



COPD/Asthma

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COPD/Asthma Qualifying Diagnosis

- Known diagnosis of COPD/asthma or CXR showing COPD with hyperinflated lungs and no infiltrates + two or more:
 - Wheezing, SOB, increased sputum
 - O₂ sat <92% (on RA or usual O₂ setting)
 - Acute reduction in peak flow or FEV₁
 - RR ≥ 24/min

COPD/Asthma

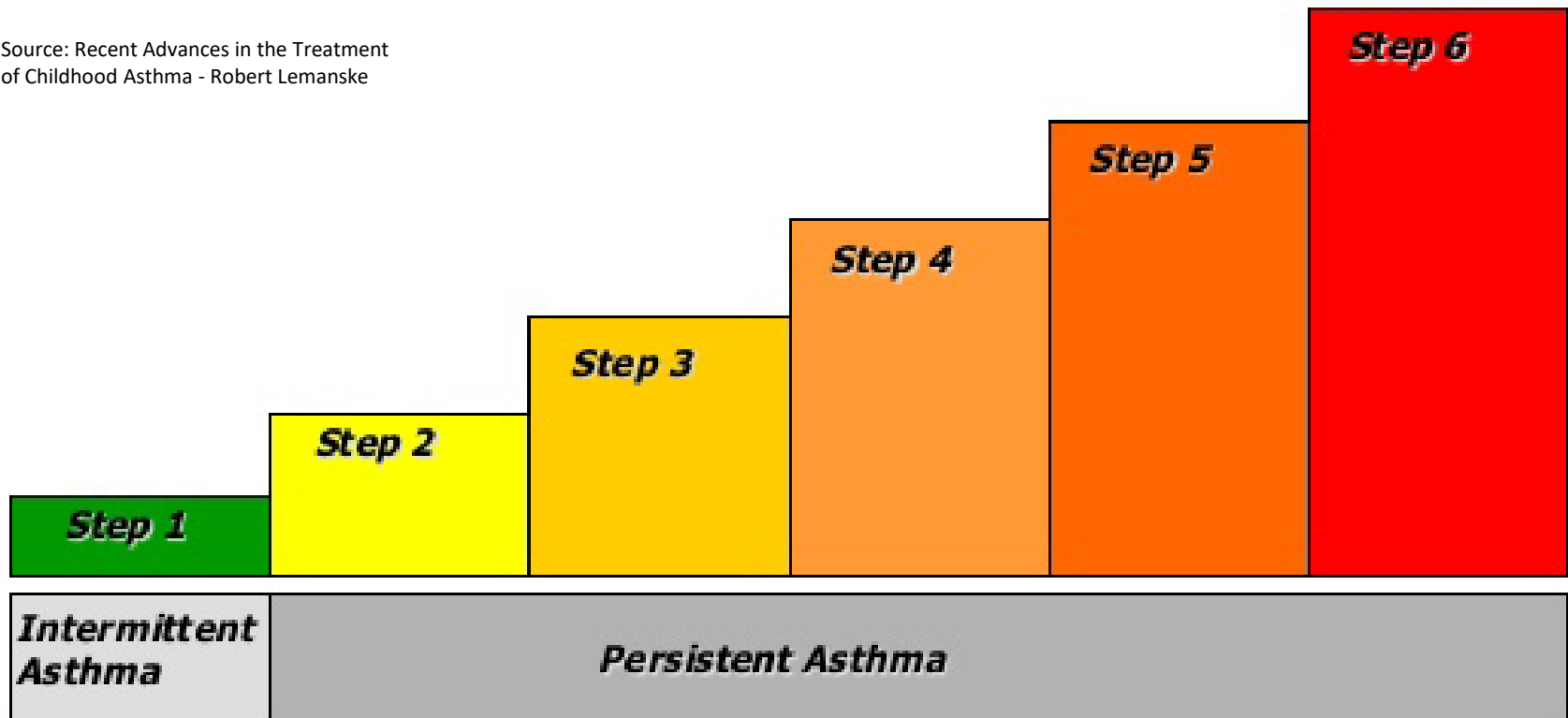
	COPD	Asthma
Symptoms	shortness of breath, airway hyper-responsiveness	shortness of breath, airway hyper-responsiveness
Triggers	respiratory tract infections: pneumonia, flu, exposure to environmental pollutants	allergens, cold air, exercise
Causes	smoking, exposure to fumes	combination of environmental and genetic factors
Treatment	control symptoms	take precautions to avoid triggers

Source: <http://www.healthline.com/health/copd/asthma#asthma-vs-copd1>

Asthma Step Therapy Treatment



Source: Recent Advances in the Treatment of Childhood Asthma - Robert Lemanske



Chronic Obstructive Pulmonary Disease

- Common, preventable, and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases

(GOLD, 2017)

AMDA/PALTC Recommendations

- Recognition/screening at admission to LTC
- Assessment:
 - Differential diagnosis
 - Assess severity/stability of symptoms
 - Input from interprofessional team
 - Functional status
 - Summarize condition

AMDA/PALTC Recommendations

- Treatment:
 - Set treatment goals
 - Develop individualized plan of care
 - Facility programs/policies for smoking cessation
 - Nonpharmacologic interventions, education
 - O2 if indicated
 - Vaccinate for respiratory infections

Diagnostic Challenges in LTC

- COPD may not be primary diagnosis, may be secondary, or undiagnosed
- Usually do not have PFT/spirometry (required for definitive diagnosis/staging)
- Usually do not have ABGs
- Usually only imaging is CXR

Suspicion for COPD if >age 40 and

- Dyspnea
 - Progressive, worse with exertion, persistent
- Chronic cough/recurrent wheezing
 - May be intermittent, nonproductive
- Chronic sputum production
- Recurrent respiratory infections
- Risk factors (smoking)

History for COPD Diagnosis

- Smoking: #years X packs/day=pk-years Quit?
- Exposure to second hand smoke, other toxins?
- Recurrent respiratory infections?
- h/o O₂, nebulizer, CPAP/BiPAP use?
- Allergies? Asthma?
- Dyspnea? Cough? Sputum?

Symptoms of COPD

- Dyspnea
- Chronic cough with/without sputum
- Periods of acute worsening of respiratory symptoms (exacerbations)

Differential Diagnosis of Cough

- Allergies?
- GERD?
- CHF?
- Dysphagia/aspiration?

Common Physical Findings of COPD

- Barrel chest, clubbing, often looking older than chronological age
- Prolonged expiration, poor air exchange/diminished breath sounds, crackles, wheezes, breathlessness with speech/exertion, use of accessory muscles
- Orthopnea

Morphologies of COPD

EMPHYSEMA

“PINK PUFFER”



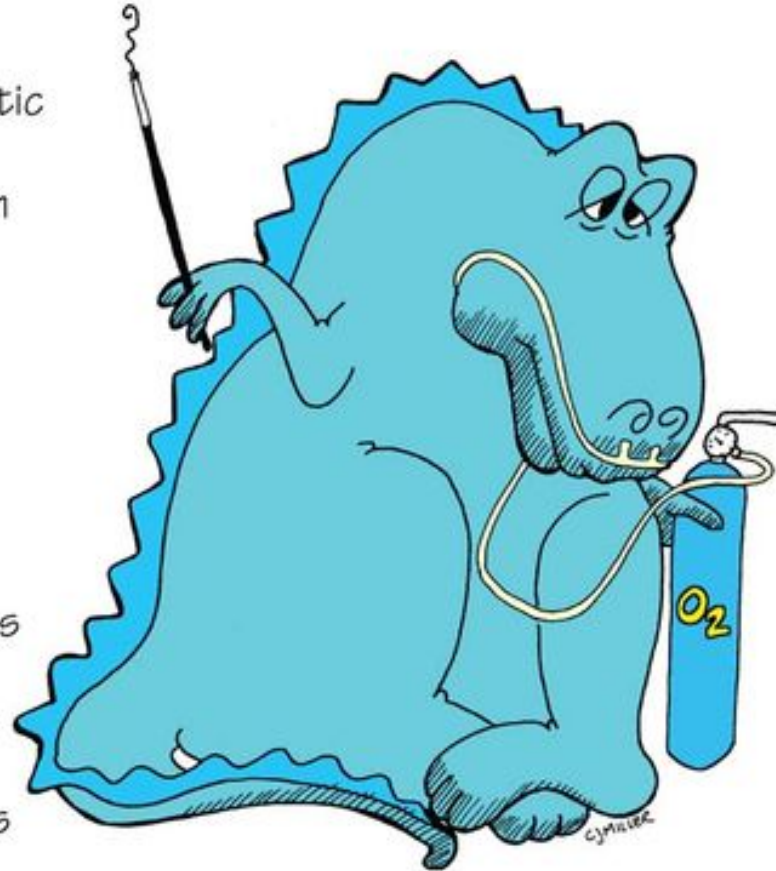
- * Alveolar (diffusion) Problem
- * ↑ CO₂ Retention (Pink)
- * Minimal Cyanosis
- * Pursed-Lip Breathing
- * Dyspnea/↑ Resp Rate
- * Hyperresonance on Chest Percussion
- * Orthopneic
- * Barrel Chest
- * Exertional Dyspnea
- * Prolonged Expiratory Time
- * Speaks in Short Jerky Sentences
- * Anxious
- * Use of Accessory Muscles to Breathe
- * Thin Appearance

Morphologies of COPD

CHRONIC BRONCHITIS

“BLUE BLOATER”

- * Airway Flow Problem
- * Color Dusky to Cyanotic
- * Recurrent Cough & ↑ Sputum Production
- * Hypoxia
- * Hypercapnia (↑pCO₂)
- * Respiratory Acidosis
- * ↑Hgb
- * ↑Resp Rate
- * Exertional Dyspnea
- * ↑Incidence in Smokers
- * Digital Clubbing
- * Cardiac Enlargement
- * Use of Accessory Muscles to Breathe
- * Leads to Right-Sided Heart Failure: Bilateral Pedal Edema, ↑JVD



Pulse Oximetry

- Interpret O₂ sat as part of assessment
- May not be always be accurate due to:
 - Nail polish
 - Cold fingers
 - Low perfusion states:
 - CHF, cardiac arrhythmias, hypotension, hypothermia, smoking, PVD

Goals of Treatment for COPD

- Improve symptoms, comfort, function, QOL
- Manage co-morbid conditions (depression, anxiety, malnutrition, other medical conditions)
- Decreased frequency of infections, exacerbations, hospitalizations

Severity of Airflow Limitation (GOLD)

- FEV1/FVC ratio <70% after bronchodilator
AND
- GOLD 1: mild, FEV1 >80% predicted
- GOLD 2: moderate, FEV1 >50% < 80%
- GOLD 3: severe, FEV1 >30% < 50%
- GOLD 4: very severe, FEV1 <30%

COPD Assessment Test™ (CAT) Score

- Rates 8 symptoms 0-5 Likert scale (0-40)
- Scores >10, more symptomatic
- Cough, phlegm, chest tightness
- Breathless with stairs
- Limitation of activity
- Sleep, energy
- Confidence in leaving home

Modified MRC (mMRC) Dyspnea Scale

Grade	Impact
1	Not troubled by breathlessness except on vigorous exertion
2	Short of breath when hurrying or walking up inclines
3	Walks slower than contemporaries because of breathlessness, or has to stop for breath when walking at own pace
4	Stops for breath after walking about 100 m or stops after a few minutes' walking on the level
5	Too breathless to leave the house or breathless on dressing or undressing

ABCDs of COPD (GOLD)—Group A

- Low risk, fewer symptoms
- Grade 1 or 2 airflow limitation (mild-mod) &/or
 - 0-1 exacerbations/yr w/o hospitalization and
 - CAT score <10 or *mMRC 0 or 1

ABCDs of COPD (GOLD)—Group B

- Low risk, more symptoms
- Grade 1 or 2 airflow limitation (mild-mod) &/or
 - 0-1 exacerbations/yr w/o hospitalization and
 - CAT score ≥ 10 or mMRC 2 or more

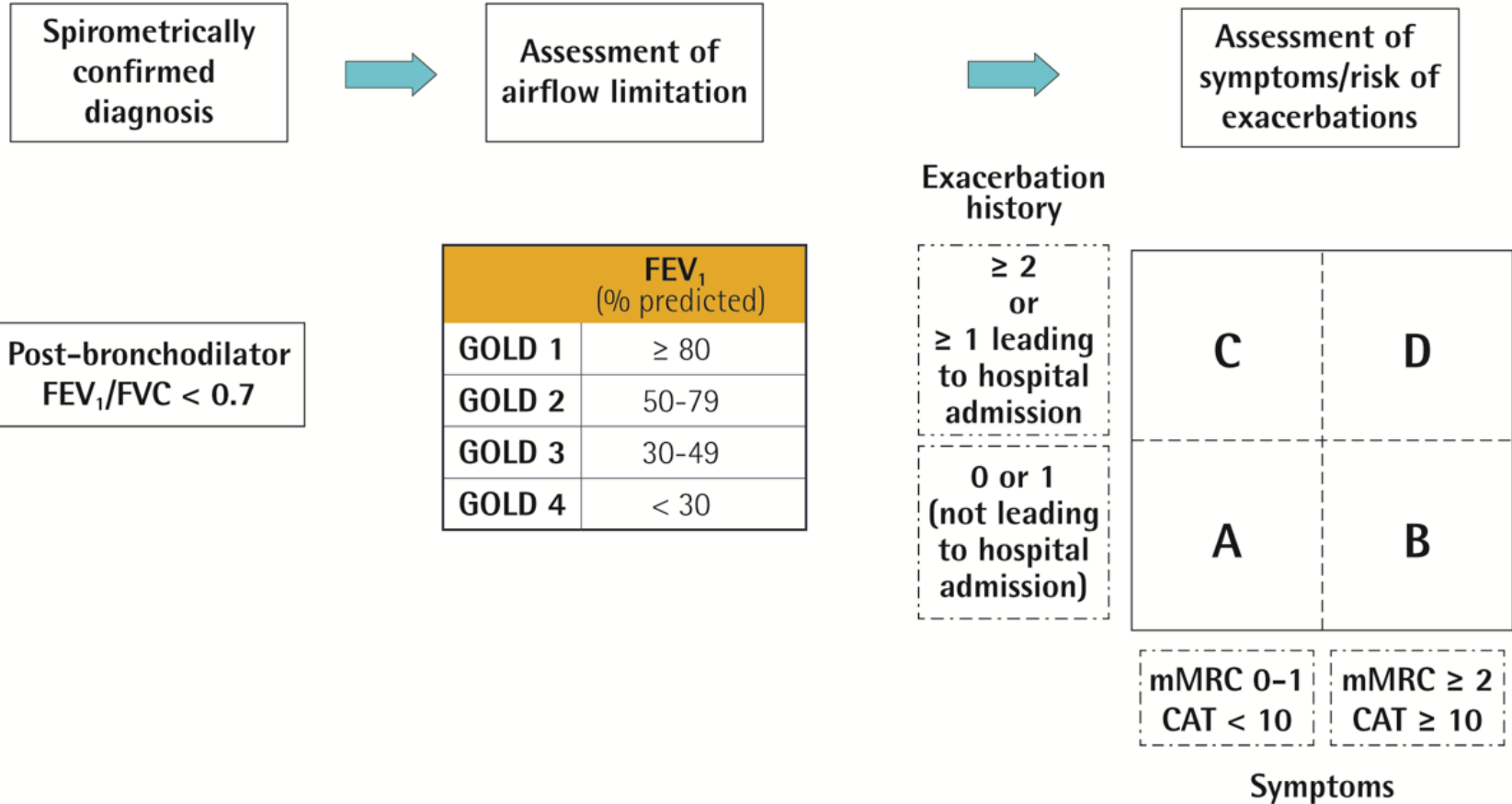
ABCDs of COPD (GOLD)—Group C

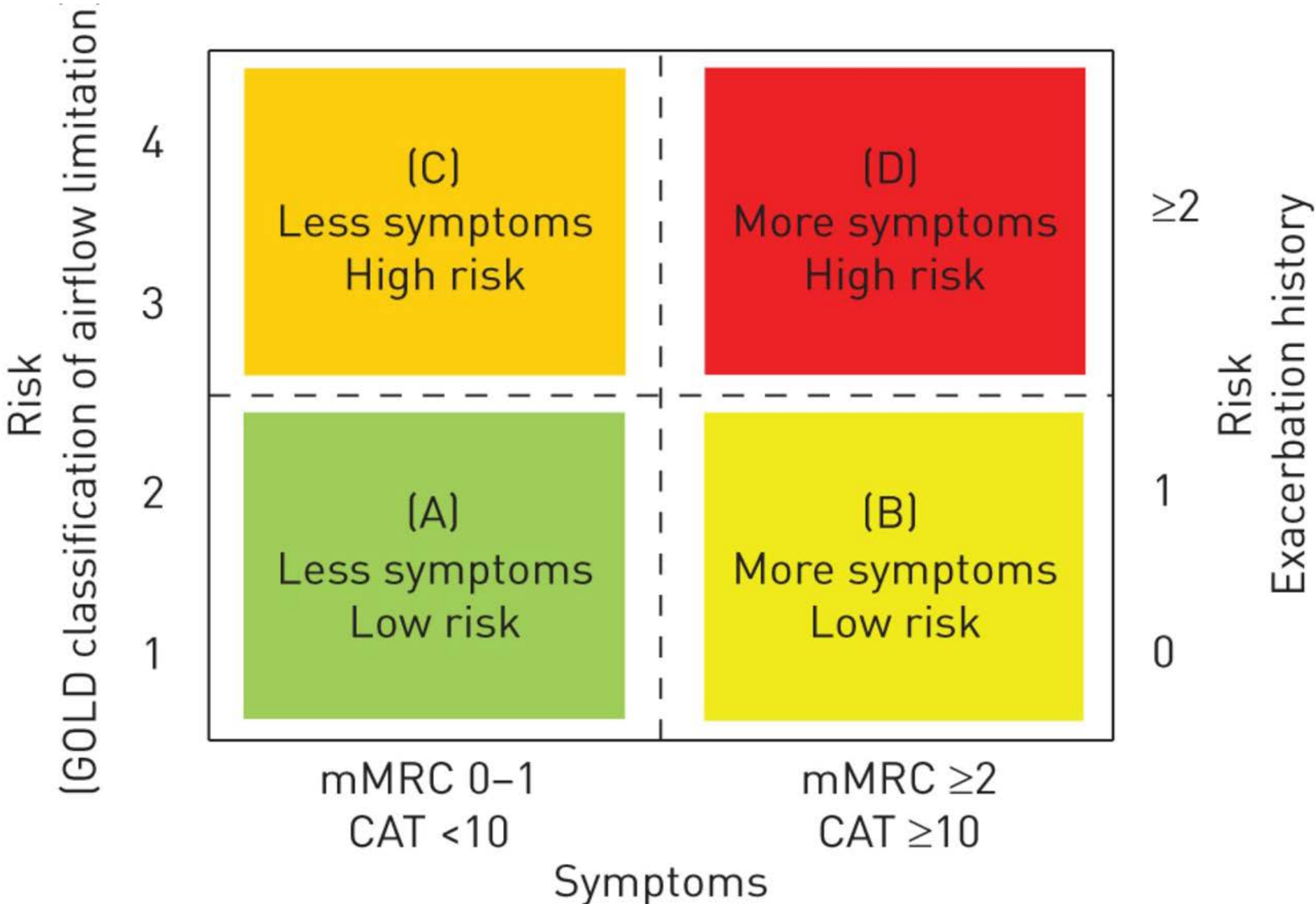
- High risk, fewer symptoms
- Grade 3 or 4 airflow limitation (severe-very severe) &/or
 - 2 or more exacerbations/yr or 1 or more hospitalization for exacerbation and
 - CAT score <10 or mMRC 0 or 1

ABCDs of COPD (GOLD)—Group D

- High risk, more symptoms
- Grade 3 or 4 airflow limitation (severe-very severe) &/or
 - 2 or more exacerbations/yr or 1 or more hospitalization for exacerbation and
 - CAT score ≥ 10 or mMRC 2 or more

ABCDs of COPD (GOLD)





Common Pharmacotherapy for COPD

- Short acting beta2 agonists (SABA)-albuterol
- Long acting beta2 agonists (LABA)-salmeterol
- Short acting muscarinic antagonists (SAMA)-ipratropium
- Long acting muscarinic antagonists (LAMA)-tiotropium
- Inhaled corticosteroids (ICS)

Additional Pharmacotherapy for COPD

- Phosphodiesterase (PDE4) inhibitors- roflumilast
- Mucolytics: Acetylcysteine
- Antibiotics

Bronchodilators for COPD

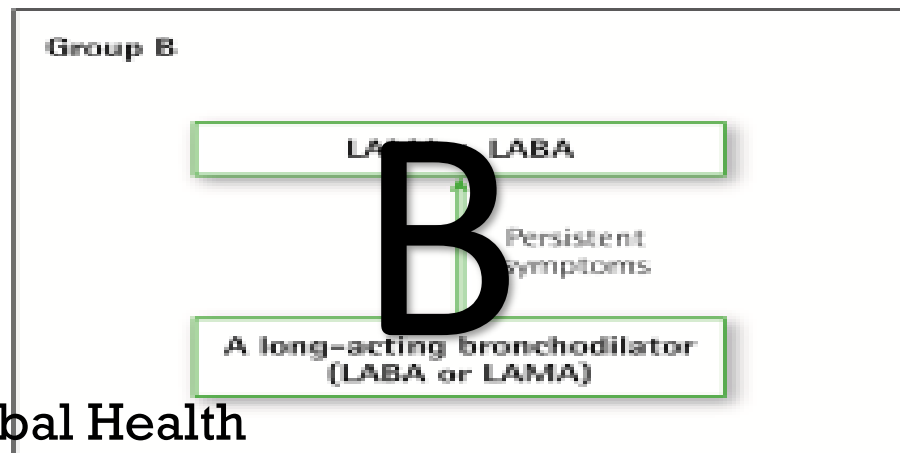
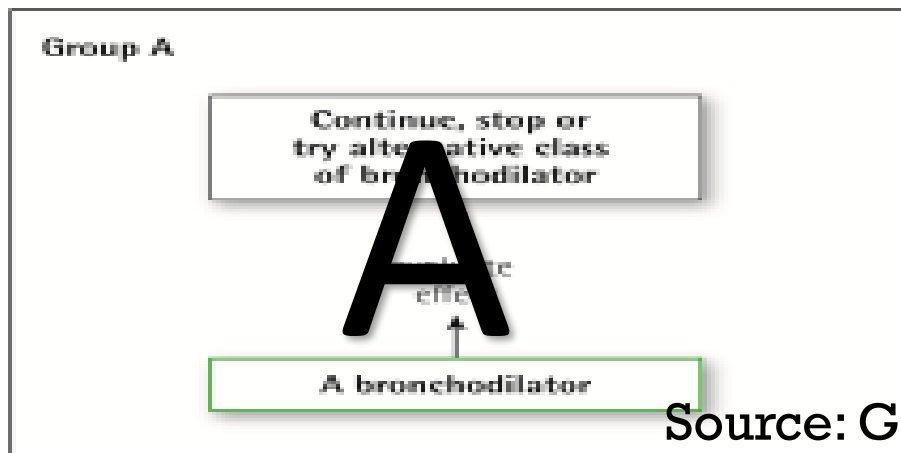
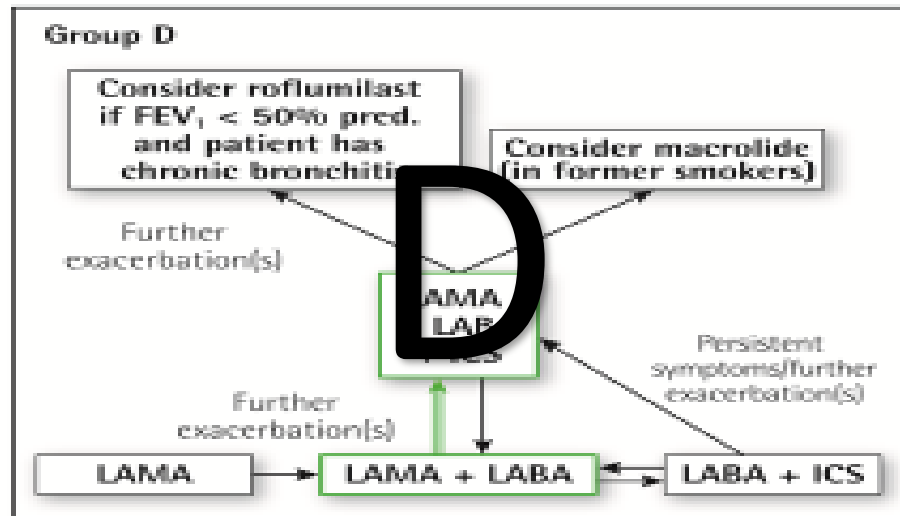
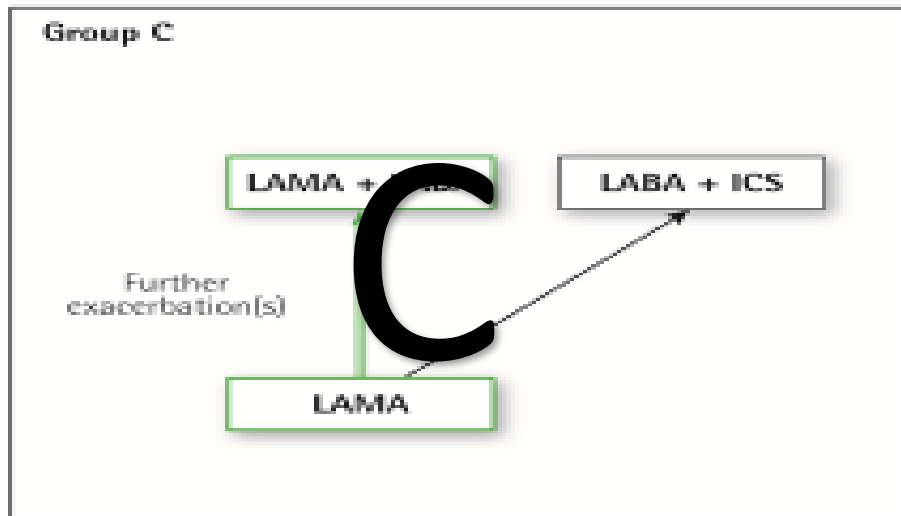
- Regular/prn use of SABA or SAMA improves FEV1 and symptoms (A)
- Combination SABA & SAMA > than either alone for improving FEV1 & symptoms (A)
- LABA and LAMA improve lung function, dyspnea, health status and reduce exacerbations (A)

Bronchodilators for COPD

- LAMAs have greater effect on exacerbation reduction than SAMAs (A) and decrease hospitalization (B)
- Combination LAMA & LABA increases FEV1 & improves symptoms > than monotherapy (A)

Treatment Algorithm Stable COPD

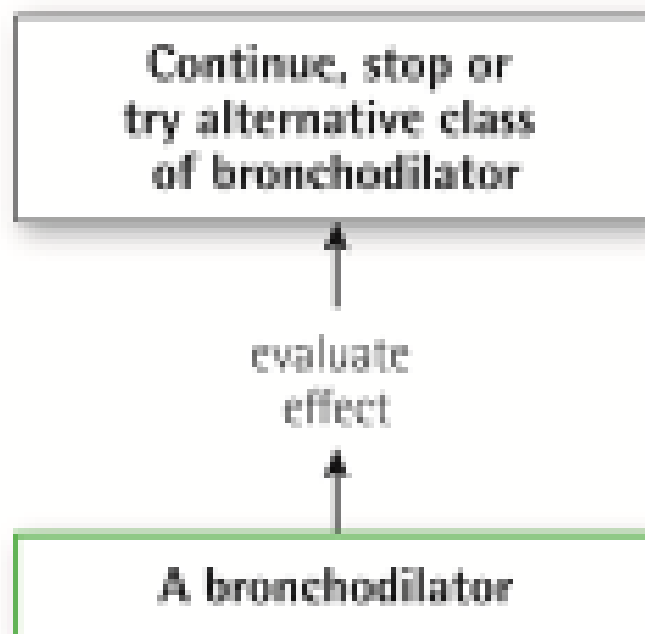
Figure 4.1. Pharmacologic treatment algorithms by GOLD Grade [highlighted boxes and arrows indicate preferred treatment pathways]



Source: Global Health Initiative for COPD

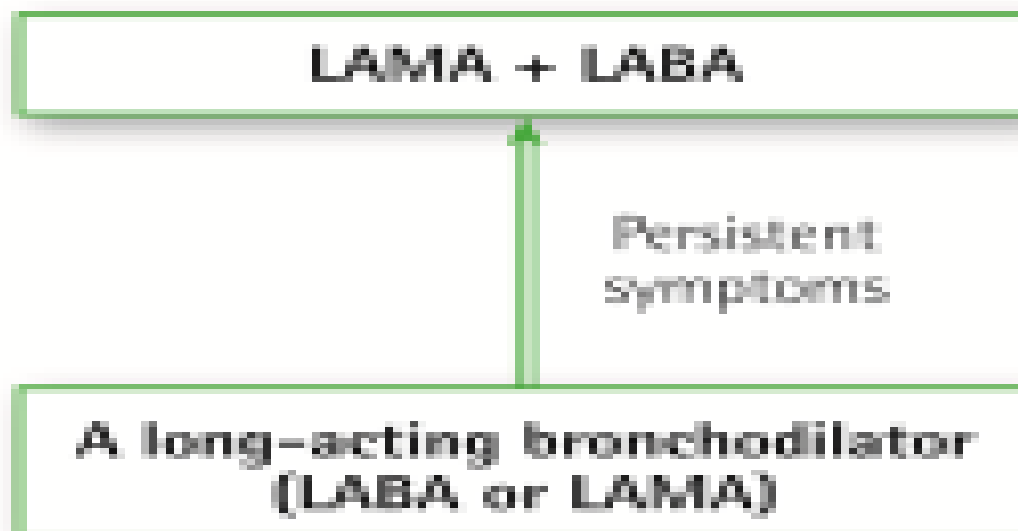
Treatment Algorithm Stable COPD

Group A



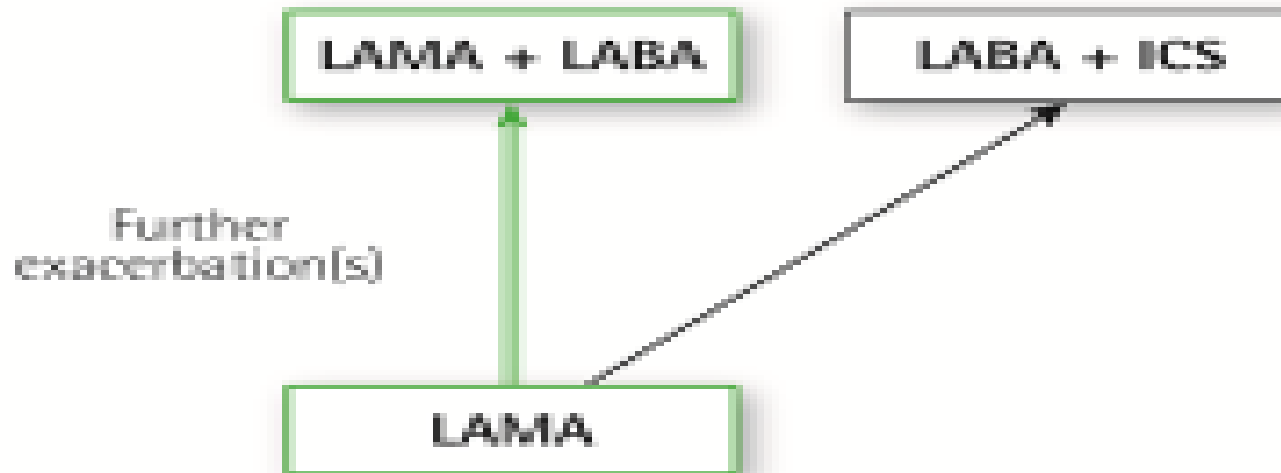
Treatment Algorithm Stable COPD

Group B



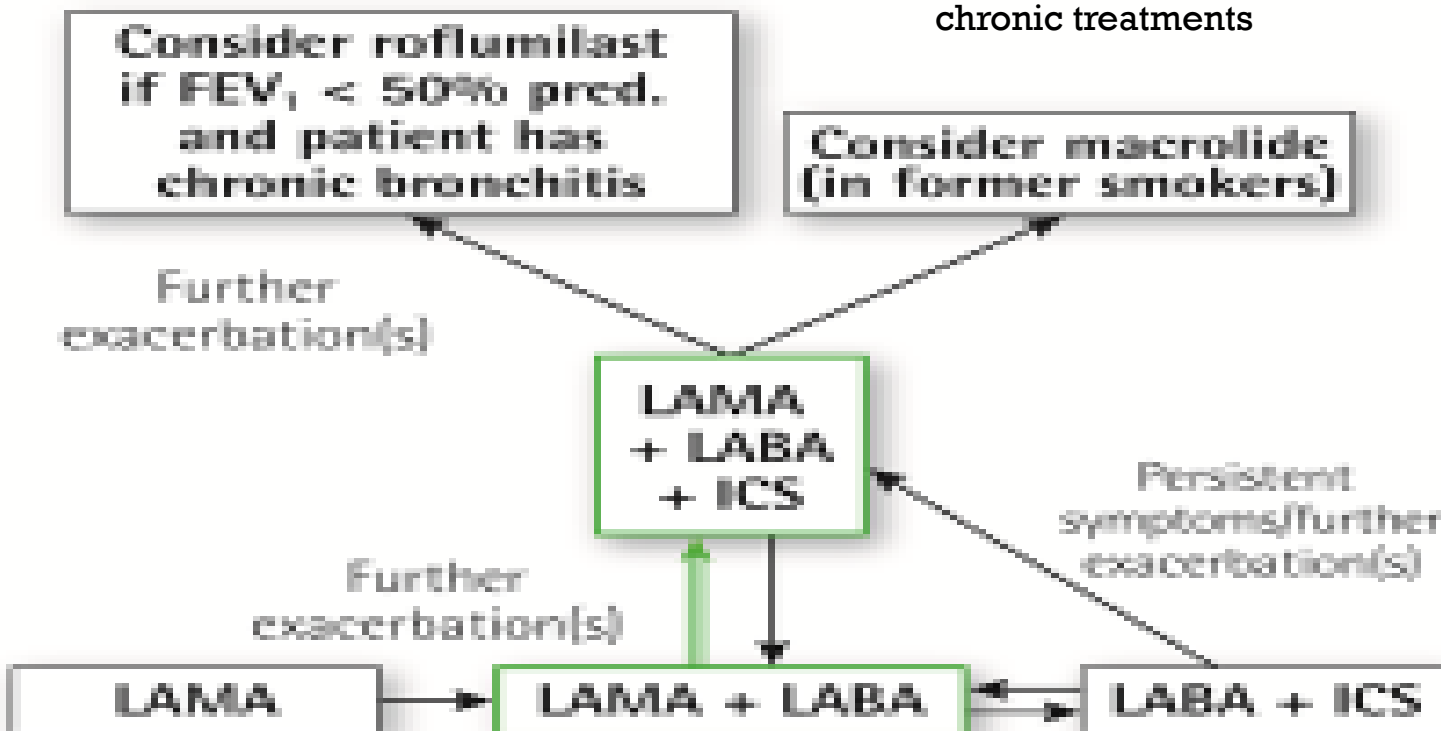
Treatment Algorithm Stable COPD

Group C



Treatment Algorithm Stable COPD

Group D



Summary of Pharmacotherapy (GOLD)

1. Use inhaled beta2 agonist (LABA) or muscarinic antagonist (LAMA) or step up to both; Prn if symptoms intermittent, routine if persistent
2. Inhaled corticosteroid (ICS) therapy as step up therapy; avoid long term oral steroids
3. Oral *PDE4 inhibitors as add on for chronic bronchitis, severe airflow obstruction with recurrent exacerbations

Pharmacotherapy for Smoking Cessation

- Nicotine: patch, gum, lozenges, inhaled
- Bupropion SR
- Varenicline

Pharmacological Challenges in LTC

- Formulary restrictions/interchanges
- Medication reconciliation issues with transfers
- Difficulties with inhalers
 - Staff factors
 - Resident factors

Oxygen Therapy (GOLD)

- No benefit for moderate hypoxemia (O_2 sat $>88\%$ at rest), even if exercise induced hypoxemia
- Use continuously for RESTING O_2 sat $\leq 88\%$ or $PaO_2 \leq 55$ or ≤ 59 with right-sided HF or polycythemia

Interprofessional Resources in LTC

- Pharmacist: interchanges, recommendations, staff education
- Respiratory Therapist: assessments, recommendations
- PT/OT: pulmonary rehab interventions: endurance/energy conservation, improving function, pursed lip breathing
- ST: swallowing/feeding

Vaccinations for Older Adults

- PNEUMONIA:
- Naïve: PPSV23 then PCV13 \geq 1 year later
- Previous PPSV23 at ≥ 65 up: PCV13 \geq 1 year later
- Previous PPSV23 at < 65 yo and now > 65 yo:
- PCV13 then PPSV23 \geq 1 year later
- INFLUENZA: annually

COPD Exacerbation

- Acute worsening of respiratory symptoms requiring additional therapy
- Mild: short acting bronchodilators (SABDs)
- Moderate: SABDs plus antibiotics &/or oral corticosteroids
- Severe: requires ER/hospitalization and may include acute respiratory failure

Symptoms of COPD Exacerbation

- Changes in sputum color, thickness
- Chest tightness
- Increased cough, wheezing
- Fever
- Acute mental status changes
- Increased fatigue, anxiety, sleep problems

Potential Indications for Hospitalization

- Severe symptoms: sudden worsening of resting dyspnea, high respiratory rate (>28), decreased O₂ sat, confusion, drowsiness:
- Acute respiratory failure
- Failure to respond to initial management
- Serious complicating co-morbidities: CHF, new arrhythmias

Before Hospitalization Consider:

- Advanced Directives/POST/Goals of Care
- Facility resources/staff expertise
- Is there something more that can be done at the hospital that the patient/family desires and that cannot be accomplished in the ECF?

Management of Exacerbations

- Assess: CXR, labs
- Treatment:
 - Supplemental O₂
 - Increase dose &/or frequency SABD
 - Consider oral corticosteroids
 - Antibiotics if indicated
 - Treat co-morbid conditions

Hospice Consideration for COPD

- Cor pulmonale
- $pO_2 < 55\%$ on O_2
- Albumin < 2.5
- Weight loss $> 10\%$
- Progression of symptoms
- Worsening functional status

Hospice Criteria for Pulmonary Disease

- **Primary Criteria:** Patients will be considered to be in the terminal stage of pulmonary disease if they meet the following: (This refers to patients with various forms of advanced pulmonary disease who eventually follow a final common pathway to end-stage pulmonary disease)
 1. Severe chronic lung disease as documented by both a and b:
 - a. Disabling dyspnea at rest, poorly or unresponsive to bronchodilators, with decreased functional capacity (e.g., bed to chair assistance, fatigue, cough, or predicted FEV1<30% - is objective evidence of disabling dyspnea, but not necessary to obtain)
 - b. See next slide

Hospice Criteria for Pulmonary Disease

- b. Progression of end-stage pulmonary disease, evidence including prior increasing visits to the emergency department, hospitalizations, or increasing physician home visits for pulmonary infections and/or respiratory failure.

2. Hypoxemia at rest on room air;

- evidence : $pO_2 \leq 55$ mm Hg or
- oxygen saturation $\leq 88\%$ or
- hypercapnia; evidence $pCO_2 \leq 50$ mm Hg

Hospice Criteria for Pulmonary Disease

- Secondary Criteria: Additional factors to assess for:
 1. Right heart failure secondary to pulmonary disease (not secondary to left heart disease or valvulopathy)
 2. Unintentional weight loss of >10% body weight over past 6 months
 3. Resting tachycardia of >100/min

References

- COPD Management in Post Acute and Long Term Care Setting. AMDA/PALTC.
- Global Initiative for Chronic Obstructive Lung Disease (GOLD). 2017. www.goldcopd.org