Updates in Primary Care

MAFP Big Mountain Conference

1/30/26

Tyler Thorson, MD. FMRWM Faculty

Disclosures

- Nothing fun
- By no means an expert, just a guy who nerds out about evidence

Objectives

1. Review most recent guidelines for HTN, COPD/Asthma, and DM2
2. Discuss management of alcohol use disorder
3. Review age/gender appropriate preventative care

Kahoot

Case: 60 year old male presents for annual physical

- Past medical history significant for HTN, COPD, Tobacco use disorder (40 pack/year), and type 2 DM
- Medications include amlodipine, metoprolol, Symbicort, metformin, and glipizide
- No significant family history
- Denies illicit substance use.
- 10 alcoholic drinks per week

Case: 60 year old male presents for annual physical

- VS: 155/96. HR 52. RR 16. 92% on RA. Afebrile.
- A1c 8.2%
- AST 72, ALT 150, Alk phos 160

Hypertension

- New guidelines in 2025 with AHA
- Normal: <120/80
- Elevated: 120-129/<80
- Stage 1: 130-139/80-89
- Stage 2: ≥140/≥90

Hypertension

- Treat everyone in Stage 2
  - Consider starting with a combined medication
- Consider screening all patients with stage 2 for hyperaldosteronism
  - Test ALL patients with resistant HTN despite their K levels
- Can use the PREVENT trial to help gauge risk
  - Start antihypertensives in 10 year risk >7.5%.

Hypertension

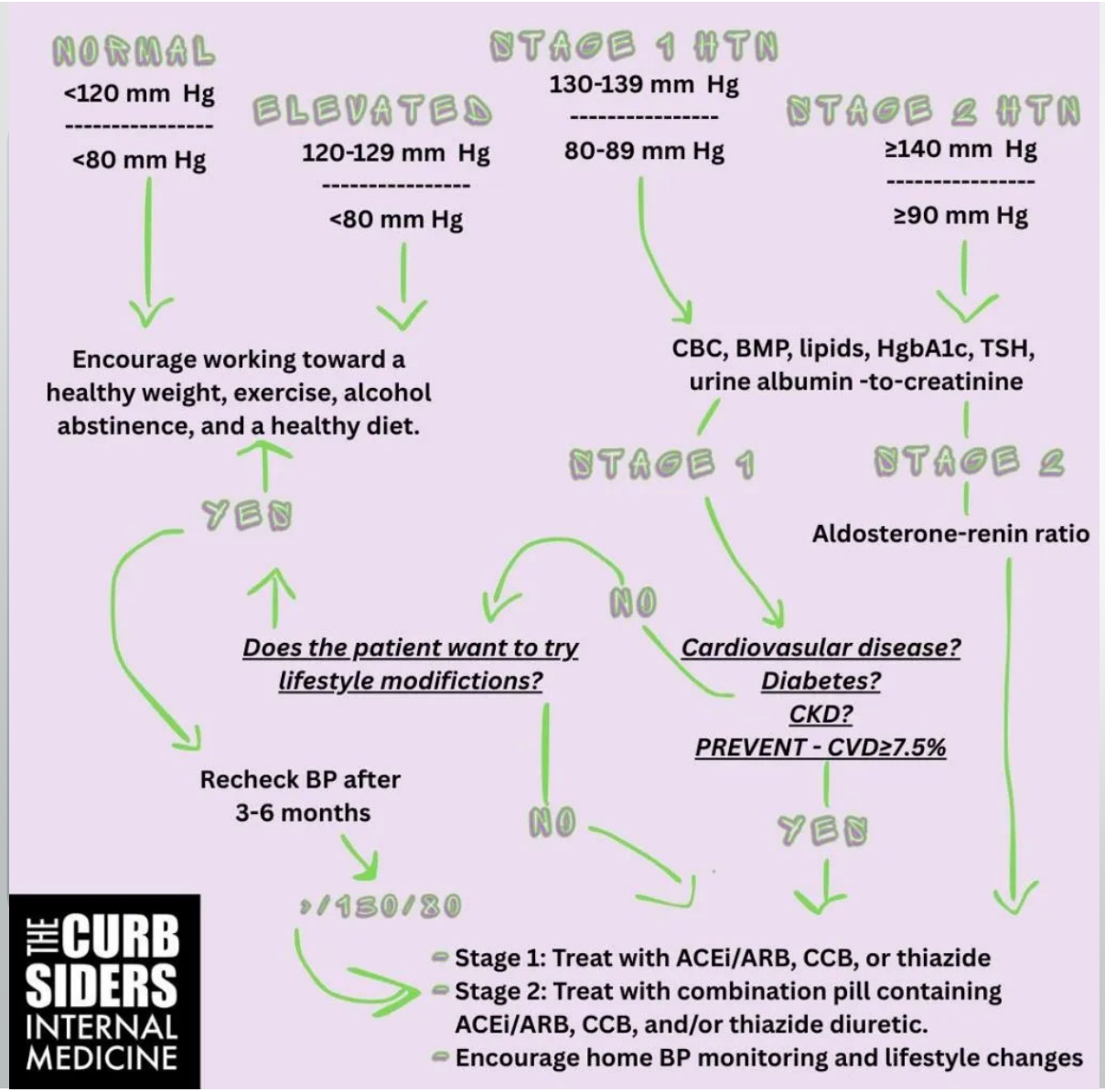
First line antihypertensives

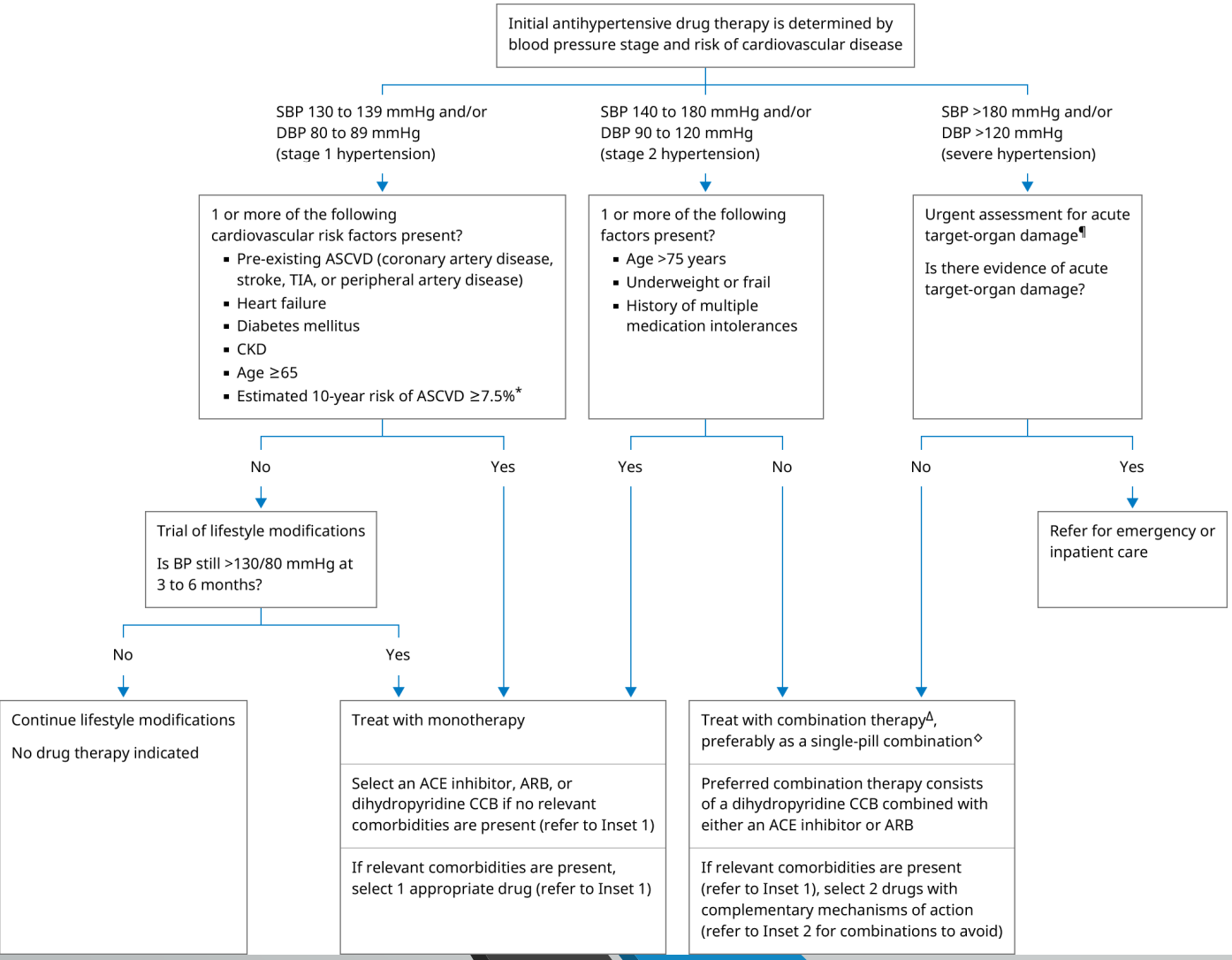
- ACEi/ARB
- Dihydropyradine calcium channel blocker
- Thiazide type diuretic

Second line

- Beta blocker
- Alpha blocker
- Mineralocorticoid antagonist (MRA)

Hypertension





Inset 1: Indications for specific drug classes

Osteoporosis, edema, calcium nephrolithiasis with hypercalciuria	Thiazide-like diuretic
CKD with albuminuria	ACE inhibitor or ARB
Atrial fibrillation	Beta blocker or nondihydropyridine CCB
Recent myocardial infarction	Beta blocker, ACE inhibitor, or ARB
Orthostatic hypotension	Dihydropyridine CCB, ACE inhibitor, or ARB
Heart failure with reduced, mildly reduced, or preserved ejection fraction	ACE inhibitors, ARBs, beta blockers, diuretics, mineralocorticoid receptor antagonists, and other medications
Patients who may become pregnant	Dihydropyridine CCB

Inset 2: Antihypertensive drug combinations to avoid

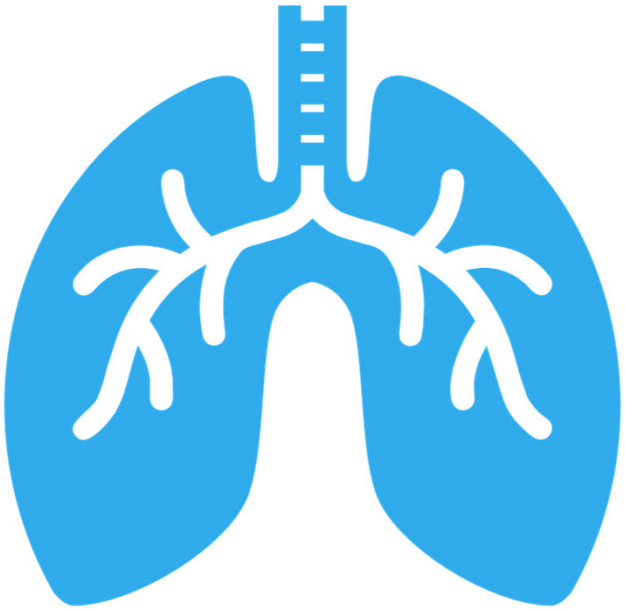
- An ACE inhibitor should not be combined with an ARB
- A beta blocker should not be combined with diltiazem or verapamil
- An alpha-1 adrenergic antagonist should not be combined with clonidine
- A beta blocker should not be combined with clonidine
- ACE inhibitors and ARBs should not be used in patients who may become pregnant

Asthma

- Reversible bronchoconstriction/obstruction in the small airways
- Diagnosis can be made with PFTs AND/OR clinical symptoms
  - Particularly in young children who may not be able to do PFTs
- Symptoms: coughing, wheezing, frequent respiratory infections

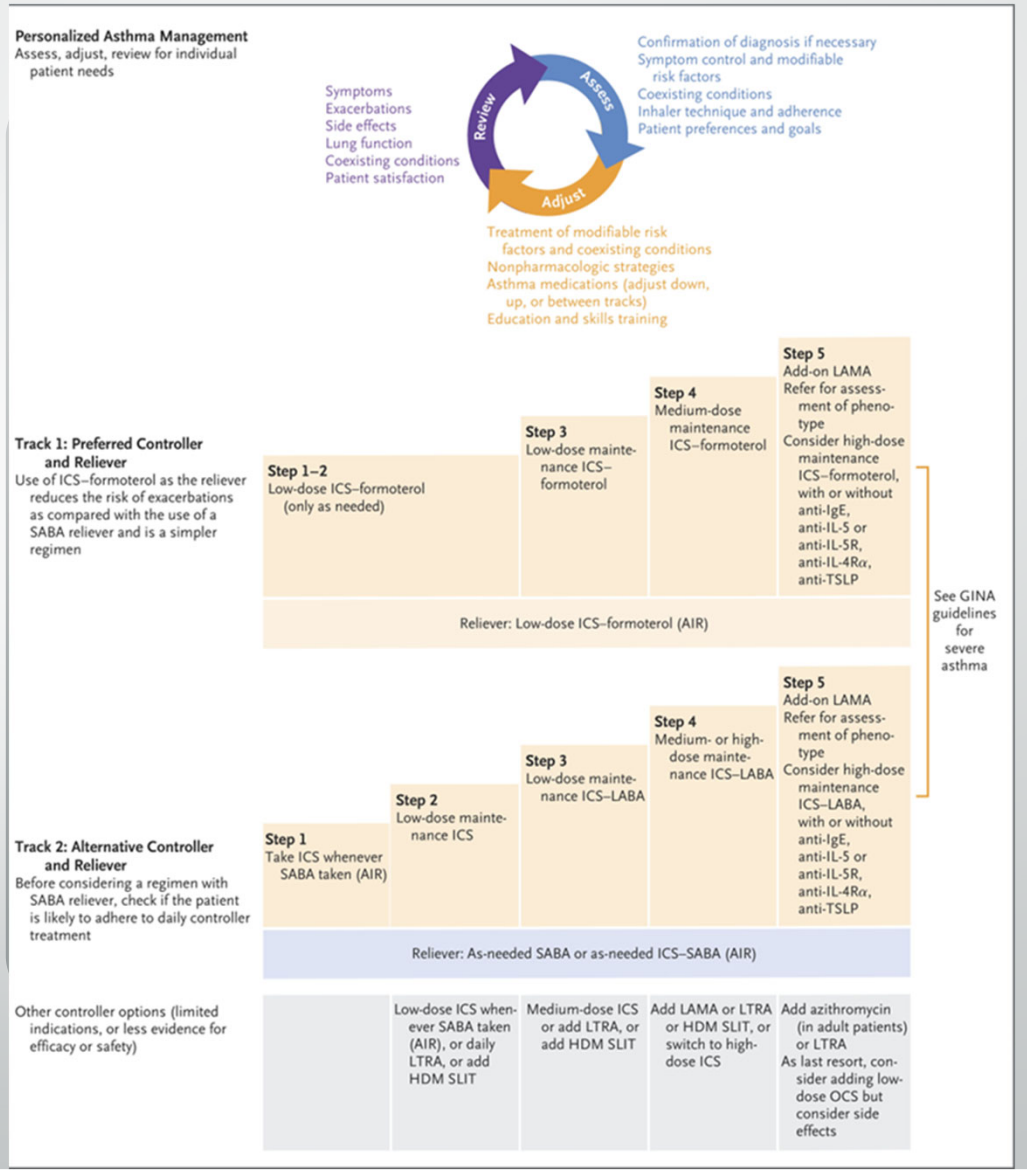
Pulmonary Function Testing/Spirometry

- •**Spirometry** (preferred): Measures FEV_1, FVC, and FEV_1/FVC ratio.
- •**Bronchodilator reversibility testing:** FEV_1 increase ≥12% and ≥200 mL (adults); ≥12% (children) after inhaled bronchodilator.
- •**Peak Expiratory Flow (PEF):** Used if spirometry unavailable; best of 3 readings, same meter for follow-up.
- •**Bronchial challenge tests:** For equivocal cases.
- •**Additional pediatric tests:** Impulse oscillometry, plethysmography, FeNO (especially in preschoolers).



GINA 2024

- Think about SMART here
- Track 1 is preferred, can do track 2 as well



Treatment Options

- Short acting beta agonist (SABA)
- Inhaled corticosteroids (ICS)
- Long acting beta agonist (LABA)
- Leukotriene receptor antagonist (LTA)
- Long acting muscarinic antagonist (LAMA)
- Combo inhalers

2025 Respiratory Treatments

Allergy & Asthma Network

800.878.4403 • AllergyAsthmaNetwork.org

Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.

American College of Allergy, Asthma & Immunology

VIATRIS

Theravance Biopharma

G = GENERIC AVAILABLE
N = NEBULIZER VIAL

DISEASE STATES:
A = ASTHMA
C = COPD

SHORT-ACTING BETA$_2$-AGONIST (SABA) BRONCHODILATORS

relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

- **Albuterol Sulfate Inhalation Solution** 0.63, 1.25 mg, 2.5mg; 3 mL — A G N
- **ProAir RespiClick®** 90 mcg — albuterol sulfate inhalation powder — A
- **Proventil® HFA** 90 mcg — albuterol sulfate — A G
- **Ventolin® HFA** 90 mcg — albuterol sulfate — A G
- **Xopenex®** 0.31, 0.63, 1.25 mg; 3 mL — levalbuterol hydrochloride inhalation solution — A G N
- **Xopenex HFA®** 45 mcg — levalbuterol tartrate — A G

SABA and ICS

contains SABA to relax airway muscles and offer quick relief of symptoms, and inhaled corticosteroid (ICS) to reduce inflamed airways

- **AIRSUPRA®** 90/80 mcg — albuterol and budesonide — A

INHALED CORTICOSTEROIDS (ICS)

reduce and prevent swelling of airway tissue; they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

- **Alvesco® HFA** 80, 160 mcg — ciclesonide — A
- **Arnuity® Ellipta®** 50, 100, 200 mcg — fluticasone furoate inhalation powder — A
- **Asmanex® HFA** 50, 100, 200 mcg — mometasone furoate — A
- **Asmanex® Twisthaler®** 110, 220 mcg — mometasone furoate inhalation powder — A
- **Fluticasone Propionate Diskus Inhalation Powder** 50, 100, 250 mcg — authorized generic of Flovent Diskus — A
- **Fluticasone Propionate HFA** 44, 110, 220 mcg — authorized generic of Flovent HFA — A
- **Pulmicort Flexhaler®** 90, 180 mcg — budesonide inhalation powder — A
- **Pulmicort Respules®** 0.25, 0.50, 1.0 mg; 2 mL — budesonide inhalation suspension — A G N
- **QVAR Redihaler®** 40, 80 mcg — beclomethasone dipropionate — A

LONG-ACTING BETA$_2$-AGONIST (LABA) BRONCHODILATORS

relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

- **Brovana®** 15 mcg; 2 mL — arformoterol tartrate inhalation solution — G N
- **Perforomist®** 20 mcg; 2 mL — formoterol fumarate inhalation solution — G N
- **Serevent® Diskus®** 50 mcg — salmeterol xinafoate inhalation powder — A G
- **Striverdi® Respimat®** 2.5 mcg — olodaterol hydrochloride — G

MUSCARINIC ANTAGONISTS (ANTICHOLINERGICS)

relieve cough, sputum production, wheeze and chest tightness associated with chronic lung diseases

SHORT-ACTING

- **Atrovent® HFA** 17 mcg — ipratropium bromide — G

LONG-ACTING

- **Incruse® Ellipta®** 62.5 mcg — umeclidinium inhalation powder — G
- **Ipratropium Bromide Inhalation Solution** 0.5/3 mg; 3 mL — G G N
- **Spiriva® HandiHaler®** 18 mcg — tiotropium bromide inhalation powder — G
- **Spiriva® Respimat®** 1.25, 2.5 mcg — tiotropium bromide — A G
- **Tudorza® Pressair®** 400 mcg — aclidinium bromide inhalation powder — G
- **Yupelri®** 175 mcg; 3 mL — revefenacin inhalation solution — G N

COMBINATION MEDICATIONS

contain ICS and LABA

- **Advair Diskus®** 100/50, 250/50, 500/50 mcg — fluticasone propionate and salmeterol inhalation powder — A G G
- **Advair® HFA** 45/21, 115/21, 230/21 mcg — fluticasone propionate and salmeterol xinafoate — A G
- **AirDuo® RespiClick®** 55/14, 113/14, 232/14 mcg — fluticasone propionate and salmeterol inhalation powder — A G
- **Breo® Ellipta®** 50/25, 100/25, 200/25 mcg — fluticasone furoate and vilanterol inhalation powder — A G G
- **Breyna®** 80/4.5, 160/4.5 mcg — budesonide and formoterol fumarate dihydrate (approved generic of Symbicort) — A G
- **Dulera®** 50/5, 100/5, 200/5 mcg — mometasone furoate and formoterol fumarate dihydrate — A
- **Symbicort®** 80/4.5, 160/4.5 mcg — budesonide and formoterol fumarate dihydrate — A G G
- **Wixela Inhub®** 100/50, 250/50, 500/50 mcg — fluticasone propionate and salmeterol xinafoate (approved generic of Advair Diskus) — A G

contain LABA and long-acting muscarinic antagonist (LAMA)

- **Anoro® Ellipta®** 62.5/25 mcg — umeclidinium and vilanterol inhalation powder — G
- **Bevespi Aerosphere®** 9/4.8 mcg — glycopyrrolate and formoterol fumarate — G
- **Duaklir® Pressair®** 400/12 mcg — aclidinium bromide and formoterol fumarate — G
- **Stiolto® Respimat®** 2.5/2.5 mcg — tiotropium bromide and olodaterol — G

contain ICS, LABA and LAMA

- **Trelegy® Ellipta®** 200/62.5/25 mcg, 100/62.5/25 mcg — fluticasone furoate, umeclidinium and vilanterol inhalation powder — A G
- **Breztri Aerosphere®** 160/9/4.8 mcg — budesonide, glycopyrrolate and formoterol fumarate — G

contain SABA and short-acting muscarinic antagonist (SAMA)

- **Combivent® Respimat®** 20/100 mcg — ipratropium bromide and albuterol — G
- **Ipratropium Bromide and Albuterol Sulfate Inhalation Solution** 0.5mg/2.5mg; 3mL — G G

BIOLOGICS

target cells and pathways that cause airway inflammation; delivered by injection or IV

- **Cinqair®** 62.5/25 ml — reslizumab — A
- **Dupixent®** 100, 200, 300 mg — dupilumab — A G
- **Fasenra®** 30 mg — benralizumab — A
- **Nucala®** 100 mg — mepolizumab — A
- **Tezspire®** 210 mg — tezepelumab-ekko — A
- **Xolair®** 75 to 375 mg — omalizumab — A

PDE3/4 INHIBITORS

control inflammation and reduce flare-ups

- **Ohtuvayre™** 3 mg; 2.5 mL — ensifentrine inhalation suspension — G N

PDE4 INHIBITORS

control inflammation and reduce flare-ups

- **Daliresp®** 250, 500 mcg — roflumilast — G

LEUKOTRIENE MODIFIERS

block chemicals called leukotrienes that cause airway inflammation; available as tablet or granules

- **Singulair®** 4, 5, 10 mg — montelukast — A
- **Zafirlukast** 10, 20 mg — A
- **Zileuton** 600 mg — A

Reviewed by Dennis Williams, PharmD

Generic versions of some brand name inhalers are not included on this poster. Generic inhalers may be a different color than brand name versions.

Non-pharmacologic Treatment

- Avoid triggers
- Manage comorbidities
- Home modifications (air purifier, HEPA, etc)
- Asthma action plan

Asthma summary

01

Do PFTs/spirometry in clinic

02

Think SMART right away

03

Yearly asthma action plans and peak flows with children/adolescents

04

Montelukast for allergic type asthma

COPD

Chronic obstruction WITHOUT reversibility

Diagnosis based on symptoms AND PFTs.

mMRC or CAT scoring

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Modified MRC Dyspnea Scale

Figure 2.11

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | Grades 0 - 4

mMRC Grade 0	mMRC Grade 1	mMRC Grade 2	mMRC Grade 3	mMRC Grade 4
I only get breathless with strenuous exercise	I get short of breath when hurrying on the level or walking up a slight hill	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level	I stop for breath after walking about 100 meters or after a few minutes on the level	I am too breathless to leave the house or I am breathless when dressing or undressing
☐	☐	☐	☐	☐

Reference: American Thoracic Society. Am Rev Respir Dis 1982;126(5):952-6.

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CAAT™ Assessment

Figure 2.12

For each item below, place a mark (x) in the box that best describes you currently.
Be sure to only select one response for each question.

EXAMPLE: I am very happy	0 X 2 3 4 5	I am very sad	Score
I never cough	0 1 2 3 4 5	I cough all the time	
I have no phlegm (mucus) in my chest at all	0 1 2 3 4 5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	0 1 2 3 4 5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	0 1 2 3 4 5	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	0 1 2 3 4 5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	0 1 2 3 4 5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	0 1 2 3 4 5	I don't sleep soundly because of my lung condition	
I have lots of energy	0 1 2 3 4 5	I have no energy at all	

Reference: Jones et al. ERJ 2009; 34 (3); 648-54.

TOTAL SCORE: ☐

CAT™ has been renamed as the Chronic Airways Assessment Test CAAT™; CAT™ and CAAT™ are equivalent and the scores are interchangeable.

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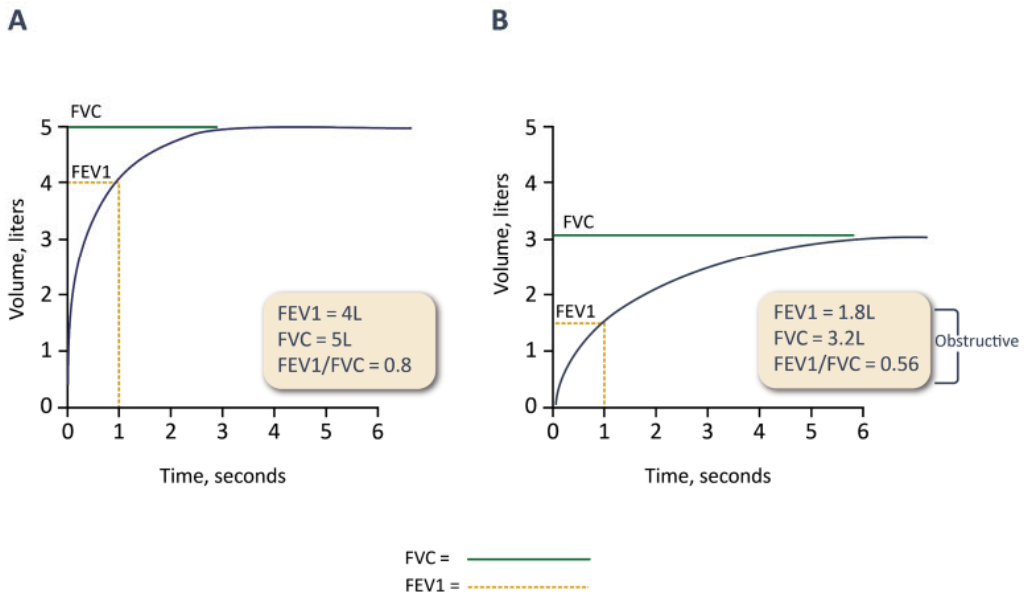
A. Spirometry - Normal Trace B. Spirometry - Airflow Obstruction

Figure 2.5



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

Figure 2.10

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In patients with COPD (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

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GOLD ABE Assessment Tool

Figure 2.13

Spirometrically confirmed diagnosis → Assessment of airflow obstruction → Assessment of symptoms/risk of exacerbations

Post-bronchodilator FEV1/FVC < 0.7

GRADE	FEV1 (% predicted)
GOLD 1	≥ 80
GOLD 2	50-79
GOLD 3	30-49
GOLD 4	< 30

EXACERBATION HISTORY (PER YEAR)

	SYMPTOMS: mMRC 0-1 CAAT < 10	SYMPTOMS: mMRC ≥ 2 CAAT ≥ 10
One or more (≥ 1) moderate or severe exacerbations in the previous year	E	
Zero (0) moderate or severe exacerbations in the previous year	A	B

Treatment Options

- Short acting beta agonist (SABA)
- Inhaled corticosteroids (ICS)
- Long acting beta agonist (LABA)
- Leukotriene receptor antagonist (LTA)
- Long acting muscarinic antagonist (LAMA)
- Combo inhalers

2025 Respiratory Treatments

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American College of Allergy, Asthma & Immunology

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G = GENERIC AVAILABLE
N = NEBULIZER VIAL

DISEASE STATES:
A = ASTHMA
C = COPD

SHORT-ACTING BETA$_2$-AGONIST (SABA) BRONCHODILATORS

relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

- **Albuterol Sulfate Inhalation Solution** — 0.63, 1.25 mg, 2.5mg; 3 mL — *albuterol sulfate* — A G N
- **ProAir RespiClick®** — 90 mcg — *albuterol sulfate inhalation powder* — A
- **Proventil® HFA** — 90 mcg — *albuterol sulfate* — A G
- **Ventolin® HFA** — 90 mcg — *albuterol sulfate* — A G
- **Xopenex®** — 0.31, 0.63, 1.25 mg; 3 mL — *levalbuterol hydrochloride inhalation solution* — A G N
- **Xopenex HFA®** — 45 mcg — *levalbuterol tartrate* — A G

SABA and ICS

contains SABA to relax airway muscles and offer quick relief of symptoms, and inhaled corticosteroid (ICS) to reduce inflamed airways

- **AIRSUPRA®** — 90/80 mcg — *albuterol and budesonide* — A

INHALED CORTICOSTEROIDS (ICS)

reduce and prevent swelling of airway tissue; they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

- **Alvesco® HFA** — 80, 160 mcg — *ciclesonide* — A
- **Arnuity® Ellipta®** — 50, 100, 200 mcg — *fluticasone furoate inhalation powder* — A
- **Asmanex® HFA** — 50, 100, 200 mcg — *mometasone furoate* — A
- **Asmanex® Twisthaler®** — 110, 220 mcg — *mometasone furoate inhalation powder* — A
- **Fluticasone Propionate Diskus Inhalation Powder** — 50, 100, 250 mcg — *authorized generic of Flovent Diskus* — A
- **Fluticasone Propionate HFA** — 44, 110, 220 mcg — *authorized generic of Flovent HFA* — A
- **Pulmicort Flexhaler®** — 90, 180 mcg — *budesonide inhalation powder* — A
- **Pulmicort Respules®** — 0.25, 0.50, 1.0 mg; 2 mL — *budesonide inhalation suspension* — A G N
- **QVAR Redihaler®** — 40, 80 mcg — *beclomethasone dipropionate* — A

LONG-ACTING BETA$_2$-AGONIST (LABA) BRONCHODILATORS

relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

- **Brovana®** — 15 mcg; 2 mL — *arformoterol tartrate inhalation solution* — G N
- **Perforomist®** — 20 mcg; 2 mL — *formoterol fumarate inhalation solution* — G N
- **Serevent® Diskus®** — 50 mcg — *salmeterol xinafoate inhalation powder* — A G
- **Striverdi® Respimat®** — 2.5 mcg — *olodaterol hydrochloride* — G

MUSCARINIC ANTAGONISTS (ANTICHOLINERGICS)

relieve cough, sputum production, wheeze and chest tightness associated with chronic lung diseases

SHORT-ACTING

- **Atrovent® HFA** — 17 mcg — *ipratropium bromide* — G

LONG-ACTING

- **Incruse® Ellipta®** — 62.5 mcg — *umeclidinium inhalation powder* — G
- **Ipratropium Bromide Inhalation Solution** — 0.5/3 mg; 3 mL — G G N
- **Spiriva® HandiHaler®** — 18 mcg — *tiotropium bromide inhalation powder* — G
- **Spiriva® Respimat®** — 1.25, 2.5 mcg — *tiotropium bromide* — A G
- **Tudorza® Pressair®** — 400 mcg — *aclidinium bromide inhalation powder* — G
- **Yupelri®** — 175 mcg; 3 mL — *revefenacin inhalation solution* — G N

COMBINATION MEDICATIONS

contain ICS and LABA

- **Advair Diskus®** — 100/50, 250/50, 500/50 mcg — *fluticasone propionate and salmeterol inhalation powder* — A G G
- **Advair® HFA** — 45/21, 115/21, 230/21 mcg — *fluticasone propionate and salmeterol xinafoate* — A G
- **AirDuo® RespiClick®** — 55/14, 113/14, 232/14 mcg — *fluticasone propionate and salmeterol inhalation powder* — A G
- **Breo® Ellipta®** — 50/25, 100/25, 200/25 mcg — *fluticasone furoate and vilanterol inhalation powder* — A G G
- **Breyna®** — 80/4.5, 160/4.5 mcg — *budesonide and formoterol fumarate dihydrate (approved generic of Symbicort)* — A G
- **Dulera®** — 50/5, 100/5, 200/5 mcg — *mometasone furoate and formoterol fumarate dihydrate* — A
- **Symbicort®** — 80/4.5, 160/4.5 mcg — *budesonide and formoterol fumarate dihydrate* — A G G
- **Wixela Inhub®** — 100/50, 250/50, 500/50 mcg — *fluticasone propionate and salmeterol xinafoate (approved generic of Advair Diskus)* — A G

contain LABA and long-acting muscarinic antagonist (LAMA)

- **Anoro® Ellipta®** — 62.5/25 mcg — *umeclidinium and vilanterol inhalation powder* — C
- **Bevespi Aerosphere®** — 9/4.8 mcg — *glycopyrrolate and formoterol fumarate* — C
- **Duaklir® Pressair®** — 400/12 mcg — *aclidinium bromide and formoterol fumarate* — C
- **Stiolto® Respimat®** — 2.5/2.5 mcg — *tiotropium bromide and olodaterol* — C

contain ICS, LABA and LAMA

- **Trelegy® Ellipta®** — 200/62.5/25 mcg, 100/62.5/25 mcg — *fluticasone furoate, umeclidinium and vilanterol inhalation powder* — A G
- **Breztri Aerosphere®** — 160/9/4.8 mcg — *budesonide, glycopyrrolate and formoterol fumarate* — C

contain SABA and short-acting muscarinic antagonist (SAMA)

- **Combivent® Respimat®** — 20/100 mcg — *ipratropium bromide and albuterol* — C
- **Ipratropium Bromide and Albuterol Sulfate Inhalation Solution** — 0.5mg/2.5mg; 3mL — G G

BIOLOGICS

target cells and pathways that cause airway inflammation; delivered by injection or IV

- **Cinqair®** — 62.5/25 ml — *reslizumab* — A
- **Dupixent®** — 100, 200, 300 mg — *dupilumab* — A C
- **Fasenra®** — 30 mg — *benralizumab* — A
- **Nucala®** — 100 mg — *mepolizumab* — A
- **Tezspire®** — 210 mg — *tezepelumab-ekko* — A
- **Xolair®** — 75 to 375 mg — *omalizumab* — A

PDE3/4 INHIBITORS

control inflammation and reduce flare-ups

- **Ohtuvayre™** — 3 mg; 2.5 mL — *ensifentrine inhalation suspension* — C N

PDE4 INHIBITORS

control inflammation and reduce flare-ups

- **Daliresp®** — 250, 500 mcg — *roflumilast* — C

LEUKOTRIENE MODIFIERS

block chemicals called leukotrienes that cause airway inflammation; available as tablet or granules

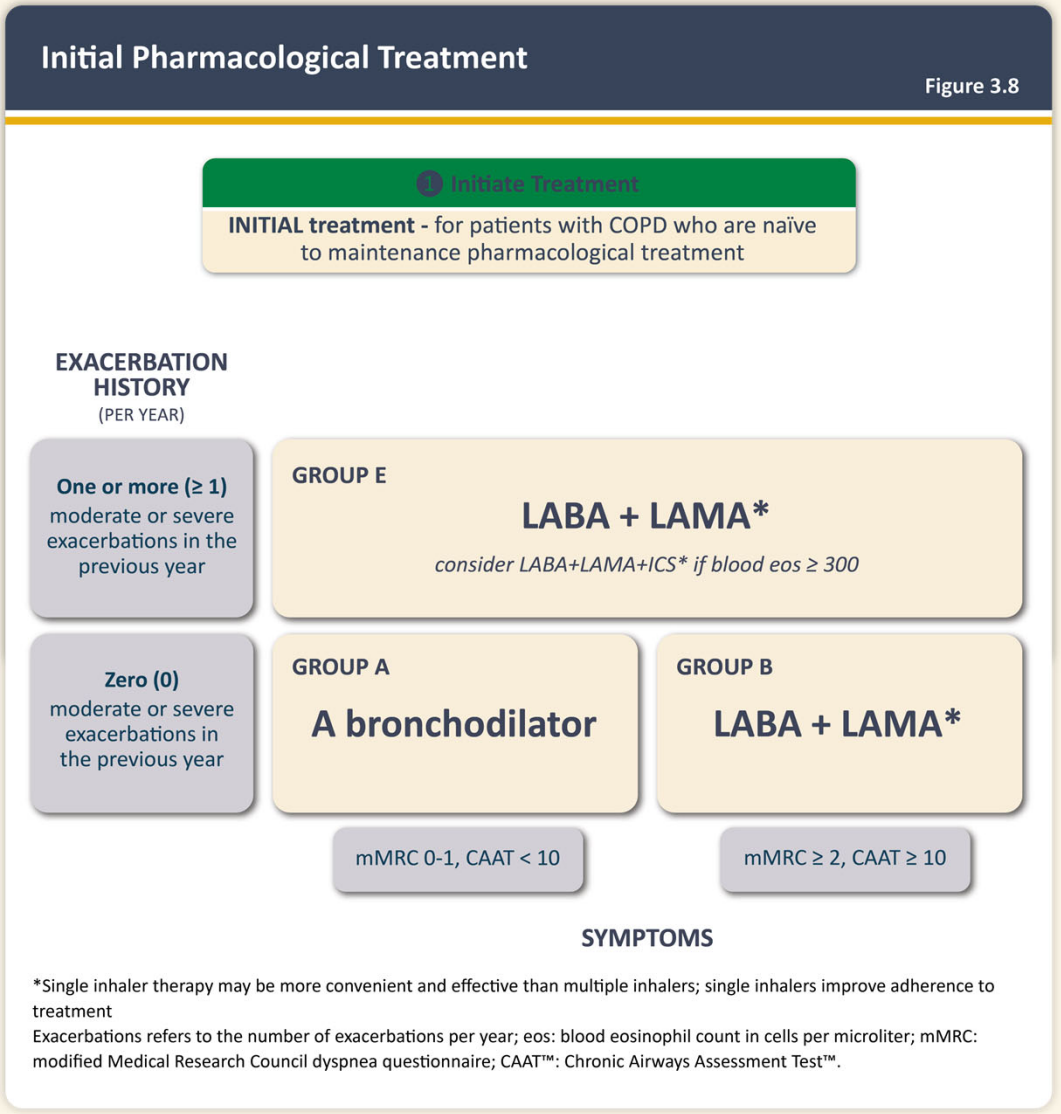
- **Singulair®** — 4, 5, 10 mg — *montelukast* — A
- **Zafirlukast** — 10, 20 mg — A
- **Zileuton** — 600 mg — A

Reviewed by Dennis Williams, PharmD

Generic versions of some brand name inhalers are not included on this poster. Generic inhalers may be a different color than brand name versions.

Initial Pharmacological Treatment

Figure 3.8



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment

Exacerbations refers to the number of exacerbations per year; eos: blood eosinophil count in cells per microliter; mMRC: modified Medical Research Council dyspnea questionnaire; CAAT™: Chronic Airways Assessment Test™.

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Factors to Consider when Initiating ICS Treatment

Figure 3.10

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Factors to consider when adding ICS to long-acting bronchodilators:

(note the scenario is different when considering ICS withdrawal)

STRONGLY FAVORS USE	History of hospitalization(s) for exacerbations of COPD[#]
	≥ 2 moderate exacerbations of COPD per year[#]
	Blood eosinophils ≥ 300 cells/µL
	History of, or concomitant asthma
FAVORS USE	1 moderate exacerbation of COPD per year[#]
	Blood eosinophils 100 to < 300 cells/µL
AGAINST USE	Repeated pneumonia events
	Blood eosinophils < 100 cells/µL
	History of mycobacterial infection

[#]despite appropriate long-acting bronchodilator maintenance therapy (see Figures 3.8 & A3.1 for recommendations); *note that blood eosinophils should be seen as a continuum; quoted values represent approximate cut-points; eosinophil counts are likely to fluctuate.

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Non-Pharmacological Management of COPD*

Figure 3.15

Patient Group	Essential	Recommended	Depending on Local Guidelines
A	Smoking cessation (can include pharmacological treatment)	Physical activity	Influenza vaccination COVID-19 vaccinations Pneumococcal vaccination Pertussis vaccination Shingles vaccination RSV vaccination
B and E	Smoking cessation (can include pharmacological treatment) Pulmonary rehabilitation	Physical activity	Influenza vaccination COVID-19 vaccinations Pneumococcal vaccination Pertussis vaccination Shingles vaccination RSV vaccination

*Can include pharmacological treatment

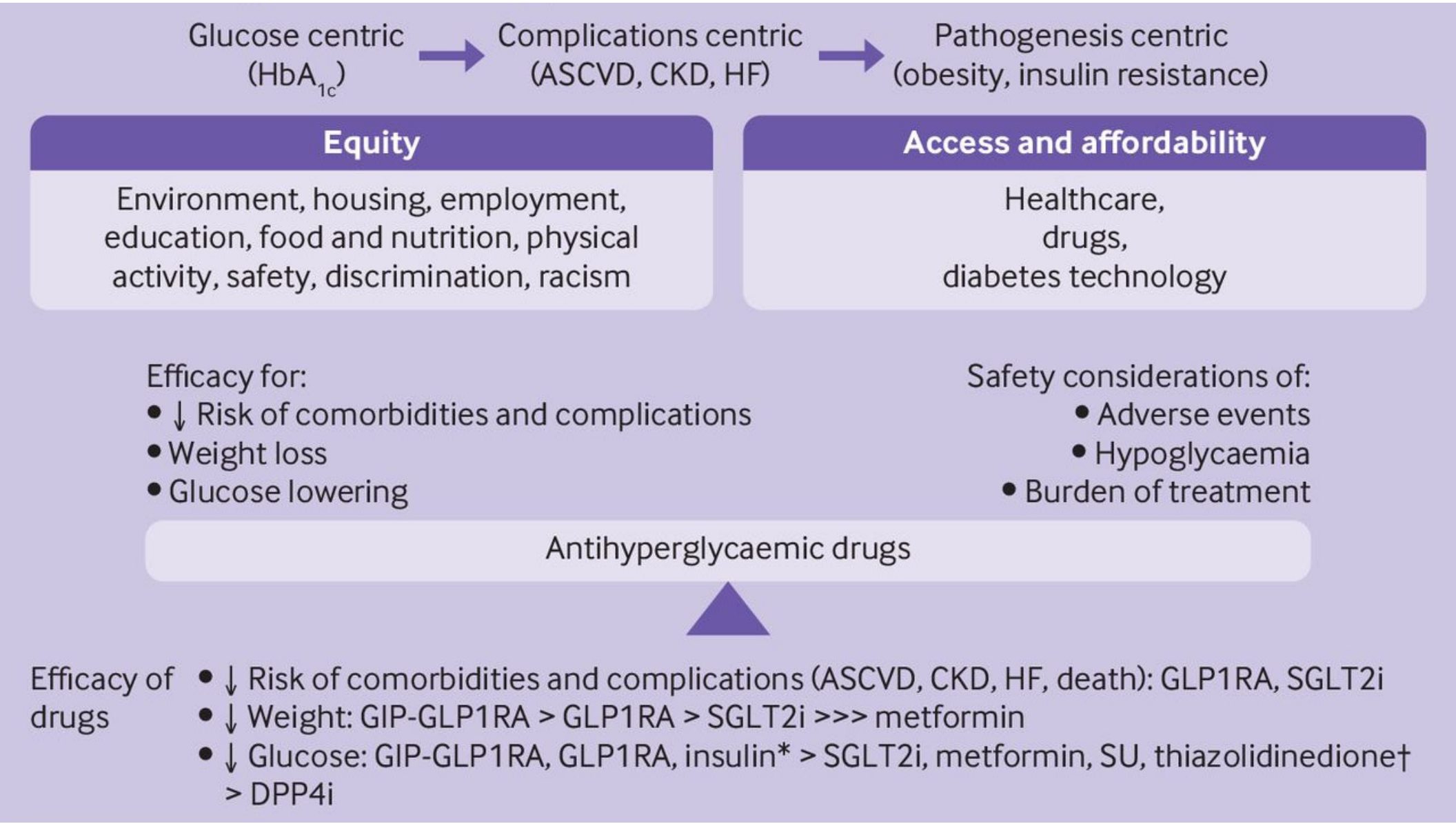
COPD
Take away

- Use Spirometry in clinic to get FEV/FVC ratio — <0.7 is diagnostic
- Categorize into A, B, or E. E = exacerbations — Based on mMRC or CAT score
- ICS is LAST treatment option, increase risk of pneumonia
- Can consider roflumilast for recurrent hospitalizations

Type 2 Diabetes

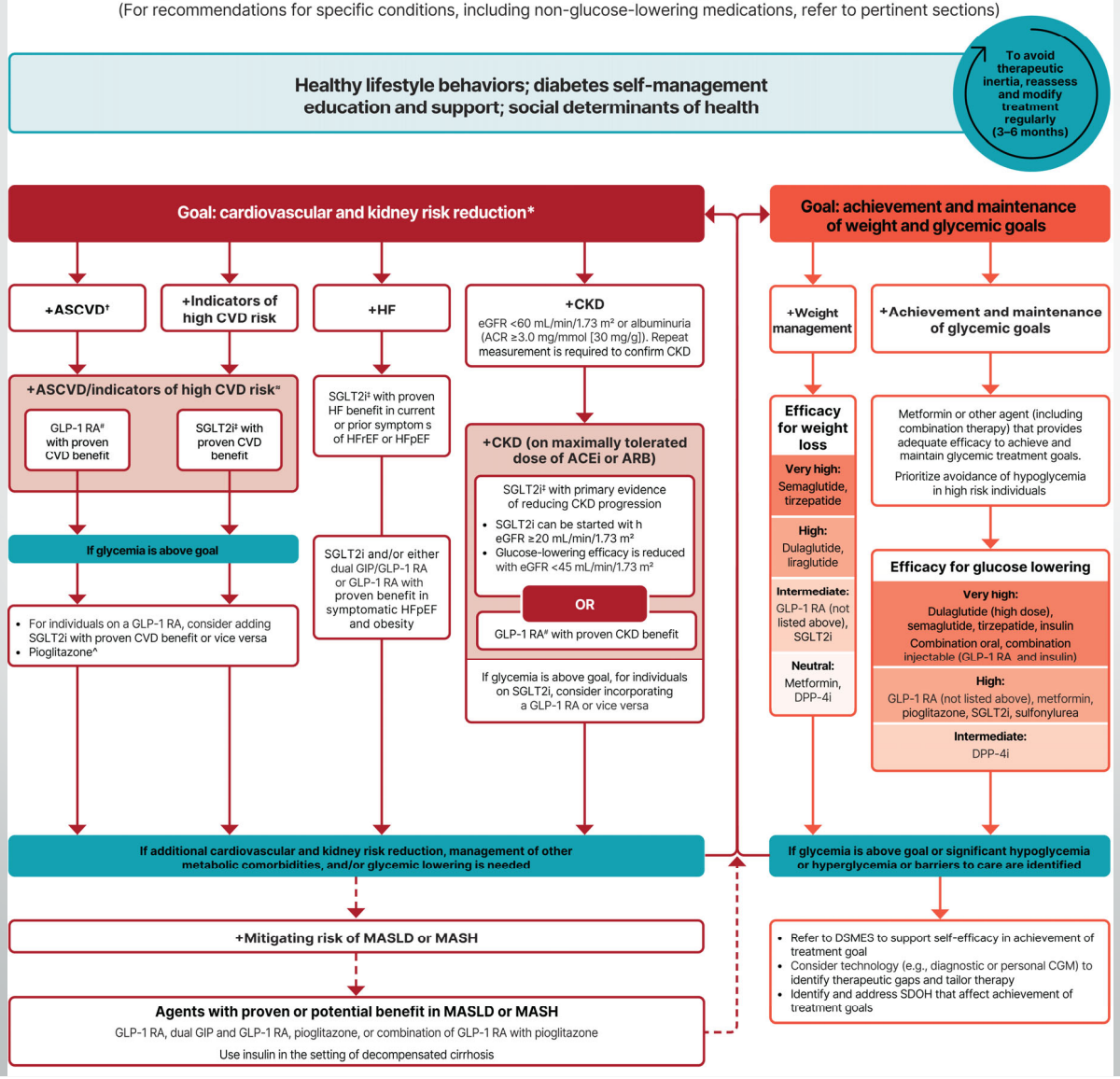
Screening/Diagnosis

- Adults aged 35-70 who have overweight or obesity
- Can be with fasting blood sugar, A1c, or glucose challenge
- Frequency is variable, every 1-3 years depending on guideline you follow
- Diagnostic criteria
    - A1c ≥ 6.5%
    - Fasting glucose ≥126 mg/dl
    - 2 hour OGTT ≥ 200
    - Random plasma glucose ≥ 200 with classic symptoms of hyperglycemia


Glucose centric
(HbA1c)
Complications centric
(ASCVD, CKD, HF)
Pathogenesis centric
(obesity, insulin resistance)
Equity
Environment, housing, employment, education, food and nutrition, physical activity, safety, discrimination, racism
Access and affordability
Healthcare, drugs, diabetes technology
Efficacy for:
• ↓ Risk of comorbidities and complications
• Weight loss
• Glucose lowering
Safety considerations of:
• Adverse events
• Hypoglycaemia
• Burden of treatment
Antihyperglycaemic drugs
Efficacy of drugs
• ↓ Risk of comorbidities and complications (ASCVD, CKD, HF, death): GLP1RA, SGLT2i
• ↓ Weight: GIP-GLP1RA > GLP1RA > SGLT2i >>> metformin
• ↓ Glucose: GIP-GLP1RA, GLP1RA, insulin* > SGLT2i, metformin, SU, thiazolidinedione† > DPP4i

Use of glucose-lowering medications in the management of type 2 diabetes

(For recommendations for specific conditions, including non-glucose-lowering medications, refer to pertinent sections)



Metformin

Works by decreasing hepatic glucose production, intestinal absorption of glucose, and improve insulin sensitivity.

Generally considered first line treatment.

Dose range 500mg-2000mg daily

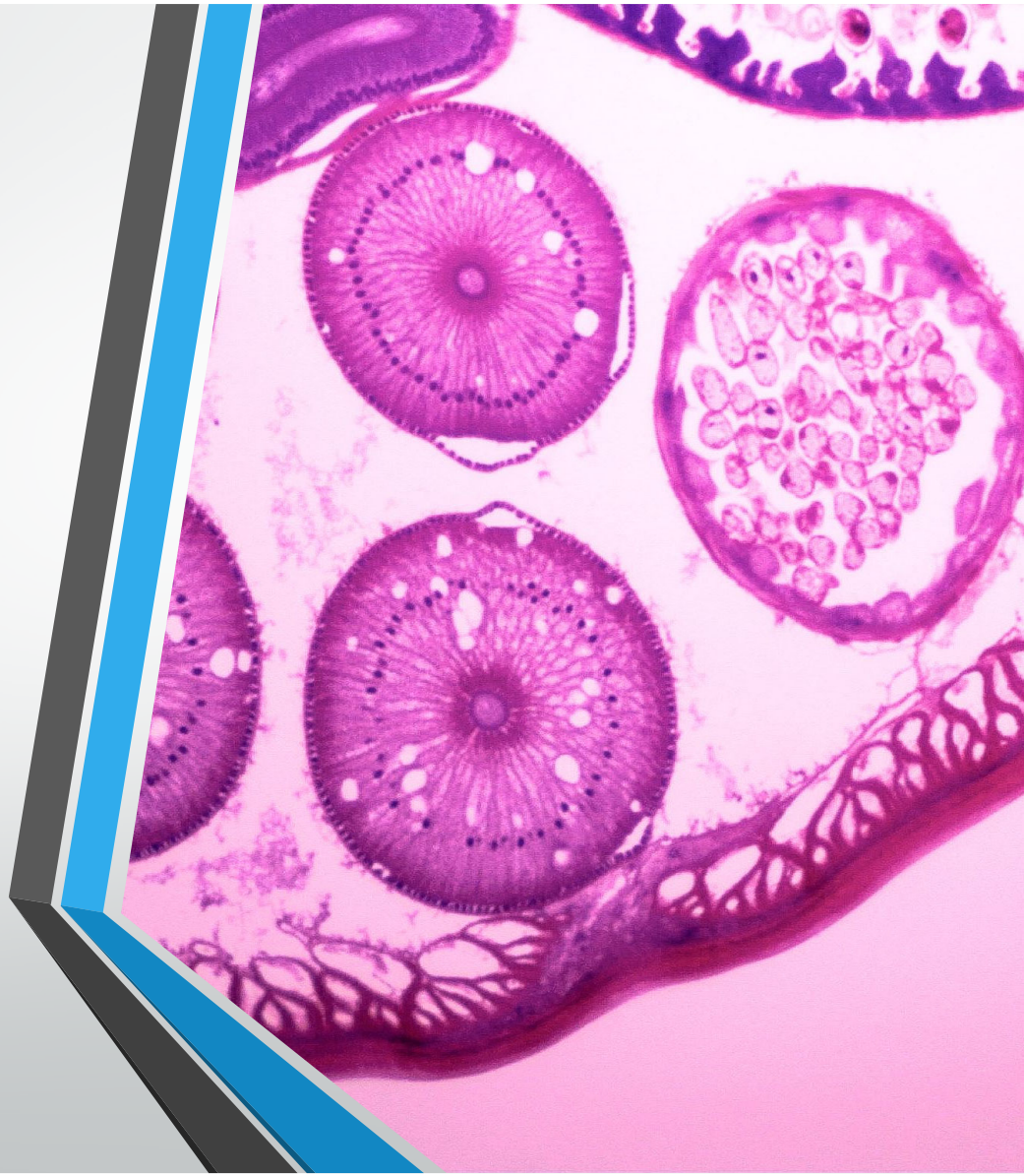
Side effects: diarrhea, b12 deficiency

Don't start if eGFR is <30

Questionable mortality benefit?

Sulfonylureas

- Directly stimulate insulin release from pancreatic beta cells.
- Options include glimepiride, glyburide, and glipizide
- Hypoglycemia is most common side effect
- Possible weight gain as well
- No mortality benefit



THIAZOLIDINEDIONES

Enhance insulin sensitivity in muscle and adipose tissue, inhibit hepatic glucose production

Pioglitazone is most common prescribed

Common adverse effects and weight gain and fluid retention (avoid in HFrEF)

Black box warning for increased fracture risk, avoid with known osteopenia/osteoporosis

No mortality benefit

DDP4I

- Blocks an enzyme that degrades incretin peptides GLP1 and 2, also stimulate beta cell secretion of insulin
- These are your –glitpin medications
- Saxagliptin and aloglitpin may increase risk of heart failure
- Otherwise very well tolerated, easy administration (once daily)
- No improved CV/mortality benefits

Slg2 inhibitors

- Increase urinary excretion of glucose. Block reabsorption in the proximal tubule
- These are your –flozin medications
- Most common side effects are recurrent GU infections.
- Watch for Fourneir's and euglycemic DKA
- Stop 3 days prior to any surgery
- Some of the best composite morbidity and mortality benefits

GLP1 receptor agonist

Stimulate insulin secretion after glucose ingestion via the incretin effect.

SQ injections, either daily or weekly

These are your –tide medications

Exceptional weight loss and CV benefits including stroke

Common side effects are GI upset, pancreatitis

Can worsen diabetic retinopathy

GIP-GLP1RA

- Similar action to GLP1RA alone but GIP has more effect on adipose tissue with insulin sensitization
- Tirzepatide
- Similar side effect profile to GLP1RA

Alcohol Use Disorder

- Naltrexone safe to use in cirrhosis
- VA Study with ~3,500 participants, carried dx of cirrhosis, AST/ALT either 2x or 5x upper limit of normal.
- No increase in drug induced liver injury

Preventative Care

- Cervical cancer screening with HPV only
  - Primary screening with HPV only every 5 years preferred per ACS, USPSTF update in progress
- Prostate cancer screening
  - After 23 years, landmark study showed ARR 0.22%
- Breast cancer screening
  - USPSTF updated guidelines in 2024 to support biennial screening starting at age 40