

Association of Asthma Educators: Becoming an Asthma Educator and Care Manager

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Video Communications and Distance Learning Division

Assessment and Monitoring

Faculty

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Assessment and Monitoring

- Impairment and risk
- Asthma severity
- Asthma control

Asthma Impairment and Risk

- Impairment
 - Symptom frequency and intensity
 - Functional limitations
- Risk
 - Likelihood of asthma exacerbation
 - Decline in lung function
 - Potential for medication side effects

Goals of Asthma Therapy

- Reduce impairment
 - Prevent chronic and troublesome symptoms
 - Require infrequent use (<2 days a week) of inhaled SABA
 - Maintain normal or near normal pulmonary lung function

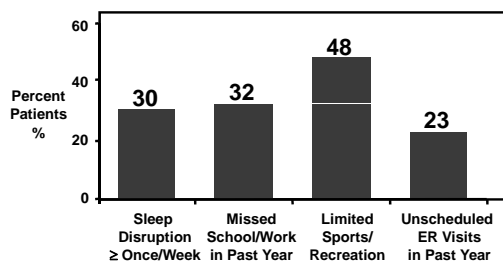
Goals of Asthma Therapy

- Meet patients' and families' expectations of and satisfactions with asthma care

Goals of Asthma Therapy

- Reduce risk
 - Prevent exacerbations, ER admissions, and hospitalizations
 - Prevent loss of lung function, for children, prevent reduced lung growth
 - Provide optimal pharmacotherapy with minimal or no adverse effects of therapy

The Goals of Asthma Therapy Are Inadequately Realized



Rickard K, et al. *J Allergy Clin Immunol.* 1999;103:A655. Asthma in America™ Survey. SRBI. December 1998.

Definition of Asthma

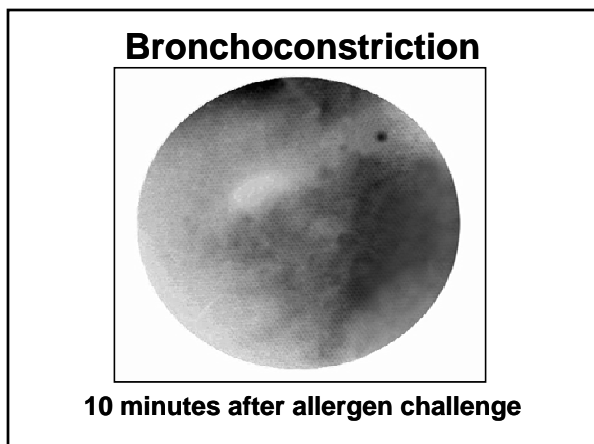
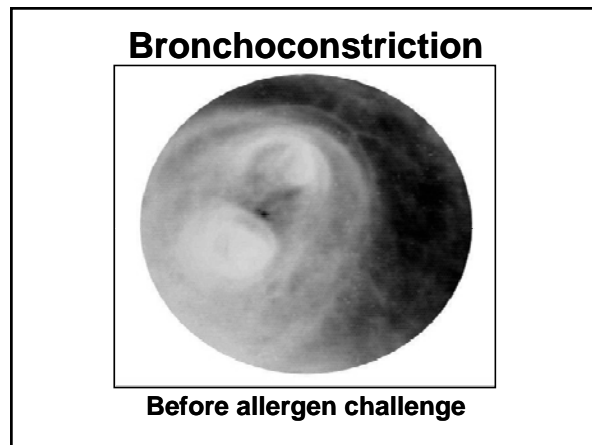
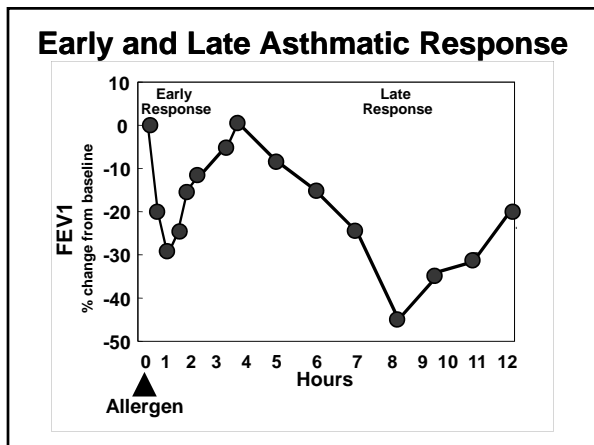
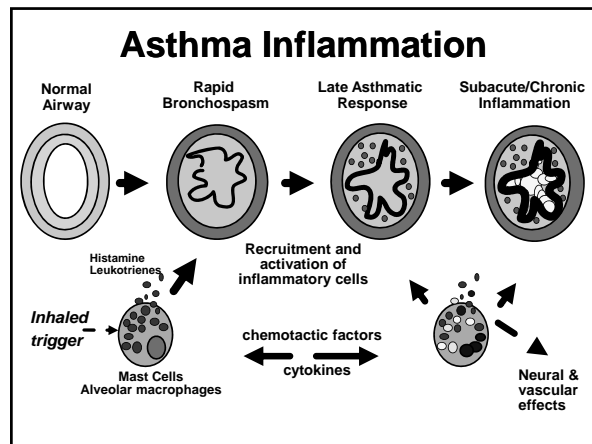
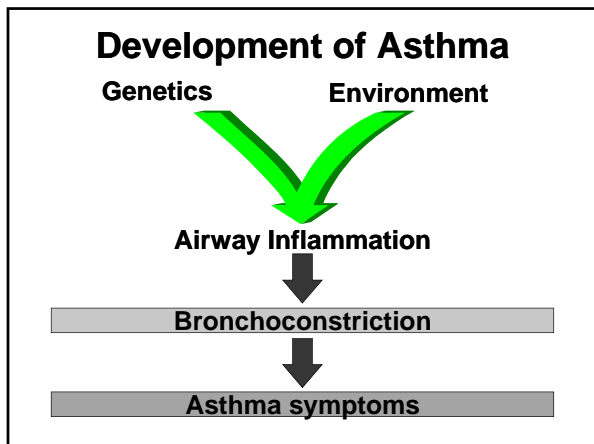
- Asthma is a chronic inflammatory disease of the airway with:
 - Airway obstruction that is reversible, either spontaneously or with medication
 - In susceptible individual may become irreversible

Definition of Asthma

- Airway inflammation caused by many cellular components
- Increased airway hyperresponsiveness

Asthma Pathology

- Airway inflammation produces four forms of airflow limitation:
 - Acute bronchoconstriction
 - Swelling of the airway wall
 - Chronic mucus plug formation
 - Airway remodeling



- ### When You See:
- Allergic bronchitis
 - Wheezy bronchitis
 - Asthmatic bronchitis
 - Recurrent pneumonia
 - Reactive airway disease
 - Recurrent bronchiolitis
 - Chronic cough
 - Recurrent croup
- THINK ASTHMA!**

Factors Contributing to Asthma Severity

- Allergens
- Viral respiratory infections
- Tobacco smoke
- Indoor/outdoor pollutants and irritants
- Weather changes
- Medication sensitivity or interactions
- Occupational exposures

Co-Morbid Conditions Contributing to Asthma Severity

- Rhinitis
- Sinusitis
- Gastroesophageal reflux disease (GERD)
- Obesity
- Obstructive Sleep Apnea (OSA)
- Allergic Bronchopulmonary Aspergillosis (ABPA)

Asthma Predictive Index Children Under 5 Years

- Early wheezer* plus at least one of two major criteria or two of three minor

* >3 episodes of wheezing in past year lasting > 1 day, affecting sleep

– Castro-Rodriguez, et al. Am J Respir Crit Care Med 2000; 162: 1403-1406

Asthma Predictive Index Children Under 5 Years

- Major criteria
 - Parental asthma
 - Eczema
- Minor criteria
 - Allergic rhinitis
 - Eosinophilia >4%
 - Wheezing apart from colds or viruses

Role of Allergy In Asthma

- ~85% of patients with asthma will have a positive skin-test reaction to allergy skin testing
- If this positive reaction correlates with the patient's history, it may be a contributing factor to his/her asthma

Diagnosing Asthma

- Review
 - Medical history – HPI (symptoms present) medications, allergies, and PMH
 - Family and social (environmental) history
 - Review of systems and physical exam
 - Pulmonary function testing

Diagnosing Asthma

- To establish a diagnosis of asthma, the clinician should determine:
 - Symptoms of recurrent episodes of airflow obstruction or airway hyperresponsiveness are present
 - Airflow obstruction is at least partially reversible
 - Alternative diagnoses are excluded

– EPR-3, 2007

Diagnosing Asthma

- Spirometry used to determine:
 - Presence, location, and severity of disease
 - Etiology of disease

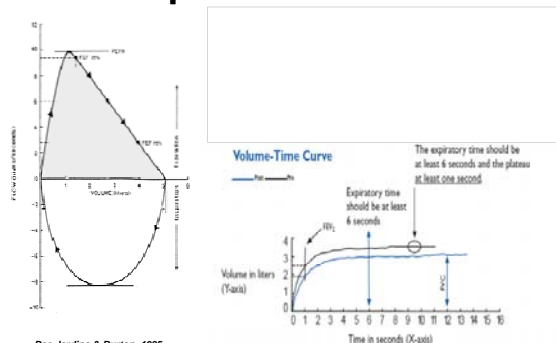
Diagnosing Asthma

- To evaluate:
 - Reversibility
 - Operability
 - Disability
 - Progression of disease and prognosis
 - Effect of therapy

Diagnosing Asthma

- Spirometry
 - Essential objective measure to diagnose asthma
 - FVC – Forced Vital Capacity
 - FEV1 – Forced Expiratory Volume in 1 second
 - FEV1/FVC – Some times referred to as the “Ratio”

Flow Loop/ Volume -Time Curve



Des Jardins & Burton, 1995

Diagnosing Asthma

- Spirometry
 - Pre/post – bronchodilator

Diagnosis Review

- Episodic symptoms of airflow obstruction
- Airflow limitation that is at least partially reversible
- Spirometry is the gold standard for diagnosis
- Peak flow considered to be a monitoring tool

In-depth Medical History

- Symptoms
- Pattern of symptoms
- Precipitating/aggravating factors
- Progression of disease and treatment
- Social history
- Typical exacerbation

In-depth Medical History

- Impact of asthma on patient and family
- Assessment of patient/family's understanding of the disease

Symptoms of Asthma

- Cough
- Wheezing
- Shortness of breath
- Chest tightness
- Nocturnal symptoms
- Exertional symptoms

Asthma Severity and Control

- Asthma severity
 - The intensity of the disease process
 - Classified during initial presentation

Asthma Severity and Control

- Asthma control
 - The degree asthma symptoms are minimized by therapy
 - Classified once therapy has begun
 - The degree goals of asthma are met

Levels of Asthma Severity

- Intermittent asthma
- Mild persistent asthma
- Moderate persistent asthma
- Severe persistent asthma

Classifying Asthma Severity >12yrs-Adult

Components of Severity		Intermittent	Mild Persistent	Moderate Persistent	Severe Persistent
Impairment	Symptoms	≤2days/wk	>2days/wk	Daily	Throughout the day
	Nighttime awakenings	≤2days/month	3-4x/mth	>1x/wk not nightly	Often 7x/wk
	SABA prn	≤2days/wk	>2days/wk not daily	Daily	Several xs/day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function =FEV ₁ =FEV ₁ /FVC	FEV ₁ normal between exacerbations FEV ₁ >80% FEV ₁ /FVC = normal	FEV ₁ >80% FEV ₁ /FVC = normal	FEV ₁ >60% but <80% FEV ₁ /FVC reduced 5%	FEV ₁ <60% FEV ₁ /FVC reduced >5%
Risk	Exacerbations requiring oral steroids	0-1/yr	>2/yr	Expert Panel Report 3 (EPR-3)	

Classifying Asthma Severity 5-11 yrs

Components of Severity		Intermittent	Mild Persistent	Moderate Persistent	Severe Persistent
Impairment	Symptoms	≤2days/wk	>2days/wk	Daily	Throughout the day
	Nighttime awakenings	≤2days/month	3-4x/mth	>1x/wk not nightly	Often 7x/wk
	SABA prn	≤2days/wk	>2days/wk not daily	Daily	Several xs/day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function =FEV ₁ =FEV ₁ /FVC	FEV ₁ normal between exacerbations FEV ₁ >80% FEV ₁ /FVC >85%	FEV ₁ >80% FEV ₁ /FVC >80%	FEV ₁ >60% but <80% FEV ₁ /FVC 75-80%	FEV ₁ <60% FEV ₁ /FVC <75%
Risk	Exacerbations requiring oral steroids	0-1/yr	>2/yr	Expert Panel Report 3 (EPR-3)	

Classifying Asthma Severity 0-4 yrs

Components of Severity		Intermittent	Mild Persistent	Moderate Persistent	Severe Persistent
Impairment	Symptoms	≤2days/wk	>2days/wk	Daily	Throughout the day
	Nighttime awakenings	0	1-2x/mth	3-4x/mth	>1x/wk
	SABA prn	≤2days/wk	>2days/wk not daily	Daily	Several xs/day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	N/A	N/A	N/A	N/A
Risk	Exacerbations requiring oral steroids	0-1/yr	>2/yr	Expert Panel Report 3 (EPR-3)	

Levels of Asthma Control

- Well controlled
- Not well controlled
- Very poorly controlled

Assessing Asthma Control >12yrs-Adult

Components of Control		Well Controlled	Not Well Controlled	Very Poorly Controlled
Impairment	Symptoms	≤2days/wk	>2days/wk	Throughout the day
	Nighttime awakenings	≤2xs/month	1-3xs/month	>4x/mth
	SABA prn	≤2days/wk	>2days/wk	Several xs/day
	FEV ₁ or peak flow	>80%	60-80%	<60%
	Validated questionnaires ATAQ ACQ ACT	ATAQ-0 ACQ<-0.75 ACT>20	ATAQ-1-2 ACQ<-1.5 ACT-16-19	ATAQ-3-4 ACQ<-N/A ACT<-15
Risk	Exacerbations requiring oral steroids	0-1/yr	>2/yr	Expert Panel Report 3 (EPR-3)

Assessing Asthma Control 5-11 years					
Components of Control		Well Controlled	Not Well Controlled	Very Poorly Controlled	
Impairment	Symptoms	≤2days/wk	>2days/wk	Throughout the day	
	Nighttime awakenings	≤1x/month	>2xs/mth	>2x/wk	
	Interference with normal activity	None	Some limitation	Extremely limited	
	SABA prn	≤2days/wk	>2days/wk	Several xs/day	
	FEV1 or peak flow	>80%	60-80%	<60%	
Risk	Exacerbations requiring oral steroids	0-1/yr	>2/yr	Expert Panel Report 3 (EPR-3)	

Assessing Asthma Control 0-4 years					
Components of Control		Well Controlled	Not Well Controlled	Very Poorly Controlled	
Impairment	Symptoms	≤2days/wk	>2days/wk	Throughout the day	
	Nighttime awakenings	≤1x/month	>1xs/month	>1x/wk	
	Interference with normal activity	None	Some limitation	Extremely limited	
	SABA prn	≤2days/wk	>2days/wk	Several xs/day	
	FEV1 or peak flow	N/A	N/A	N/A	
Risk	Exacerbations requiring oral steroids	0-1/yr	2-3xs/yr	>3xs/yr Expert Panel Report 3 (EPR-3)	

**Key Education Messages
Provided by Clinician**