Evidence-based COPD care

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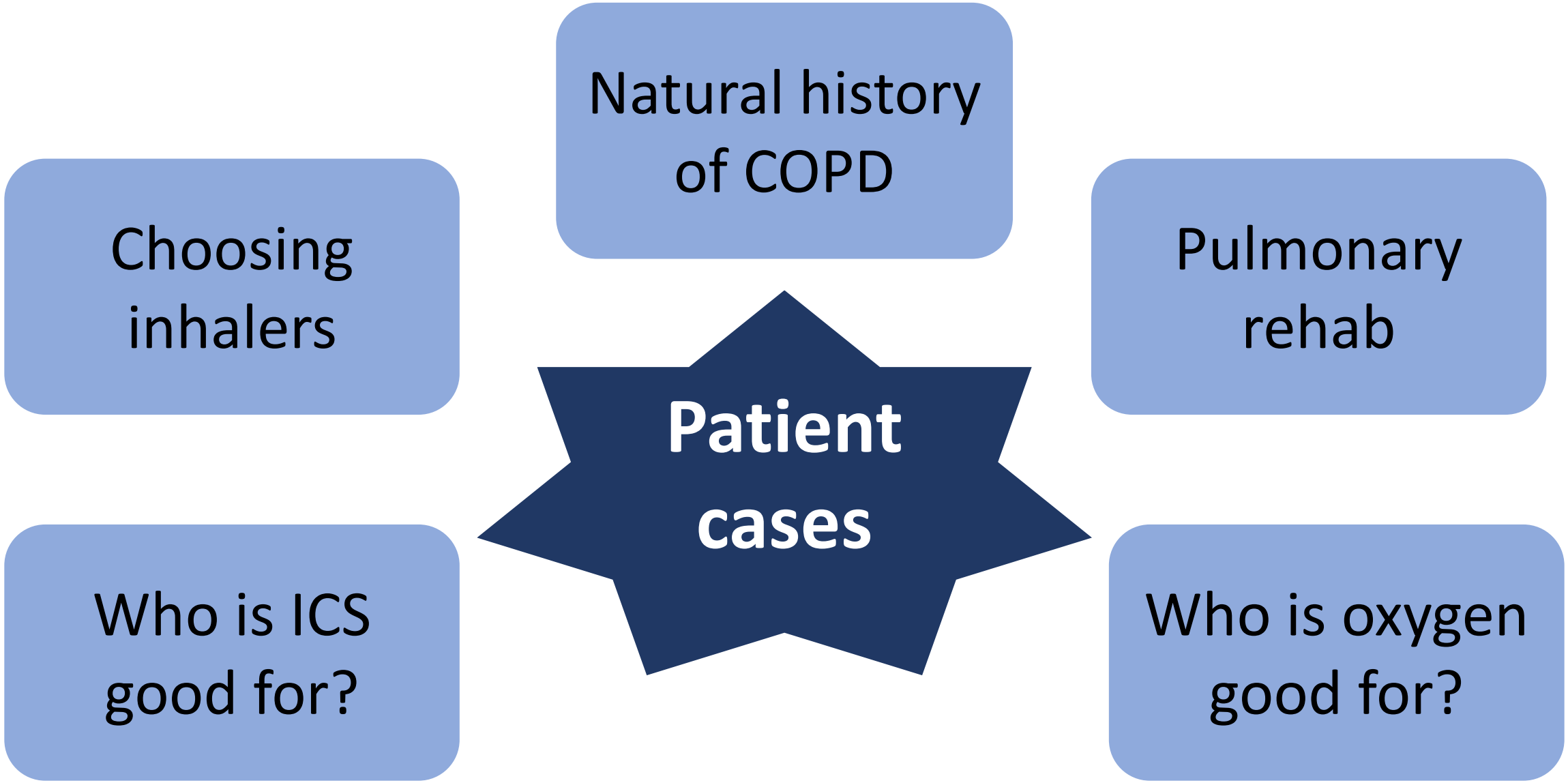
If not otherwise indicated, recommendations come from GOLD – the Global Initiative for Chronic Obstructive Lung Disease.

I will use some abbreviations:

SABA:	short-acting β-agonist i.e. albuterol	LABA:	long-acting β-agonist e.g. formoterol, olodaterol
SAMA:	short-acting muscarinic antagonist i.e. ipratropium	LAMA:	long-acting muscarinic antagonist e.g. tiotropium
		ICS:	inhaled corticosteroid


Natural history of COPD
Choosing inhalers
Pulmonary rehab
Patient cases
Who is ICS good for?
Who is oxygen good for?

67 y.o. woman with COPD, routine appointment.

- Quit smoking 17 years ago.
- Post-bronchodilator FEV_1 55% predicted a year ago.
- Last needed prednisone 18 months ago.
- Can walk 2 blocks before stopping because of dyspnea.
- Takes LABA/ICS daily & SAMA/SABA inhaler prn (0-2 times/day).
- Vaccinations up to date.
- Resting O_2 sat 97%.

You should:

1) Stop ICS
2) Add LAMA (and stop SAMA)
3) Perform exercise oximetry

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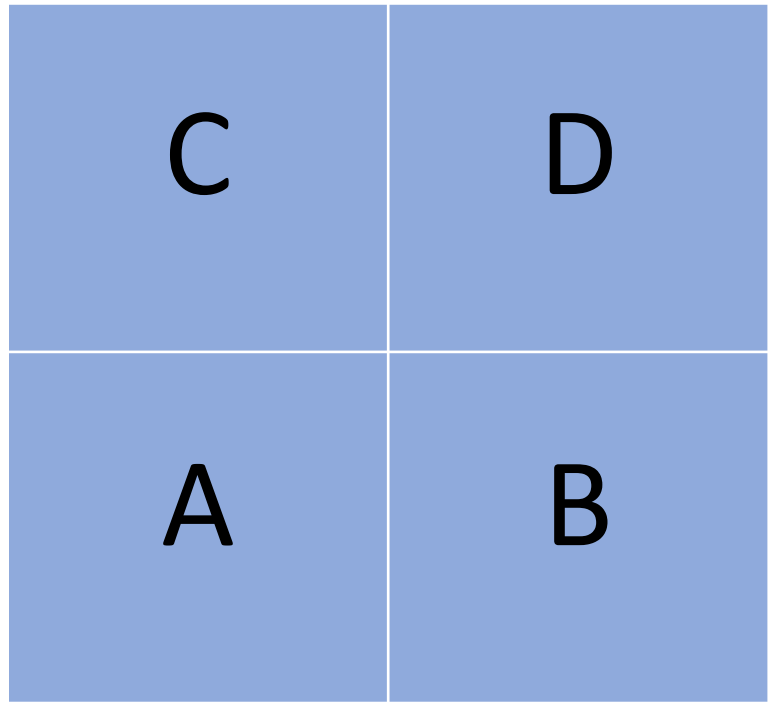
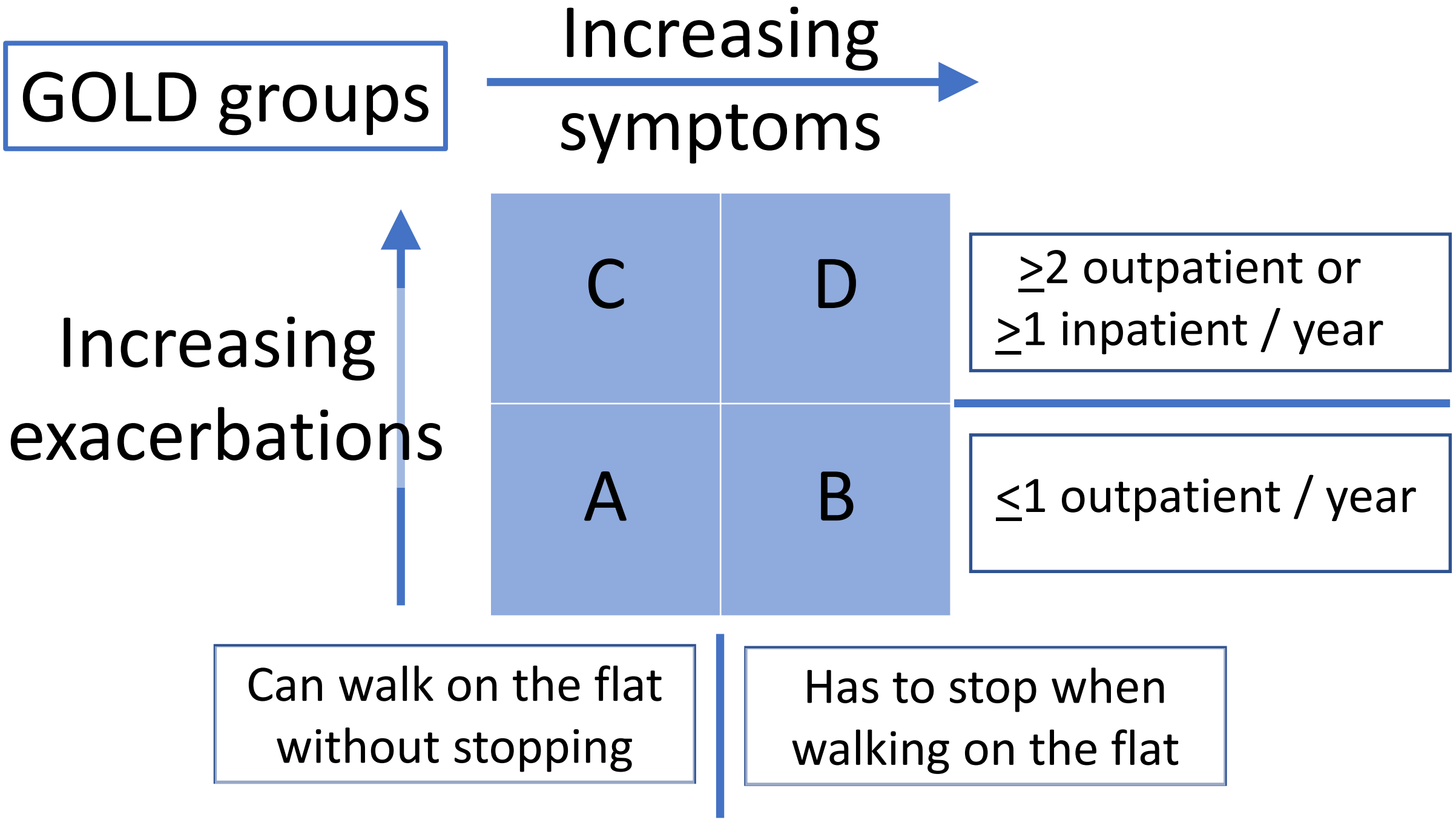
GOLD groups

Increasing symptoms

Increasing exacerbations



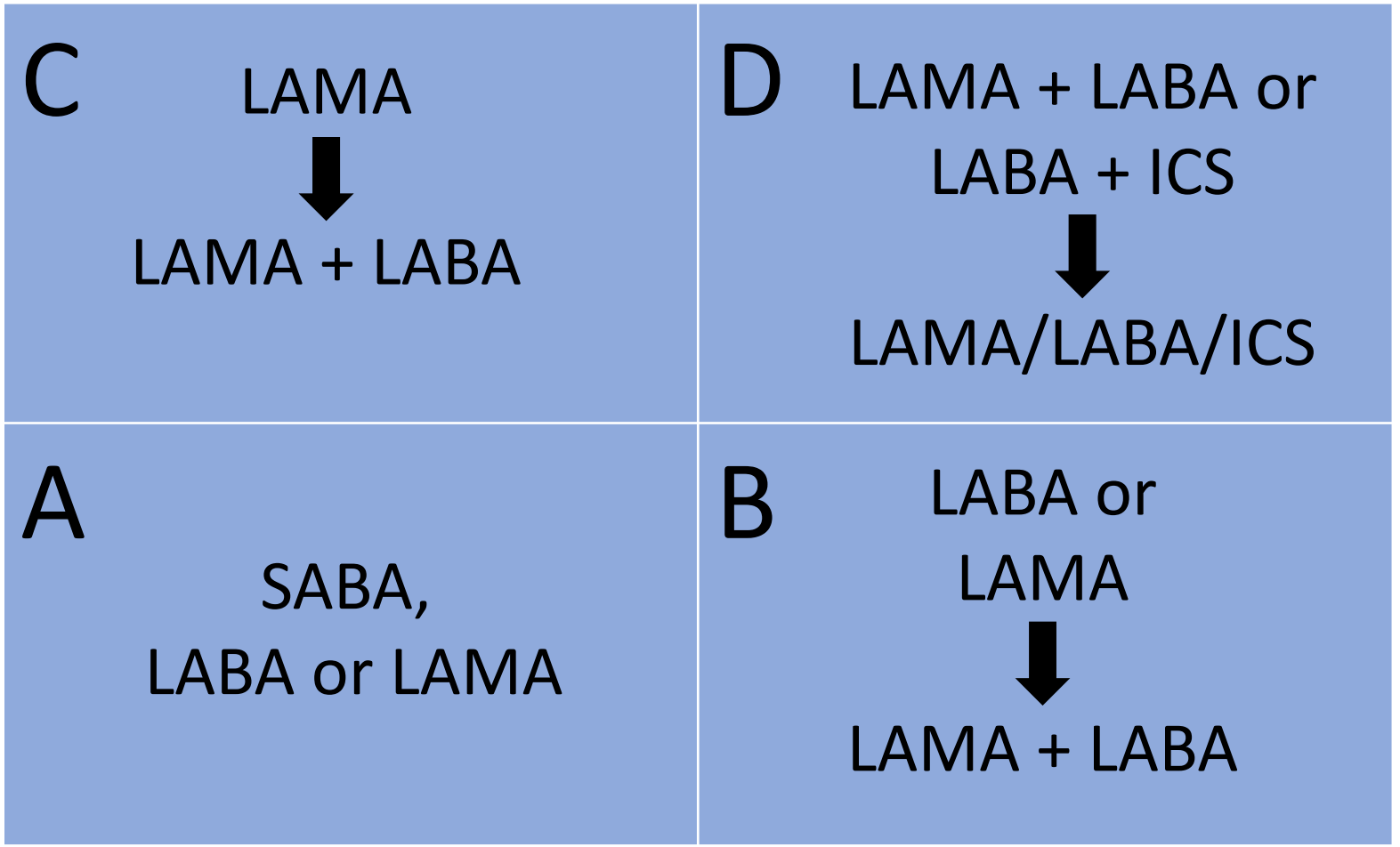


Vogelmeier et al. AJRCCM 2017;195:557-582

Inhalers by GOLD group

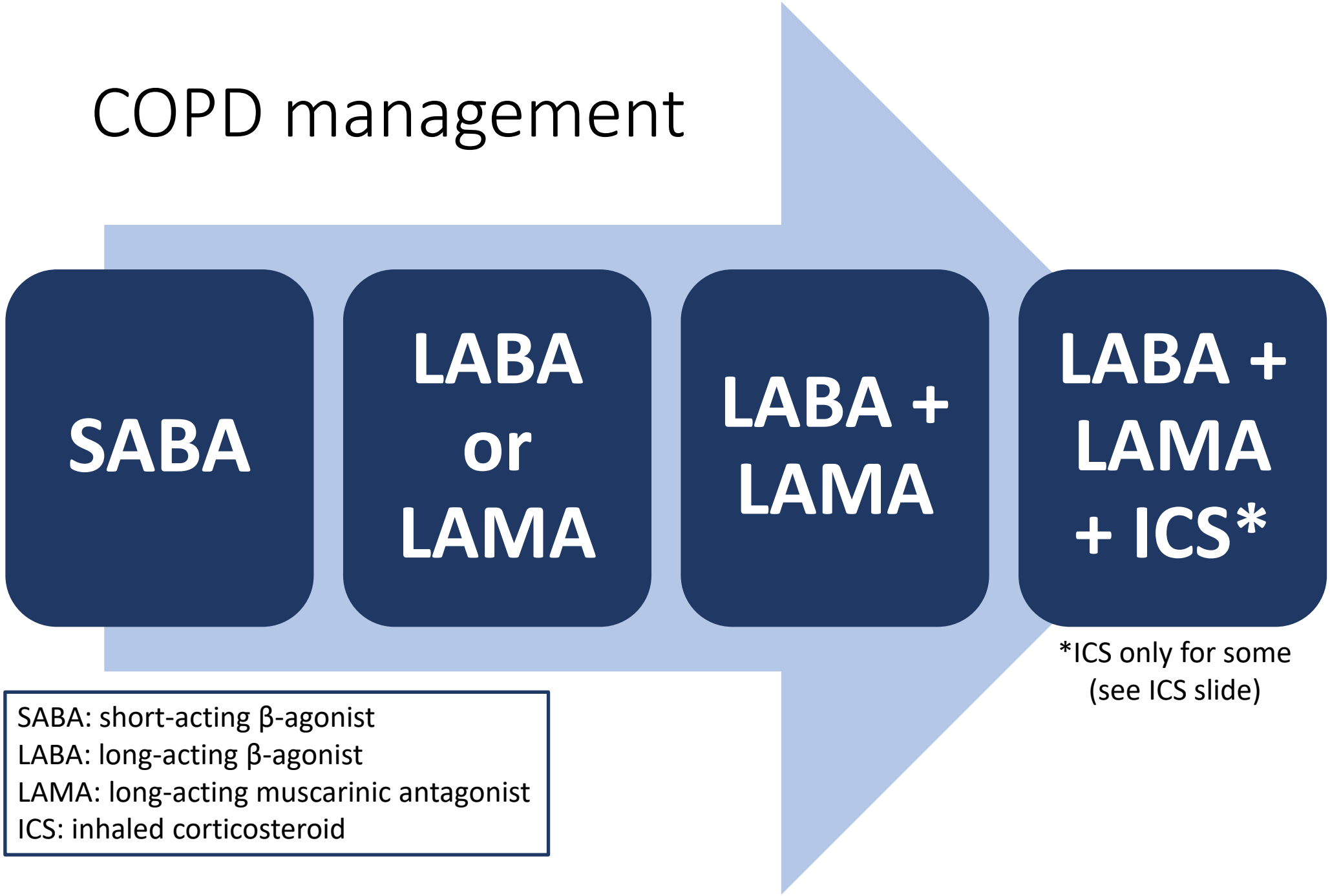
Increasing symptoms

Increasing exacerbations



Vogelmeier et al. GOLD 2019 report. www.goldcopd.org

COPD management



*ICS only for some (see ICS slide)

SABA: short-acting β-agonist
LABA: long-acting β-agonist
LAMA: long-acting muscarinic antagonist
ICS: inhaled corticosteroid

FACTORS TO CONSIDER WHEN INITIATING ICS TREATMENT

Factors to consider when initiating ICS treatment in combination with one or two long-acting bronchodilators (note the scenario is different when considering ICS withdrawal):

· STRONG SUPPORT ·	· CONSIDER USE ·	· AGAINST USE ·
• History of hospitalization(s) for exacerbations of COPD#	• 1 moderate exacerbation of COPD per year#	• Repeated pneumonia events
• ≥ 2 moderate exacerbations of COPD per year#	• Blood eosinophils 100-300 cells/µL	• Blood eosinophils <100 cells/µL
• Blood eosinophils >300 cells/µL		• History of mycobacterial infection
• History of, or concomitant, asthma		

#despite appropriate long-acting bronchodilator maintenance therapy (see Table 3.4 and Figure 4.3 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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FIGURE 3.1

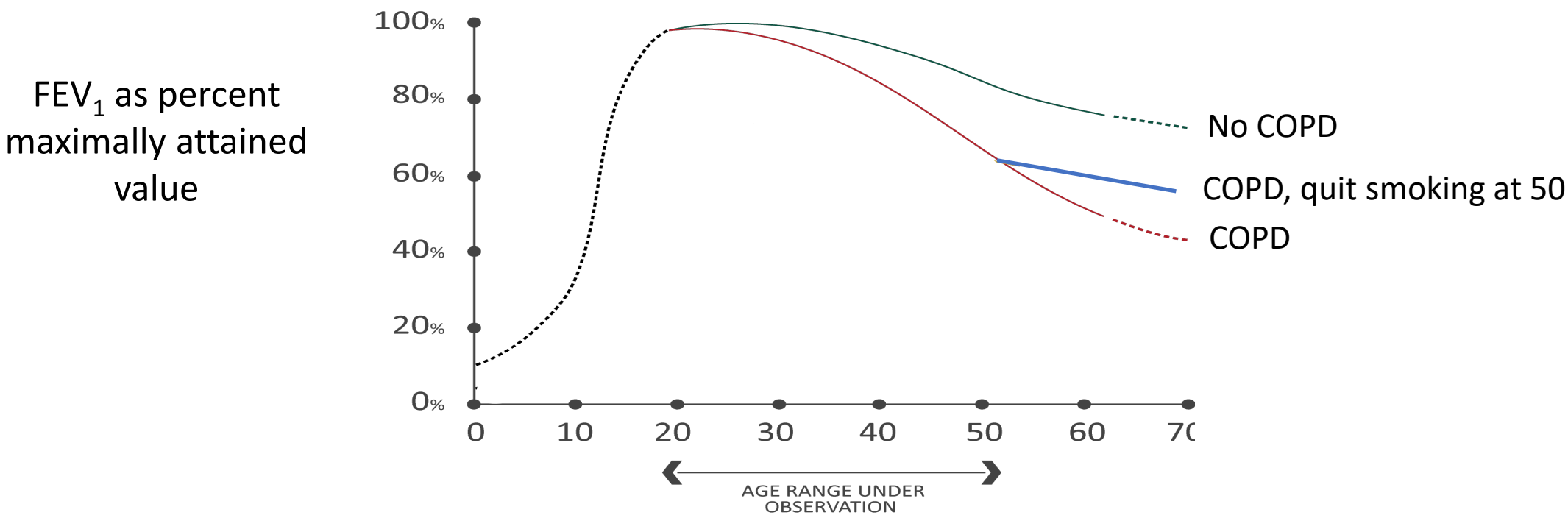
56 y.o. current smoker with COPD (FEV_1 55% predicted) returns for a routine appointment. He reports that he is taking the inhalers you prescribed but he is very disappointed that he still gets out of breath when he walks his dog.

What do you say to him?

56 y.o. current smoker with COPD (FEV_1 55% predicted) returns for a routine appointment. He reports that he is taking the inhalers you prescribed but he is very disappointed that he still gets out of breath when he walks his dog.

Check inhaler technique.
Evaluate for other causes of dyspnea.
Counsel on smoking cessation.
Explain the natural history of COPD.

Lung function declines with age. Quitting smoking only reduces the rate of decline.



Note: This is a simplified diagram of FEV_1 progression over time. In reality, there is tremendous heterogeneity in the rate of decline in FEV_1 owing to the complex interactions of genes with environmental exposures and risk factors over an individual's lifetime [adapted from Lange et al. NEJM 2015;373:111-22].

82 y.o. woman with COPD (FEV_1 35%) routine appointment.

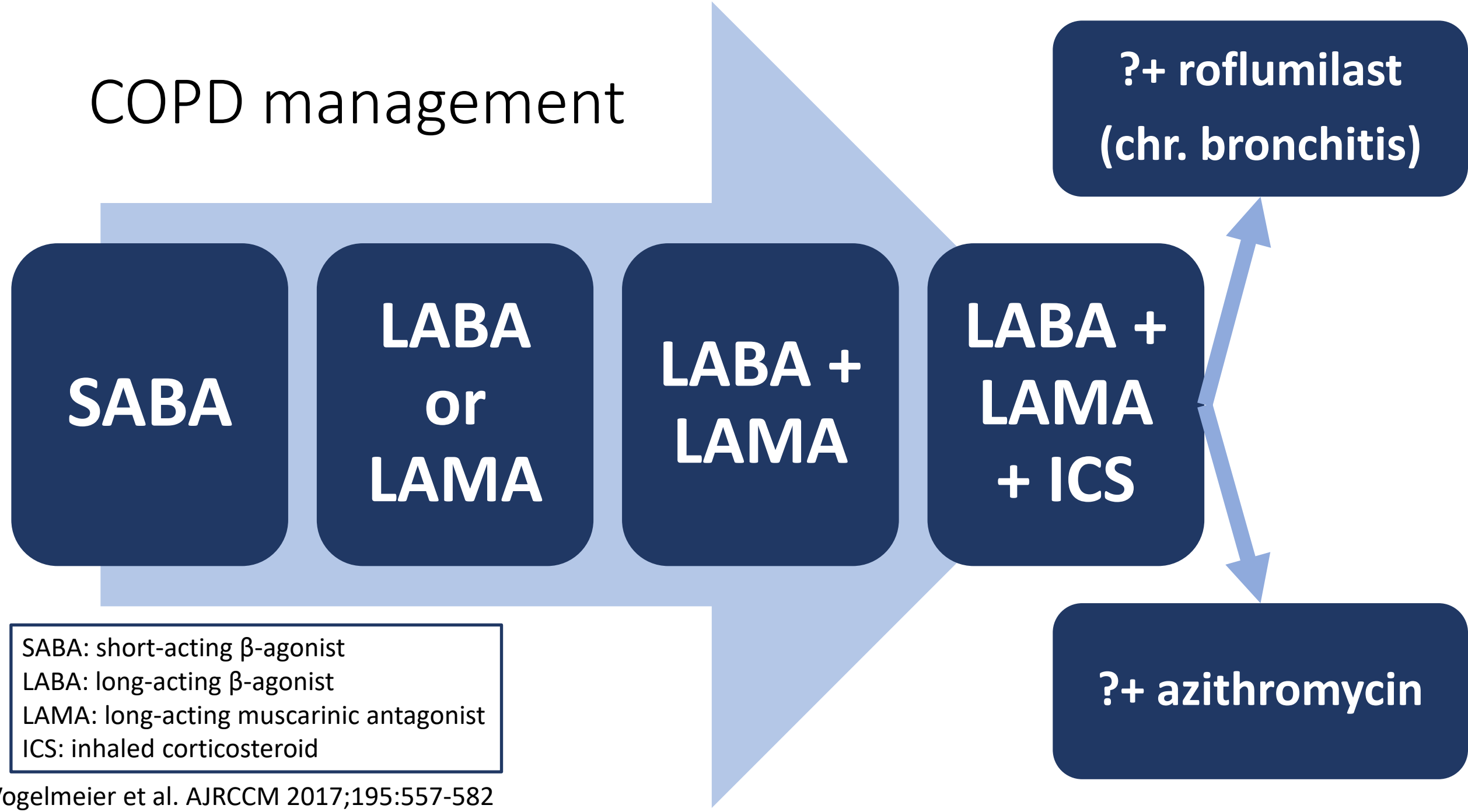
No cough
Can walk 2 blocks, exercises daily
4 courses prednisone this year
Takes Symbicort 2 puffs BID + tiotropium once daily + albuterol prn
Quit smoking 20 years ago

No ankle swelling
Resting sat 95%
Recent labs: Hb 12 g/dL, bicarb 27
Absolute eosinophil count: 200
Vaccinations up to date
Completed pulm. rehab 3 years ago

You should:

1) Make no changes
2) Prescribe long-term azithromycin
3) Prescribe daily roflumilast

COPD management



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73 y.o. man with COPD (FEV_1 38% pred.) routine appointment.

Reports he's "doing well"
Takes olodaterol/tiotropium once daily + albuterol prn
Can walk up 1 flight of stairs
Last prednisone 2 years ago

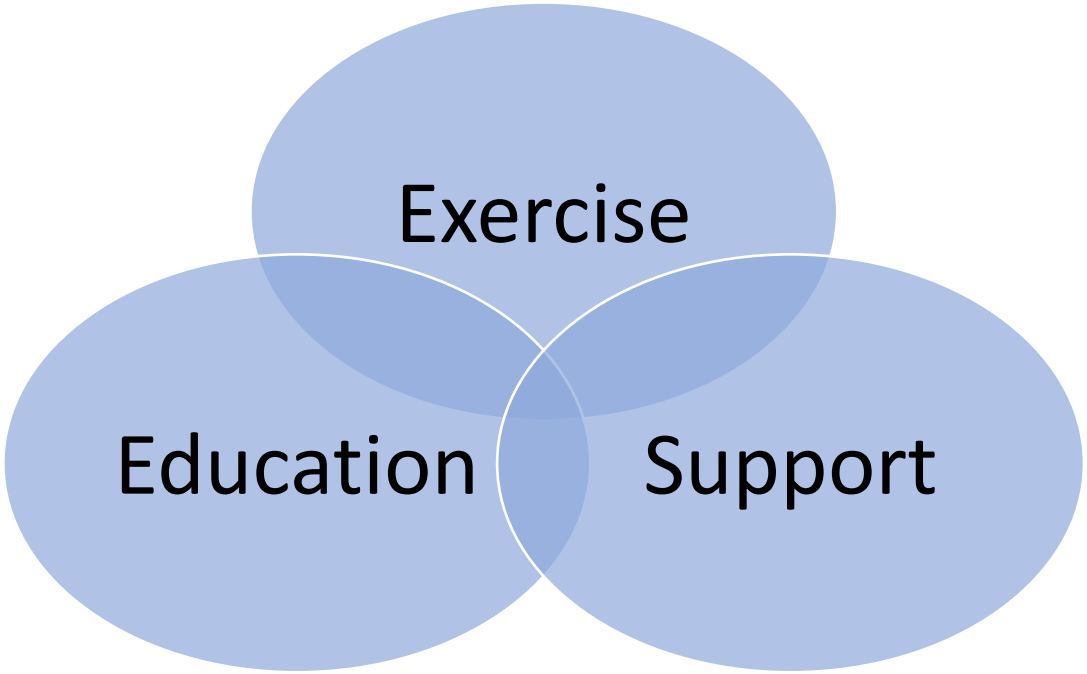
Quit smoking 25 years ago
No ankle swelling
Resting O_2 saturation 95%
Exercise nadir O_2 saturation 87%
Recent labs: Hb 14 g/dL, bicarb 26
Vaccinations up to date

You should:

1) Check arterial blood gas
2) Add inhaled corticosteroid
3) Prescribe oxygen on exertion
4) Refer for pulmonary rehabilitation

Pulmonary rehab improves quality of life[1]

- 8-week course
- 2 exercise sessions per week
- Plus education session(s)



1. McCarthy et al. Cochrane Database Syst Rev 2015;2

COPD: Supplemental oxygen therapy

Mortality benefit from >15hrs/day for patients with SEVERE hypoxemia (resting sat <89%)[1,2]

NO benefit for patients with moderate resting hypoxemia (sat 88-93%) or exertional desat[3]

1. NOTT Ann Intern Med 1980;93:391-8
2. MRC Lancet 1981;1:681-6
3. LOTT NEJM 2016;375:1617

COPD: Supplemental oxygen therapy

Increased mortality associated with hyperoxia (O_2 sat >92%) in patients with acute exacerbations of COPD[1]

1. Austin et al. BMJ 2010;341:c5462

COPD: prescribe oxygen for patients

With resting sat <88%

Titrated to sat of > 90%[1]
(and probably < 95%)

1. GOLD 2020 www.goldcopd.org

Take-home points on COPD management

- Prescribe inhalers step-wise, according to GOLD groups:
  - Symptoms are high if patient has to stop when walking on the flat
  - Exacerbations are frequent if patient hospitalized once or more per year or needs 2 or more courses of prednisone
- ICS reserved for frequent exacerbations (& eosinophils >100)
- Everybody's lung function declines with age. Smoking cessation slows the rate of decline in patients with COPD.
- For patients with frequent exacerbations despite triple inhaled therapy, consider chronic azithromycin or roflumilast
- Pulmonary rehab. improves quality of life in COPD
- Home O_2 data shows benefit for patients with resting hypoxemia