Evidence-based Best Practices for the Management of Asthma in Pediatric Care in South Carolina

Sarah Ball, Pharm.D.
SCORxE Director and Assistant Professor
South Carolina College of Pharmacy
August 2, 2015

Disclosure

- Grant funding:
  - South Carolina Department of Health and Human Services
  - National Institute on Drug Abuse
- Primary Source of Information
  - SCORxE Academic Detailing Service. Evidence-Based Best Practices for the Management of Asthma in Pediatric Primary Care in South Carolina. Published April 2012/Revised April 2015.
    Available at: www.sccp.sc.edu/SCORxE

Objectives

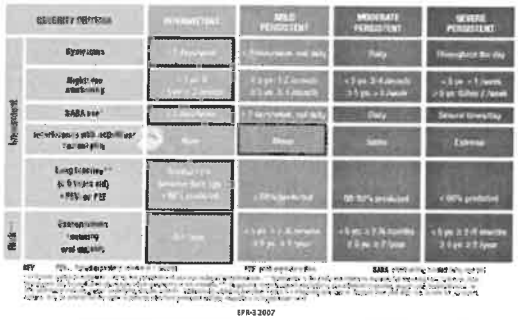
- Assess and document initial severity and follow-up control to select optimal medications
- Environmental control includes a smoke-free home and car and avoiding or minimizing exposure to triggers
- Develop a written asthma action plan (AAP) for patient self-management and provide copies for use at home, school and daycare
- Instruct patients and parents on the proper use of each of their inhalers

Initial Classification of Asthma Severity and Level of Control at Every Follow-up

Important considerations

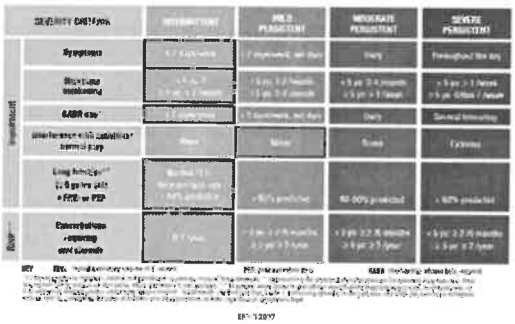
- Documentation/classification of severity helps determine the maximum effective treatment and minimizes medication risks
- Regular follow-up and documentation is important to achieve AND maintain control
- If asthma is not well controlled consider
  - Inhaler/device technique
  - Adherence to medications
  - Trigger control

Assess Initial Asthma Severity



Initial Classification of Asthma

Patient has Mild Persistent Asthma

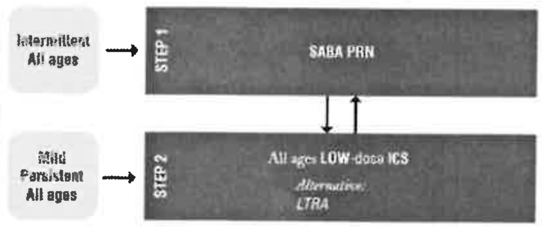


Initial Asthma Classification and Classification of Follow-up Control

The classification of asthma severity (or level of control) and follow-up control is determined by the most severe category of any **ONE** criterion/feature

Initiate Drug Therapy Based on Asthma Severity

Include a daily controller + SABA prn rescue inhaler for all patients with persistent asthma

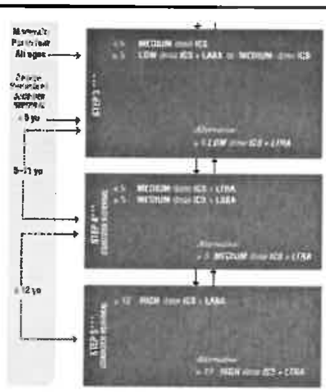


Key:
ICS: Inhaled corticosteroid LTRA: Leukotriene receptor antagonist PRN: As needed
SABA: Short-acting inhaled beta$_2$-agonist

EPR-3 2007
GINA 2015 Update

Initiate Drug Therapy Based on Asthma Severity

- Equipotent doses of ICS are equally efficacious
- Consider devices available for selected drug
- Do not use a LABA without ICS
- Include a daily controller + SABA prn rescue inhaler for all patients with persistent asthma



Key ICS: Inhaled corticosteroid LABA: Long-acting beta$_2$-agonist LTRA: Leukotriene receptor antagonist PRN: As needed
SABA: Short-acting inhaled beta$_2$-agonist
EPR-3 2007 GINA 2015 Update Jones et al. Drug Class Review 2011.

Classification of Asthma Control at Follow-up

Control criteria	Well controlled	Not well controlled	Very poorly controlled
Symptoms	≤2 days/week	[illegible]	Throughout the day
Nighttime awakening	[illegible]	[illegible]	[illegible]
SABA use*	≤2 days/week	[illegible]	Several times per day
Interference with activities/normal play	None	[illegible]	Extreme
Lung function (≥5 years old) FEV₁ or PEF	[illegible]	[illegible]	[illegible]
Questionnaires ACT (≥4 years old)	[illegible]	[illegible]	[illegible]
Exacerbations requiring oral steroids	[illegible]	[illegible]	[illegible]

EPR-3 2007
GINA 2015 Update

Individualize a Written Asthma Action Plan (AAP)

Provide a copy for home, school and daycare

- Engage patients/parents to monitor asthma control
  - Can include following symptoms, peak flow readings or both
- Use to educate families to monitor for overuse of rescue inhaler
- Review at every visit and modify as needed
- Include guidelines for acute exacerbations and detailed contact information

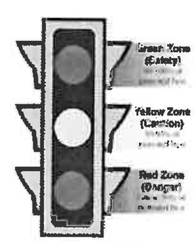
[illegible] Ann Allergy Asthma Immunol 2015;114:178-186
[illegible] Pediatr Adolesc Med 2006;[illegible]:157-163

Peak Flow Meters

Establish your 'personal best' PEFR

Take peak flow readings:

- *When your asthma is under good control*
- *2x/day for 2-3 weeks*
- *When you wake up and between noon and 2:00pm*



www.bcbsks.com

PEFR: Peak Expiratory Flow Rate, also known as a peak flow

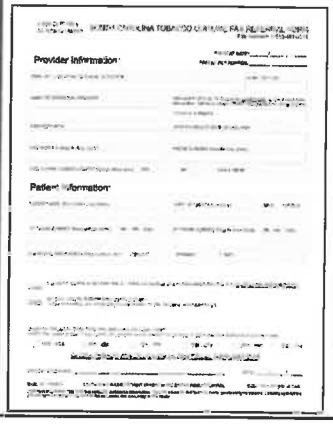
Help Families Stop Smoking and Minimize Exposure to Other Identified Triggers

- Promote smoke-free environment (home, car, daycare)
- Educate patient on how to eliminate/avoid triggers
  - Requires a multifaceted, comprehensive approach that targets all identified allergens
- Educate families on how to handle unavoidable triggers (e.g., exercise, viral infection)
  - Exercise should be encouraged; famliies should be educated on how to manage
- Administer the inactivated flu vaccine annually (> 6 months of age)

Help Families Stop Smoking

Pediatric visits offer important opportunities to ask and advise parents and caregivers about tobacco use to effectively increase abstinence among adults who smoke in addition to screening for tobacco use and promoting good health in children and adolescents

To Quit or Not to Quit ... the Unique Role of Pediatric Visits



SC Quitline

- Fax referral form
- Mock RxPad

South Carolina's Tobacco Quitline

Quit for KEEPS

1-800-QUIT-NOW

Repeat instructions and have patients demonstrate what they learn to help maintain correct technique over time

Instruct Patients and Parents on the Proper Use of Each of Their Inhalers

Consider having an 'asthma coach' at the practice to teach on proper technique on different devices

Many Patients Do Not Use Their Inhalers and Devices Properly

Tips for Optimal Selection and Use of Inhalers

- **CONSIDER** devices available for selected drug
- **SELECT** inhaler patient is capable of using properly
- **TEACH** patient and caregiver proper technique then have them teach you back
- **REPEAT** at follow-up: have patient bring device(s) and demonstrate use at every visit
- **COMMON ERRORS**
  - Patient does not exhale before using the device
  - Patient does NOT hold breath after inhaling dose

Tips for Optimal Selection and Use of Inhalers

Device	General age for correct use	Select Advantages	Select Disadvantages
Dry Powder Inhaler (DPI)	> 5 years	• Compact and portable • Priming or shaking of device not necessary • Breath-actuated, less coordination needed • Many have dose counters	• Requires fairly rapid inhalation (may be difficult in young child) • Must be careful not to lose powder once activated
Metered Dose Inhaler (MDI)	> 5 years *MDI with spacer is preferred*	• Compact and portable • Can use with spacer	• Coordination of breath and actuation by hand needed • Requires priming and shaking

Tips for Optimal Selection and Use of Inhalers

Device	General age for correct use	Select Advantages	Select Disadvantages
Metered Dose Inhaler (MDI)	> 4 years (w/spacer) ≤ 4 years (w/spacer & mask)	• Less coordination needed with spacer • Reduced pharyngeal drug disposition with spacer	• Cannot place >1 puff in spacer or wait too long to inhale • Spacer is less portable, less compact
Small-volume Nebulizer	All ages	• Coordination not needed	• Less portable, less compact • Slower to administer • An additional expense • Requires power source • Need to clean/disinfect

Asthma Medications
Updates Since 2012

Controller Medications	
ICS DPI	Fluticasone (Arnuity™ Ellipta®) 100 mcg/puff, 200 mcg/puff Once daily dosing
ICS MDI	Flunisolide (Aerospan™ HFA) 80mcg/puff Mometasone (Asmanex® HFA) 100 mcg/puff, 200 mcg/puff
ICS Nebulizer	
ICS + LABA DPI	
ICS + LABA MDI	
LTRA oral	
Rescue Medications (SABA)	
DPI	Albuterol (ProAir® Respiclick) 90mcg/puff
MDI	
Nebulizer	

Key DPI: Dry Powder Inhaler ICS: Inhaled corticosteroid LABA: Long-acting beta$_2$-agonist LTRA: Leukotriene receptor antagonist MDI: Metered-dose inhaler

Course of Asthma
Risk Factors for asthma-related death

- 2012 SCORxE Review
  - Low socio-economic status
  - Prior severe exacerbations requiring intubation
  - Recent ED visit or hospital admission for asthma
  - Difficulty perceiving symptoms or exacerbation severity
  - 2 or more rescue inhalers per month
  - Cigarette smoking
  - CV or psychiatric comorbidities
- 2015 SCORxE additions
  - Poor adherence with asthma medications
  - Poor adherence with asthma action plans
  - Not using inhaled corticosteroids
  - Current or recent use of oral corticosteroids
  - Food allergies

EPR-3 2007
0711 2016 Update

Course of Asthma
Engage Patients in Optimal Asthma Management and Breathe Easy

What Next from SCORxE

Visits to Practices in the Fall

- Clinical-friendly interactive discussions at practice site
- Concise, user-friendly print materials
- Educational resources and clinical tools
- More detailed evidence-based materials
  - To be available at: www.sccp.sc.edu/SCORxE

Select References

- Bosnic-Anticevich SZ, Sinha H, SO S,Reddel HK. Metered-dose inhaler technique: the effect of two educational interventions delivered in community pharmacy over time. *J Asthma*. 2010;47:251-256.
- British Thoracic Society (BTS): Scottish Intercollegiate Guidelines Network (SIGN). British guideline on the management of asthma. *Thorax*. 2014;69(suppl 1): 1-192.
- Cates CJ, Welsh EJ, Rowe BH. Holding chambers (spacers) versus nebulisers for beta-agonist treatment of acute asthma. *Cochrane Database of Systematic Reviews* 2014, Issue 6. Art. No.: CD000052.
- Cates CJ, Bestall JC, Adams NP. Holding chambers versus nebulisers for inhaled steroids in chronic asthma. *Cochrane Database of Systematic Reviews* 2009, Issue 3. Art. No.: CD001491.
- CDC Influenza (Flu):Flu and people with asthma. [cited 2015 mar 16]. Available from http://www.cdc.gov/flu/asthma/index.htm.
- Crocker DD, Kinyota S, Dumitru GG, et al for the Task Force on Community Preventive Services. Effectiveness of home-based, multi-trigger, multicomponent interventions with an environmental focus for reducing asthma morbidity. Am J Prev *Med*. 2011;41:S5-S32..
- Dolovich MB, Hess DR, Dhand R, et al. American College of Chest Physicians/American College of Asthma, Allergy and Immunology. Device selection and outcomes of aerosol therapy: evidence-based guidelines. *Chest*. 2005;127:333-371.

Select References

- Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma-Summary Report 2007. *J Allergy Clin Immunol*. Nov 2007;120(5 Suppl):S94-138.
- Gardner A, Kaplan B, Brown W, et al. National standards for asthma self-management education. *Ann Allergy Asthma Immunol*. 2015;114:178-86.
- Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention (2015 update). Available at: www.ginasthma.org. Accessed April 2015.
- Jonas DE, Wines R, DelMonte M, et al. Drug class review: controller medications for asthma. Final update 1 report. 2011. Available at http://derp.ohsu.edu/about/final-document-display.cfm. Accessed April 2015.
- Kelly HW, Sorkness CA. Chapter 33: Asthma. In: DiPiro JT, Talbert RL, Yee GC, et al, eds. Pharmacotherapy: A Pathophysiologic Approach 9th Edition. McGraw-Hill Medical Professional. 2014:369-400.
- Kwok PCL, Chan H. Delivery of inhalation drugs to children for asthma and other respiratory diseases. *Adv Drug Deliv Rev*. 2014;73:83-8.
- Loughheed MD, Lemiere C, Ducharme FM, et al. Canadian Thoracic Society Asthma Clinical Assembly – Canadian Thoracic Society 2012 guideline update: diagnosis and management of asthma in preschoolers, children and adults. *Can Respir J*. 2012;19:127-164.

Select References

- Munzenberger PJ, Thomas R, Bahrainwala A. Retention by children of device technique for inhaled asthma drugs between visits. *J Asthma*. 2007;44:769-773.
- Rodrigo GJ, Castro-rodriguez, JA. Daily vs intermittent inhaled corticosteriods for recurrent wheezing and mild persistent asthma: a systematic review with meta-analysis. *Respir Med*. 2013;107(8):1133-1140.
- Sleath B, Guadalupe XA, Gillette C, et al. Provider demonstration and assessment of child device technique during pediatric asthma visits. *Pediatrics* 2011;127:642-648.
- Walters EH, Gibson PG, Lasserson TJ, Walters JAE. Long-acting beta2-agonists for chronic asthma in adults and children where background therapy contains varied or no inhaled corticosteroid. *Cochrane Database of Systematic Reviews* 2014, Issue 7.Art. No.: CD001385.
- Zemek RL, Bhogal SK, Ducharme FM. Systematic review of randomized controlled trials examining written action plans in children. What is the plan? *Arch Pediatr Adolesc Med*. 2008;162:157-163.