airflow obstruction on spirometry
    • ≥2 ED or hospitalizations for asthma within past year
    • Intubations or ICU within 5 yrs
Impairment and risk

• Risk continued
  • Patient characteristics:
    • Adult female
    • Nonwhite
    • ICS nonuse
    • Smoker

  • Psychosocial:
    • Depression
    • Stress
    • Socioeconomic factors
    • Attitudes about medication
    • Fear of disease
<table>
<thead>
<tr>
<th>Components of severity</th>
<th>Intermittent</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
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</thead>
<tbody>
<tr>
<td><strong>Ages</strong></td>
<td>Ages 0-4 years</td>
<td>Ages 5-11 years</td>
<td>Ages &gt; 12 years</td>
<td>Ages 0-4 years</td>
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<td>Symptoms</td>
<td>≤ 2 days/week</td>
<td>≥ 2 days/week but not daily</td>
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<td>Throughout the day</td>
</tr>
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**Consider severity and interval since last asthma exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV1.**

**Recommended Step for Initiating Therapy**

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<tr>
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<th>Step 1</th>
<th>Step 2</th>
<th>Step 3 medium-dose ICS option</th>
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<th>Step 4 or 5</th>
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| In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed. For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.
Asthma Predictive Index (API)

Modified API
History of at least 4 episodes of wheezing (> 1 confirmed by a physician) in a child with at least 1 major or 2 minor criteria

MAJOR CRITERIA
1. Parent with physician diagnosed asthma
2. Physician diagnosed eczema
3. Allergic sensitization to 1 or more aeorallergen

MINOR CRITERIA
1. Wheezing apart from colds
2. Eosinophilia (> 4%)
3. Allergic sensitization to milk, egg or peanut
Assessment of severity and control

• Asthma Control Test (ACT) and Child ACT
  • <19: an indication that your asthma may not be under control
  • > 20: asthma seems to be well controlled

• Test for Respiratory and Asthma Control in Kids (TRACK)
### Asthma Care Quick Reference Guide, page 6

<table>
<thead>
<tr>
<th>Components of control</th>
<th>Well controlled</th>
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<th>Very poorly controlled</th>
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<td>≥ 4/month</td>
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<td>60 – 80%</td>
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<td>75 – 80%</td>
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<td><strong>ACQ</strong></td>
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<tr>
<td><strong>ACT</strong></td>
<td>≥ 20</td>
<td>16-19</td>
<td>≤ 15</td>
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<tr>
<td><strong>Asthma exacerbations requiring oral systemic corticosteroids</strong></td>
<td>0-1 year</td>
<td>2-3 year</td>
<td>≥ 2 year</td>
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<tr>
<td><strong>Reduction in lung growth/Progressive loss of lung function</strong></td>
<td>Not applicable</td>
<td>Evaluation requires long-term follow-up care</td>
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<tr>
<td><strong>Treatment-related adverse effects</strong></td>
<td>Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.</td>
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</tbody>
</table>

### Recommended Step for Initiating Therapy

**Step up 1 step**
Maintain current step. Regular follow-up every 1-6 months. Consider step down if well controlled for at least 3 months.

**Step up at least 1 step**
Reevaluate in 2-4 weeks to achieve control. For children 0-4 years, if no clear benefit observed in 4-6 weeks, consider adjusting therapy or alternative diagnosis.

**Step up 1 step**
Consider short course of oral systemic corticosteroids. Step up 1-2 steps. Reevaluate in 2 weeks to achieve control.

**Before step up treatment**
Review adherence to medication, inhaler technique and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.
Differential diagnosis possibilities for asthma

**ADULTS**

- COPD (e.g., chronic bronchitis or emphysema)
- Congestive heart failure
- Pulmonary embolism
- Mechanical obstruction of the airways (benign/malignant tumors)
- Pulmonary infiltration with eosinophilia
- Cough secondary to drugs (angiotensin-converting enzyme (ACE) inhibitors)
- Vocal cord dysfunction
Differential diagnosis possibilities for asthma

INFANTS & CHILDREN

• Upper airway disease
  • Allergic rhinitis and sinusitis

• Obstructions involving large airways
  • Foreign body in trachea
  • Vocal cord dysfunction
  • Vascular rings or laryngeal webs
  • Laryngotracheomalacia, tracheal stenosis, or bronchostenosis
  • Enlarged lymph nodes or tumor
Differential diagnosis possibilities for asthma

INFANTS & CHILDREN CONTINUED

• Obstructions involving small airways
  • Viral bronchiolitis or obliterative bronchiolitis
  • Cystic fibrosis
  • Bronchopulmonary dysplasia
  • Heart disease

• Other causes
  • Recurrent cough not due to asthma
  • Aspiration from swallowing mechanism dysfunction or GE reflux
Assessment of severity and control

Case 1: Tanya
Assessment of severity and control

Exam

- Anxious
- Nasal turbinates pale and boggy
- Lungs with expiratory wheeze
Assessment of severity and control

Spirometry

<table>
<thead>
<tr>
<th>Best Data</th>
<th></th>
<th>Pred</th>
<th>Best</th>
<th>% Pred</th>
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<tr>
<td>FVC</td>
<td>Liters</td>
<td>2.57</td>
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<td>1.80</td>
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<td>77</td>
<td>--</td>
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<tr>
<td>FEF25-75%</td>
<td>L/sec</td>
<td>3.10</td>
<td>1.50</td>
<td>48</td>
</tr>
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</table>
What are Tanya’s key asthma indicators?

- Wheezing
- Cough
- Chest tightness
What triggers Tanya’s symptoms?

• At night, awakening the patient
• Exercise
• Animals with fur/hair
• Smoke (tobacco, wood)
What spirometric finding is consistent with asthma after bronchodilator?

<table>
<thead>
<tr>
<th></th>
<th>Ref</th>
<th>Pre Meas</th>
<th>Pre % Ref</th>
<th>Post Meas</th>
<th>Post % Ref</th>
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<td>70</td>
<td>45</td>
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</table>
Does Tanya’s case meet the criteria to diagnose asthma?

Yes
Are there other alternative diagnosis that could be made for Tanya?

- COPD (e.g., chronic bronchitis or emphysema)
- Vocal cord dysfunction
What in Tanya’s history defines her impairment?

- Frequency of symptoms
- Nighttime awakenings
- Normal activities (school/work days missed, quality of life)
- Spirometry

What makes Tanya high risk for exacerbations?

- ≥2 ED or hospitalizations for asthma within past year
- Female
- Nonwhite
- Smoker
- Stress
Classifying severity

What is Tanya’s severity?
A. Intermittent
B. Mild persistent
C. Moderate persistent
D. Severe persistent

Asthma Care Quick Reference Guide, page 5
<table>
<thead>
<tr>
<th>Components of severity</th>
<th>Intermittent</th>
<th>Mild</th>
<th>Persistent</th>
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<tbody>
<tr>
<td><strong>Symptoms</strong></td>
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</tr>
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- Generally, more frequent and intense events indicate greater severity.

Consider severity and interval since last asthma exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV1.

**Recommended Step for Initiating Therapy**

- **Step 1**
- **Step 2**
- **Step 3 medium-dose ICS option**
- **Step 3 medium-dose ICS option or Step 4**

- Consider short course of oral systemic corticosteroids

In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed.

For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.
Medications
Medications

• Rescue
  • Quick relief
  • Relaxes smooth airway muscles and bronchoconstriction
  • Short-acting beta agonist (SABA)

• Controller
  • Preventative
  • Reduces airway inflammation
  • Inhaled corticosteroids, inhaled corticosteroid/long acting beta agonist, leukotriene modifiers, methylxanthines
Medications

Case 2: Joey

Asthma Care Quick Reference Guide, page 5
### Asthma Care Quick Reference Guide

#### Components of severity

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Intermittent</th>
<th>Persistent</th>
</tr>
</thead>
<tbody>
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<td>Ages 0-4 years, Ages 5-11 years, Ages &gt; 12 years</td>
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#### Risk

- Asthma exacerbations requiring oral systemic corticosteroids
  - Intermittent: 0-1/year
  - Persistent: ≥ 2/year

- Consider severity and interval since last asthma exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV1.

#### Recommended Step for Initiating Therapy

- Step 1
- Step 2
- Step 3 medium-dose ICS option
- Step 3 medium-dose ICS option or Step 4

In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed. For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.
Medications

What treatment would you recommend?

A. SABA as needed
B. Montelukast daily and SABA as needed
C. Fluticasone 110 mcg 1 puff twice daily and SABA as needed
D. I am not comfortable diagnosing him with asthma

Asthma Care Quick Reference, page 7
Medications

- Moderate Persistent: Step 3
- Recommendation:
  - Preferred: Medium dosed ICS
  - Answer C: Fluticasone 110 mcg 1 puff twice daily and SABA as needed

Asthma Care Quick Reference, page 7
Medications

Case 2: Joey 6 month follow-up

- Initially doing well
- In the last month, wheezing 3 – 4 days a week
- Using SABA 3 days a week which resolves wheeze

*Asthma Care Quick Reference, page 6*
Medications

Case 2: Joey 6 month follow-up

Refer to Asthma Care Quick Reference, page 6

What is your next step?

A. Schedule SABA 2 puffs twice daily
B. Continue fluticasone 110 mcg 1 puff twice daily
C. Add montelukast
D. Switch to high dose fluticasone
<table>
<thead>
<tr>
<th>Components of Control</th>
<th>Well controlled</th>
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<td>Extremely limited</td>
</tr>
<tr>
<td>SABA use for symptom control</td>
<td>≤ 2 days/week</td>
<td>≥ 2 days/week</td>
<td>Several times per day</td>
</tr>
<tr>
<td>Lung function</td>
<td>Not applicable</td>
<td>&gt; 80%</td>
<td>Not applicable</td>
</tr>
<tr>
<td>FEV1 (% predicted)</td>
<td>Not applicable</td>
<td>&gt; 80%</td>
<td>&gt; 60%</td>
</tr>
<tr>
<td>FEV1/FVC</td>
<td>&gt; 80%</td>
<td>Not applicable</td>
<td>75-80%</td>
</tr>
<tr>
<td>Validated questionnaires</td>
<td>AtAQ</td>
<td>Not applicable</td>
<td>0-1/2</td>
</tr>
<tr>
<td></td>
<td>ACQ</td>
<td>Not applicable</td>
<td>1-2</td>
</tr>
<tr>
<td></td>
<td>ACT</td>
<td>≥ 20</td>
<td>3-4</td>
</tr>
<tr>
<td>Asthma exacerbations requiring oral systemic corticosteroids</td>
<td>0-1 year</td>
<td>2-3/1 year</td>
<td>3-4/1 year</td>
</tr>
<tr>
<td>Risk</td>
<td></td>
<td>Consider severity and interval since last asthma exacerbation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation requires long-term follow-up care</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation requires long-term follow-up care</td>
<td></td>
</tr>
<tr>
<td>Treatment-related adverse effects</td>
<td>Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommended Step for Initiating Therapy**

- **Step up 1 step:**
  - Maintain current step.
  - Regular follow-up every 1-6 months.
  - Consider step down if well controlled for at least 3 months.

- **Step up at least 1 step:**
  - Step up at least 1 step.
  - Review adherence to medication, inhaler technique and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.

- **Step up 1 step:**
  - Step up 1 step.
  - Review adherence to medication, inhaler technique and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.

- **Consider short course of oral systemic corticosteroids:**
  - Step up 1-2 steps.
  - Re-evaluate in 2 weeks to achieve control.

Before step up treatment:
- Review adherence to medication, inhaler technique and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.
Asthma control

- Assessment: Not well-controlled
- Recommend: Step-up 1 step
  - Add LABA or montelukast
  - Answer C: Add montelukast

*Asthma Care Quick Reference, page 7*
Environment and comorbid conditions
Environment and comorbid conditions

Role of allergy

- Common in children (80%–90% of school-aged children with asthma)
- Presence of allergy associated with more severe and persistent asthma
Environment and comorbid conditions

Role of allergy continued

- Allergen exposure is associated with
  - Increased risk of developing asthma
  - Increased asthma morbidity
- Allergen avoidance: Reduces airway hyperresponsiveness and asthma morbidity
Trigger avoidance strategies

Dust mites

• First line (necessary and cost-effective)
  • Control humidity at < 50% (dehumidify if possible, do not add humidity!)
  • Wash bed linens weekly in hot (>130°F) water
  • Stuffed toys: Remove, wash weekly in hot water or put in freezer for 24 hours
  • Use mattress and pillow encasements
  • Regularly vacuum carpeted surfaces
  • Regularly dust hard surfaces
Trigger avoidance strategies

- Animal Dander
  - First line: Keep pets with fur or hair out of your home
  - If can’t keep pets outdoors then:
    - Keep pet out of bedroom, keep door closed
    - Remove carpets and furniture covered with cloth or keep pets out of these rooms
Trigger avoidance strategies

Other allergens

- Pollen
- Cockroaches
- Mold
Trigger avoidance strategies

• Smoke
  • Discourage smoking around patient, including home and car
  • Minimize use of fireplaces and wood-burning stoves
Smoking cessation

- Behavior modification programs
  - Freedom From Smoking® Clinic
  - Freedom From Smoking® Self Help Manual
  - Freedom From Smoking® Online

www.lungusa.org – click on the FFS icon
Smoking cessation

• Lung HelpLine: 800-LUNG-USA
  • Staffed by registered nurses and respiratory therapists
  • Cessation counseling
  • Questions answered regarding COPD, asthma, allergies and other respiratory diseases
  • Air quality and environmental health concerns
Smoking cessation

• Wisconsin Tobacco Quit Line
  – Free
  – 800-QUIT-NOW
  – En Español: 877-2NO-FUME
Environment and Comorbid Conditions

Comorbidities

• Evaluate during history and when asthma cannot be well controlled

• Treatment may:
  – Improve overall control of asthma
  – Lessen requirements for asthma medications
Are there any comorbidities that we need to consider for Joey?

- Allergic bronchopulmonary aspergillosis
- Gastroesophageal reflux disease (GERD)
- Obstructive sleep apnea (OSA)
- Obesity
- Rhinitis/sinusitis
- Stress/depression
Environment and comorbid conditions

Case 2: Joey

Further questioning reveals:

• New cat (4 months)
• Enjoys sleeping with stuffed animals
• More nasal congestion, rhinorrhea and sneezing

• Allergy testing was positive for cat and dust mite
Environment and comorbid conditions

Case 2: Joey, Further questioning

Of the following, you are MOST likely to advise Joey’s mother that she should:

A. Decrease indoor humidity to < 50%
B. Install high efficiency particulate air (HEPA) filter
C. Keep cats off carpeting and upholstered furniture
D. Wash the cats once a month
Key educational components
Key educational components

Case 3: Troy
What would be important to discuss at this appointment?

A. Significance of diagnosis, inflammation as cause of underlying disease.
B. Educate controller and rescue
C. Use spacer
D. Asthma action plan with peak flow readings
E. Closer follow-up
Key educational components

Monitoring and self-management

• Asthma basics and training in asthma management skills
• Self-monitoring (symptom or peak flow-based)
• Written asthma action plan
• Regular assessment by a consistent clinician (follow up, follow up, follow up!)
My Asthma Action Plan

Traffic light colors help you learn about asthma symptoms and what to do.

RED means I feel AWFUL. Get help right away.

YELLOW means I do NOT feel good. Add a relief medicine to feel better fast.

GREEN means I feel GOOD. Use long-term control medicine.

Name: __________________ Date: ___________

Parent/Guardian: __________________________

Healthcare Provider: _______________________

Medical Record #: _________________________

Phone for healthcare provider: ______________

Phone for taxi or friend: _________________

I feel GOOD

- Breathing is easy.
- No cough or wheeze.
- Can work and play

Use asthma long-term control medicine.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
<th>times a day</th>
</tr>
</thead>
</table>

Peak Flow Numbers: _____ to _____

20 minutes before exercise or sports, take ____________ puffs of this medicine:

I do NOT feel good

- Cough
- Wheeze
- Hard to breathe
- Wake up at night.
- Can do some, but not all activities.

TAKE _____ puffs of quick-relief medicine. If not back in the Green Zone within 20 to 30 minutes, take _____ more puffs.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
<th>times a day</th>
</tr>
</thead>
</table>

KEEP USING long-term control medicine:

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
<th>times a day</th>
</tr>
</thead>
</table>

Call healthcare provider if quick-relief medicine does not work OR if these symptoms happen more than twice a week.

Get help now!

Take these quick-relief medicines until you get emergency care.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
<th>times a day</th>
</tr>
</thead>
</table>

Call 911 if can’t walk or talk because it is too hard to breathe OR if lethargic OR if skin is sucked in around neck and rib during breathes OR if lips or fingernails are gray or blue.

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Key educational components

- Influenza Vaccine
  - All asthma patients
- Pneumococcal polysaccharide vaccine (PPSV 23)
  - Adults 19 – 64 years old with asthma
Key educational components

• Importance of ongoing care
  • Regular review
    • Basic facts about asthma
    • Defining well controlled and establishing patient’s current control
    • Role of medications
    • Inhaler technique
    • When and how to handle signs and symptoms of worsening asthma
  • When and where to seek care
  • Environmental exposure control measures
Medication use and device instruction
Key educational components

- Importance of ongoing care
  - Develop an active partnership
    - Address patient/family concerns
    - Identify treatment preferences and barriers to implementation
  - Develop treatment goals together
  - Encourage self-assessment and self-management of asthma
Teachback method

- **Why**: 40-80% of medical information patients receive is forgotten immediately or nearly half is retained incorrectly

- **What is it**: A way to confirm that you have explained what the patient needs to know in a manner the patient understands

- **How**: “I want to be sure that I explained your medication correctly. Can you tell me how you are going to take this medication?”
Teachback video
Incorporating the guidelines into practice
Asthma focused follow-up

- Serves as a guide for follow-up visit
- Created for use in primary care
- List of questions and components
- Incorporate missing components into existing electronic health record
- Free
- Download at: www.chawisconsin.org
Additional resources

- Wisconsin Asthma Coalition
  - www.chawisconsin.org/wac
- Iggy and the Inhalers
  - http://iggyandtheinhalers.com/
- Wee Breathers
  - http://www.aafa.org/display.cfm?id=4&sub=79&cont=903
Thank you!
Additional cases

Case: Sean

- 7-year-old with allergic rhinitis and asthma
- Night cough 4x/week
- Montelukast daily and SABA as needed
- Wheezes after sports
- Oral prednisone three times in the last year

Asthma Care Quick Reference, page 7
Additional cases: Sean

What would be next appropriate step?

A. Switch montelukast with low dose ICS and SABA pre-exercise
B. SABA pre-exercise
C. Add low dose ICS and SABA pre-exercise
D. Asthma medication is not needed because cough is from post-nasal drainage
Additional cases: Sean

- **Severity:** Mild persistent based on current medications
- **Control:** Not well controlled
  - Impairment: exercise induced symptoms
  - Risk: oral prednisone three times in a year
- **Step up at least 1 step**
  - Low-dose ICS + LABA, LTRA or Theophylline
  - Or medium dose ICS
Additional cases: Mark

- Competitive 24-year-old soccer player
- Difficulty breathing during competitions
- Uses SABA before playing and with symptoms but no relief
- Describes a hard time getting enough breath in
- Makes a noisy wheeze when he inhales
Additional cases: Mark

Spirometry: FEV1 98%

What is the next step?
A. Add LTRA
B. Add LABA
C. Add low dose ICS
D. Exclude other diagnosis and comorbidities
Additional cases: Devin

• 10 year old boy
• Uses SABA at least twice daily for wheeze after walking four blocks to and from school
• Avoids sports because he can’t keep up due to shortness of breath
• Denies any other symptoms outside of exertion
• No oral steroids in the last year
• On exam he is mildly obese and lungs are clear
Additional cases: Devin

Spirometry: FEV1 89%

What is the preferred next step in management?
A. SABA before walking to and from school
B. Low dose inhaled corticosteroid daily and SABA as needed
C. Montelukast daily and SABA as needed
D. He doesn’t need asthma medications, he is deconditioned and needs to lose weight
Additional cases: Devin

- Severity: Mild persistent
  - Impairment: Mild (interference with normal activity – minor limitation)
  - Risk: Intermittent (no oral steroids in last year)

- Step 2
  - Preferred: Low-dose ICS
  - Alternative: Cromolyn or montelukast
Additional cases: Jenna

- 18 year old female on fluticasone 220 mcg/salmeterol 2 puffs twice daily
- Returns for 6 month follow-up
- Denies daytime, nighttime, exertional symptoms
- No ED visits/hospitalization or oral steroids
- Not needing SABA
- FEV1 102%
Additional cases: Jenna

What is your next step?
A. Continue current medications
B. Change to fluticasone 110 mcg/salmeterol 2 puffs twice daily
C. Stop fluticasone 220 mcg/salmeterol and continue SABA as needed
D. Stop all asthma medications, she does not have asthma
Additional cases: Jenna

- Severity: Severe persistent based on current medication
- Control: Well controlled
- Recommendations: Continue current medications or step down
Additional cases: Tim

- 36-year-old man with severe persistent asthma
- Complains of wheezing and chest tightness 3x/week
- Symptoms worsen when he climbs the stairs and mows the lawn
- He coughs almost every night
- Snores loudly
- He takes Tums daily
Additional cases: Tim

• Exam:
  • Obese
  • Nasal turbinates pale, boggy with clear discharge
  • Lungs with prolonged expiratory phase

• **Question:** His asthma is not controlled. What other factors may be complicating his asthma?
Chronic comorbid conditions

- Allergic bronchopulmonary aspergillosis
- Gastroesophageal reflux disease (GERD)
- Obstructive sleep apnea (OSA)
- Obesity
- Rhinitis/sinusitis
- Stress/depression