# Update on Asthma and COPD for Pharmacy Technicians

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#### Learning Objectives

Participants will be able to :

-Question patient about the use of their inhalers and current benefits they are getting

-Communicate about decrease effectiveness or overuse to patient and pharmacist

-Provide references and placebo devices to improve the use of inhalers, including print, video and demonstration

-Be able to find and store real and virtual resources for use in practice setting

### Poll Question

- The estimated incidence of asthma and COPD in Canada in general population is:
- 1- 1% and 2%
- 2- 5% and 3%
- 3- 7% and 20%
- 4- 10% and 10%

#### Incidence of asthma

- Across Canada, asthma affects the lives of more than 3.8 million Canadians, and is the third most common chronic disease. An estimated 250 Canadians with asthma lose their lives to asthma each year. Number diagnosed daily in Canada = 317 people
- Risk factors for asthma include family history of allergies, asthma, atopic conditions, viral respiratory illness at young age.
- About 50% of those diagnosed before age of 6 appear to outgrow it.
- More males than females prior to teenage years
- Adult onset and work related forms are increasing

#### Kathy had the opportunity to be a coauthor on the Canadian Thoracic Society 2021 Guideline update: Diagnosis and management of asthma in preschoolers, children and adults.

- This update covered very mild and mild asthma all the way to severe asthma requiring treatment with biologics. It can be helpful in determining dose someone need to see a specialist.
- The new information from the Global Initiative on Obstructive Lung Disease (GOLD) cover the serious consequences for those who suffer COPD exacerbations and details why we need to be more aggressive in advancing to another level of treatment to avoid cardiac consequences.
- With a lot of Alberta resources for this area of the province I hope to have you team feel more confident about this area of chronic disease and the comorbidities.

#### Burden is unequal

- The incidence is 40% higher in First Nations, Inuit and Metis populations.
- Socioeconomic factors can affect incidence and severity through living conditions (closer to areas with heavy traffic, or exposure to diesel fumes, second hand smoke)
- Severe asthma has a much greater burden on quality of life, ability to work and go to school, risk of death. 150,000-250,000 estimated in Canada. Access to specialists and treatment is hard for some.
- Climate change is leading to increased pollen, pollution, moulds

## Goals of treating asthma

- Reduce burden on people and families , and no deaths from asthma.
- Able to attend work (paid and unpaid), school and social events
- Able to sleep without disruption from asthma (< 1/wk)
- Symptoms are mild and infrequent
- Any exacerbation is mild and easy to reverse with little treatment
- Able to use less than or equal to 2 DOSES of reliever per week
- No urgent appointments with MD, ED or hospitalizations
- Able to participate in usual physical activity

## Poll question

- Given the new Asthma guidelines reviewed: How long should a salbutamol pMDI / Diskus or terbutaline Turbuhaler last?
- Answers 1- 6 months/1 month/12 months
- Answer 2 1 month/ 6 months/2 months
- Answer 3- 12 months/ 6 months/ 12 months

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## Case of frequent filler

- 19 year old person comes to the pharmacy to get a refill for salmterol 50mcg DPI and asks for another salbutamol pMDI 100mcg. Last filled both 2 weeks previously. The insurance under parent's plan is not working, just give me the salbutamol. Does not wish to fill ICS which was done 2 months ago
- Offer to call insurance declined.
- What Questions does this case raise for you?
- How would you talk about inhaler overuse? Refer to pharmacist? MD?

#### Asthma Management 2021 CTS

- Confirm the diagnosis with history and spirometry
- Environmental control, education and written action plan.
- Provide SABA or budesonide/formoterol as needed to relieve symptoms (>12yo)
- Adjust therapy as needed to achieve control and prevent future risk
- If needed add Inhaled corticosteroid (ICS) titrating dose from low to high OR Second line : Leukotriene Recptor Antagonist (LTRA) eg montelukast
- If >12yo :add LABA, if 1-11 yo Increase ICS
- If still not controlled ≥ 12yo Add LTRA or tiotropium,6-11 yo add LABA or LTRA
- IF SEVERE ASTHMA- refer to specialist eligible for medications that only they can order or investigation for alternate diagnosis.

## Terminology

- Severe asthma :
- A severe asthma exacerbation is one that requires either systemic steroids, an emergency department (ED) visit or hospitalization.
- mild exacerbation is an increase in asthma symptoms that can be treated without any of the above.
- If medication required to control asthma includes high dose ICS +another controller (LABA or LTRA) for previous year, or systemic steroid for > 50% or previous year or is uncontrolled despite this therapy -- > see MD and be referred to specialist

#### **Patient Considerations for resources**

- Language (written/spoken), education & health literacy
- Learn improperly; assume correct technique
- Coordinating actuation with inhalation
- Dexterity problems (e.g., arthritis)
- Have spacer but do not use it
- Fail to recognize empty inhaler
- Cognitive/memory problems (videos can be helpful if people can follow)
- Error rates 1 with age & severity of air flow limitation and can't achieve adequate inspiratory flow rate
- Cost issues

What methods of education help people use inhalers properly?



72 subjects were assigned to complete t following:

- 1) watch a CDC video demonstrating MDI technique,
- 2) watch a YouTube video demonstrating MDI technique
- 3) read a MDI package insert pamphlet, or
- 4) direct instruction of MDI technique from a pharmacist

All interventions were limited to 2 minutes. A statistically significant difference between pharmacist direct instruction and the remaining interventions, both combined (P < 0.0001) and individually (P  $\leq$  0.03), was evident

#### What is a Written Action Plan

- Can be formal or handwritten one.
- Date it- in case treatment changes, put copy or document in EMR
- Something to refer to if things get worse- what to do.
- Include device instruction sheet if needed
- Make a new one if treatment changes- if a child or teenage they might like to fill it out themselves
- https://myhealth.alberta.ca/Alberta/AlbertaDocume

### Tech tips

- Asthma is a variable condition and it comes and goes, sometimes for years.
- Environmental triggers are very important pollens, Air quality, local infectious diseases
- Suggested weekly use of reliever can be a que to involve pharmacist
- What if someone stops using inhalers because they worry about Green house gases
- Person is not sure when to use different inhalers

## Red flags for pharmacy of need to optimize management in COPD

- Increased use of relievers (possibly poor technique or understanding)
- Lack of filling maintenance inhalers
- Decrease in activity- golf, playing with grandchildren, socializing, phoning family, going out,
- Exacerbation mediations or need for with poor Air quality or regional triggers
- Complaining of "colds"
- Sick on holiday or for important events
- Thinking of retiring because cannot keep up with work

## What suggests COPD diagnosis GOLD clinical indicators

- Persistent dyspnea (shortness of breath) especially on exertion over 35 years old
- Progressive in nature
- Previous smoking history or exposure to harmful inhaled substances
- Frequent chest infections with or without phlegm
- Persistent cough
- Wheezing
- Tight chest
- Lack of energy
- Unintended weight loss

#### Definition of COPD

- Chronic Obstructive Pulmonary Disease is a common, preventable and treatable disease characterised by persistent respiratory symptoms and airflow limitation that is due to airway/ and alveolar abnormalities usually caused by significant exposure to noxious gases and particles. (GOLD 2023)
- It is also a progressive condition that worsens without treatment

## What do Long Acting Muscarinic Antagonist do?

- Specifically, the muscarinic receptors M1, M2, and M3 have been found to play important roles in airway physiology. M3 receptors are predominantly found on airway smooth muscle cells and submucosal glands and cause airway smooth muscle contraction and mucus secretion, both of which are problems in COPD. Antagonizing them allows airways to relax and reduces mucus secretion.
- Side effects include dry mouth and dysphonia or loss of voice. They are generally safe and well tolerated. Many other medications a person can be on are potential contributors to these side effects.

#### **GOLD 2023 – Treatment of Stable COPD**

#### Initial Pharmacological Treatment





Note: ICS/LAMA/LABA as initial maintenance therapy is off-label in Canada

 $\ensuremath{\mathbb{C}}$  2022, 2023 Global Initiative for Chronic Obstructive Lung Disease

#### 2023 REPORT



AECOPD, acute exacerbation of COPD; CAT, COPD assessment test; CTS, Canadian Thoracic Society; FEV<sub>1</sub>, forced expiratory volume in 1 second; ICS, inhaled corticosteroid; LABA, long-acting ß2-agonist; LAMA, long-acting muscarinic antagonist; mMRC, Modified Medical Research Council Dyspnea scale; SABD prn, short-acting bronchodilator as needed.

\*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). Blood eosinophil 300/mL in patients with previous AECOPD may be useful to predict a favourable response to ICS combination inhaler \*Oral Therapies % Roflumilast, N-acetylcysteine, daily dose Azithromycin could be considered with patients with high-risk AECOPD despite on optimal long-acting inhaled therapy. Oral corticosteroids as maintenance therapy are not indicated in COPD. Bourbeau et al CTS guidelines. 2019 Update.

#### Modified MRC Dyspnea Scale

Table 2.7

#### **2023** Teaching Slide Set

#### 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			
l 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: ATS (1982) Am Rev Respir Dis. Nov;126(5):952-6.							



## Poll question

- 75 year old patient comes to pharmacy to renew tiotropium 18mcg Handinaler and is short of breath and coughing, complains of difficulty walking in to store from the mall.
- What should the pharmacy technician do?
- Option 1- refill inhaler person is on time
- Option 2- tell them to go see MD if not feeling well
- Option 3- refill prednisone from 6 months ago
- Option 4- notify pharmacist to assess

## Other strategies for exacerbation prevention

- Smoking cessation
- Pulmonary rehabilitation
- Vaccination
- Effective management of the acute exacerbation
- Macrolide therapy
- Pollution control
- Long-term oxygen therapy
- Non-invasive ventilation
- ANTIVIRAL THERAPIES



#### Languages for devices

- Most common languages in Red Deer may be Tagalog, Spanish, Arabic, Ukranian and Cantonese.
- What other languages do you think would you see?
- A reliable source of print information is the Calgary COPD & Asthma program website
- <u>https://ccapalberta.ca/medication-and-devices</u>
- Links to videos on how to use inhalers located there also



#### What is an exacerbation?

MAJOR SYMPTOMS INCLUDE INCREASE IN BREATHLESSNESS, AMOUNT AND/OR THICKNESS OF SPUTUM AND CHANGE IN COLOUR

MILD	MODERATE	SEVERE
Worsening or new respiratory symptoms without a change in prescribed medications	Prescribed antibiotic and/or oral corticosteroids	Requiring a hospital admission or ED visit

ED, emergency department.

Anthonisen NR, Manfreda J, Warren CP, Hershfield ES, Harding GK, Nelson NA. Antibiotic therapy in exacerbations of chronic obstructive pulmonary disease. Ann Intern Med. 1987 Feb;106(2):196-204

Canadian Thoracic Society Clinical Practice Guideline on pharmacotherapy in patients with COPD – 2019 update of evidence.

#### Inhaler demonstration

- Dry Powder devices Ellipta
- Soft Mist Inhaler- Respimat
- pMDI with spacer
- Dry Powder Inhaler- Turbuhaler
- Dry Powder Inhaler- Respiclik
- Dry Powder Inhaler Breezhaler or Handihaler

#### Low rate of critical errors with the ELLIPTA inhaler



RWE from a retrospective database study in the US <u>adds to clinical findings</u> with data on adherence to drug therapy for patients treated with FF/UMEC/VI vs MITT

BUD/FOR, budesonide/formoterol; DPI, dry powder inhaler; FF, fluticasone furoate; FP/SAL, fluticasone propionate/salmeterol; GLY, glycopyrronium; IND, indacaterol; ITT, intent-to-treat; LS, least squares; MDI, metered dose inhaler; MITT, multiple-inhaler triple therapy; mPP, modified per protocol; RCT, randomized-controlled trial; RR, risk ratio; RWE, real world evidence; TIO, tiotropium; UMEC, umeclidinium; VI, vilanterol 1. Adapted from van der Palen J, et al. *NPJ Prim Care Respir Med* 2016;26:16079; 2. Adapted from Collier DJ, et al. *Int J COPD* 2020;15:1301–13.



#### Another case for community pharmacy

- 30 year old person comes in and request a refill on oral contraceptive. You observe that the inhaled corticosteroid inhaler she used to use regularly is due for a refill and ask if they would like that also. "No thanks, I have stopped taking that." on questioning she has not discussed with MD and was worried about impact on climate with the green house gases in her pMDI inhaler.
- They are willing to discuss with pharmacist.
- Watch for opportunities when people hear current news about medications in the media.

## Simplifying treatment for your patients

Fluticasone Propionate/Salmeterol **Budesonide/Formoterol** (Advair<sup>®</sup> Diskus) (Symbicort<sup>®</sup> Turbuhaler) **Fluticasone Furoate/Vilanterol** 







(Breo<sup>®</sup> Ellipta)

**GOLD 2023** 

**ICS/LABA** 

- Single inhaler therapy may be more convenient and effective than multiple inhalers
- Fixed-dose triple inhaled combination therapy in one inhaler may help improve health status compared to treatment using multiple inhalers



\*Trademarks are the property of their respective owners. †Similar devices: > 2 inhalers with similar inhalation technique; mixed devices: > 2 inhalers with > 1 requiring a largely different inhalation technique. Inhalers were categorized as 'similar' if they were all aerosols (MDIs or SMIs) or all DPIs.

GOLD, Global Initiative for Chronic Obstructive Lung Disease; ICS, inhaled corticosteroid; LABA, long-acting beta2-agonist; LAMA, long-acting muscarinic antagonist; SABA, short-acting beta2-agonist. Bosnic-Anticevich S, et al. Int J Chron Obstruct Pulmon Dis 2017; 12: 59–71, published under CC BY-NC 3.0 license, available at: https://creativecommons.org/licenses/by-nc/3.0/.

#### Green house gases from inhaled medications

CASCADES is a Canadian program that has been promoting the people stop using pMDI inhalers because the propellants contained in them are hydrofluorcarbon compounds that contribute to global warming.

Most important thing is that the person using the inhaler is involved in any decision to change if possible. For example a child less than 6 may not be able to generate sufficient force of inhalation to use a DPI.

People should not stop inhalers if they have a concern without checking with their Health Care provider.

## Possible solutions to decrease propellants affecting Green house gases

- If possible switch to DPI
- If not possible make sure to use a valved holding chamber, this can improve amount of mediation going into the lungs and decrease the amount escaping into the atmosphere. Encourage any priming doses to go into a chamber.
- Getting more medication into lungs can lead to better outcomes from less medication, less flare ups and extra treatment
- Could be an issue in children, people with developmental or cognitive problems, in the middle of severe breathing problems and elderly person

## Health issues impacting inhaled medications

- Mouth injury
- - stroke can affect ability to seal lips on mouthpiece
- -Dental surgery, jaw wired shut
- Hand ,wrist or arm
- -Arthritis can affect grip, twist ability, lifting and holding to inhale
- Cognitive issues- brain injury or dementia
- -can affect ability with instruction or could need caregiver

## What to use if a caregiver involved

- Is help needed for dose preparation and holding of inhaler only
- Will coaching for inhalation be needed?
- Is person able to inhale sufficiently?
- How to decide what device/chamber?
- Are there policies or issues at a group home or long term care site?
- Will the required medication be covered or need pharmacist input for special authorization?
- What resources would benefit the caregiver-video?

## Inhaler teaching from a professional

• Dr house 2

#### Critical Errors\* for Single vs. Multiple Inhalers<sup>1</sup>

A single inhaler led to less patients making critical errors compared with multiple inhalers<sup>1</sup>



\*Critical error defined as an error that is most likely to result in no or significantly reduced medication being inhaled. <sup>†</sup>OR 29.114 (95% CI: 11.047–inf); <sup>‡</sup>OR 27.744 (95% CI: 10.512–inf). CI: confidence interval; inf: infinity; OR: odds ratio.

1. Van der Palen et al. Int J Chron Obstruct Pulmon Dis. 2018;13:2515-23.

#### How to see if a change is needed

- Is a person having breakthrough symptoms with COPD- short of breath on exertion much more than they used to have- complain about not being able to do an activity they could before.
- Having exacerbations of COPD which is an increase in symptoms that prevents them from doing things or going out, or require to treat with antibiotic and or prednisone, or they end up needing to go to Emergency, hospital . (AECOPD)
- Can take up to 3 months to get better and having an exacerbation can lead to more of them- each one causing further decline in lung function

## Poll question

- Which inhaler is mistake proof
- 1- pMDI with spacer
- 2- Ellipta
- 3- Turbuhaler
- 4-Respimat
- 5-Breezhaler/Handihaler
- •

## Poll Question

- Which inhaler and medication is the best?
- 1- The newest one
- 2- The more well know and used one
- 3- the one the person can and will use
- 4- the one the physician choses
- 5- the one covered by the insurance

#### How can a pharmacy technician help

- Recognize problem with inhalers , such as too many or too few refills for dose ordered and symptoms.
- Refer to pharmacist for assessment of technique and possible change
- Suggest resources for people using these medications to review at home if they need reinforcement
- Do not allow labelling the makes it hard to use inhaler to be given out
- Provide written instructions, not only on label
- Make sure to have placebos if possible for teaching

#### **CAT™** Assessment

#### Figure 2.2

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 🗶 2 3 4 5	I am very sad	Score
l never cough	012345	I cough all the time	
l have no phlegm (mucus) in my chest at all	012345	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	012345	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	012345	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	012345	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	012345	I am not at all confident leaving my home because of my lung condition	
l sleep soundly	012345	I don't sleep soundly because of my lung condition	
I have lots of energy	012345	I have no energy at all	
Reference: Jones et al. ERJ 2009; 34	(3); 648-54.	TOTAL SCORE:	



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