Primary care pathway: Chronic obstructive pulmonary disease (COPD)

Quick links: Pathway primer | Expanded details | Provider resources | Patient resources

1. Confirmed chronic obstructive pulmonary disease (COPD): Determine type of visit

Routine | Exacerbation | Post-ER or hospitalization

Physicians instructed to call Specialist Link for tele-advice if unsure at any point within management/ investigations

2. Investigations

- Assess for comorbidities (depression, cardiovascular disease, diabetes etc)
- Order blood alpha 1 antitrypsin level to assess for genetic cause of COPD
- Optimize cardiovascular risk factors

3. Patient self-management and non-pharmacological management

- Smoking – harm reduction / cessation
- Patient education / health literacy
- Exercise
- Immunizations
- Nutrition
- Social determinants of health
- Home care
- Advance care planning

4. Management: Risk Stratification via symptoms, acute exacerbation (AECOPD) history and spirometry

- Consider using modified Medical Research Council dyspnea scale (mMRC)
- All COPD patients should be offered short acting bronchodilator (SABA) (unless patient has contraindications), no role of SABA as the only medication for patients with COPD

Mild COPD
mMRC 1
Forced Exhaled Volume in 1 second [spirometry measure] (FEV1) ≥80%

long-acting muscarinic antagonist (LAMA) or long-acting beta agonist (LABA)

Moderate and severe COPD
(Forced Exhaled Volume in 1 second [spirometry measure] (FEV1) <80%, mMRC ≥2)

Consider COPD Action Plan, Referral to Respiratory Medicine Specialist, Certified Respiratory Educator (CRE) for COPD education and inhaler technique, referral to pulmonary rehabilitation or COPD Homecare

Low risk of acute exacerbation of COPD (AECOPD)

Dual bronchodilator therapy (LAMA/LABA)

↓

Triple inhaler therapy (LAMA/LABA/Inhaled cortiosteroid)

High risk of acute exacerbation of COPD (AECOPD)
(prior acute exacerbation of COPD (AECOPD) requiring prednisone, ER visit or hospitalization)

Triple inhaler therapy (LAMA/LABA/ICS)

↓

Triple inhaler therapy (LAMA/LABA/ICS)
Plus additional therapies such as prophylactic macrolides, PDE4 inhibitor, mucolytic agents

- Triple inhaler therapy (consider single inhaler triple therapy (SITT) – all three drugs delivered in a single device)

5. Consider COPD action plan, if appropriate

6. Ongoing surveillance

- At least annually for mild COPD
- Increased frequency for moderate, severe or unstable patients
- Consider referral to respiratory medicine specialist if patients remain symptomatic on therapy or have acute exacerbation of COPD (AECOPD). Note: There is an increased risk of death and cardiovascular events after an AECOPD that is highest in the first 30 days after an AECOPD but that remains elevated for 1 to 2 years after a moderate or severe exacerbation

7. Suspected exacerbation

Exacerbation

8. Advance symptom management

- Consider referring symptomatic severe patients for behavioural interventions (e.g.pacing, pursed lip breathing techniques, etc.) or end stage therapies (daily opioids)
- COPD advanced symptom management clinic or palliative care

PATHWAY PRIMER

- Chronic Obstructive Pulmonary Disease (COPD) is a common and preventable disease. The 2014 self-reported prevalence of COPD in Canada was estimated at 4% while the actual prevalence is estimated to be as high as 12%.[1] COPD is caused by exposure to noxious particles or gases resulting in lung damage, airflow limitation and persistent respiratory symptoms.[2]
- Symptoms include dyspnea, cough and/or sputum production. In Canada the primary risk factor for the development of COPD is exposure to cigarette smoke, however globally, biomass fuel exposure and air pollution may be significant contributors. It is a treatable illness but associated with progression of disease and often results in significant morbidity and mortality. In most patients, the best place for diagnosis and management for COPD is within the primary care setting.
- The diagnosis of COPD is made by completing post-bronchodilator spirometry in symptomatic, “at risk” individuals. Demonstration of fixed airflow obstruction is essential to objectively prove the diagnosis and help differentiate from conditions such as asthma. Clinical exam, history and chest imaging can help exclude other conditions on the differential diagnosis for dyspnea and cough, such as congestive heart failure, bronchiectasis, tuberculosis and other less common airway conditions. Spirometry is also used along with the level of disability to classify severity of COPD and subsequently guide therapy decisions.
- Consideration should be given to referral to a certified respiratory educator to provide COPD education, smoking cessation advice and ensure proper inhaler technique. Prescription inhaled medications (chosen according to national/international treatment guidelines) help to prevent COPD exacerbations which lead to increased morbidity and mortality.
- Prompt treatment of exacerbations with a “COPD Action Plan” can help reduce frequency and severity of COPD exacerbations. A multi-disciplinary approach to address needs in more severe patients (such as dietician, palliative care as well as pulmonary specialists) can improve the overall quality of life for COPD patients.

CLINICAL CARE CHECKLIST

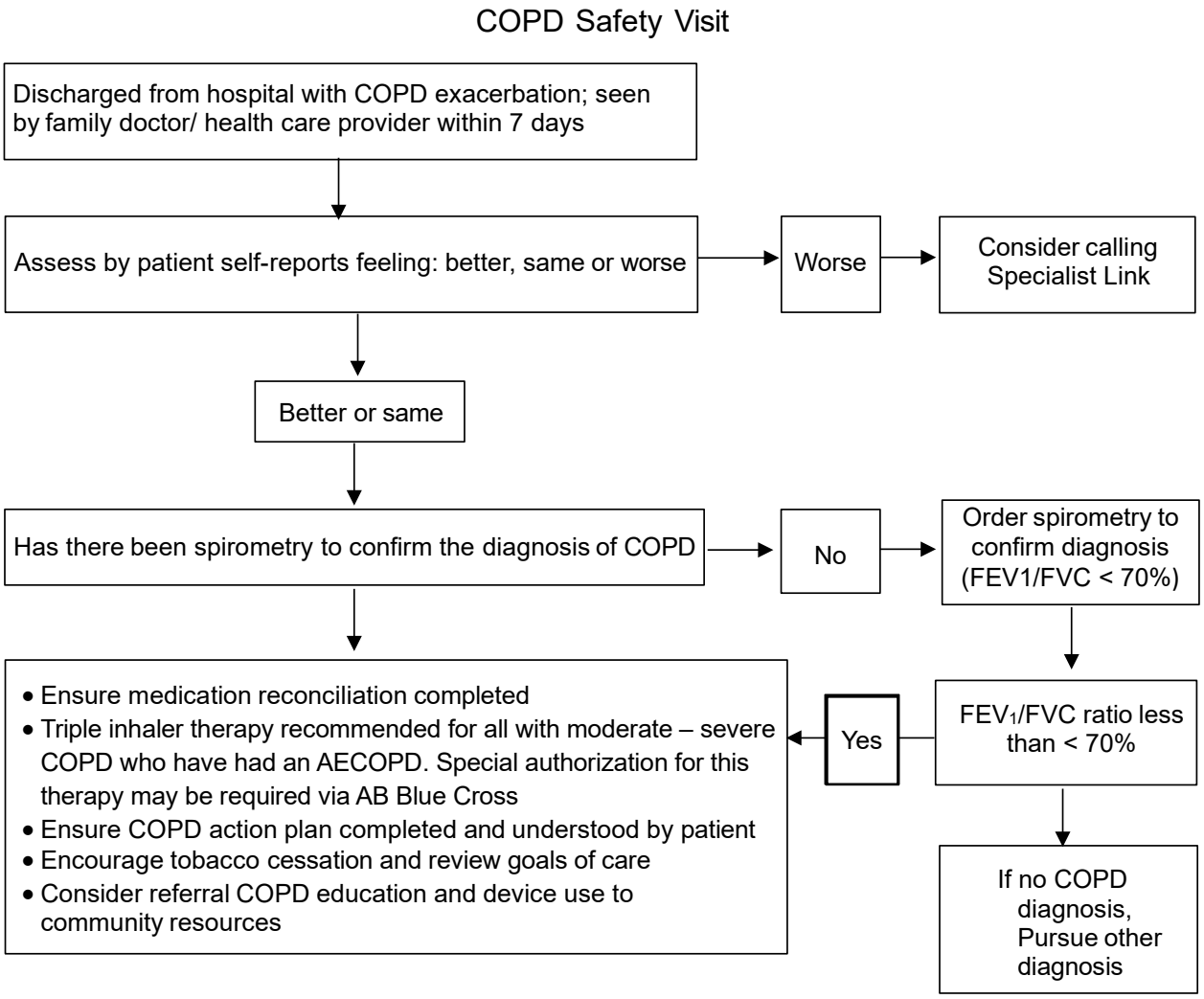
- If patients at risk for COPD (example - history of smoking) have symptoms (example - exertional dyspnea or persistent cough) consider investigating for COPD by ordering pre and post salbutamol spirometry.
- COPD is confirmed only if FEV1 to FVC ratio is <70%
- Alpha-1 antitrypsin (AAT) levels in the blood needs to be checked at least once for all patients with current COPD and those with a new diagnosis as well to rule out underlying genetic cause (alpha-1 antitrypsin deficiency)[3].
- For patients with confirmed COPD, risk stratify symptoms using the modified Medical Research Council Dyspnea Scale (mMRC Dyspnea Scale). COPD severity is also increased with a history of exacerbations requiring hospitalization, emergency room treatments or prednisone for acute worsening.
- Initiate pharmacologic therapy (short acting bronchodilator, inhaled bronchodilation: long-acting muscarinic antagonist/ long-acting beta agonist, plus inhaled corticosteroid for patients with frequent exacerbations) as per guidelines based on spirometry results, exacerbation history and symptoms.
- Patients should be encouraged to have COPD specific education, smoking cessation counseling and review of proper inhaler technique (Calgary COPD and Asthma program, or other programs with Certified Respiratory Educators).
- Create a COPD action plan including a prescription (prednisone plus antibiotic) for self-management in appropriate patients (with history of exacerbations and ability to understand and use an Action Plan).
- Patients should be reviewed one week after being treated for COPD exacerbation- upon discharge from hospital or ER visit for COPD exacerbation
- In severe COPD patients discuss goals of care, dyspnea control and referral to palliative care for advanced symptom management

[1] *Canadian Institute for Health Information. COPD in Alberta: Examining the Characteristics and Health Care Use of High Users. Ottawa, ON: CIHI; 2017*
[2] *Global Initiative for Chronic Obstructive Lung Disease; 2019*
[3] *Canadian Thoracic Society. Alpha-1-antitrypsin deficiency targeted testing and augmentation therapy: A Canadian thoracic society meta-analysis and clinical practice guideline; 2025.*

EXACERBATION PEARLS

- Ensure that inhaler technique is correct- referring patient to a certified respiratory educator or community pharmacist can support this.
- Perform clinical status check within 7 days of intervention for exacerbation (same or improvement expected)
- Determine new baseline and make any changes to management at least 6 weeks post-exacerbation
- Always encourage smoking cessation at every visit
- Long term daily inhaled combination LABA/LAMA therapy in moderate to severe COPD will help prevent exacerbations
- In patients that have moderate to severe COPD and experience one or more exacerbations, consider moving to triple inhaled therapy (i.e. LAMA/LAMA/ICS) to prevent further exacerbations
- Consider providing 'COPD Action Plan' to all patients who have history of exacerbations

POST-HOSPITAL / ER VISIT: SAFETY VISIT



EXPANDED DETAILS

1. Diagnosis of COPD

- COPD diagnosis is made when there are symptoms (dyspnea, cough etc.) plus fixed airflow obstruction (reduced FEV1/FVC of <70% and/or <lower limit of normal for age). Spirometry is a subset of pulmonary function tests and is the testing that is needed for diagnosis of COPD.

2. Investigations

- COPD diagnosis confirmed with post-bronchodilator spirometry FEV1/FVC < 0.7.
- Chest x-ray at initial diagnostic evaluation.
- SpO_2 saturation (< 90% at rest consider ABGs for home SpO_2).
- Order alpha-1 antitrypsin blood levels in all patients with a new diagnosis of COPD to assess for a genetic cause (should be done at least once in all COPD patients).
- Document BMI (low BMI may dictate need for nutritional support).
- Assess for comorbidities (depression, cardiac disease, diabetes etc.)
- Optimize cardiovascular risk factors[4].

3. Patient self-management and non-pharmacological management

- COPD treated with both pharmacotherapy and non-pharmacological management can improve symptoms and quality of life for patients at any stage of disease severity. The table below includes considerations for self-management and non-pharmacological management.

	Recommendations	**Local resources**
Smoking	Smoking cessation advised; however, a harm reduction approach should be used	Albertaquits.ca Alberta Healthy Living Program (AHLP) PCN resources
Patient education	Patients should be provided with disease specific education	AHLP Calgary COPD & Asthma Program (CCAP) PCN resources
Exercise	Goal is starting at 10 minutes, increasing to 30 minutes 2-3X/week	AHLP Pulmonary rehab PCN Resources
Immunization	Annual flu vaccine Periodic pneumococcal pneumonia immunization (as per product monograph)	PCN pharmacists AHS and community resources
Nutrition	Consider a referral to Registered Dietitian to ensure appropriate nutrition status	PCN Resources AHLP Dietitian
Social determinants of health	Consider that living with COPD may impact other factors of health; may consider a referral to social worker	PCN Resources
Home Care	General homecare as well as COPD specific homecare may be appropriate	Alberta Referral Directory
[1]Advance Care Planning	Encourage patients to choose an agent, communicate their values and document these in a Personal Directive	www.conversationsmatter.ca

[4] *Risk of Death and Cardiovascular Events Following an Exacerbation of COPD: The EXACOS-CV US Study K Daniels et al Int J of COPD 2024:19 225*

4. Risk staging

The Modified Medical Research Council (MMRC) Dyspnoea Scale

Grade of dyspnoea	Description
0	Not troubled by breathlessness except on strenuous exercise
1	Shortness of breath when hurrying on the level *or* walking up a slight hill
2	Walks slower than people of the same age on the level because of breathlessness *or* has to stop for breath when walking at own pace on the level
3	Stops for breath after walking about 100 m or after a few minutes on the level
4	Too breathless to leave the house or breathless when dressing or undressing

+ FEV_1

- Risk stratification is completed using the mMRC Dyspnea scale and FEV_1. Mild COPD= mild symptoms, FEV1>80%; moderate COPD is FEV1 between 50 and 80 %; severe COPD is FEV1<50% predicted

Management

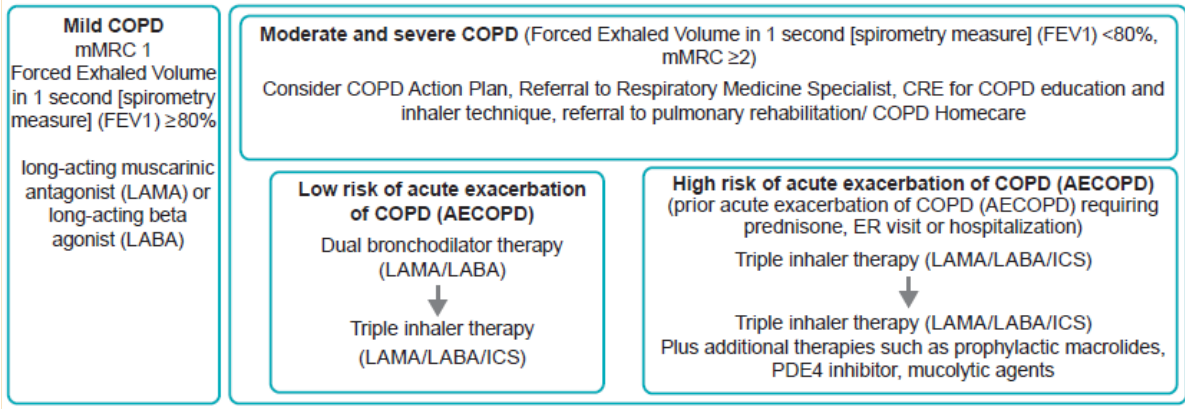
- Review patient management yearly in stable patient. Review more frequently in severe disease, recent medication changes, or recent exacerbation

5. Consider COPD action plan

- Reducing the number of exacerbations improves mortality. If a patient has an exacerbation and is able to reliably follow a self-management plan, a COPD action plan should be put in place.
  A fillable PDF action plan can be found here
  5491_THOR_COPDActionPlanUpdate_2019_Editable_Eng_v2.pdf

6. Ongoing surveillance

- Management[5]
  - Patient self-reports feeling better/same/worse; if better or same, ensure patient is continuing to take the guideline recommended inhaled medications as prescribed with appropriate technique. If feeling worse, consider additional therapy or referral.
  - Ensure appropriate cardiovascular risk factor assessment and treatment to mitigate risk
- mMRC (modified Medical Research Council dyspnea scale)



- Weight- it is important to establish a weight at each visit with patients with end-stage COPD as they will lose weight and may need nutritional support (see table under expanded details 3 for local resources).
- Establish SpO2 saturation at each visit to help with mMRC rating as well as determination of O2 therapy
- Exacerbation history (recent visits to urgent care/emergency and therapy/medication provided)
- Consider referral to respiratory medicine specialist[3] if patient remains symptomatic on therapy or have AECOPD. Note that there is an increased risk of death and cardiovascular events after an AECOPD that is highest in the first 30 days after an AECOPD but that remains elevated for 1 to 2 years after a moderate or severe exacerbation.
- Chest x-ray not routinely required; consider repeat spirometry if deterioration

Non-urgent considerations:

- Alberta blue cross coverage for triple therapy is met (see special authorization form)
- Smoking cessation (see table under expanded detail 3 for local resources)
- Consider influenzae and Prevnar 20, if cost no barrier consider RSV

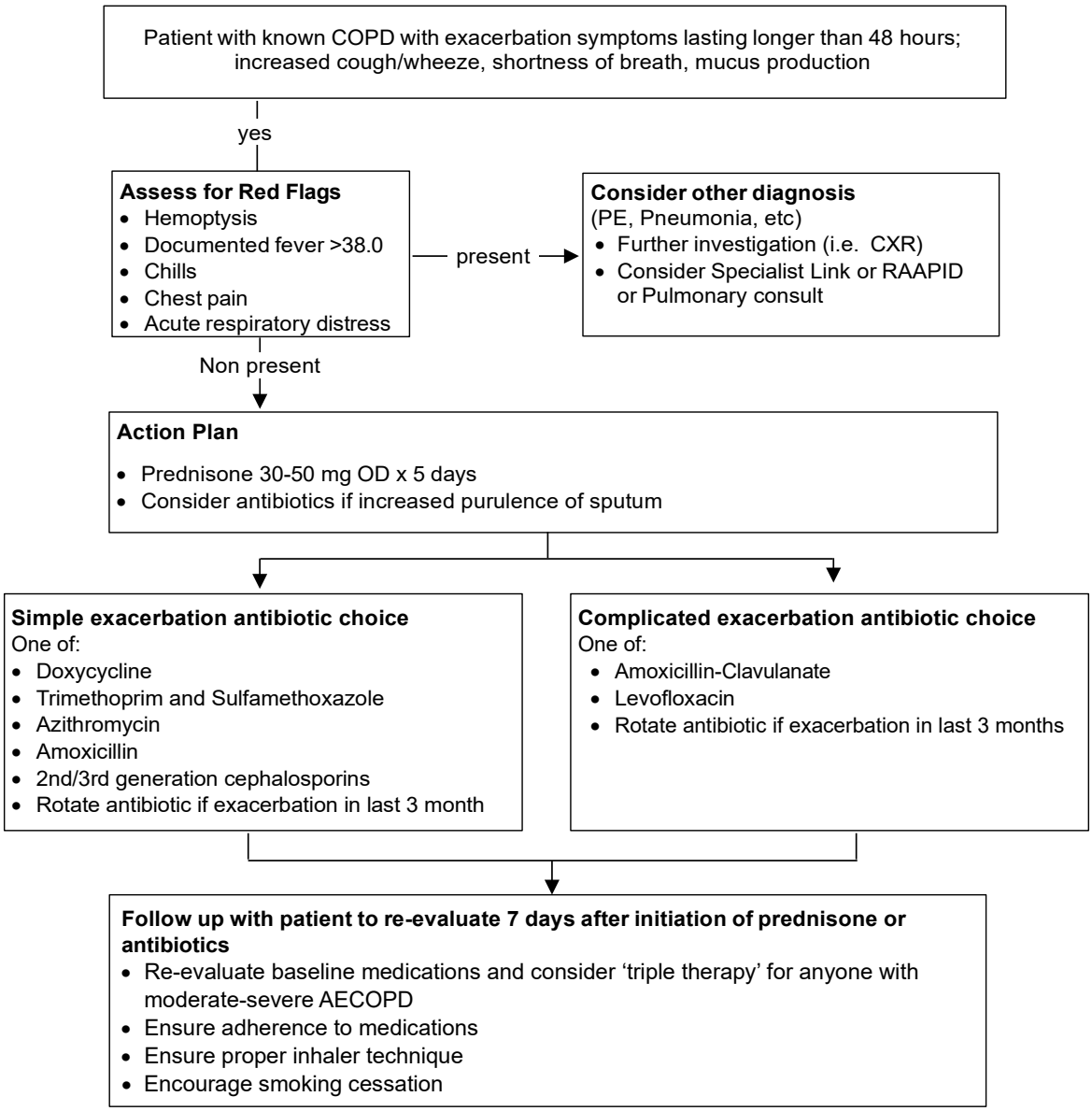
Pharmacotherapy:

Additional information for medication management can be found here:
COPD-Medication-Sheet-2024.pdf

[5] *2023 Canadian Thoracic Society Guideline of Pharmacotherapy in Patients with Stable COPD J Bourbeau*

7. Suspected exacerbation

- A COPD exacerbation is defined as a flare up of COPD symptoms that get **worse for at least 48 hours.** Symptoms include: increased coughing/wheezing, shortness of breath, and mucus production. There are 2 different types of exacerbation:
  - **Simple:** COPD without risk factors
  - **Complicated:** COPD with one of following risk factors:
    - Severe airflow obstruction (FEV1 < 50% predicted)
    - ≥ 4 exacerbations yearly
    - Ischemic heart disease
    - Home O2
    - Chronic steroid use
    - More information on managing a COPD exacerbation can be found at https://cts-sct.ca/wp-content/uploads/2018/01/Highlights-for-Primary-Care-COPD.pdf



8. Advance symptom management

- Review and update goals of care
- Consider respiratory medicine consult (reasons for referral may include co-management, diagnostic uncertainty, prognostication, other therapies, including potential for lung transplant)
- Discuss advanced symptom management with patient
- Consider palliative and end of life care (including discussion around medical assistance in dying (MAID), if appropriate)

BACKGROUND

About this pathway

- This pathway was developed by specialty and the Calgary Zone's Specialty Integration Task group, which includes medical leadership and staff from Calgary and area Primary Care Networks, the Department of Family Medicine and Alberta Health Services.
- Pathways are intended to provide evidence-based guidance to support primary care providers in caring for patients with common health conditions within the medical home.

Authors and conflict of interest declaration

- This pathway was reviewed and revised under the Calgary Zone Specialty Integration Task group in 2025 and this work was modified under the auspices of Respirology. Names of participating reviewers and their conflict of interest declarations are available on request.

Pathway review process, timelines

- Primary care pathways undergo scheduled review every three years, or earlier if there is a clinically significant change in knowledge or practice. The next scheduled review is April 2028. However, we welcome feedback at any time. Please email comments to info@calgaryareapcns.ca.

Copyright information

DISCLAIMER

This pathway represents evidence-based best practice but does not override the individual responsibility of health care professionals to make decisions appropriate to their patients using their own clinical judgment given their patients' specific clinical conditions, in consultation with patients/alternate decision makers. The pathway is not a substitute for clinical judgment or advice of a qualified health care professional. It is expected that all users will seek advice of other appropriately qualified and regulated health care providers with any issues transcending their specific knowledge, scope of regulated practice or professional competence.

PROVIDER RESOURCES

Advice options

Non-urgent advice is available to support family physicians.

- In the Calgary Zone, specialistlink.ca connects family physicians and specialists in real time via a tele-advice line. Family physicians can request non-urgent advice online at specialistlink.ca or by calling **403-910-2551**. The service is available from 8 a.m. to 5 p.m. (with some exceptions), Monday to Friday (excluding statutory holidays). Calls are returned within two hours.
- Connect Care users can refer using the order, "Ambulatory Referral to Pulmonary/Respiratory" to department "Calgary Zone Pulmonary CAT".
- If patient tests positive for low alpha-1 antitrypsin levels, local lab services will initiate genetic testing. Once genetic testing is rendered positive, referral to respirology specialist is needed. In most cases, the respiratory specialist will initiate genetic counselling for first degree relatives.

Pulmonary Rehab
For: patients that are over 18 that require individualized specialty intervention for the management of mod-severe chronic lung disease Patients must be medically stable, able to walk 125m in 6 minutes and transfer independently, physically and cognitively able to participate, and able to commute to and from appointments. **Services offered:** • Supervised individual exercise program and self-management education program to pts with moderate – severe chronic lung disease (either in a group or at home). Also offer bronchial hygiene instruction. • Patients are managed by physiotherapists, RRTs, therapy assistants. Also have social worker, psychologist, OT, dietitian, and rec therapist **Referral by:** Can be referred by physicians and allied health. Refer via Connect Care or by referral form found here Pulmonary Rehabilitation Referral Form
Calgary COPD & Asthma Program (CCAP)
For: patients over 18 with asthma, COPD, and/or smokers at risk. Patients need to be mobile and able to understand given instructors (translators and caregivers can attend). **Services offered:** • Education program for adults with COPD, asthma, and smokers at risk. Education includes inhaler techniques, management, and action plan for the individual. • 1:1 appointments with Certified Respiratory Educator. • Patients may or may not have a spirometry done. **Referral by:** Any physician (to include spirometry). Self-referrals / referrals from other professionals can be made for education only. Referral form found on Calgary COPD & Asthma Program Respiratory Education Referral and Alberta Referral Directory.

Alberta Healthy Living Program (AHLP)
For: Patients with a chronic condition and a primary care provider that are physically able to attend sessions. **Services offered:** **Education:** Health professionals or volunteers teach disease specific & general interest classes. Offered in English, Cantonese, Mandarin, and Punjabi. **Nutrition Services**: RDs facilitate various classes. Individual appointments available in Cantonese, Hindi, and Punjabi. **Better Choices, Better Health:** 6-week self-management workshop to live successful, healthier lives. Offered in English, Cantonese, and Punjabi. **Group Exercise**: Supervised group exercise monitored by health professionals. **Referral by:** Health care providers (any) or patient self-referrals.
Community Paramedics (CP)
For: Adults with known COPD requiring short term intervention(s). **Services offered:** Short-term crisis intervention. Mobile minor emergency service/clinic. Can provide treatments, draw labs, perform ECGs. Care needs to be provided in collaboration with primary care or specialty physician. **Referrals from:** Multiple providers in the form of telephone call or completion of community paramedic patient referral form.
Home Care (COPD homecare specific teams)
For: Patients 65 years or older and admitted to hospital in the last 12 months with a confirmed diagnosis of COPD who would benefit from focused case management by the HF team and are willing and able to make lifestyle changes. **Services offered:** Clients with advanced COPD for symptom management, end of life care, ED avoidance, and to improve quality of life. **Referrals from:** Currently must be referred through Home Care and then will be assessed for COPD specialty team.
Alberta Quits
For: Anyone interested in reducing their tobacco intake. **Services Offered:** • -Quit Line (helpline) with 1:1 counseling, texting, online community, and in-person group sessions • -QuitCore is a 6 week in-person program that offers teaching and counseling. • Also offers free education for healthcare providers to become certified tobacco educators (CTE) **Referrals from:** Self-referral, or any healthcare provider. Information found at www.albertaquits.ca
Acronym List
COPD: Chronic obstructive pulmonary disease **AECOPD**: Acute exacerbation of COPD **LABA:** long-acting beta agonist **LAMA:** long-acting muscarinic antagonist **ICS:** inhaled corticosteroid **mMRC:** modified Medical Research Council dyspnea scale **FEV1:** Forced Exhaled Volume in 1 second (spirometry measure) **FVC:** Forced Vital Capacity (spirometry measure) **SABA:** short acting bronchodilator **LAMA/LABA:** dual bronchodilator therapy **LABA/LAMA/ICS:** triple inhaler therapy **SITT:** single inhaler triple therapy (all three drugs delivered in a single device) **AAT:** alpha-1 antitrypsin

PATIENT RESOURCES

Patient resources	
COPD Action plan	5491_THOR_COPDActionPlanUpdate_2019_Editable_Eng_v2.pdf
Calgary COPD and Asthma Program	https://www.albertahealthservices.ca/findhealth/service.aspx?Id=1794 https://www.ucalgary.ca/asthma/
Living well with COPD	www.livingwellwithcopd.com
The Lung Association	www.lung.ca/copd What We Do | Canadian Lung Association

My COPD Action Plan _____ Date _____
Patient's Copy (Patient's Name)

Canadian Respiratory Guidelines — COPD Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ (Name & Phone Number) and _____ (Name & Phone Number)

My Symptoms	I Feel Well	I Feel Worse	I Feel Much Worse URGENT
I have sputum.	My usual sputum colour is: _____	Changes in my sputum, for **at least** 2 days. *Yes* ☐ *No* ☐	My symptoms are not better after taking my flare-up medicine for 48 hours.
I feel short of breath.	When I do this: _____ _____	OR More short of breath than usual for **at least** 2 days. *Yes* ☐ *No* ☐	I am very short of breath, nervous, confused and/or drowsy, and/or I have chest pain.

My Actions	Stay Well	Take Action	Call For Help
	I use my daily puffers as directed.	If I checked 'Yes' to one or both of the above, I use my **prescriptions** for COPD flare-ups.	I will call my support contact and/or see my doctor and/or go to the nearest emergency department.
	If I am on oxygen, I use _____L/min.	I use my daily puffers as usual. If I am **more** short of breath than usual, I will take ____ puffs of _____ up to a **maximum** of ____ times per day.	**I will dial 911.**
		I use my breathing and relaxation methods as taught to me. I pace myself to save energy.	**Important information:** I will tell my doctor, respiratory educator, or case manager **within 2 days** if I had to use any of my flare-up prescriptions. I will also make follow-up appointments to review my COPD Action Plan twice a year.
		If I am on oxygen, I will increase it from ___ L/min to ___ L/min.	

Notes:

CANADIAN THORACIC SOCIETY — BREATHE the lung association

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*. PART 1 OF 2