AMPLIFY

Is it Asthma or COPD?

Or both?

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Financial Disclosure: None

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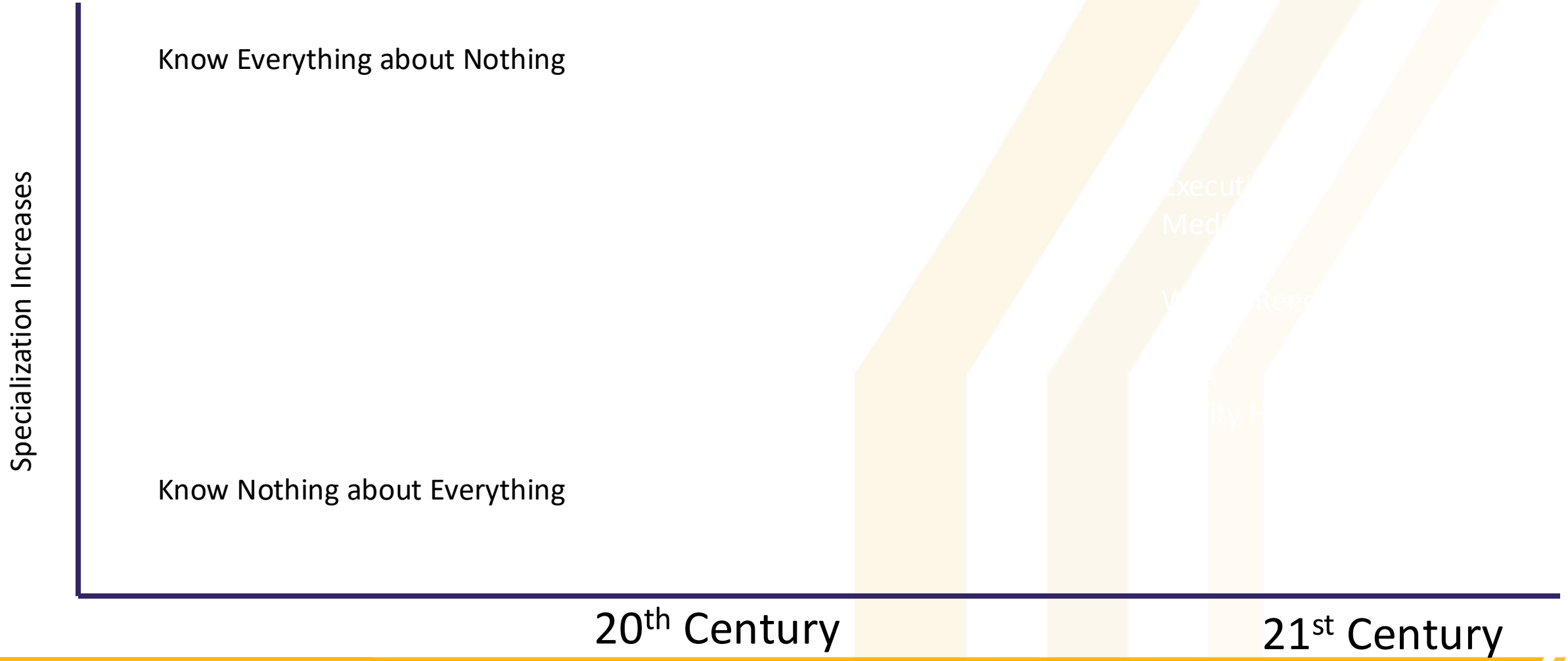
Does it matter what I call it?

COPD

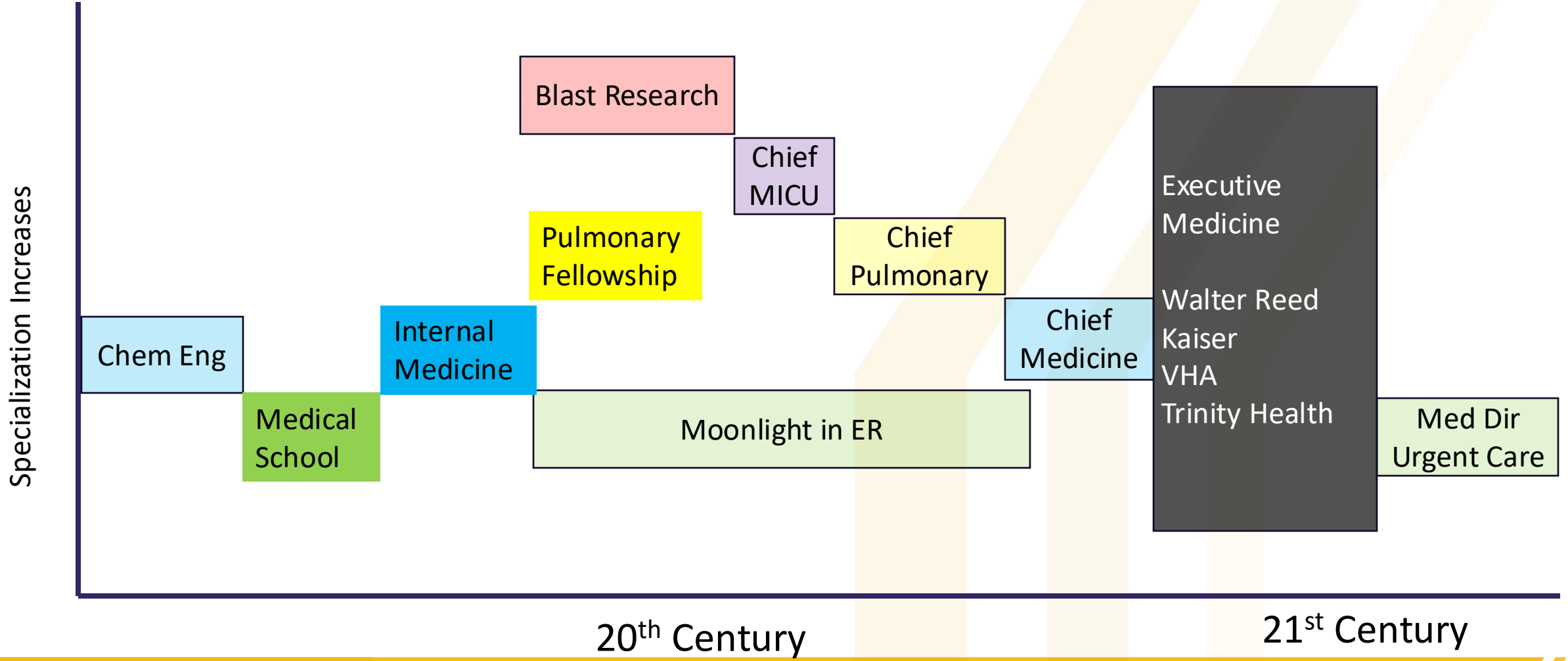
Asthma

Asthma-COPD overlap

The Arc of a Career--Specialization and De-differentiation



The Arc of a Career--Specialization and De-differentiation



Resources and Sources

• GOLD 2025	goldcopd.org
• GINA 2025	ginaasthma.org
• National Jewish Hospital	nationaljewish.org
• American Lung Association	lung.org
• VuMedi	videos@vumedi.com
• Up-to-Date	
• Google Gemini AI	

Upfronts for Urgent Care for Asthma and COPD Tuesday: Pulmonary Perils and Pearls

- Evaluate severity
  - SpO2, tachycardia, pulsus paradoxus, and tachypnea
  - Fatigue, confusion
- Frequent/continuous nebulization of bronchodilators
- Consider co-morbidities—CHF, PE, pneumonia
- If transfer to ER necessary use EMS
- Asthma discharge
  - Short course of steroids if high risk
  - Initiate anti-inflammatory and long-acting therapy if not using
- COPD
  - Short course of steroids if has helped in past
  - Antibiotics if sputum purulent
  - Provide rescue bronchodilator

Does it make a difference in what we call it?

- Implies pathophysiology
- Implies treatment
- Implies prognosis
- Facilitates communication
- Allows comparisons and research

Three doctors go duck hunting

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2025 defines COPD as a heterogeneous lung condition characterized by chronic respiratory symptoms (dyspnea, cough, expectoration, and/or exacerbations) due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that cause persistent, often progressive, airflow obstruction.

The Global Initiative for Asthma (GINA) 2025 defines asthma as a heterogenous disease, usually characterized by chronic airway inflammation. It is defined by a history of respiratory symptoms, such wheeze, shortness of breath, chest tightness, and cough, that vary over time and in intensity, together with variable expiratory airflow limitation.

GOLD Typology (Etiology)

Classification	Description
Genetically determined COPD (COPD-G)	Alpha-1 antitrypsin deficiency (AATD) Other genetic variants with smaller effects acting in combination
COPD due to abnormal lung development (COPD-D)	Early life events, including premature birth and low birthweight, among others
Environmental COPD	
Cigarette smoking COPD (COPD-C)	• Exposure to tobacco smoke, including *in utero* or via passive smoking • Vaping or e-cigarette use • Cannabis
Biomass and pollution exposure COPD (COPD-P)	Exposure to household pollution, ambient air pollution, wildfire smoke, occupational hazards
COPD due to infections (COPD-I)	Childhood infections, tuberculosis-associated COPD, HIV-associated COPD
COPD & asthma (COPD-A)	Particularly childhood asthma
COPD of unknown cause (COPD-U)	

GINA Asthma Phenotypes

- Allergic Asthma
  - Childhood, familial, eczema, rhinitis, atopy
- Non-allergic Asthma
- Cough Variant Asthma
- Late-onset Asthma
  - Non-allergic, female, post-infection, occupational
- Asthma with Persistent Airflow Limitation
  - Looks like COPD

Asthma+COPD or Asthma-COPD Overlap

- “Asthma-COPD overlap” and “asthma+COPD” are terms used to describe patients who have persistent airflow limitations together with clinical features that are consistent with both asthma and COPD.

- 15 – 32% of patients with obstructive lung disease
- More frequent exacerbations and poorer QOL
- More rapid loss of FEV1 and greater morbidity

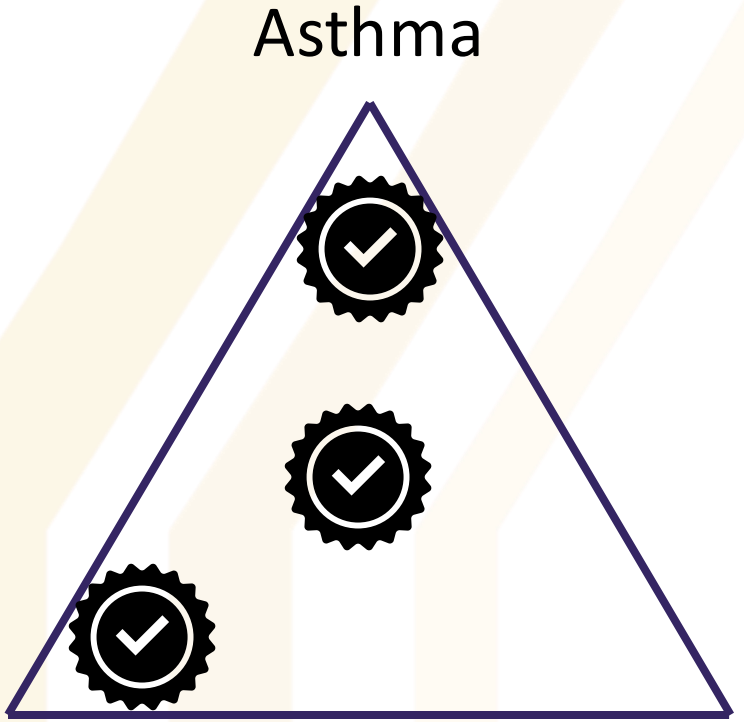
Asthma and COPD Prevalence

US Adults

- Asthma 8.6%
- COPD 4%
- Asthma-COPD Overlap 1.3%
- Females >1.5 RR
- > RR Black, Poverty

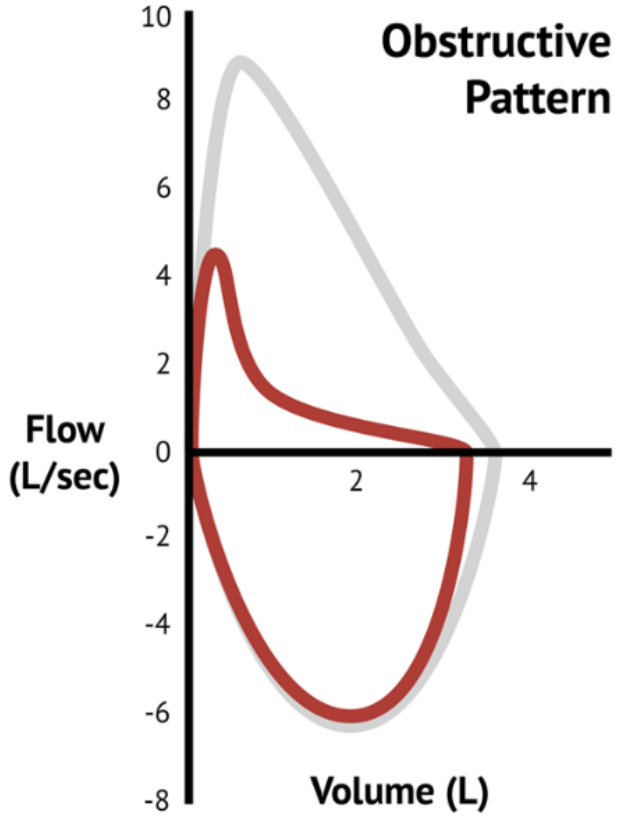
Worldwide Adults

- Asthma 6.6%
- COPD 10%
- Asthma-COPD Overlap 2%
- Australia 21% asthma


Asthma
Emphysema
Bronchitis

PFTs (Spirometry)

- Forced Expired Volume in One Second (FEV1)
- Forced Expiratory Volume (FVC)
- Ratio FEV1/FVC

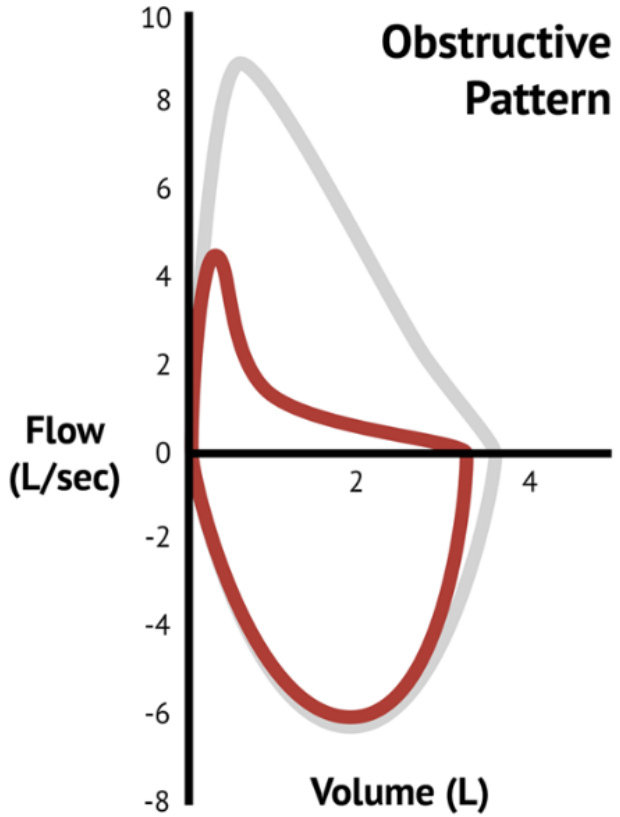


PFTs (Spirometry)

- Forced Expired Volume in One Second (FEV1)
- Forced Expiratory Volume (FVC)
- Ratio FEV1/FVC
  - FEV1/FVC < 70% is obstructed

- FEV1 as precent of predicted grades severity
  - Age, gender, height

- Significant post broncho-dilator improvement
  - > 12% adult and child, or
  - > 200 cc adult



GOLD Grades and Severity of Airflow Obstruction in COPD (based on post-bronchodilator FEV1)

Figure 2.7

In COPD patients (FEV1/FVC < 0.7):

GOLD 1:	Mild	FEV1 ≥ 80% predicted
GOLD 2:	Moderate	50% ≤ FEV1 < 80% predicted
GOLD 3:	Severe	30% ≤ FEV1 < 50% predicted
GOLD 4:	Very Severe	FEV1 < 30% predicted

Diagnosis of Asthma

- Variable respiratory symptoms
  - Wheeze, SOB, chest tightness, cough
  - Nocturnal awakening
  - Triggered by exercise, laughter, cold air, allergens
  - Worse after exertion and with URI
- Evidence of variable expiratory airflow
  - FEV1 increase >200cc or 12% post SABA
  - Baseline FEV1 increased with 4 weeks ICS
  - Positive bronchoprovocation challenge
  - Excessive variability between visits (PEF <> 15%)

What is a LAMA?

- Someone who Left Against Medical Advice
- Long-Acting Muscarinic Agonist
- A South American Ungulate
- Long-Acting Muscarinic Antagonist

Inhaled Respiratory Medications

SABA	Short-acting beta-adrenergic agonists
SAMA	Short-acting muscarinic antagonists
LAMA	Long-acting muscarinic antagonists
LABA	Long-acting beta-adrenergic agonists
LAMA & LABA	Combinations
ICS	Inhaled Corticosteroids
LABA & ICS	Combinations
ICS & LAMA & LABA	Combinations

Metered-Dose Inhaler

Metered-Dose Inhaler with a Valved Holding Chamber (Spacer)

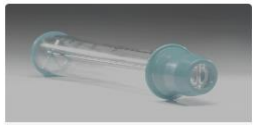
Metered-Dose Inhaler with a Valved Holding Chamber (Spacer) and Mask

Diskus Dry Powder Inhaler

Ellipta Dry Powder Inhaler

Flexhaler Dry Powder Inhaler

Inhub Inhaler



Peak Flow Meter

Pressair Device

Redihaler Aerosol Inhaler

RespiClick Dry Powder Inhaler

Respimat Softmist Inhaler

Twisthaler Dry Powder Inhaler

Valved Holding Chambers and Spacers

Nebulizer

American Lung Association.

How to Use a Metered-Dose Inhaler without a Valved Holding Chamber or Spacer

Prime a brand-new inhaler: Before using it for the first time, if you have not used it for more than 7 days, or if it has been dropped.

1. Shake inhaler 10 seconds.

2. Take the cap off the inhaler and make sure it is clean and there is nothing inside of the mouthpiece.

3. Breathe out away from the device.

4. Put inhaler mouthpiece in mouth.

5. Press inhaler once and breathe in deep and steady.

6. Hold your breath for 10 seconds, then breathe out slowly.

   If you need another puff of medicine, wait 1 minute and repeat steps 3–6.

7. Rinse with water and spit it out.

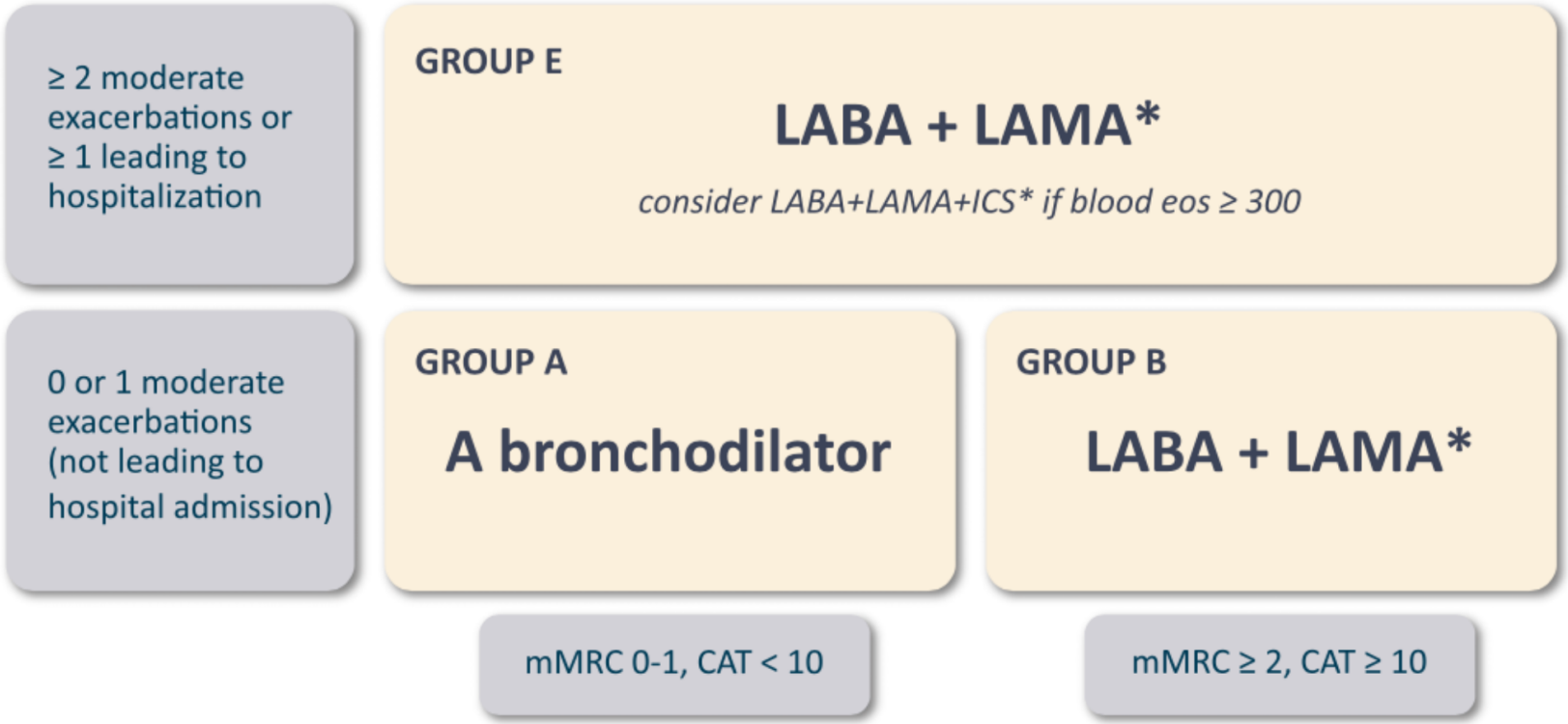
Proper inhalation technique is important when taking your asthma medicine(s) and monitoring your breathing. Make sure to bring all your medicines and devices to each visit with your primary care provider or pharmacist to check for correct use, or if you have trouble using them.

For more videos, handouts, tutorials and resources, visit Lung.org.

Scan the QR Code to access How-To Videos

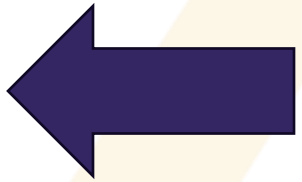
You can also connect with a respiratory therapist for one-on-one, free support from the American Lung Association's Lung HelpLine at **1-800-LUNGUSA**.

Exacerbations per year and dyspnea guide COPD treatment



Modified Medical Research Council Dyspnea Scale

Dyspnea only with strenuous exercise	0
Dyspnea when hurrying or walking up a slight hill	+1
Walks slower than people of the same age because of dyspnea or has to stop for breath when walking at own pace	+2
Stops for breath after walking 100 yards (91 m) or after a few minutes	+3
Too dyspneic to leave house or breathless when dressing	+4



Recent Asthma Symptom Control

- In the past 4 weeks:
  - Daytime asthma symptoms > twice/wk
  - Any night waking due to asthma
  - SABA reliever > twice/wk
  - Any activity limitation due to asthma

- None of these—well controlled
- 1 or 2 of these—partly controlled
- 3 or 4 of these--uncontrolled

“Just take a puff of albuterol when you need it for your asthma”

SMART (MART) Therapy for Asthma

- Single Maintenance And Reliever Therapy
  - ICS plus formoterol

- Symbicort® budesonide and formoterol
  - Use prn for reliever
  - Use regularly for chronic asthma plus prn
  - Generic

- Dulera® mometasone and formoterol

GINA Treatment for Adolescent and Adult

Preferred

- STEP 1-2 ICS-formoterol reliever
- STEP 3 Low dose SMART
- STEP 4 Medium dose SMART
- STEP 5 Referral

Alternative

- STEP 1 ICS with SABA prn
- STEP 2 Low dose ICS + SABA prn
- STEP 3 Low dose ICS+LABA
- STEP 4 Med/Hi ICS+LABA
- STEP 5 Referral

Do not give LABA or LAMA without ICS

Drug Category	Common Examples	Primary Purpose	List/Retail Price (Est.)	Out-of-Pocket Cap / Discount
ICS (Inhaled Steroids)	Fluticasone (Flovent), Arnuity Ellipta, Qvar	Daily controller to reduce inflammation	**$35** (via price caps) to **$250+**	
SABA (Short-Acting)	Albuterol (Ventolin, ProAir)	Emergency "rescue" relief	$20 – $75	**$11 – $35**
LAMA (Long-Acting)	Spiriva, Incruse Ellipta	Daily maintenance/airway opening	$420 – $620	**$35**
LABA (Long-Acting)	Striverdi Respimat, Serevent	Daily maintenance/airway opening	$250 – $550	**$35**
LAMA + LABA (Combo)	Anoro Ellipta, Stiolto Respimat	Dual-action daily maintenance	$480 – $600	**$35**
ICS + LABA (Combo)	Advair, Symbicort, Breo Ellipta	Opens airways & reduces inflammation	$330 – $430	**$35**
Triple Therapy	Trelegy Ellipta, Breztri Aerosphere	Advanced daily triple-action control	$640 – $880	**$35**

ICS + SABA AIRSUPRA

Complications of ICS

- Local Effects
  - Hoarseness and Thrush
- Systemic Effects
  - Respiratory infections (COPD)
  - Lower bone density
  - Cataracts
  - Skin thinning and bruising
  - Adrenal suppression

Systemic Corticosteroids and Pulmonary

- Oral Corticosteroid Stewardship Statement, November 2018, Allergy & Asthma Network
    - Dr. Bernie Short—Past President SERUCA, UCA Presentations 2024 and 2025
- Do not give for allergies, pharyngitis, URI, bronchiolitis/bronchitis, COVID or flu
- COPD exacerbation 40 mg Prednisone/day in AM 5 days
- Short course for asthmatic flare and switch to ICS
- 500mg Prednisone lifetime may increase morbidity--Fracture, VTE, Sepsis
- Potency 1 : 5 : 25 cortisone : prednisone : dexamethasone

ASTHMA ACTION PLAN

Asthma and Allergy Foundation of America
aafa.org

Name:	Date:
Doctor:	Medical Record #:
Doctor's Phone #: Day	Night/Weekend
Emergency Contact:	
Doctor's Signature:	

Personal Best Peak Flow: _____

The colors of a traffic light will help you use your asthma medicines.

GREEN means Go Zone!
Use preventive medicine.

YELLOW means Caution Zone!
Add quick-relief medicine.

RED means Danger Zone!
Get help from a doctor.

GO

You have *all* of these:
- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work & play

Peak flow:
from _____
to _____

Use these daily controller medicines:

MEDICINE	HOW MUCH	HOW OFTEN/WHEN
For asthma with exercise, take:		

CAUTION

You have *any* of these:
- First signs of a cold
- Exposure to known trigger
- Cough
- Mild wheeze
- Tight chest
- Coughing at night

Peak flow:
from _____
to _____

Continue with green zone medicine and add:

MEDICINE	HOW MUCH	HOW OFTEN/ WHEN
CALL YOUR ASTHMA CARE PROVIDER.		

DANGER

Your asthma is getting worse fast:
- Medicine is not helping
- Breathing is hard & fast
- Nose opens wide
- Trouble speaking
- Ribs show (in children)

Peak flow:
reading below _____

Take these medicines and call your doctor now.

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

GET HELP FROM A DOCTOR NOW! Your doctor will want to see you right away. It's important!
If you cannot contact your doctor, go directly to the emergency room. DO NOT WAIT.
Make an appointment with your asthma care provider within two days of an ER visit or hospitalization.

What to call it?

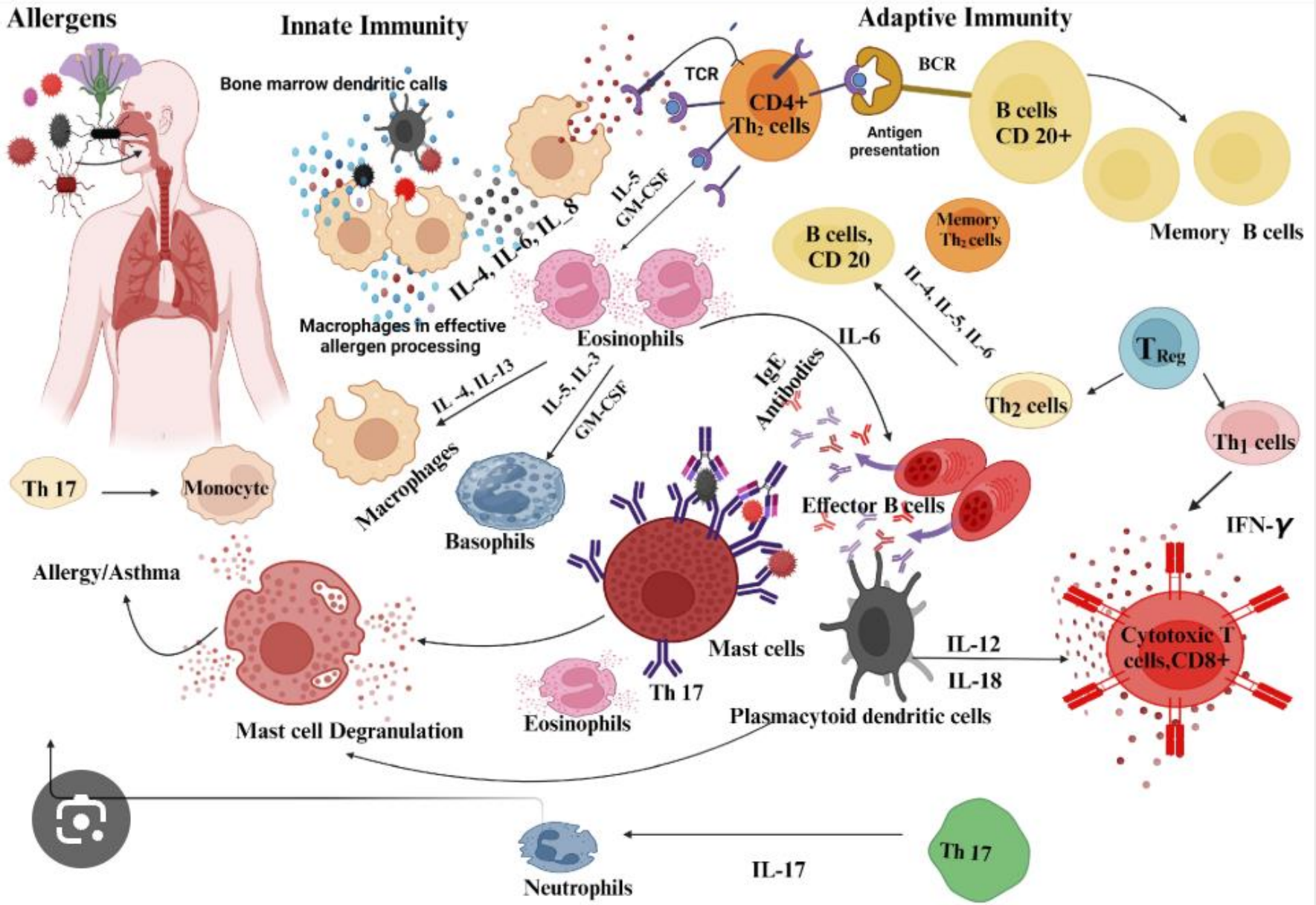
- Highly likely to be asthma
  - Hx of triggers, early onset, good response to meds
  - Atopy and family history
  - Variable obstruction with reversibility
- Asthma-COPD Overlap
  - COPD etiology with asthma variability
- Likely to be COPD
  - Onset > 40, Hx smoking or irritant exposure
  - Progressive loss of FEV1
  - No or variable BD response

Asthma + COPD Overlap Zebras

- Alpha-1 antitrypsin deficiency
- Cystic fibrosis
- Immotile cilia syndromes
- Immuno-deficiency syndromes

Biologics Advertised on TV Evening News March 2026

- Tremfya (guselkumab) #1 overall
- Rinvoq (upadacitinib) #2
- Skyrizi (risakizumab-rzaa) #3
- Dupixent (dupilumab) #9


Allergens
Innate Immunity
Adaptive Immunity
Bone marrow dendritic calls
TCR
CD4+
Th2 cells
BCR
Antigen
presentation
B cells
CD 20+
Memory B cells
IL-4, IL-6, IL-8
IL-5
GM-CSF
B cells,
CD 20
Memory
Th2 cells
IL-4, IL-5, IL-6
Macrophages in effective
allergen processing
Eosinophils
IL-6
TReg
IL-4, IL-13
IL-5, IL-3
GM-CSF
IgE
Antibodies
Th2 cells
Th1 cells
Th 17
Monocyte
Macrophages
Basophils
Effector B cells
IFN-γ
Allergy/Asthma
Mast cells
Cytotoxic T
cells,CD8+
Th 17
Eosinophils
Plasmacytoid dendritic cells
IL-12
IL-18
Mast cell Degranulation
Neutrophils
IL-17
Th 17

Anti-IgE Therapy (Allergic Asthma)

- **Omalizumab (Xolair)**: Targets IgE antibodies that trigger allergic responses
  - **Age**: 6 years and older. **Dosing**: Subcutaneous injection every 2 to 4 weeks.

Anti-IL-5 and Anti-IL-5 Receptor Therapy (Eosinophilic Asthma)

- **Mepolizumab (Nucala)**: Blocks the IL-5 protein.
  - **Age**: 6 years and older. **Dosing**: Subcutaneous injection every 4 weeks.
- **Benralizumab (Fasenra)**: Targets the IL-5 receptor for rapid eosinophil depletion.
  - **Age**: 12 years and older. **Dosing**: Subcutaneous injection every 4 weeks for 3 doses, then every 8 weeks.
- **Reslizumab (Cinqair)**: Blocks the IL-5 protein.
  - **Age**: 18 years and older. **Dosing**: **Intravenous (IV) infusion** every 4 weeks in a healthcare setting.
- **Depemokimab (Exdensur)**: A newly approved (late 2025) ultra-long-acting IL-5 inhibitor.
  - **Age**: 12 years and older. **Dosing**: Subcutaneous injection **twice yearly** (every 6 months).

Anti-IL-4 and Anti-IL-13 Therapy (Type 2 Inflammation)

- **Dupilumab (Dupixent)**: Blocks two proteins (IL-4 and IL-13) linked to allergic and eosinophilic inflammation.
  - **Age**: 6 years and older. **Dosing**: Subcutaneous injection every 2 weeks.

Anti-TSLP Therapy (Broad Spectrum)

- **Tezepelumab (Tezspire)**: Blocks TSLP, an "upstream" molecule that starts the inflammatory process.
  - **Age**: 12 years and older. **Dosing**: Subcutaneous injection every 4 weeks.

Approved Biologics for COPD

- **Dupilumab (**Dupixent**)**: Approved in September 2024
  - monoclonal antibody that inhibits **IL-4 and IL-13** signaling to reduce lung inflammation and mucus production.
  - **Dosing**: Administered as a subcutaneous injection every **2 weeks**.
  - **Benefits**: Clinical trials showed up to a 34% reduction in annual flare-ups and rapid improvements in lung function.

- **Mepolizumab (**Nucala**)**: Approved in May 2025
  - targets **IL-5**, a protein essential for the survival and activity of eosinophils
  - **Dosing**: Administered as a subcutaneous injection every **4 weeks**.
  - **Benefits**: Studies demonstrated a significant reduction in moderate-to-severe exacerbations, including those requiring hospitalization or emergency visits.

Eligibility & Markers

- not first-line treatments
- frequent "flare-ups" with maximal inhaled **triple therapy** (a combination of LAMA, LABA, and ICS)
- **eosinophilic phenotype**, blood eosinophil count (BEC) of >300/mm^3

Other Agents in Development

Medication (Brand)	Active Ingredient	Typical Dosage	Estimated Monthly List Price	Discounted/Copay Price
Dupixent	Dupilumab	Every 2 weeks	~$4,193 - $5,377	**$0 – $100**
Tezspire	Tezepelumab	Every 4 weeks	~$4,587 - $4,908	**$0 – $100**
Fasenra	Benralizumab	Every 4 or 8 weeks	~$4,895 - $6,022	**$0 – $100**
Nucala	Mepolizumab	Every 4 weeks	~$3,000 - $3,500	**$0 – $100**
Xolair	Omalizumab	Every 2 or 4 weeks	~$2,900 - $5,000	**$0 – $100**
Cinqair	Reslizumab	Every 4 weeks (IV)	~$3,000 - $4,500	Varies (Clinic-based)

Some General Takeaways

- Everybody-- MDI technique, Cost vs Convenience, Action Plan, Vaccines
- Asthma
  - GINA SMART therapy, anti-inflammatory biologics
  - Target normal FEV1 and symptom free
- Asthma COPD Overlap
  - Treat like asthma including LAMA
  - Consider COPD co-morbidities
- COPD
  - Smoking cessation
  - Target dyspnea and exacerbations: SABA and LAMA+LABA
  - Push ICS with elevated eosinophils
  - Screen for lung cancer

Takeaways For Urgent Care—Tuesday Talk

- Asthma
  - Assess risk of hospitalization--prior hospitalization or excessive SABA use (6/yr)
  - Short course of steroids if high risk
  - Initiate SMART therapy if solely on SABA
- COPD
  - Consider co-morbidities—CHF, PE, pneumonia
  - Short course of steroids if has helped in past
  - Antibiotics if purulent sputum
  - Provide SABA or LAMA

I Need Your Feedback

Prefer paper?

On the form in front of you, please score me and the content I shared with you today.

AFTER THE CONVENTION

You may claim CME here www.urgentcareassociation.org/learning-center/cme/