
MANAGEMENT OF COPD AND ASTHMA IN THE HOME

Presented by

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PROGRAM OBJECTIVES

Participants will be able to:

- Differentiate between COPD and asthma on the basis of etiology, symptoms and spirometry
 - Describe management of COPD in the home environment
 - Describe management of asthma in the home environment
 - Discuss the increasing significance of COPD and asthma as disease entities of the 21st Century
-

COPD - DEFINITION

Chronic obstructive pulmonary disease (COPD) is a slowly progressive disease of the airways characterized by gradual loss of lung function. For the most part, it is preventable and treatable and it is now the third leading cause of death in the U.S.

COPD DEFINITION – cont'd

COPD is a disease state characterized by airflow limitation that is not fully reversible. Airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases. COPD is usually progressive if exposure to noxious agents is continued

COPD - CONDITIONS

IN THE U.S., THE MAJOR UNDERLYING CONDITIONS OF COPD INCLUDE:

- Simple Chronic Bronchitis
 - Chronic Obstructive Bronchitis
 - Emphysema
 - Combination of these conditions
-

SIMPLE CHRONIC BRONCHITIS

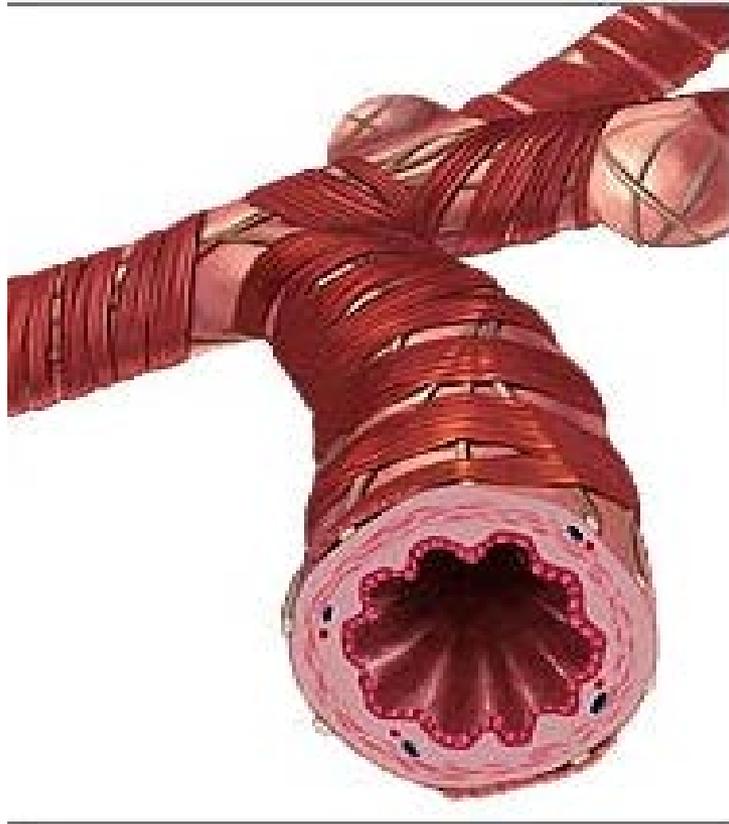
Simple chronic bronchitis is defined as the presence of a productive cough for 3 months for 2 consecutive years in a patient in whom other causes of a chronic productive cough have been excluded.

CHRONIC OBSTRUCTIVE BRONCHITIS

Chronic obstructive bronchitis is seen in patients who have both chronic bronchitis and airflow obstruction as determined by a reduction in their FEV_1 and FEV_1/FVC or $FEV_{1\%}$

AIRFLOW LIMITATION

Normal Bronchiole



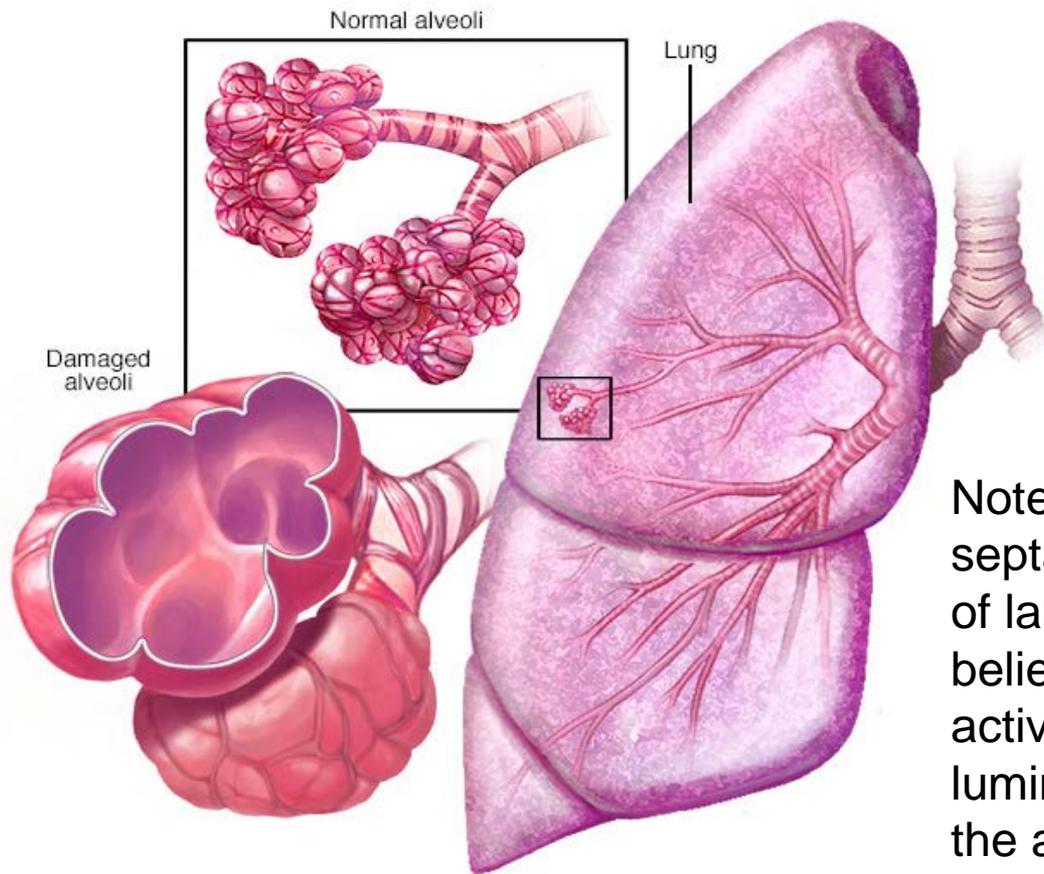
Obstructed Bronchiole



EMPHYSEMA

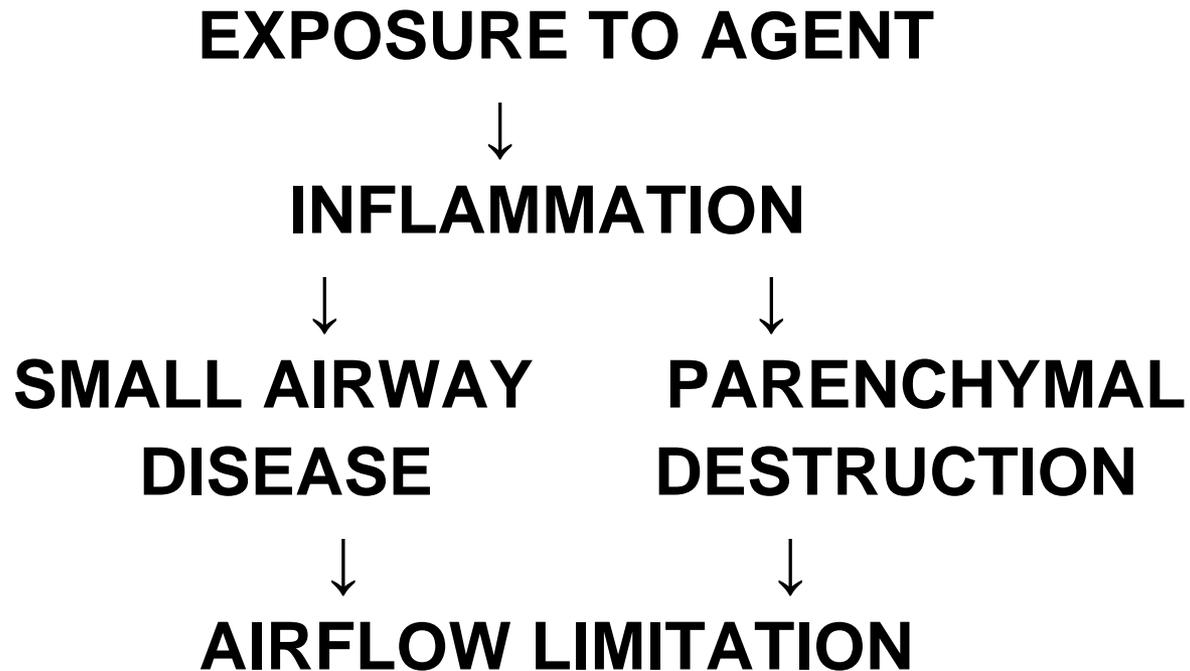
Emphysema is defined as the irreversible enlargement of air spaces distal to the terminal bronchioles with the presence of alveolar wall destruction and without obvious fibrosis. This results in hyper-inflation of the lungs and chronic airflow limitation

EMPHYSEMA – cont'd



Note the destruction of the alveolar septal walls resulting in the formation of large air sacs. This destruction is believed to be the result of enzymatic activity and can lead to higher extraluminal pressures (those outside of the airway) leading to obstruction

MECHANISM FOR AIRFLOW LIMITATION IN COPD



CLINICAL PRESENTATION

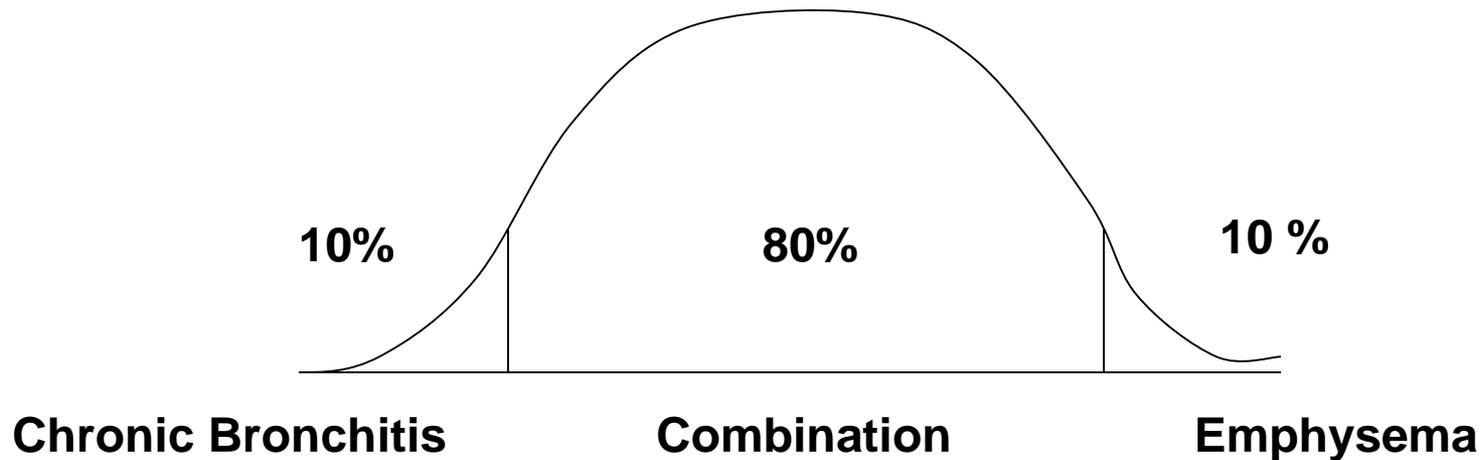
COPD patients often have a combination of the conditions described:

- Chronic bronchitis
- Emphysema

These patients commonly present with chronic cough, sputum production, alveolar wall destruction, hyperinflation and/or airflow limitation

COMBINATION OF CONDITIONS

Most patients with COPD have a combination of chronic bronchitis and emphysema



SYMPTOMS

EARLY SYMPTOMS OF COPD INCLUDE THE FOLLOWING:

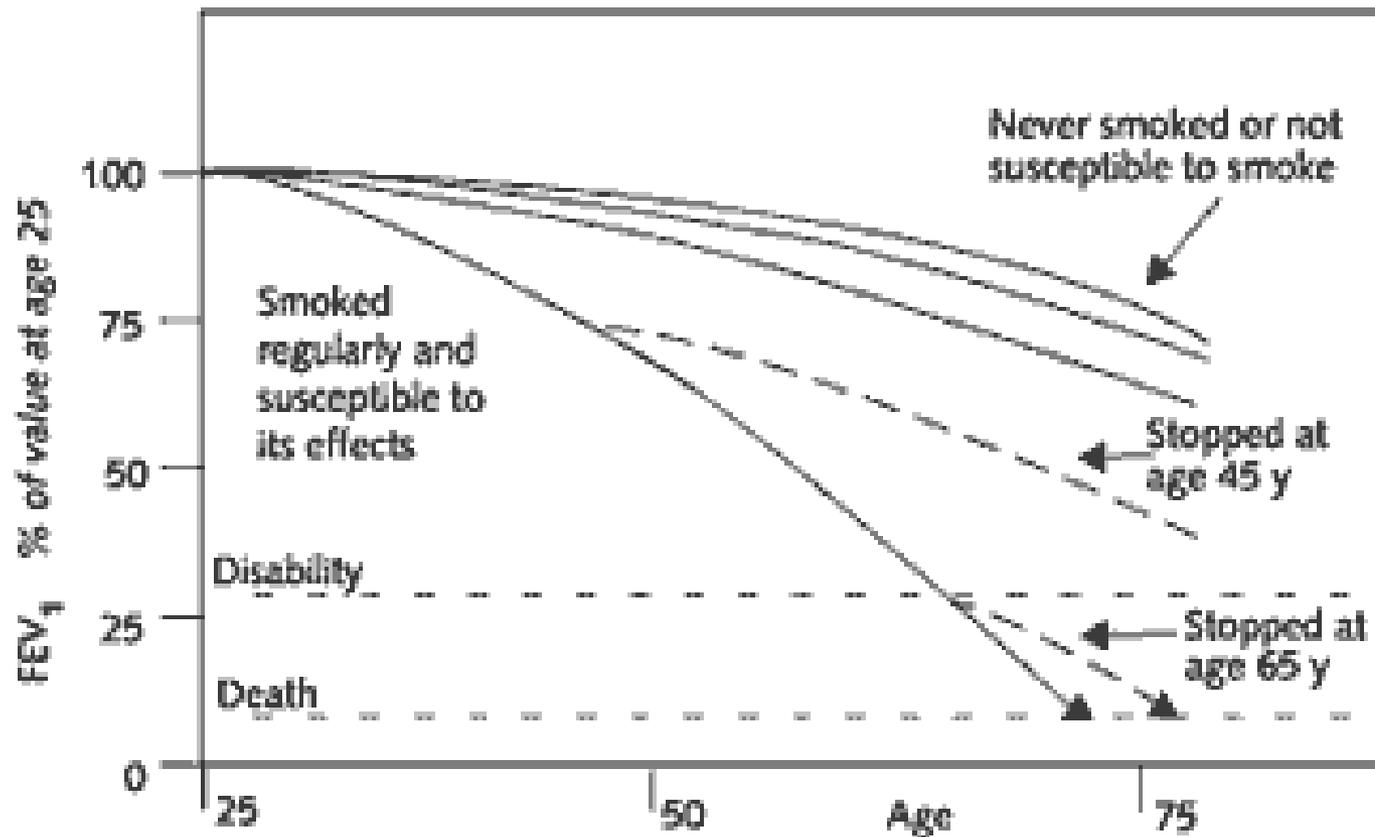
- Chronic cough
 - Sputum production
 - Dyspnea that may become severe and disabling
-

ETIOLOGY / RISK FACTORS

- Cigarette Smoking
 - Occupational Exposures
 - Air Pollution (including biomass fuels)
 - Poor Nutrition
 - Pre-Existing Bronchial Hyperactivity
 - Childhood Respiratory Tract Infections
 - Genetic Deficiency of α_1 -Antitrypsin
-

ETIOLOGY / RISK FACTORS – cont'd

Importance of smoking cessation



EPIDEMIOLOGY OF COPD

- It is estimated that over 13 million people have COPD in the U.S.
- Approximately 24 million adults in the U.S. have evidence of impaired lung function indicating that COPD is under diagnosed
(Bruno, K, CDC Reports Annual Financial Cost of COPD to be \$36 Billion in the United States, Chest, July 2014)
- It is the 3rd leading cause of death in the U.S.
- Worldwide, 280 million people may have COPD and it is projected to be the 3rd leading cause of death worldwide by 2030

(Saraiva, et al, Mortality Predictive Factors in Subjects with COPD After a Pulmonary Rehabilitation Program: A Three Year Study, Respiratory Care, 1179-1185, September 2016)

IMPACT OF COPD

- Over 1.5 million emergency department visits are made each year by adults 25 and older for COPD
- Over 725,000 hospitalizations occur each year for patients with COPD
- The total estimated cost of COPD in the U.S. in 2011 was \$36 billion according to the CDC:
 - √ \$20 billion in direct costs
 - √ \$16 billion in indirect costs (morbidity and mortality)

(Bruno, K, CDC Reports Annual Financial Cost of COPD to be \$36 Billion in the United States, Chest, July 2014)

COPD AND COMORBIDITIES

COPD patients are at increased risk for:

- Angina and myocardial infarction
 - Osteoporosis
 - Respiratory infections
 - Depression
 - Diabetes
 - Lung cancer
-

COPD AND OTHER CONCERNS

COPD patients have significant extra-pulmonary (systemic) side-effects that can include:

- Weight loss
 - Nutritional abnormalities
 - Skeletal muscle dysfunction
-

GOLD INITIATIVE

GOLD is the Global Initiative for Chronic Obstructive Lung Disease. It is a collaboration between the US National Heart, Lung and Blood Institute (NHLBI) and the World Health Organization (WHO)

GOLD - GOALS AND AIMS

GOALS:

- Increase awareness of COPD
- Decrease morbidity and mortality

AIMS:

- Improve prevention and management of COPD through a concerted worldwide effort
 - Encourage renewed interest in COPD research
-

CLASSIFICATION OF COPD

According to GOLD, there are 4 stages of COPD severity (based on airflow spirometric determinations).

The American Thoracic Society considers spirometry to be more specific in evaluating airway obstruction than the ECG is for ischemic heart disease.

Spirometry is essential for diagnosis and provides a useful description of the severity of pathological changes in COPD.

(Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease– Updated 2007)

GOLD 4 STAGE CLASSIFICATION

STAGE

CHARACTERISTICS

I: Mild

$FEV_1/FVC < 70\%$

$FEV_1 \geq 80\%$ of predicted

II: Moderate

$FEV_1/FVC < 70\%$

$50\% \leq FEV_1 < 80\%$ of predicted

4 STAGE CLASSIFICATION – cont'd

STAGE

CHARACTERISTICS

III: Severe

$FEV_1/FVC < 70\%$

$30\% \leq FEV_1 < 50\%$ of predicted

IV: Very Severe $FEV_1/FVC < 70\%$

$FEV_1 < 30\%$ of predicted

THERAPEUTIC INTERVENTION AND COPD STAGING

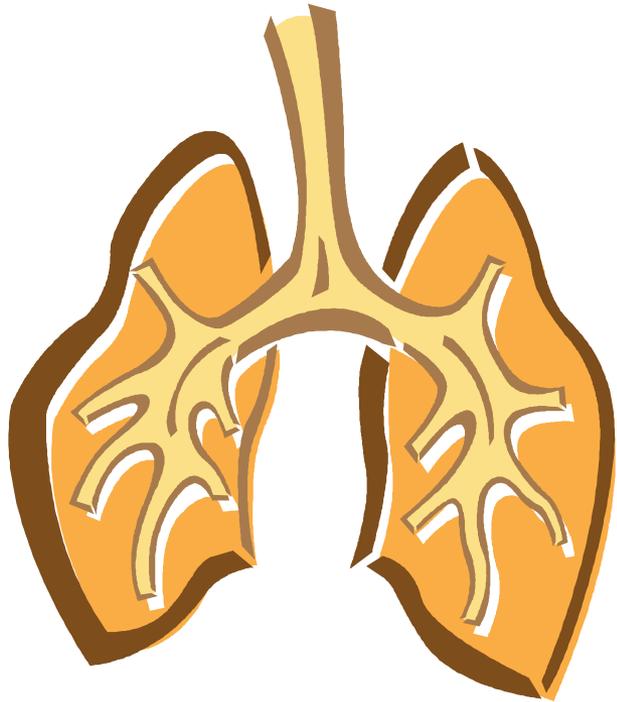
STAGE	THERAPEUTIC INTERVENTION
I	Avoid risk factors / obtain immunizations plus short-acting bronchodilator (if needed)
II	Same as Stage I plus respiratory medications
III	Same as Stage II plus inhaled corticosteroids and home oxygen therapy (if patient qualifies)
IV	Same as Stage III plus ventilatory support if required and consider surgical treatments

ASTHMA - DEFINITION

Asthma has been defined by the NHLBI as a common chronic disorder of the airways that is complex and characterized by variable and recurring symptoms, airflow obstruction, bronchial hyper-responsiveness (bronchospasm) and an underlying inflammation

These features determine clinical manifestation and severity and the response to treatment

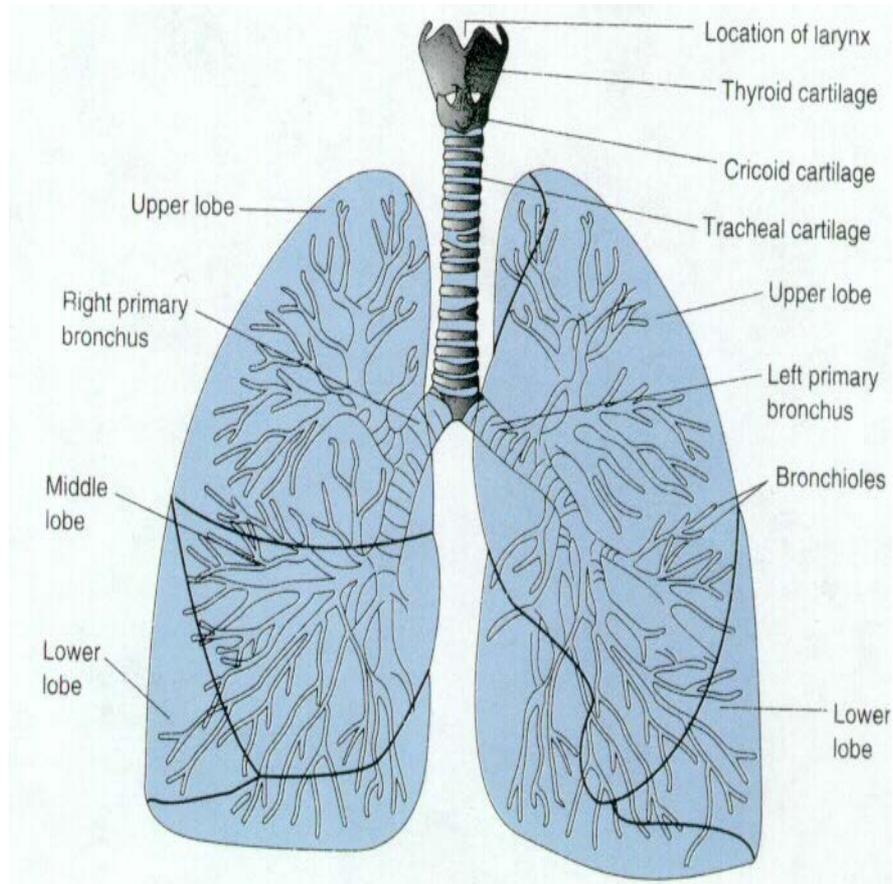
ASTHMA - OVERVIEW



Asthma is a condition that:

- is chronic
 - produces recurring episodes of breathing problems
 - is potentially life-threatening
 - can occur at any age
 - is not contagious
 - cannot be cured but can be controlled
-

ASTHMA – OVERVIEW – cont'd



Asthma is a disease that affects the smaller bronchi and bronchioles of the lung with submucosal edema, mucus production and bronchospasm

ASTHMA STATISTICS

- It is estimated that close to 18 million Americans have asthma
- The prevalence of asthma increased significantly from 1980-2014
- In 2014, there were 10.5 million physician office visits and 1 million outpatient department visits due to asthma
- Asthma accounts for 1/4 of all emergency room visits in the U.S. each year with 1.8 million ER visits
- Approximately 44% of all asthma hospitalizations are for children

(CDC/National Center for Health Statistics, 2015)

ASTHMA STATISTICS – cont'd

- Asthma is the most common chronic disease in childhood
- Asthma rates in children under the age of five have increased more than 160% over the past 30 years
- 6.3 million school-aged children have asthma (close to 1 in 10). Almost 10% of children in NY State have asthma
- Students miss almost 13 million school days each year due to asthma

(CDC/National Center for Health Statistics, 2015)

ASTHMA STATISTICS – cont'd

- There are approximately 3600 deaths from asthma annually
- Direct health care costs for asthma in the U.S. total more than \$10 billion annually; indirect costs (lost productivity) add another \$8 billion for a total of \$18 billion
- Prescription drugs represented the largest single direct medical expenditure, over \$5 billion

(From the ALA; NHLBI NAEPP; NYS DO; 2010)

COPD AND ASTHMA

COPD can co-exist with asthma, the other major chronic obstructive airway disease that is characterized by airway inflammation

Asthma and COPD have their symptoms in common, but these are generally more variable in asthma than in COPD

In 1995, the ATS decided to keep asthma separate from COPD

COPD AND ASTHMA – cont'd

Underlying chronic airway inflammation is different in asthma and COPD:

- Asthma: eosinophilic involvement is driven by CD4⁺ T lymphocytes
 - COPD: neutrophilic involvement present along with increased numbers of macrophages and CD8⁺ T lymphocytes
-

COPD AND ASTHMA – cont'd

Airflow limitation is often completely reversible, either spontaneously or with treatment, in asthma.

In COPD, airflow limitation is never fully reversible and is usually progressive if exposure to noxious agent(s) continues.

Treatment responses of asthma and COPD are dramatically different.

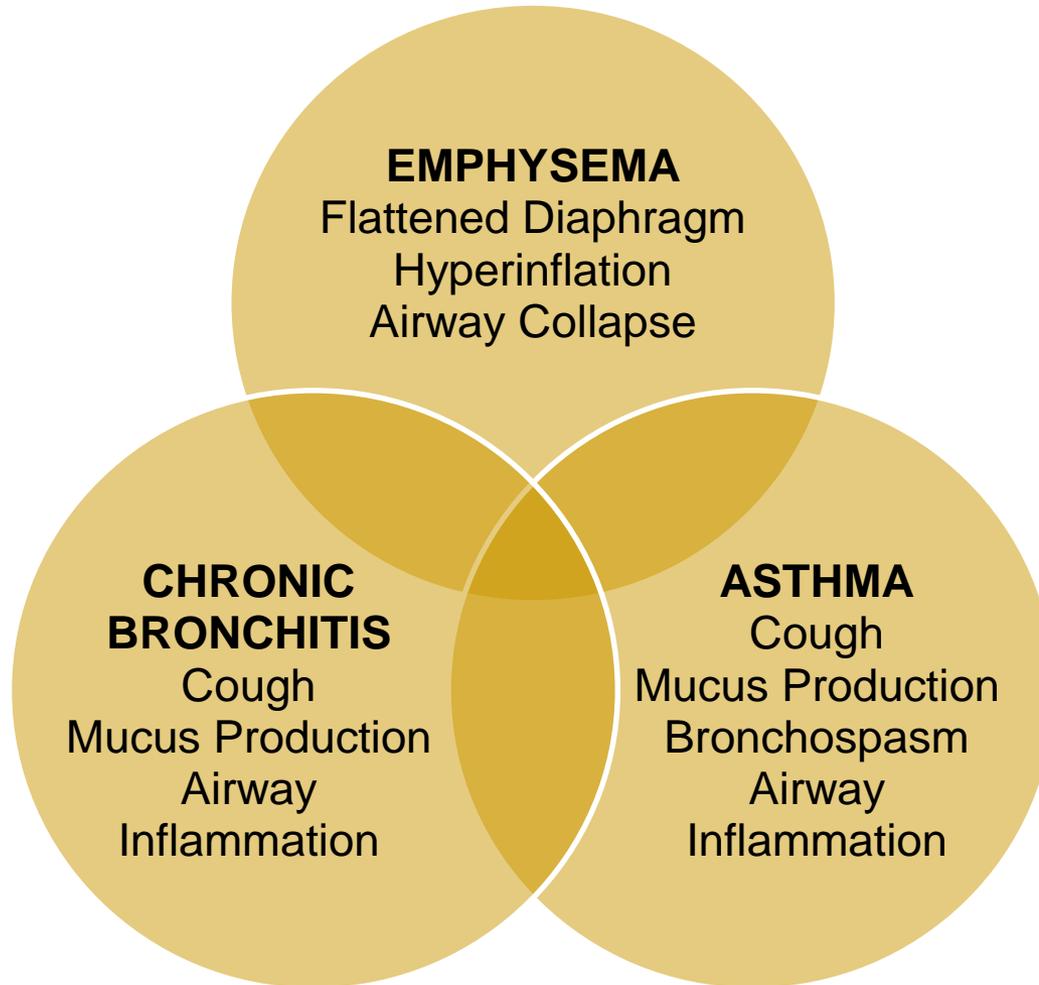
COPD AND ASTHMA – cont'd

There is undoubtedly an overlap between asthma and COPD.

Some asthmatics exposed to noxious agents (ex – smoking) that cause COPD develop a mixed asthma-like and COPD-like inflammation.

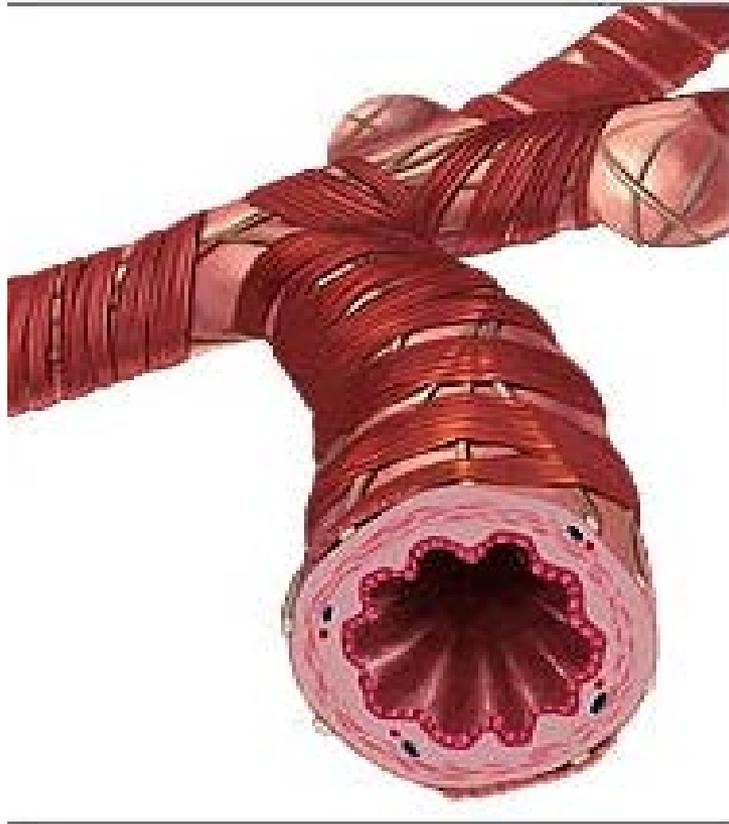
Chronic asthma can lead to airway remodeling and partly irreversible airflow limitation

COPD AND ASTHMA – cont'd

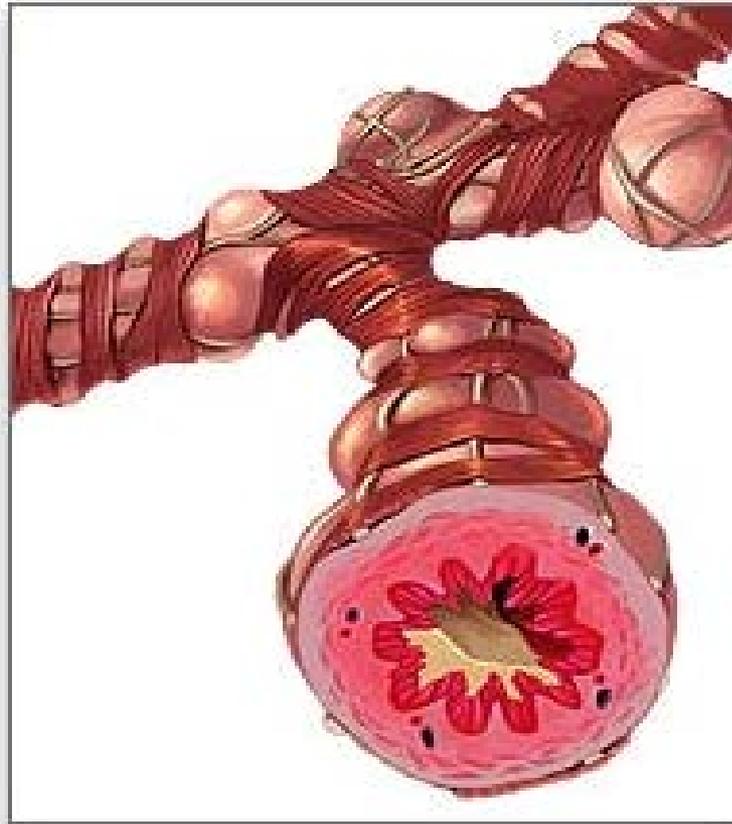


AIRFLOW LIMITATION IN COPD & ASTHMA

Normal Bronchiole



Obstructed Bronchiole



DIFFERENTIAL DIAGNOSIS

- **COPD**

- Mid-life onset

- Slowly progressing symptoms

- Long history of smoking

- **Asthma**

- Early onset

- Varying symptoms

- Symptoms during the night/early morning

- Presence of allergy, rhinitis and/or eczema

- A family history

- Airflow limitation that is largely reversible

Some patients with chronic asthma cannot be distinguished from COPD with the current imaging or lung function testing. In these cases it is assumed that the two diseases (asthma/COPD) co-exist and their management should be similar to that of asthma.

ASTHMA ATTACK

- Patient is exposed to antigen
 - Body produces antibody in response to this antigen mediated by IgE
 - Re-exposure results in antigen-antibody complex that leads to mast cell degranulation and release of histamine
 - Other mediators include: leukotrienes (SRS-A), bradykinin, NCFA, ECFA and prostaglandins
-

ASTHMA ATTACK – cont'd

- Mediators produce bronchospasm (cholinergic response), airway inflammation (vasodilation causing submucosal edema) and mucus production, all of which results in an \uparrow in R_{AW} , work of breathing and dyspnea
 - During the initial attack, patient will hyperventilate resulting in a respiratory alkalosis (\downarrow pCO_2 and \uparrow pH)
-

ASTHMA ATTACK – cont'd

- If attack continues, patient begins to fatigue and $p\text{CO}_2$ begins to \uparrow and pH \downarrow
 - If this trend continues, patient will go into respiratory acidosis ($\uparrow p\text{CO}_2$ and $\downarrow \text{pH}$) and respiratory failure
 - When this occurs, patient will require some form of mechanical ventilation until attack is reversed
-

DETECTION AND DIAGNOSIS

THE FOLLOWING ARE ESSENTIAL TO DETECTING AND DIAGNOSING COPD AND ASTHMA:

- Patient History
 - Physical Examination
 - Chest X-Ray
 - Spirometry (part of a complete PFT with ABG)
 - Cardiopulmonary Exercise Test
-

BASIC SPIROMETRY

FVC - Forced Vital Capacity

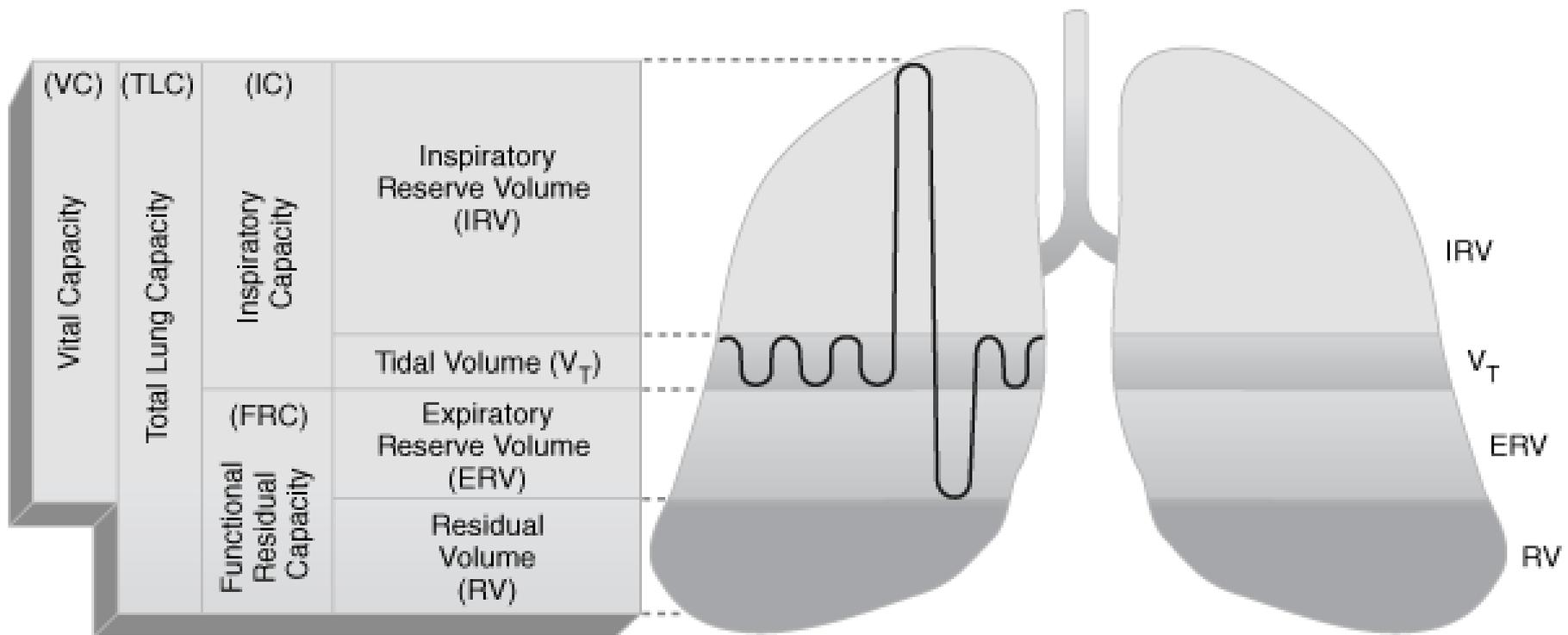
Total amount of air (measured in liters) that a patient can forcibly exhale after a full inspiration

FEV₁ - Forced Expiratory Volume in 1 second

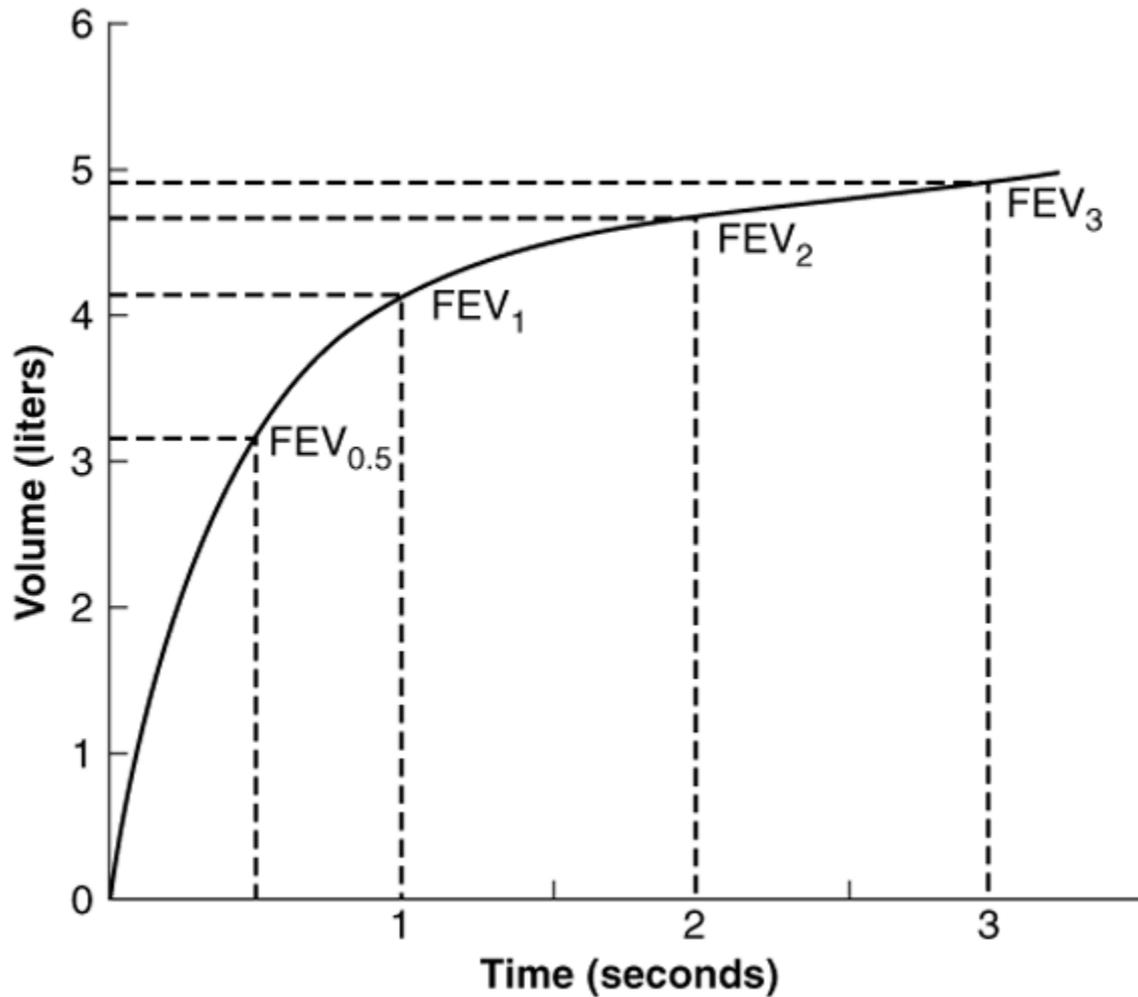
Amount of air (measured in liters) that is expired after 1 second

FEV₁/FVC (FEV_{1%}) - the percent of the FVC that is forcibly exhaled in 1 second

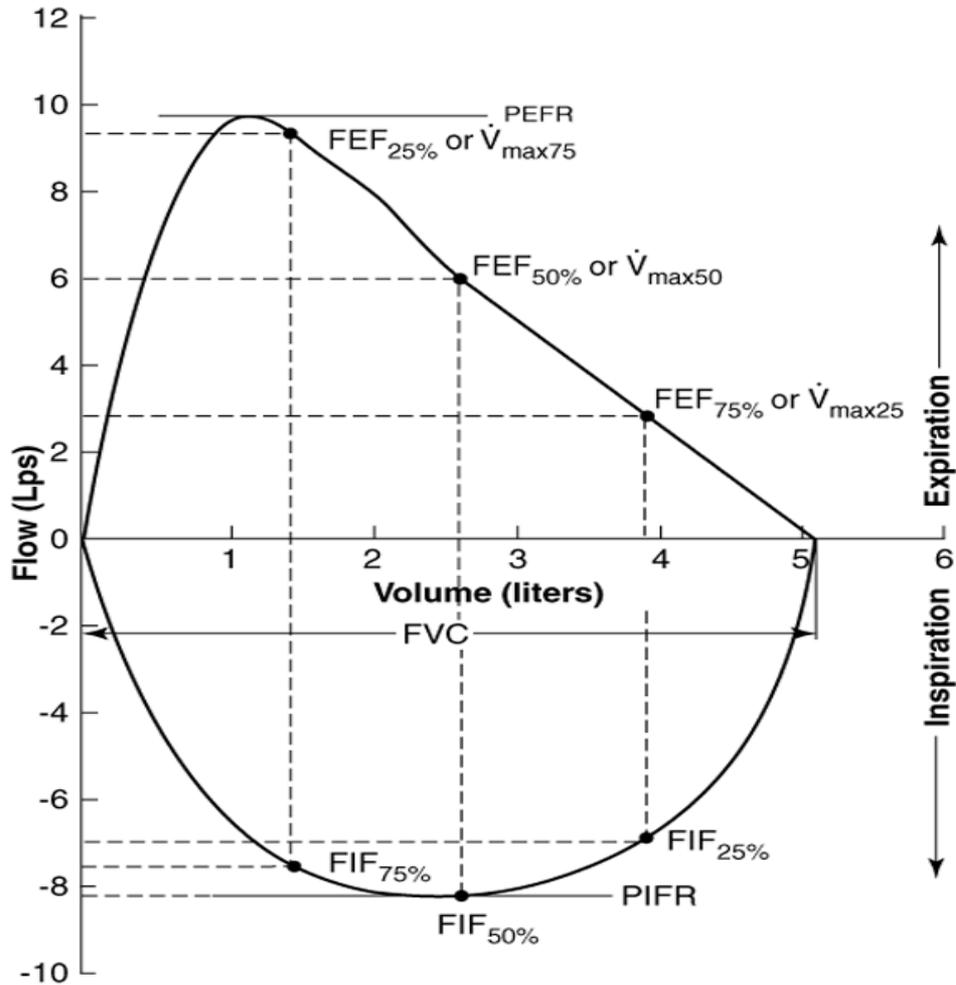
LUNG VOLUMES & CAPACITIES



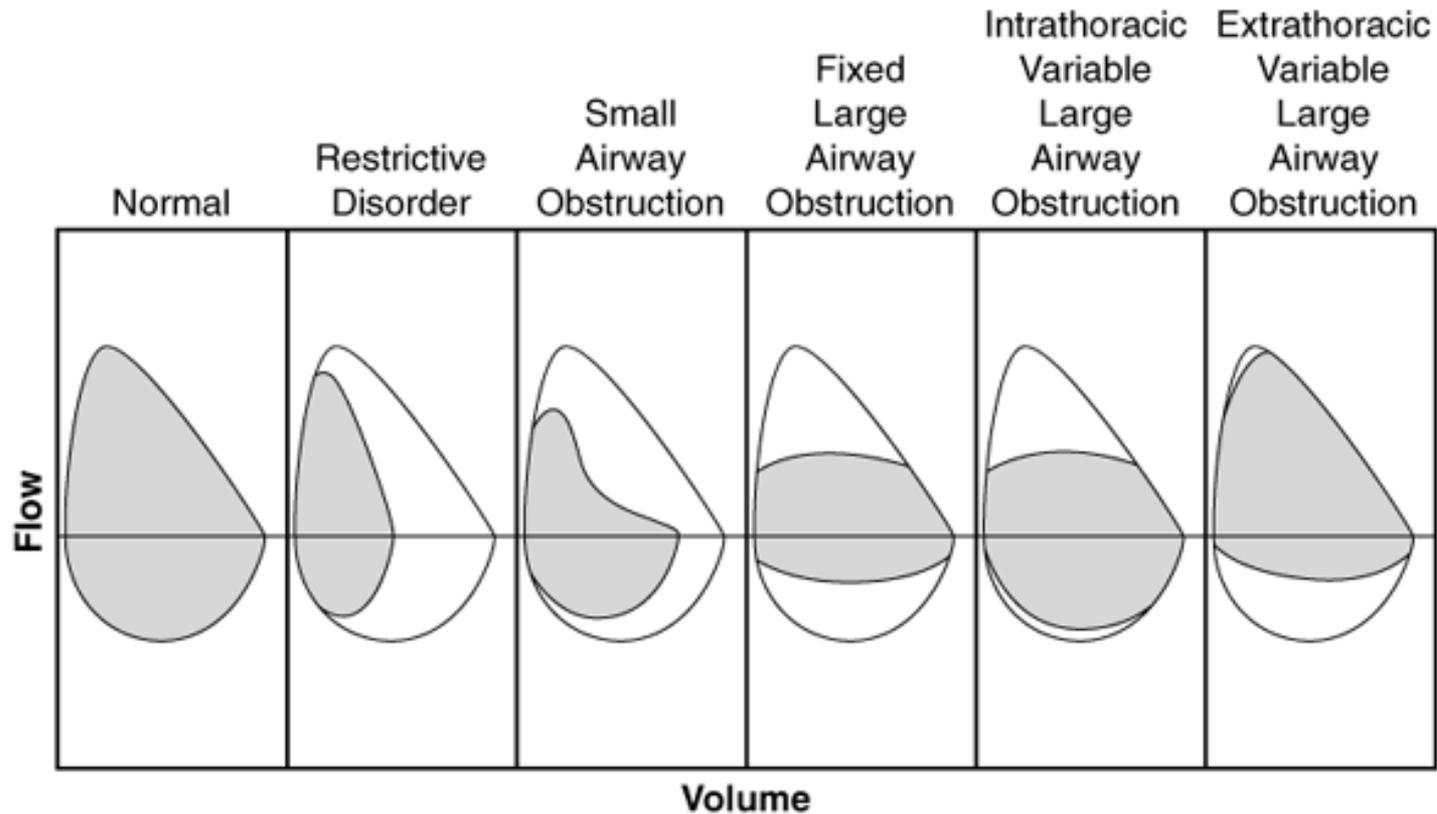
NORMAL SPIROMETRY



FLOW-VOLUME LOOP



FLOW-VOLUME LOOP IN COPD AND OTHER LUNG DISORDERS



KNOW YOUR NUMBERS

A study that interviewed more than 1000 COPD patients revealed the following:

- 80% of the patients had spirometry done the prior year, yet only 10% knew their FEV₁
- By contrast, 79% of the patients knew their B/P and
- 37% of the patients knew their cholesterol level

(American Journal of Medicine, 2009)

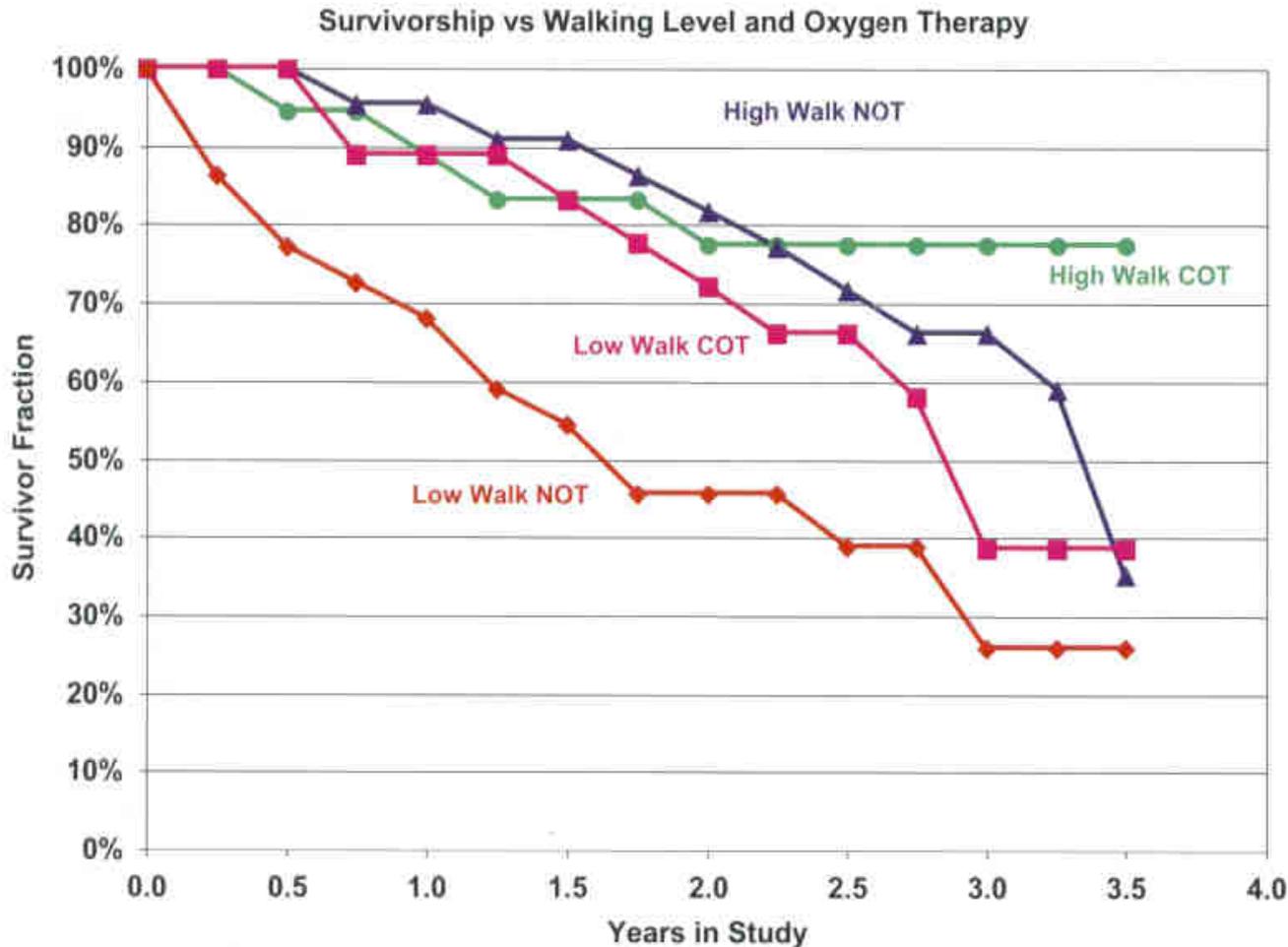
GOALS OF COPD & ASTHMA MANAGEMENT

- Relieve symptoms
 - Prevent disease progression
 - Improve exercise tolerance
 - Improve health status
 - Prevent and treat complications
 - Prevent and treat exacerbations
 - Reduce mortality
-

PATIENT CARE PLAN

- Elimination of noxious agents
 - Know and avoid triggers
 - Infection control through personal hygiene and immunizations (influenza and pneumonia vaccines)
 - Compliance with medication regimen (oral and inhaled) and home oxygen therapy
 - Nutrition and hydration
 - Exercise and daily activities (ADLs)
 - Disease management and pulmonary rehabilitation
-

RATIONALE FOR O₂ THERAPY



In a re-analysis of the NOTT study⁵ by Petty/Bliss⁶ it was found that highly ambulatory patients on continuous oxygen therapy (COT[‡]) had a 50% higher survival rate than low ambulatory patients on nocturnal oxygen therapy (NOT[†]).

5. Nocturnal Oxygen Therapy Trial, Ann of Intern Med 1980; 93:391-398

6. Respir Care, 2000; 45(2): 204-211

[‡]COT = oxygen intended to be used as close to 24 hours per day as possible

[†]NOT = Oxygen used for approximately 12 hours per day

(From Reference 6, with permission)

HOME O₂ EQUIPMENT



**HomeFill II™
oxygen
concentrator**



HomeFill II Complete Home Oxygen System.

HOME O₂ EQUIPMENT – cont'd



HomeFill II™ has 4 different sized portable cylinders designed for specific patient needs

Patient Convenience Pack for Ambulatory Use

	M2	ML4	ML6	M9
Capacity (liters)	57	113	170	255
Duration* (hours)	2.0	4.5	6.3	10
Weight	2.0 lb.	3.1 lb.	3.5 lb.	4.8 lb.

*Based on 2 lpm flow @ 20 bpm

PORTABLE OXYGEN CONCENTRATORS (POCs)

- Inogen One™
- AirSep Lifestyle™ and Freestyle™
- SeQual Eclipse™
- Respironics EverGo™
- Invacare XPO2™
- DeVilbiss iGO™

(All units use pulse dose technology (some have a continuous flow option) and all can operate using wall current, car electrical adapter and rechargeable batteries. Ideal for airline and other travel)

POCs – cont'd



AirSep FreeStyle™:

- **4.4 pounds plus 1.8 pounds with optional AirBelt**
- **rechargeable battery with 2.5 hours of battery life at setting of 2**
- **AirBelt can provide 5-10 hours of additional battery life**
- **pulse dose settings of 1-3**
- **FAA approved for in-flight use aboard aircraft**

POCs – cont'd



SeQual Eclipse™

- 18 pounds
- works off of wall current, car electrical adapter or rechargeable power cartridge (up to 4.4 hours)
- pulse flow settings from 1-6 with a 0.5-3 LPM continuous flow option
- can use a bubble humidifier but only in continuous flow mode
- FAA approved for in-flight use aboard aircraft

POCs – cont'd

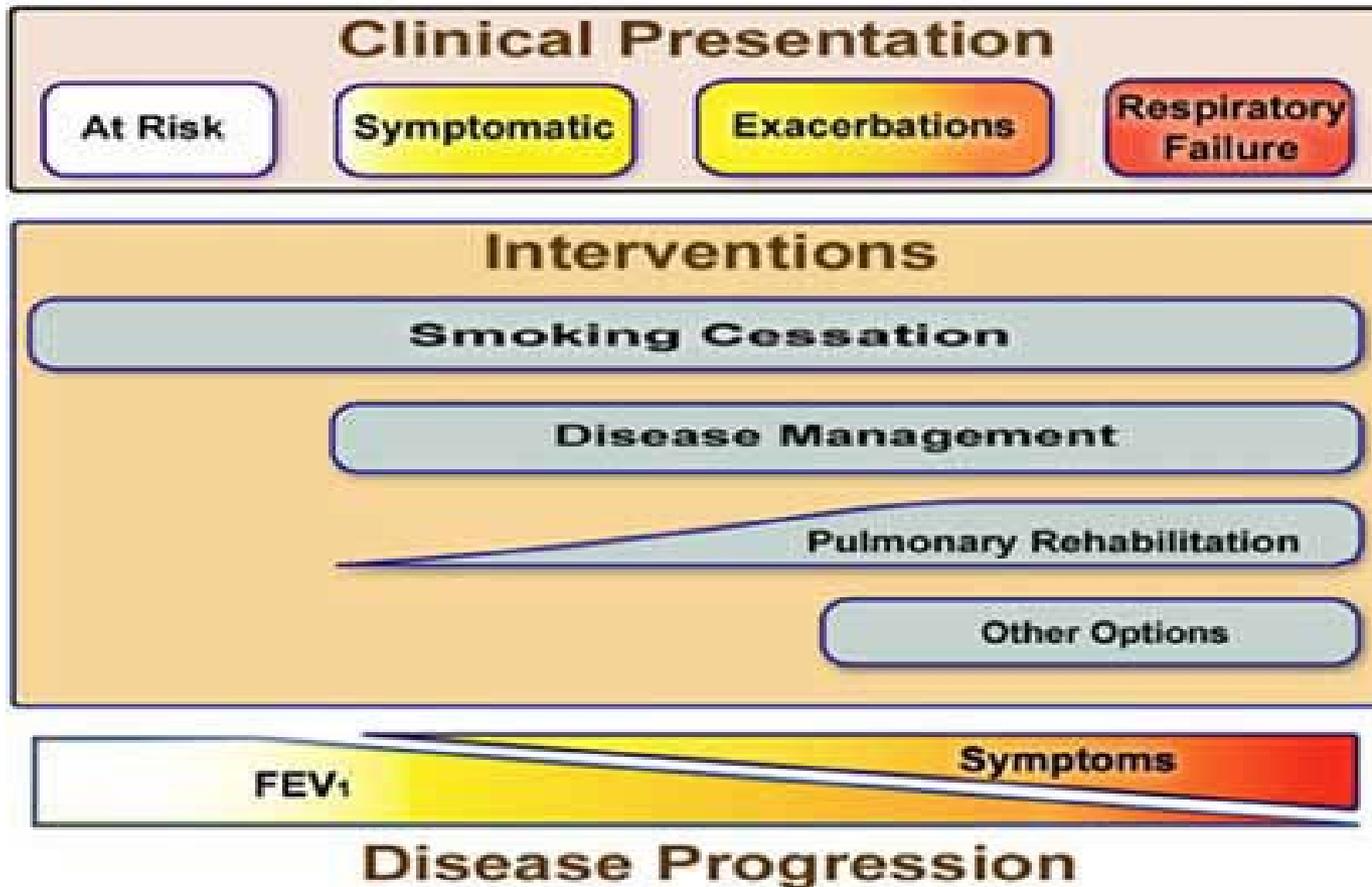


Respironics EverGo™

- 9.5 pounds
- 8-hour battery life
- settings of 1- 6 in 0.5 increments
- 1050 ml per minute oxygen capacity
- easy-to-use touch screen
- FAA approved for in-flight use aboard aircraft



Standards for the Diagnosis and Management of Patients with COPD



DISEASE MANAGEMENT– cont'd

The focus of a disease management program is to enable patients with these conditions to:

- better understand the nature of their disease
 - be more compliant with their prescribed therapy
 - communicate with their healthcare providers
 - take a more active role in their overall care
 - monitor their condition on a daily basis
 - reduce hospitalizations and medical expenses
 - lead more active and productive lifestyles
-

PROGRAM COMPONENTS

- Clinical assessment in the home:
 - √ pulse oximetry
 - √ patient history
 - √ medication profile
 - √ plan of care
-

PROGRAM COMPONENTS- cont'd

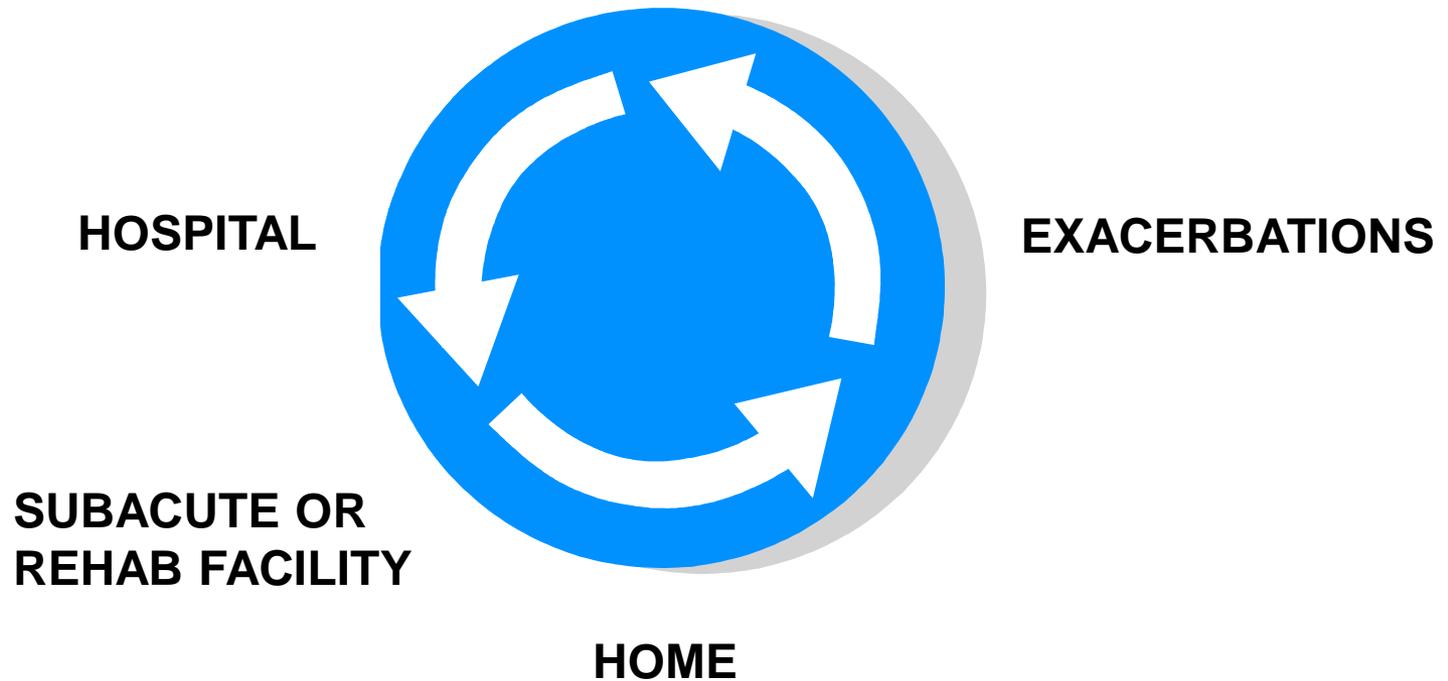
- Comprehensive patient education
 - √ respiratory anatomy & physiology
 - √ review of COPD or asthma disease process
 - √ breathing exercises
 - √ activities of daily living (ADLs)
 - √ nutrition and hydration
 - √ stress management
 - √ smoking cessation (if needed)
 - √ value of pulmonary rehabilitation
 - √ equipment use and maintenance
-

PROGRAM COMPONENTS - cont'd

- Scheduled follow-up visits, as needed
 - Patient progress reports
 - Improved communication with healthcare providers
 - Increased patient compliance with prescribed home care regiment
-

BREAKING THE VICIOUS CYCLE

“FREQUENT FLYERS”



The Rules of Two™ and The Asthma Control Test (ACT)

IS YOUR ASTHMA UNDER CONTROL?

"RULES OF TWO"™ Can Help!

Do you take your quick-relief inhaler
more than **TWO** times per week?

YES NO

Do you awaken at night with asthma
more than **TWO** times per month?

YES NO

Do you refill your quick-relief inhaler
more than **TWO** times per year?

YES NO

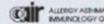
If you can answer **"YES"** to **ANY** of these questions,
ask your Doctor about

"CONTROLLER MEDICINES."

These **MEDICINES** help
PREVENT ASTHMA ATTACKS!

Remember not to make any changes in your medicines unless ordered by your doctor.

Program Partners:



ALLERGY ASTHMA
IMMUNOLOGY OF ROCHESTER, PC

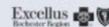


AMERICAN
LUNG
ASSOCIATION
of Greater Rochester



Mary M. Farber
Asthma &
Pulmonary
Center

Scott L. Roth M.D., L.L.C.
Asthma, Allergy & Immunology



Excellus
Behavioral Health



RCAN
Regional Community Asthma Network
of the Finger Lakes



PREFERRED CARE

Pediatric Pulmonology & Allergy,
Golisano Children's Hospital at Strong



GSK
Cisao/Sertrix/Line



RESPIRONICS

Pharmacy Society
of Rochester



MCMS
MEDICAL
CLINICAL
MANAGEMENT
SOCIETY

Rules of Two™ is a registered trademark
of Baylor Health Care System (10/97)

www.rcanasthma.net

Funded by a grant from the New York State Department of Health.

ASTHMA CONTROL TEST™ (ACT)

These 5 questions can help assess asthma control:

1. In the past 4 weeks, how much time did your asthma keep you from getting work done at home?
 2. During the past 4 weeks, how often have you had shortness of breath?
 3. During the past 4 weeks, how often did your asthma symptoms wake you up at night or earlier than usual?
 4. During the past 4 weeks how often have you used your rescue medication such as albuterol?
 5. How would you rate your asthma control over the past 4 weeks?
-

AEROSOL DELIVERY DEVICES

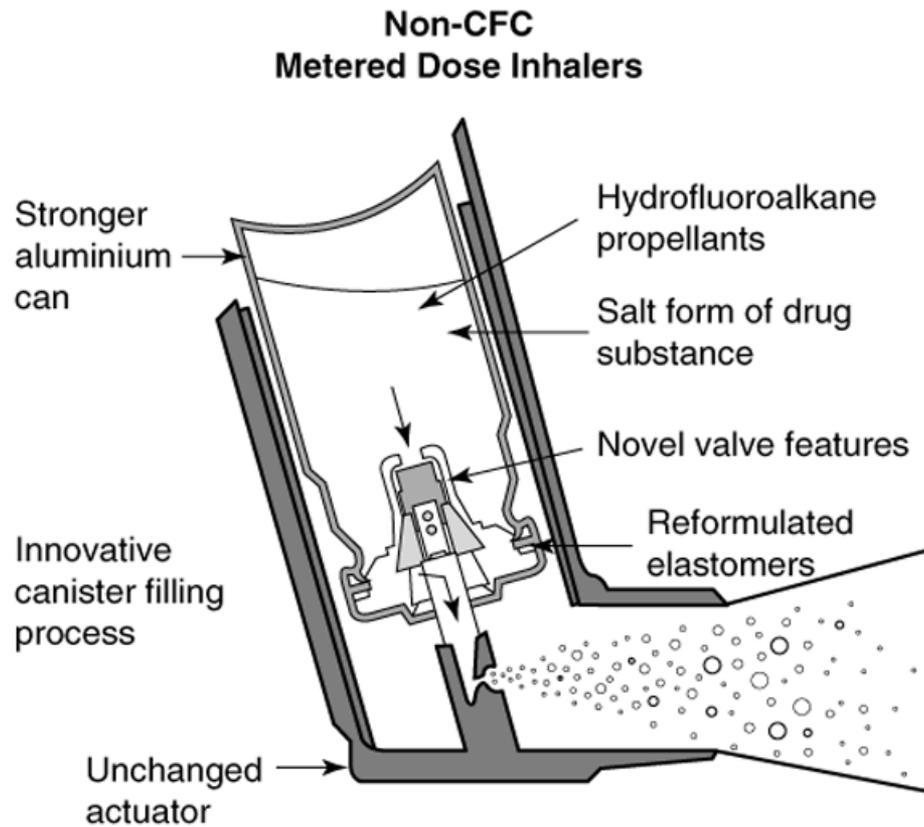
Aerosol therapy includes the following modalities:

- Metered dose inhaler (MDI)
 - Dry powder inhaler (DPI)
 - Hand-held nebulizer (HHN) or small volume nebulizer (SVN)
-

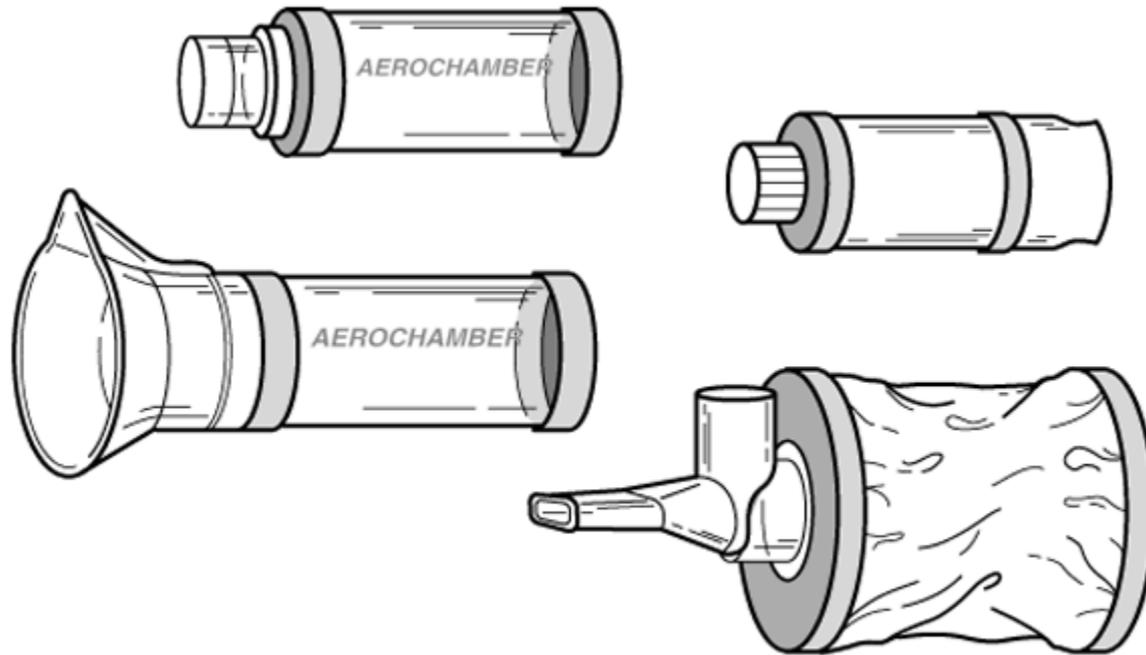
METERED DOSE INHALER (MDI)

- Requires patient coordination and a slow, deep inhalation with a 4-10 second breath hold. Can be used with a spacer or holding chamber to increase drug deposition within the lung
 - Inspiratory flow rate should be ≤ 30 LPM
-

MDI: MECHANISM



MDI: SPACERS AND CHAMBERS



MDI: ADVANTAGES

- Portable and compact
 - Minimal cleaning or maintenance
 - Short preparation and treatment time
 - Efficient drug delivery if used properly
-

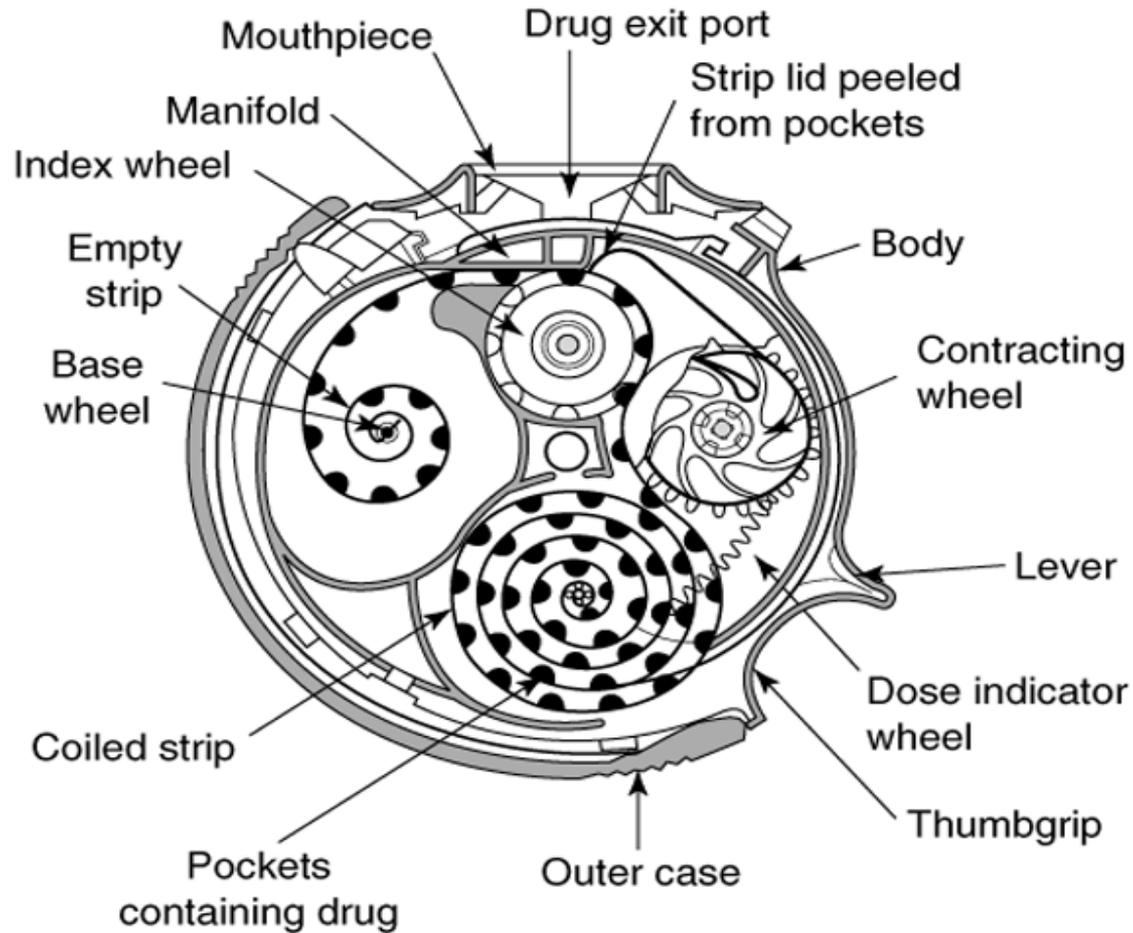
MDI: DISADVANTAGES

- Complex hand to breath coordination needed
 - Majority of patients use MDIs improperly
 - Drug concentrations are fixed
 - Possible reactions to propellants
 - High oropharyngeal impaction and drug loss
 - Foreign body aspiration of debris from mouthpiece can occur
 - Medicare does not pay for MDIs
-

DRY POWDER INHALER (DPI)

- Consists of a unit formulation of a drug in powder form and an apparatus for dispensing this drug during inspiration
 - A fast, deep inhalation is required with an inspiratory flow rate usually around 60 LPM
 - These devices are breath actuated with turbulent flow from the inspiratory effort creating an aerosol of micro-fine solid particles
-

DPI: EXAMPLE (DISKUS)



DPI: ADVANTAGES

- Device is small and portable
 - Short preparation and administration time
 - No need for hand-breathing coordination, inspiratory hold or head tilt (as with MDI)
 - No propellants (environmentally friendly)
 - Count of remaining drug doses is easy
-

DPI: DISADVANTAGES

- Relatively limited number of available drugs
 - Possible reaction to the lactose or glucose carrier substance
 - High inspiratory flow rates are required
 - Patient may cough after rapid, deep inhalation
 - Reimbursement by insurance carriers may be questionable
-

HAND-HELD NEBULIZER (HHN)

- Requires little patient coordination but routine cleaning and disinfecting of equipment is necessary
 - Referred to as a compressor/nebulizer
 - These units are also available in battery-operated, portable models
-

HHN WITH AEROSOL MASK



HHN: ADVANTAGES

- Medicare pays for equipment and medication (can be replaced after 5 years of use)
 - Hand to breath coordination not required
 - Effective with any normal breathing pattern
 - Effective with low inspiratory flow or volume
 - Can deliver a greater variety of drug solutions
 - Ability to modify drug concentrations and doses
-

HHN: DISADVANTAGES

- Expense of equipment
 - Portability of equipment
 - Need for external power source
 - Longer treatment times
 - Cleaning and disinfecting of equipment needed
 - Variability in performance characteristics between nebulizer models
-

SELECTION CRITERIA FOR AEROSOL DEVICE

- Drug formulations that are available
 - Desired site of deposition
 - Patient characteristics (age, manual dexterity, coordination and cognition)
 - Patient preference
 - Cost to patient
-

Figure 1. Commonly Used Inhalers

Anticholinergics

Spiriva® HandiHaler®

(tiotropium bromide inhalation powder)

Boehringer Ingelheim Pharmaceuticals, Inc.



Atrovent® HFA

(ipratropium bromide HFA) Inhalation Aerosol

Boehringer Ingelheim Pharmaceuticals, Inc.



Anticholinergic/ β₂-Agonist Combination

Combivent®

(ipratropium bromide and albuterol sulfate) Inhalation Aerosol

Boehringer Ingelheim Pharmaceuticals, Inc.



β₂-Agonists

Alupent®

(metaproterenol sulfate, USP) Inhalation Aerosol

Boehringer Ingelheim Pharmaceuticals, Inc.



Albuterol, USP

Inhalation Aerosol

Warrick Pharmaceuticals



Foradil® Aerolizer®

(formoterol fumarate inhalation powder)

Schering Corporation



Maxair™ Autohaler™

(pirbuterol acetate inhalation aerosol)

3M Pharmaceuticals



Proventil® HFA

(albuterol sulfate) Inhalation Aerosol

Schering Corporation



Serevent® Diskus®

(salmeterol xinafoate inhalation powder)

GlaxoSmithKline



Ventolin® HFA

(albuterol sulfate HFA inhalation aerosol)

GlaxoSmithKline



Corticosteroids

Aerobid®

(flunisolide) Inhaler System

Forest Pharmaceuticals, Inc.



Azmacort®

(triamcinolone acetonide) Inhalation Aerosol

Kos Pharmaceuticals, Inc.



Flovent® 44 mcg

(fluticasone propionate, 44 mcg) Inhalation Aerosol. Also available in 110 mcg and 220 mcg.

GlaxoSmithKline



Pulmicort Turbuhaler®

(budesonide inhalation powder)

AstraZeneca LP



β₂-Agonist/Corticosteroid Combination

Advair Diskus® 250/50

(fluticasone propionate 250 mcg and salmeterol 50 mcg inhalation powder). Also available in 100/50 and 500/50.

GlaxoSmithKline



Other

Intal® Inhaler

(cromolyn sodium inhalation aerosol)

King Pharmaceuticals, Inc.



Tilade® Inhaler

(nedocromil sodium inhalation aerosol)

King Pharmaceuticals, Inc.



NEBULIZER PERFORMANCE

- Breath Actuated Nebulizers : >30%
 - MDI with Holding Chamber : 20%
 - MDIs : 10%
 - DPI : 10 - 20%
 - Breath Enhanced Nebulizer : 10 - 17%
 - Standard Continuous Jet Nebulizer : 7-10%
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DRUGS FOR COPD MANAGEMENT

- Breo Ellipta
Fluticasone furoate and vilanterol (100/25)-DPI
 - Incruse Ellipta
Umeclidinium – DPI
 - Spiriva Handihaler
Tiotropium bromide – DPI
 - Advair Diskus
Fluticasone furoate and salmeterol (250/50)-DPI
 - Symbicort Turbuhaler
Budesonide and formoterol fumarate dihydrate - DPI
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DRUGS FOR ASTHMA MANAGEMENT

- Breo Ellipta for Asthma
Fluticasone furoate and vilanterol (100/25)-DPI
 - Symbicort Turbuhaler
Budesonide and formoterol fumarate dihydrate - DPI
 - Advair Diskus
Fluticasone propionate and salmeterol (100/50,
250/50 and 500/50) – DPI
 - Advair HFA (not to be used for COPD management)
Fluticasone propionate and salmeterol (45/21,
115/21 and 230/21) - MDI
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KEYS TO SUCCESS

- Education relating to COPD and asthma management
 - Breathing techniques and exercises
 - Exercise and activity
 - Compliance with therapeutic regimen
 - Prevention of exacerbations
 - Know warning signs and when to seek help
 - Communication with provider & home care company
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HELPFUL HINTS FOR PATIENTS

- Eat 6 times per day...don't fill-up at any meal
 - Focus on a high protein, lower carb diet
 - Drink 6-8 glasses of water/day
 - Avoid adverse weather conditions - be careful when temperature + humidity are greater than 140 (ex: 90° F + 60% RH)
 - Practice good hygiene – wash hands and clean common surfaces
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MORE HELPFUL HINTS

- Keep home clean – use liquid cleaners, not sprays, use vacuum w/ HEPA filter and wear mask if necessary (both indoors & outdoors)
 - If on home O₂, use it!
 - Get immunized
 - Know warning signs and when to call your healthcare provider
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SUMMARY

- There are many causes and manifestations of COPD and asthma
 - These conditions can be treated and the disease process altered if detected early
 - Spirometry is essential in the diagnosis and monitoring of COPD and asthma (patients should know their numbers)
 - Oxygen therapy, medication regimen (including inhaled meds), a healthy lifestyle, disease management and possibly pulmonary rehab are keys to successful management
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