



Asthma Management in Pregnancy

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Asthma Management in Pregnancy

- ▶ Effects of asthma on pregnancy outcomes
- ▶ Effects of pregnancy on asthma control
- ▶ Management of asthma

Background

- ▶ Asthma prevalence in pregnancy reported at 3.7% - 8.4%
- ▶ Asthma associated with preterm birth and low weight birth
- ▶ Maternal asthma associated with placenta previa and cesarean delivery
- ▶ Risk appears to be lower in well controlled asthma

Effects of pregnancy on asthma control

- ▶ 330 women in Kaiser- Permanente Prospective Study of Asthma during Pregnancy
- ▶ Diary, exam and spirometry reviewed monthly
- ▶ 35% worsened, 33% unchanged and 28% improved during pregnancy
- ▶ In those that improved, this was a gradual improvement throughout
- ▶ In those that worsened, peak was during 29 to 36 weeks
- ▶ All groups demonstrated improvement in weeks 37-40
- ▶ 90% had no symptoms during delivery with only 2 subjects requiring more than inhaled bronchodilator therapy

NAEPP Expert Panel Report

Managing Asthma During Pregnancy: Recommendations for Pharmacologic Treatment—2004 Update

**Expert Panel Report 3:
Guidelines for the Diagnosis and
Management of Asthma**

Full Report 2007



Updated 2016

Asthma Management in Pregnancy

Goals of therapy

- ▶ Minimal or no chronic symptoms day or night
- ▶ Minimal or no exacerbations
- ▶ No limitations on activities
- ▶ Maintenance of (near) normal pulmonary function
- ▶ Minimal use of short-acting inhaled beta2-agonist
- ▶ Minimal or no adverse effects from medications

It is safer for pregnant women to be treated with medications for their asthma than to have uncontrolled asthma

Management Overview

- ▶ Monthly visits with assessment of asthma control
 - ▶ ACT, PFT or peak flow
- ▶ Control known triggers
 - ▶ Tobacco smoke, allergens, reflux
- ▶ Patient education
 - ▶ Action plan, inhaler teaching
- ▶ Stepwise pharmacology

Intermittent Asthma

Persistent Asthma: Daily Medication
Consult with asthma specialist if step 4 care or higher is required.
Consider consultation at step 3.

Step 1
Preferred:
SABA PRN

Step 2
Preferred:
Low-dose ICS
Alternative:
Cromolyn, LTRA, Nedocromil, or Theophylline

Step 3
Preferred:
Low-dose ICS + LABA
OR
Medium-dose ICS
Alternative:
Low-dose ICS + either LTRA, Theophylline, or Zileuton

Step 4
Preferred:
Medium-dose ICS + LABA
Alternative:
Medium-dose ICS + either LTRA, Theophylline, or Zileuton

Step 5
Preferred:
High-dose ICS + LABA

AND

Consider Omalizumab for patients who have allergies

Step 6
Preferred:
High-dose ICS + LABA + oral corticosteroid

AND

Consider Omalizumab for patients who have allergies

Step up if needed
(first, check adherence, environmental control, and comorbid conditions)

Assess control

Step down if possible
(and asthma is well controlled at least 3 months)

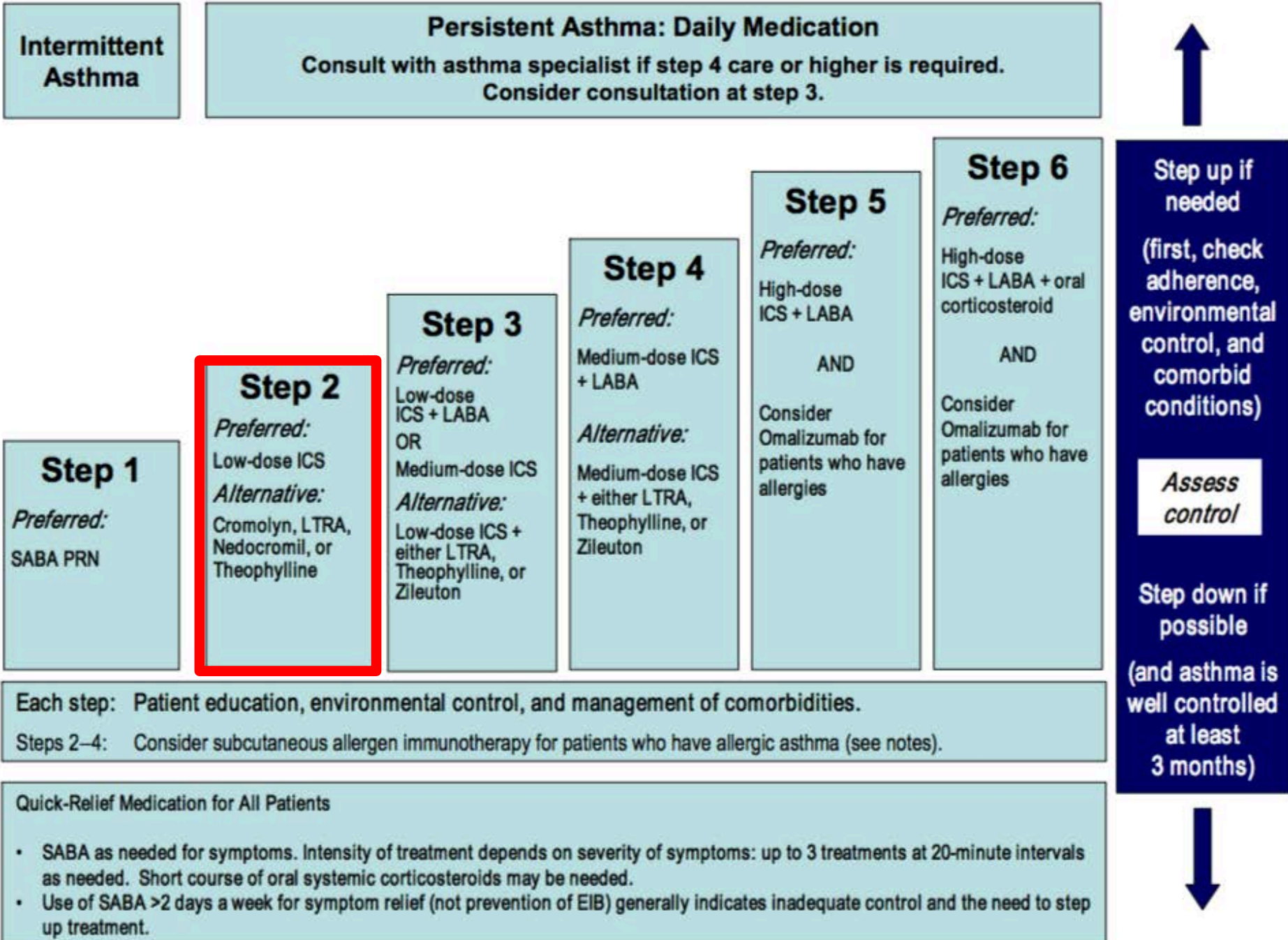
Each step: Patient education, environmental control, and management of comorbidities.
Steps 2–4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma (see notes).

Quick-Relief Medication for All Patients

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

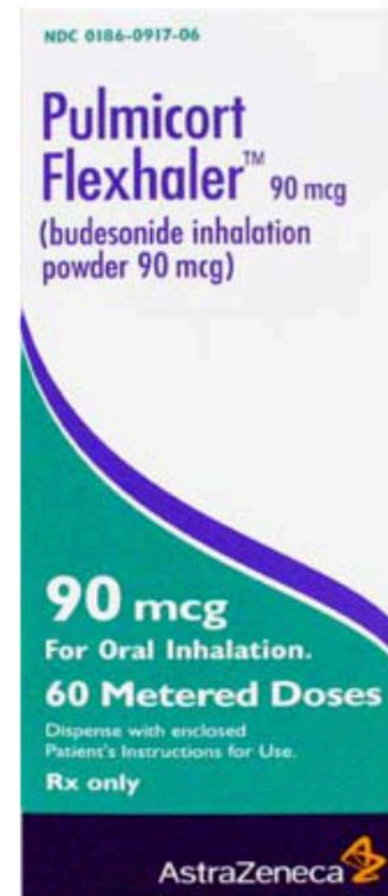
Short Acting Inhaled Beta-2 Agonist *albuterol*

- ▶ Accepted as relatively safe during pregnancy
- ▶ Cohort and case control studies with increase in gastroschisis, cardiac defects and autism
- ▶ Data confounded by poorly controlled asthma and outcomes with low prevalence



Inhaled corticosteroids

- ▶ Budesonide is most studied inhaled ICS
 - ▶ Category B
- ▶ No inhaled corticosteroid has been shown to be harmful compared to budesonide
- ▶ If already on ICS and well controlled prior to pregnancy, recommendation is to continue current ICS



Systemic corticosteroid

- ▶ Possible risks with oral corticosteroids
 - ▶ Cleft palate (high dose in animal studies)
 - ▶ Preterm birth and low birth weight
 - ▶ Increased preeclampsia
 - ▶ Gestational diabetes
- ▶ Higher ICS dose = more systemic absorption
- ▶ Very difficult to differentiate from the effects of severe asthma!

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Long- acting Beta- adrenergic (LABA)

- ▶ Less human data than SABA or ICS, but studies are reassuring
- ▶ More data with formoterol and salmeterol
 - ▶ Symbicort, Advair, Dulera
- ▶ No evidence of harm with vilanterol
 - ▶ Breo

- ▶ Continue LABA if needed to maintain control

Alternative therapies

- ▶ Spiriva: Approved by FDA in pregnancy. “No well controlled studies”
- ▶ Montelukast: Category B. Animal safety data reassuring
- ▶ Immunotherapy:
 - ▶ Do not initiate during pregnancy
 - ▶ Can be continued on a case by case basis

Biologics targeting IgE and IL-5

- ▶ IgE antibody: Omalizumab (Xolair)
 - ▶ 169 pregnancies followed in Xolair database with no evidence of increased risk when compared to general asthma population
- ▶ IL-5: Benralizumab (Fasenra), Mepolizumab (Nucala), Reslizumab (Cinqair)
 - ▶ Monoclonal antibodies will cross placenta
 - ▶ No harm in animal studies

Case #1

- ▶ 24 year old female G1P0 10 weeks pregnant presents to establish care
- ▶ Diagnosed with asthma in childhood
- ▶ Well controlled on Advair 500/50 (high dose) and prn albuterol
- ▶ Notes that she used to use albuterol weekly
- ▶ Has not required any albuterol for past 6 weeks
- ▶ No pets in the home, no tobacco users
- ▶ Never hospitalized or required ER visit for asthma

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?

SCORE

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]

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]

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

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

5. How would you rate your asthma control during the past 4 weeks?

Not controlled at all [1]

Poorly controlled [2]

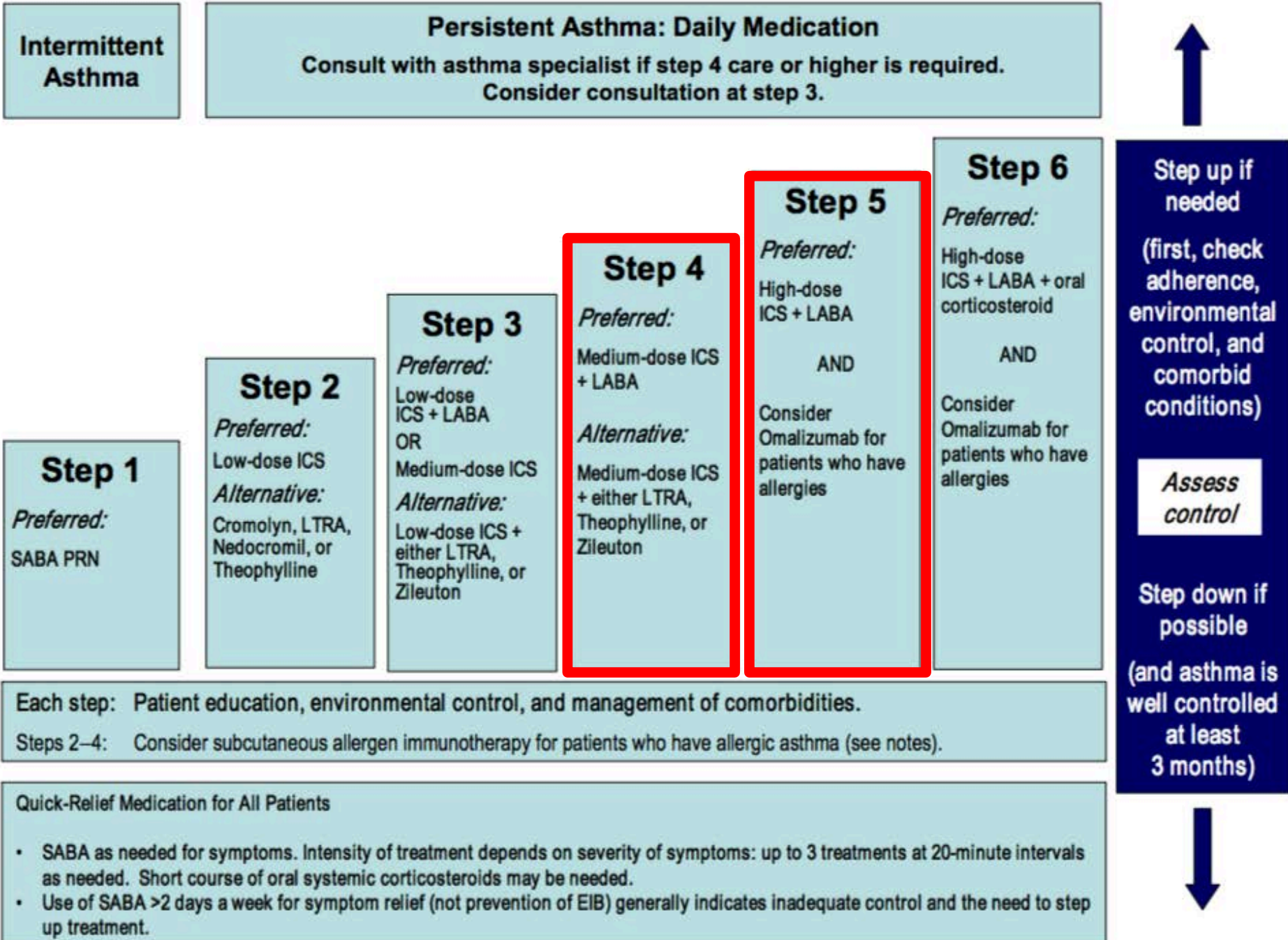
Somewhat controlled [3]

Well controlled [4]

Completely controlled [5]

4

23



Case #1 Recommendations

- ▶ Decrease Advair to 250/50 one puff twice daily
- ▶ Continue as needed albuterol inhaler
- ▶ Review inhaler teaching technique
- ▶ Discuss asthma action plan
- ▶ Follow-up in one month

Asthma Action Plan

Green Zone: Doing Well

Symptoms: Breathing is good – No cough or wheeze – Can work and play – Sleeps well at night

Peak Flow Meter _____ (more than 80% of personal best)

Control Medicine(s)	Medicine	How much to take	When and how often to take it
	_____	_____	_____
	_____	_____	_____

- Physical Activity**
- Use albuterol/levalbuterol ____ puffs, 15 minutes before activity
 - with all activity when you feel you need it

Yellow Zone: Caution

Symptoms: Some problems breathing – Cough, wheeze, or chest tight – Problems working or playing – Wake at night

Peak Flow Meter _____ to _____ (between 50% and 79% of personal best)

Quick-relief Medicine(s) Albuterol/levalbuterol ____ puffs, every 4 hours as needed

Control Medicine(s) Continue Green Zone medicines

Add _____ Change to _____

You should feel better within 20–60 minutes of the quick-relief treatment. If you are getting worse or are in the Yellow Zone for more than 24 hours, THEN follow the instructions in the RED ZONE and call the doctor right away!

Asthma Action Plan

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

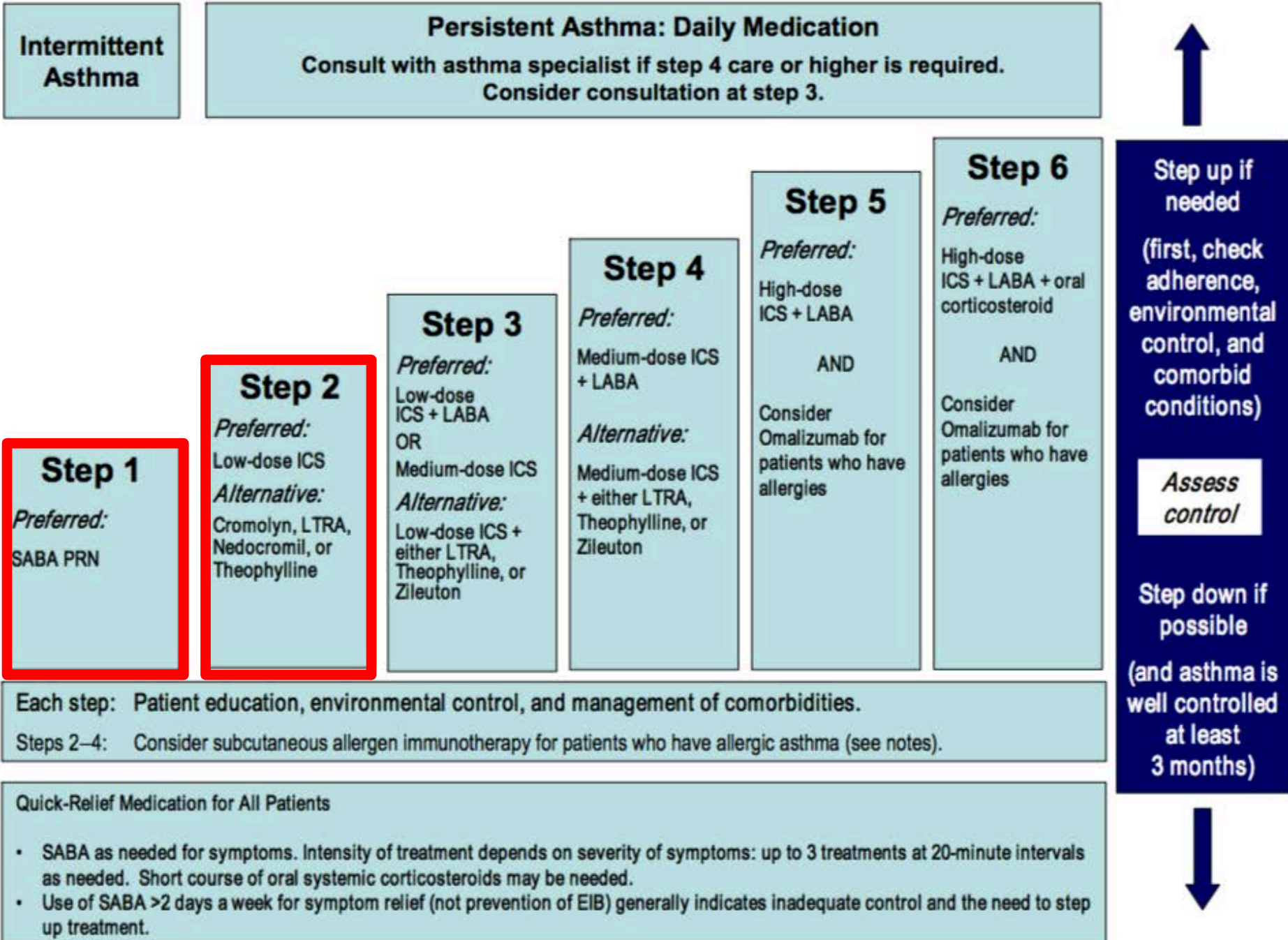
- Trouble walking/talking due to shortness of breath
- Lips or fingernails are blue
- Still in the red zone after 15 minutes

https://www.nhlbi.nih.gov/files/docs/public/lung/asthma_actplan.pdf

<http://www.lung.org/assets/documents/asthma/asthma-action-plan.pdf>

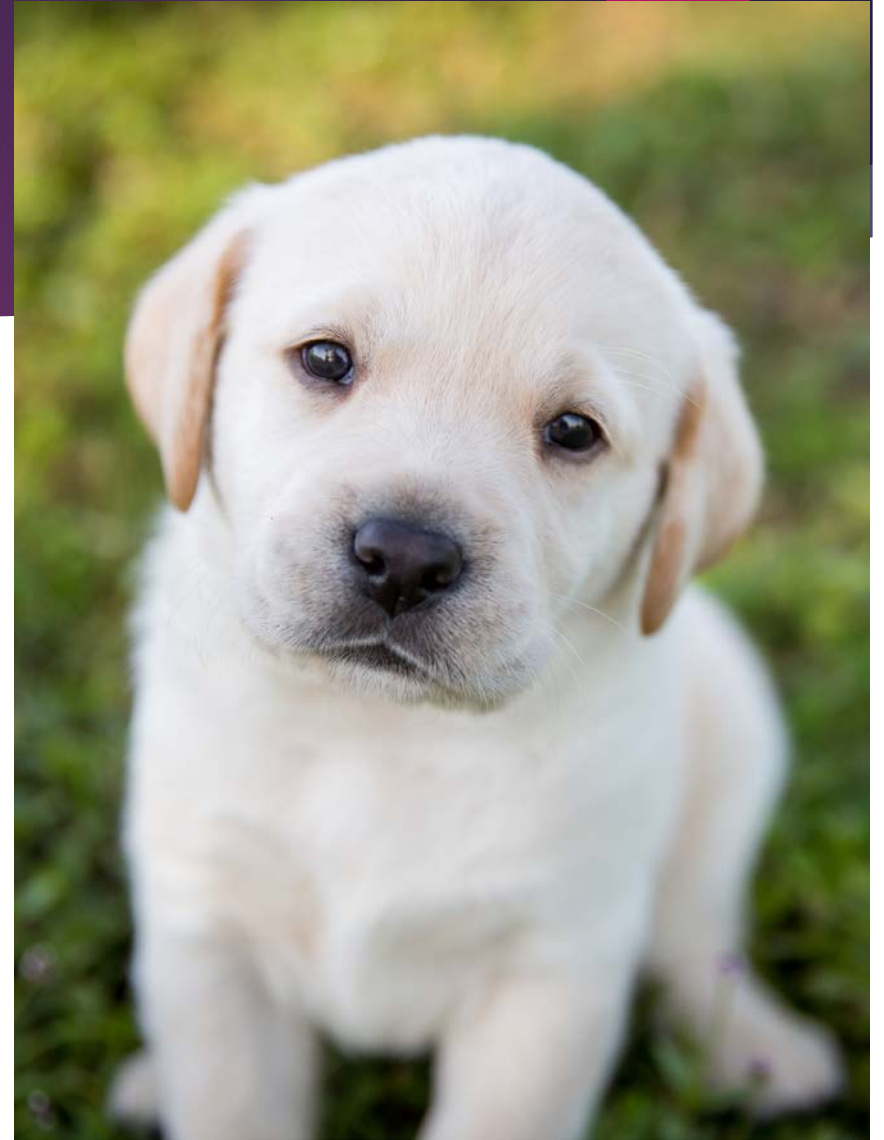
Case #2

- ▶ 19 year old G1P0 presents at 24 weeks
- ▶ Asthma was well controlled with albuterol alone
- ▶ Reports more coughing and shortness of breath over past month
- ▶ ACT score 15
- ▶ Friend and her dog has been staying in her house



Case #2 Recommendations

- ▶ Start low dose inhaled corticosteroid
 - ▶ Budesonide (Pulmicort flexhaler)
- ▶ Continue as needed albuterol
- ▶ Inhaler technique teaching
- ▶ Control triggers



Case #3

- ▶ 28 year old G1P0 25 weeks pregnant
- ▶ Medications include Symbicort medium dose
- ▶ Over the past week, she has been using albuterol daily and waking up at night 1-2 times per week coughing
- ▶ Asthma Control test 13
- ▶ Appears relaxed on exam. Scattered end expiratory wheezes

Case #3 Recommendations

- ▶ Peak flow or FEV1 can be helpful
- ▶ Administer albuterol and evaluate response
- ▶ Consider oral corticosteroids
- ▶ Control environmental triggers

- ▶ May require hospital admission for fetal monitoring and further management

Conclusions

- ▶ Asthma control should be evaluated at each visit
- ▶ Review asthma medication compliance at each visit
- ▶ Follow guidelines to step up/down therapy as tolerated

- ▶ The benefits of good asthma control outweigh the risks associated with medications!

References and Resources

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