COPD Diagnosis and Management Algorithm for Primary Care[1]

If a patient presents with respiratory symptoms or you suspect respiratory disease ask patient about the following:

- Shortness of breath at rest or on exertion,
- activity limitation,
- cough,
- sputum production,
- frequent respiratory tract infections
- smoker (current or past)

Screen smokers or ex-smokers over 40 years old who answer "YES" to any question below[2]:

1. Do you cough regularly?
2. Do you cough up phlegm regularly?
3. Do even simple chores make you short of breath?
4. Do you wheeze when you exert yourself or at night?
5. Do you get frequent colds that persist longer than those of other people?

COPD SUSPECTED

Confirm Diagnosis with Spirometry*

Air flow limitation:

Post-bronchodilator FEV_1 / FVC < LLN or < 0.70
FEV_1 = forced expiratory volume in 1 second FVC = forced vital capacity LLN = Lower Limit of Normal

History/Risk Factors:

- History: smoking, occupational, medical, family
- Second-hand smoke exposure
- Assess for orthopnea
- Allergies
- Indoor/outdoor air pollution
- Symptoms: shortness of breath at rest or on exertion, activity limitation, cough, sputum production (amount, colour, consistency), wheezing, chest tightness

Physical Examination:

- Auscultation
- Signs of lung hyperinflation, accessory muscle use
- Signs of generalized muscle wasting
- Ankle swelling (heart failure)
- Cachexia, malnutrition: body mass index [underweight < 18.5 kg/m2; overweight ≥ 25 kg/m2; obese ≥ 30 kg/m2]

*Testing should be done when patient is stable

COPD NOT CONFIRMED

Differential Diagnosis

- Asthma
- Cardiovascular or pulmonary vascular disease
- Obesity
- Severe deconditioning
- Anemia
- Interstitial lung disease
- Neuromuscular disease
- Bronchiectasis
- Tuberculosis

Patient Assessment & Monitoring

Assess Severity (Refer to Pharmacological Management figure below for definitions):

Modified Medical Research Council (mMRC) dyspnea scale:

mMRC 0: I only get breathless with strenuous exertion
mMRC 1: I get SOB when hurrying on the level or walking up a slight hill
mMRC 2: I walk slower than other people of the same age on the level, or stop for breath when walking at my own pace
mMRC 3: I stop for breath after walking 100 meters or after a few minutes

CTS severity score (symptom burden and the risk of future exacerbations)

Mild: CAT < 10, mMRC 1, No AECOPD*
Moderate: CAT ≥ 10, mMRC ≥ 2, Low Risk of AECOPD*
Severe: CAT ≥ 10, mMRC ≥ 2, High Risk of AECOPD*

*Patients are considered at **Low Risk of AECOPD** with ≤ 1 moderate AECOPD in the last year (moderate AECOPD is an event with prescribed antibiotic and/or oral corticosteroids), and did not require hospital admission/ ED visit; or at **High Risk of AECOPD** with ≥ 2 moderate AECOPD or ≥ 1 severe exacerbation in the last year (severe AECOPD is an event requiring hospitalization or ED visit).

COPD Assessment Test (CAT): www.catestonline.org

Tests (Do not test pulmonary function during acute exacerbation):

- Repeat spirometry as clinically indicated and additional PFTs as indicated
- CBC PRN to rule out polycythemia
- Consider blood gas if FEV_1 < 40% predicted (if resting SpO2 < 90%)
- Chest x-ray if clinically indicated
- Alpha-1-Antitrypsin (AAT):
  - If atypical features (early onset, family history of COPD, disabled in early 40s or 50s), send for AAT testing:

Assess for and Manage Comorbidities: heart failure, ischemic heart disease, hypertension, cancer, diabetes, sleep apnea, glaucoma/cataracts, anemia, anxiety/depression, metabolic syndrome, osteopenia, osteoporosis, peripheral muscle dysfunction, malnutrition

Acute Exacerbation of COPD (AECOPD):

- Frequency, severity, purulent/non-purulent
- Hospitalizations, emergency department visits, systemic corticosteroid use
- Sputum gram stain & culture when purulent AECOPD if: very poor lung function, AECOPD ≥ 2/year, or has been on antibiotics in last 3 months

Consider Referral to Specialist

- Not certain of the diagnosis
- Symptoms not proportional to level of airway obstruction
- Accelerated decline of lung function (FEV_1 declines 80 ml or more per year over a two year period)
- Symptom onset at a young age (< 40 years)
- Suspect alpha-1-antitrypsin deficiency
- Not responding to therapy
- Severe or recurring acute exacerbations
- Moderate to severe disease

Non-Pharmacologic Management

COPD Education - provide or refer to program/Certified Respiratory Educator (CRE):

- Smoking cessation (https://lunghealth.ca/wp-content/uploads/2020/04/lhf_journeytoquit_digital.pdf)
- Pathophysiology and treatment rationale
- Inhaler technique (https://lunghealth.ca/lung-disease/a-to-z/asthma/how-to-use-an-inhaler/)
- Self-management education with written action plan (https://cts-sct.ca/action-plans/)
- Identify and reduce/remove risk factors
- Acute exacerbation recognition and treatment
- Managing dyspnea, energy conservation
- Barriers to management or special considerations such as medication adherence, cultural barriers, financial issues, lack of support, language, nutritional assessment

Exercise/ Pulmonary Rehabilitation:

- Refer patients for pulmonary rehabilitation within 1 month of hospital discharge for acute exacerbation of COPD
- Encourage all COPD patients to be active
- Consider community-based exercise programs
- COPD patient information (https://lunghealth.ca/rwhesource-library/)

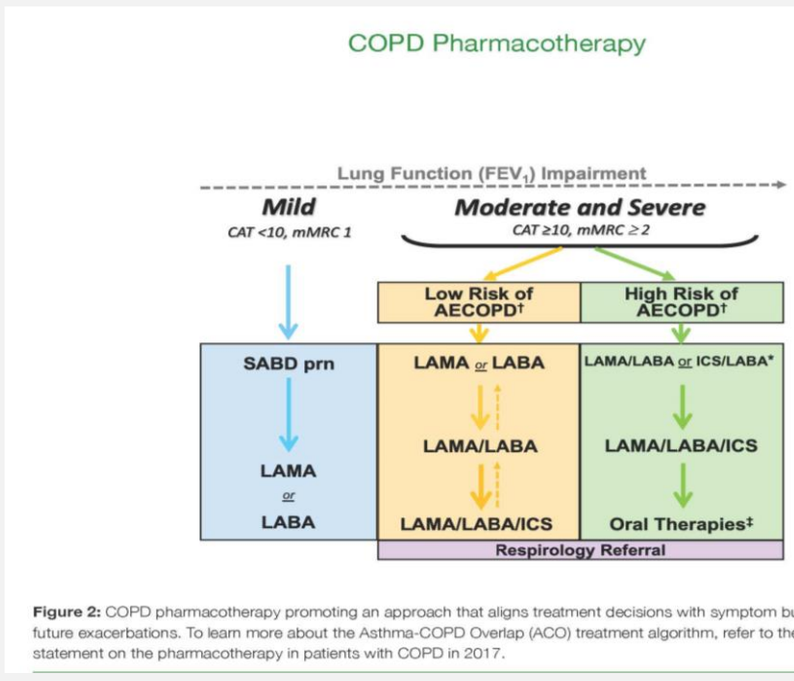
Follow-Up Care:

- Follow-up post discharge from hospital
- Schedule regular follow-up care

End of Life Care

- Advanced Care Planning (http://www.advancecareplanning.ca/resource/ontario/)

Pharmacologic Management



SABD = short-acting bronchodilator
LAMA = long-acting muscarinic antagonist,
LABA = long-acting beta agonist,
SABA = short-acting beta agonist,
ICA/LABA = inhaled corticosteroid/LABA

3. *Bourbeau, J., Bhutani, M., et al, "Canadian Thoracic Society Clinical Practice Guideline on pharmacotherapy in patients with COPD – 2019 update of evidence", Canadian Journal of Respiratory, Critical Care, and Sleep Medicine, 3:4, 210-232, DOI: 10.1080/24745332.2019.1668652*

Figure 2: COPD pharmacotherapy promoting an approach that aligns treatment decisions with symptom burden and risk of future exacerbations. To learn more about the Asthma-COPD Overlap (ACO) treatment algorithm, refer to the CTS position statement on the pharmacotherapy in patients with COPD in 2017.

Influenza (annually) & Pneumococcal Vaccinations (https://bit.ly/2Y0RvrR)

Long-Term Oxygen Therapy can improve survival and function in appropriately chosen, stable COPD patients with chronic hypoxemia (PaO2 of 55 mm Hg or lower), or when PaO2 is less than 60 mm Hg in the presence of bilateral ankle edema, right heart failure or hematocrit > 56%.

Acute Exacerbation of COPD Treatment:

- Oral/parenteral steroids (moderate – severe AECOPD)
- Antibiotics in patients with purulent exacerbations
- Increased short-acting bronchodilator (SABD)
- Oxygen therapy to maintain oxygen saturation at 88% - 92%

Resources: Primary Care COPD Program: https://hcp.lunghealth.ca/clinical-programs/

References:
1. O'Donnell, DE et al. Canadian thoracic society recommendations for management of chronic obstructive pulmonary disease – 2008 update - highlights for primary care. Can Respir J 2008 January/February; 15 (suppl A): p.2A.
2. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease (2018 Report)

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1-888-344-5864

Algorithm and references available at:
hcp.lunghealth.ca/clinical-tools