

# Key Strategies to Prevent Hospitalization in COPD

Dr. Kristina Kemp FRCP(C)

Respirologist

The Moncton Hospital

# Disclosure: Conflict of Interest

- Speaker: Dr. Kristina Kemp
- Relationships with commercial interests:
- Grants/Research Support: Actelion
- Speakers Bureau/Honoraria/Consulting Fees: Actelion, Astra-Zeneca, Bayer, Boehringer Ingelheim, Novartis
- Other: Employee of The Moncton Hospital

# Objective

- To critically review strategies that help to reduce COPD exacerbations and consequent hospitalizations

# COPD Exacerbations

**COPD exacerbations** are defined as an acute worsening of respiratory symptoms that result in additional therapy.

- ▶ They are classified as:
  - **Mild** (treated with short acting bronchodilators only, SABDs)
  - **Moderate** (treated with SABDs plus antibiotics and/or oral corticosteroids) or
  - **Severe** (patient **requires hospitalization** or visits the emergency room). Severe exacerbations may also be associated with acute respiratory failure.



# COPD Statistics

Recent editorial in CMAJ regarding COPD burden (Jan 2019):

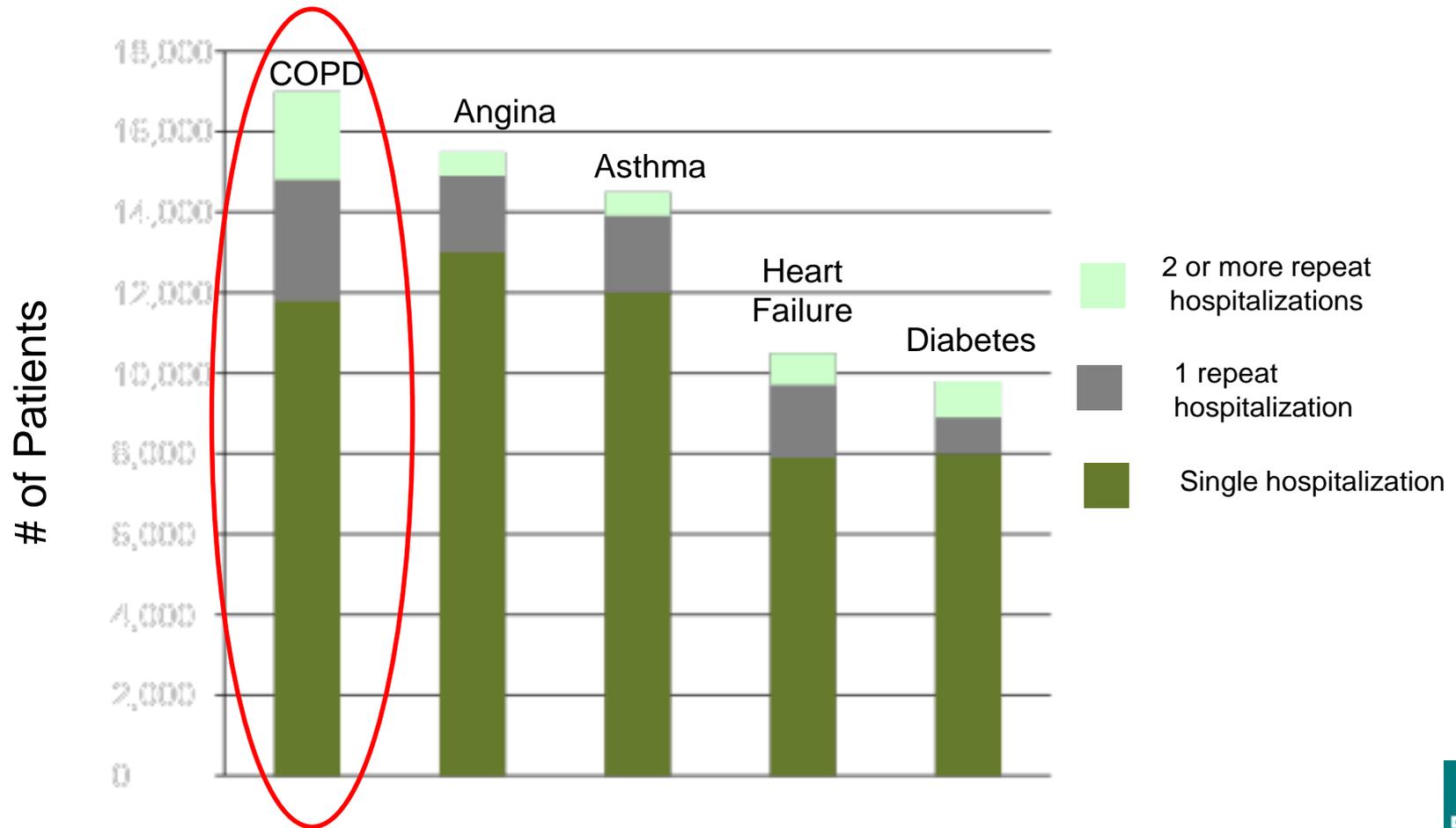
- COPD is the **5th leading cause of death** in Canada, with an age-standardized prevalence of 9% among Canadians aged 35 years and older<sup>1</sup>
- In 2016/17, COPD exacerbations were responsible for nearly 90 000 admissions to Canadian hospitals — more than any other disease — with an average stay of 7 days<sup>2</sup>
- Exacerbations of COPD place a tremendous burden on emergency departments, surpassed only by pneumonia in volume of admitted patients<sup>3</sup>

1. Asthma and chronic obstructive pulmonary disease (COPD) in Canada, 2018: report from the Canadian Chronic Disease Surveillance System. Ottawa: Public Health Agency of Canada; 2018.

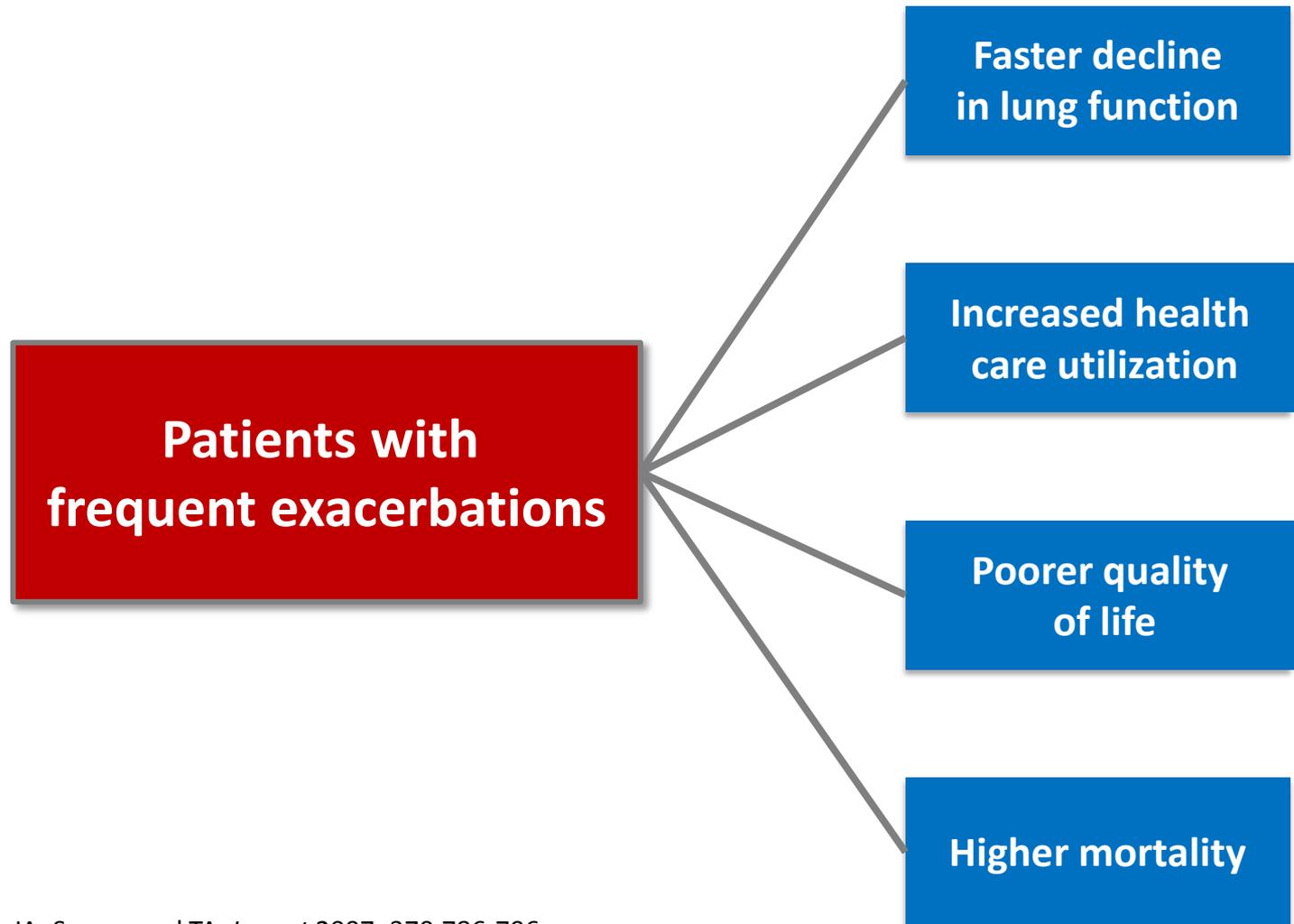
2. Inpatient hospitalizations, surgeries and newborn indicators, 2016–2017. Ottawa: Canadian Institute for Health Information; 2018.

3. NACRS emergency department visits and length of stay by province/territory, 2016–2017. Ottawa: Canadian Institute for Health Information; 2017.

# AECOPD - #1 Cause for Hospital Admissions Among Chronic Illness in Canada



# Impact of Exacerbations in COPD

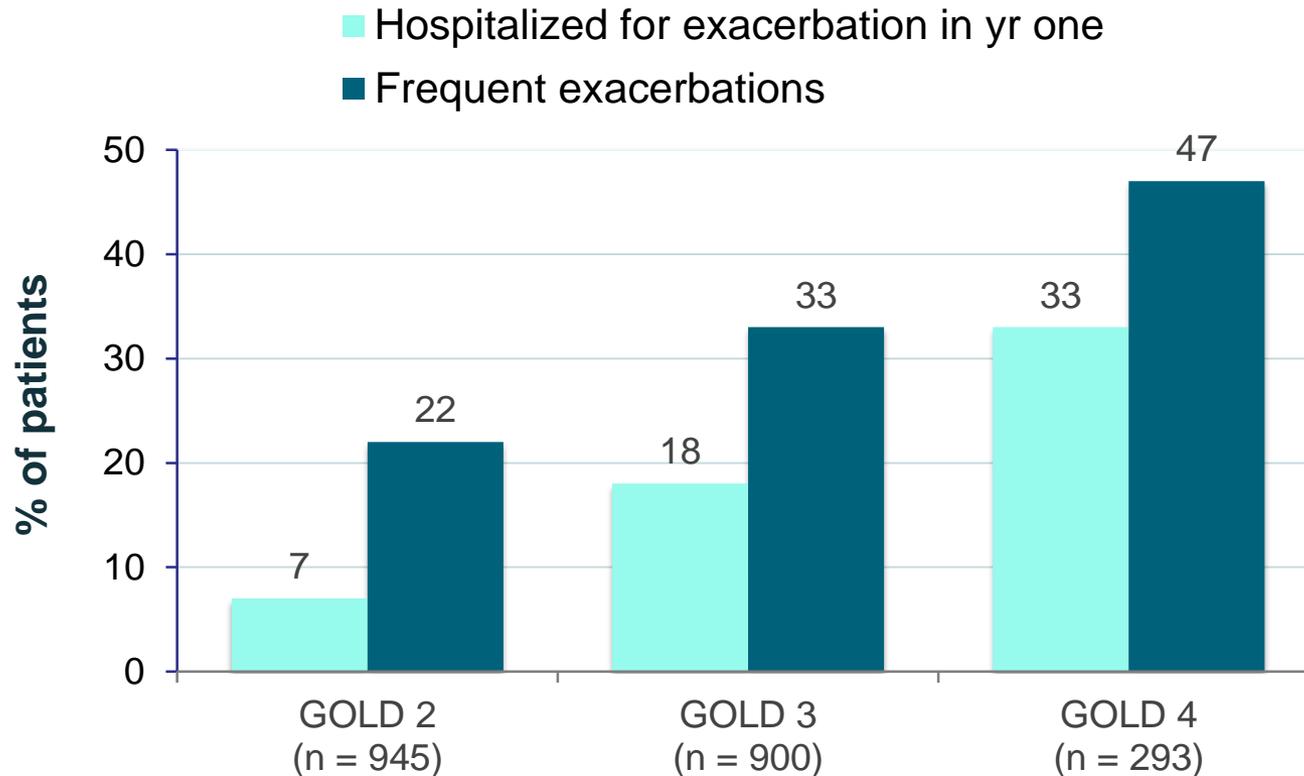


# Who is at Risk for Frequent Exacerbations?

Patients who are at risk are those with:

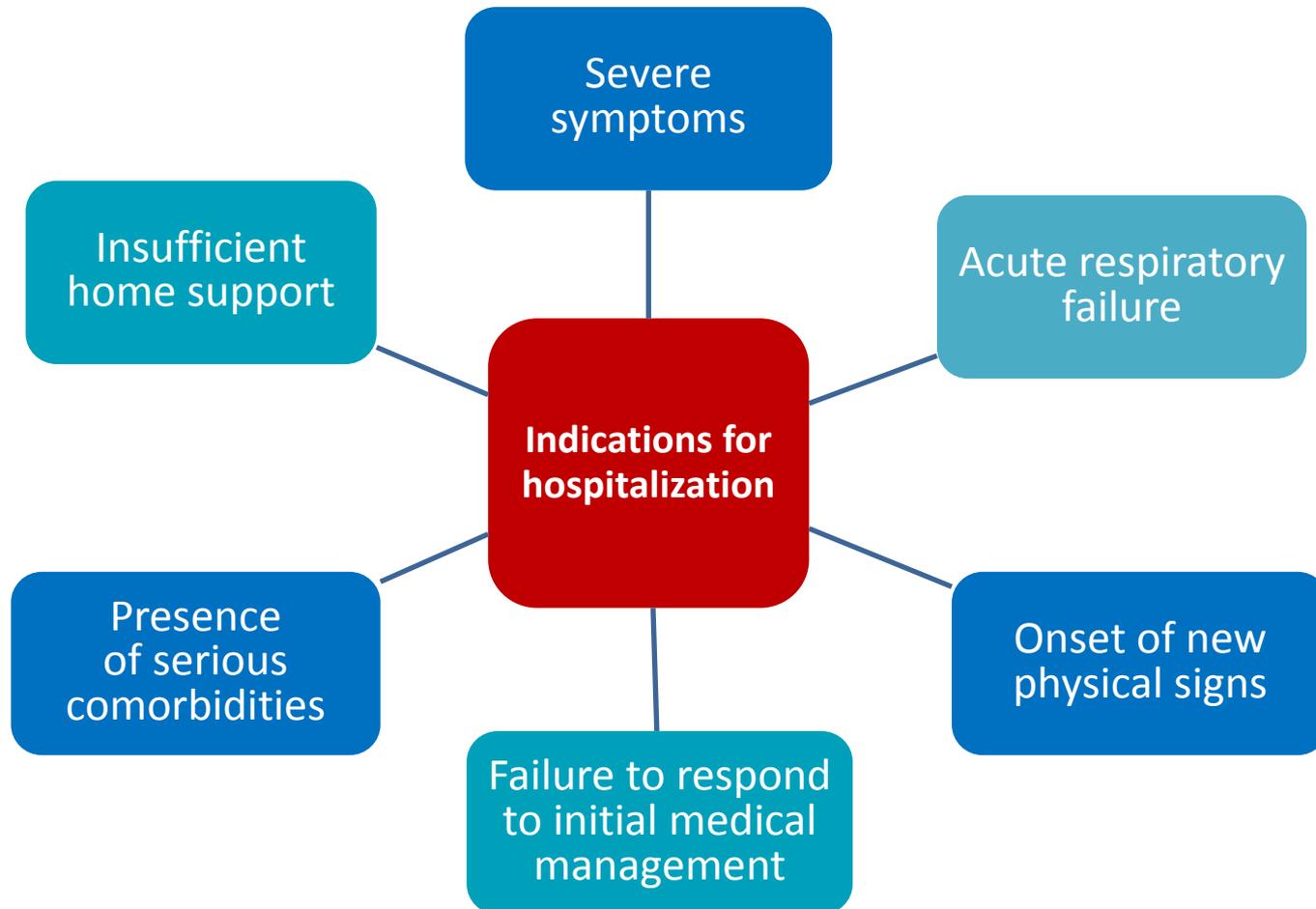
- More severe disease ( $FEV_1 < 50\%$  predicted)
- History of  $\geq$  two exacerbations/year
- GERD
- Symptoms of chronic bronchitis  
(chronic cough and sputum production)

# Who is at Risk of Exacerbation?



Disease severity and previous exacerbations predict frequency and severity of exacerbations

# Points to Consider when Determining whether to Hospitalize a Patient Experiencing an Exacerbation

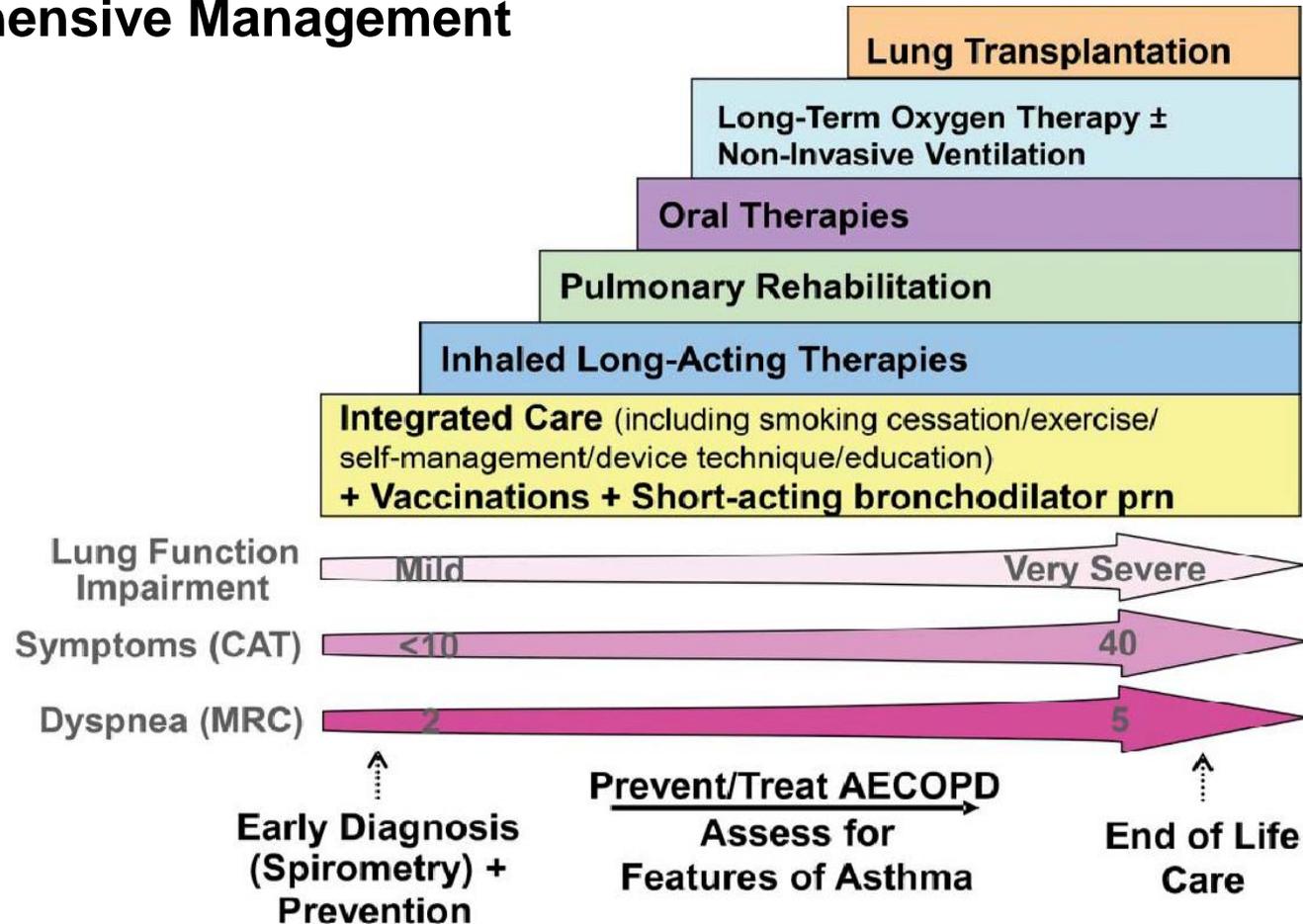


# Initial Assessment

- To determine the level of airflow limitation, the impact of disease on the patient's health status, and the risk of future events (such as exacerbations, hospital admissions, or death), in order to guide therapy
- Concomitant chronic diseases occur frequently in COPD patients, including cardiovascular disease, skeletal muscle dysfunction, metabolic syndrome, osteoporosis, depression, anxiety, and lung cancer
  - These comorbidities should be actively sought and treated appropriately when present as they can **influence mortality and hospitalizations independently**



# Comprehensive Management of COPD



Bourbeau J, Bhutani M, Hernandez P, Marciniuk D et al. CTS position statement: Pharmacotherapy in patients with COPD - An update. Canadian Journal of Respiratory, Critical Care, and Sleep Medicine 1(4): 222-241.

# THE REFINED ABCD ASSESSMENT TOOL

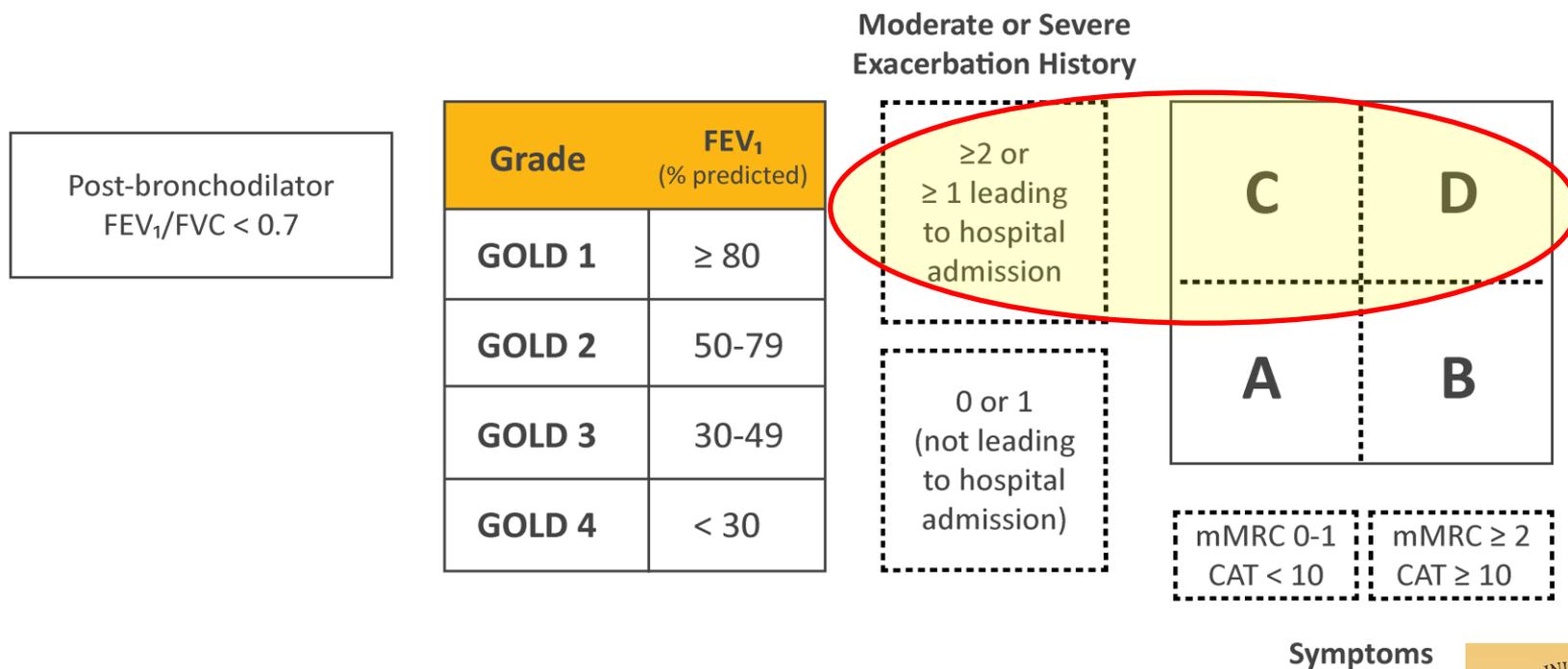


FIGURE 2.4



# Prevention and Early Identification

- Identify patients at risk
  - Targeted spirometry
- Smoking cessation
  - Pharmacotherapy and nicotine replacement reliably increase long-term smoking abstinence rates
  - Legislative smoking bans and counselling, delivered by healthcare professionals improve quit rates
  - The effectiveness and safety of e-cigarettes as a smoking cessation aid is uncertain at present



# Vaccinations

- Influenza vaccination decreases the incidence of lower respiratory tract infections
- Pneumococcal vaccination (PCV13 and PPSV23) are recommended for all patients  $\geq 65$  years of age
- Specific data on the effects of PPSV and PCV in COPD are limited and contradictory, but can decrease lower respiratory tract infections



# Rehabilitation

- Pulmonary rehabilitation improves symptoms, quality of life, and physical and emotional participation in everyday activities
- Decreases exacerbations if administered  $\leq 4$  weeks after hospitalization for AECOPD



# Evidence-Based Non-Pharmacological Therapies to Prevent Exacerbations

## RECOMMENDED

- Annual influenza vaccine
- Pulmonary rehabilitation ( $\leq$  four weeks after hospitalization for AECOPD)
- Education and case management with monthly follow up

## SUGGESTED

- Pneumococcal vaccine
- Smoking cessation
- Education and action plan, and case management

AECOPD = Acute Exacerbation of Chronic Obstructive Pulmonary Disease

Recommended = level 1 evidence; Suggested = some evidence available (but not level 1)

Adapted from: Criner GJ *et al. Chest* 2015; 147:894-942.

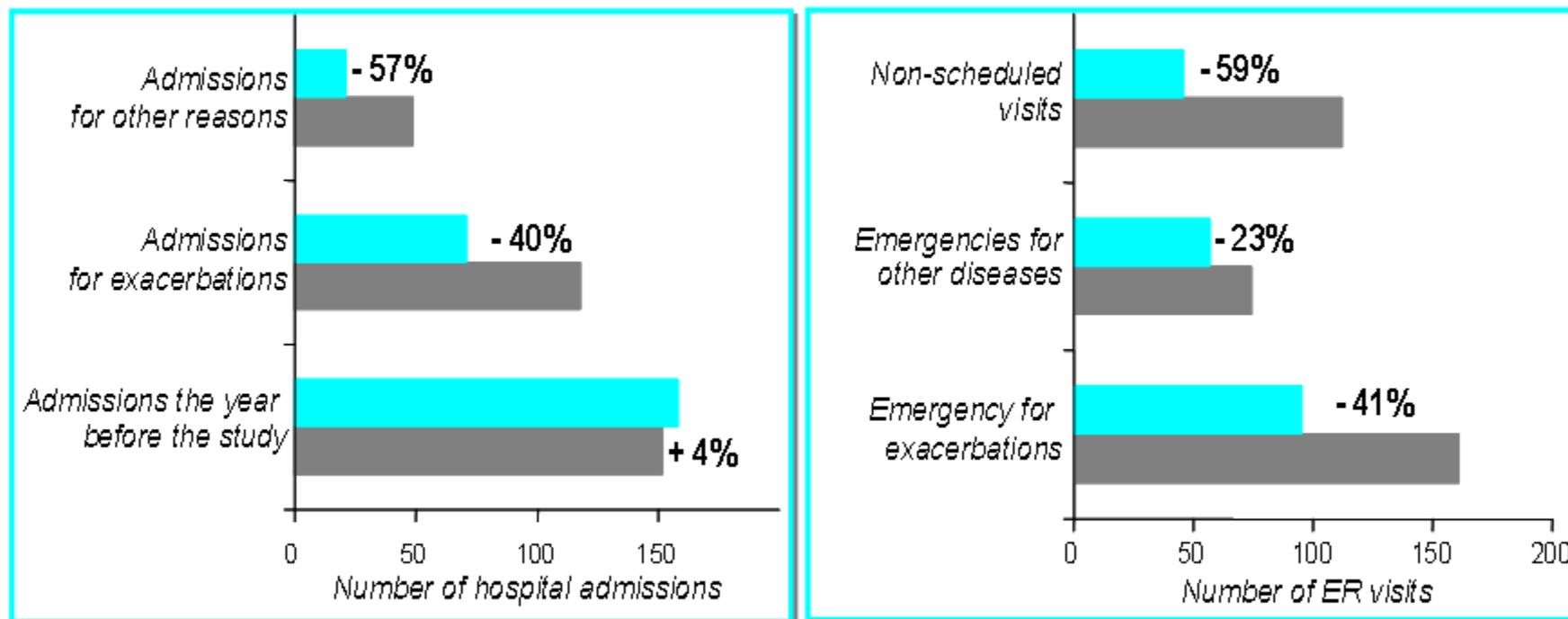
# Self-Management Education

- ▶ The basis of enabling patients to become active partners in their ongoing care is to build knowledge and skills
- ▶ Topics considered appropriate for an education program include:
  - Smoking cessation
  - Basic information about COPD
  - General approach to therapy and specific aspects of medical treatment (respiratory medications and inhalation devices)
  - Strategies to help minimize dyspnea
  - Advice about when to seek help
  - Decision-making during exacerbations
  - Advance directives and end-of-life issues





## Benefits of COPD Self Management Education



Self management education group

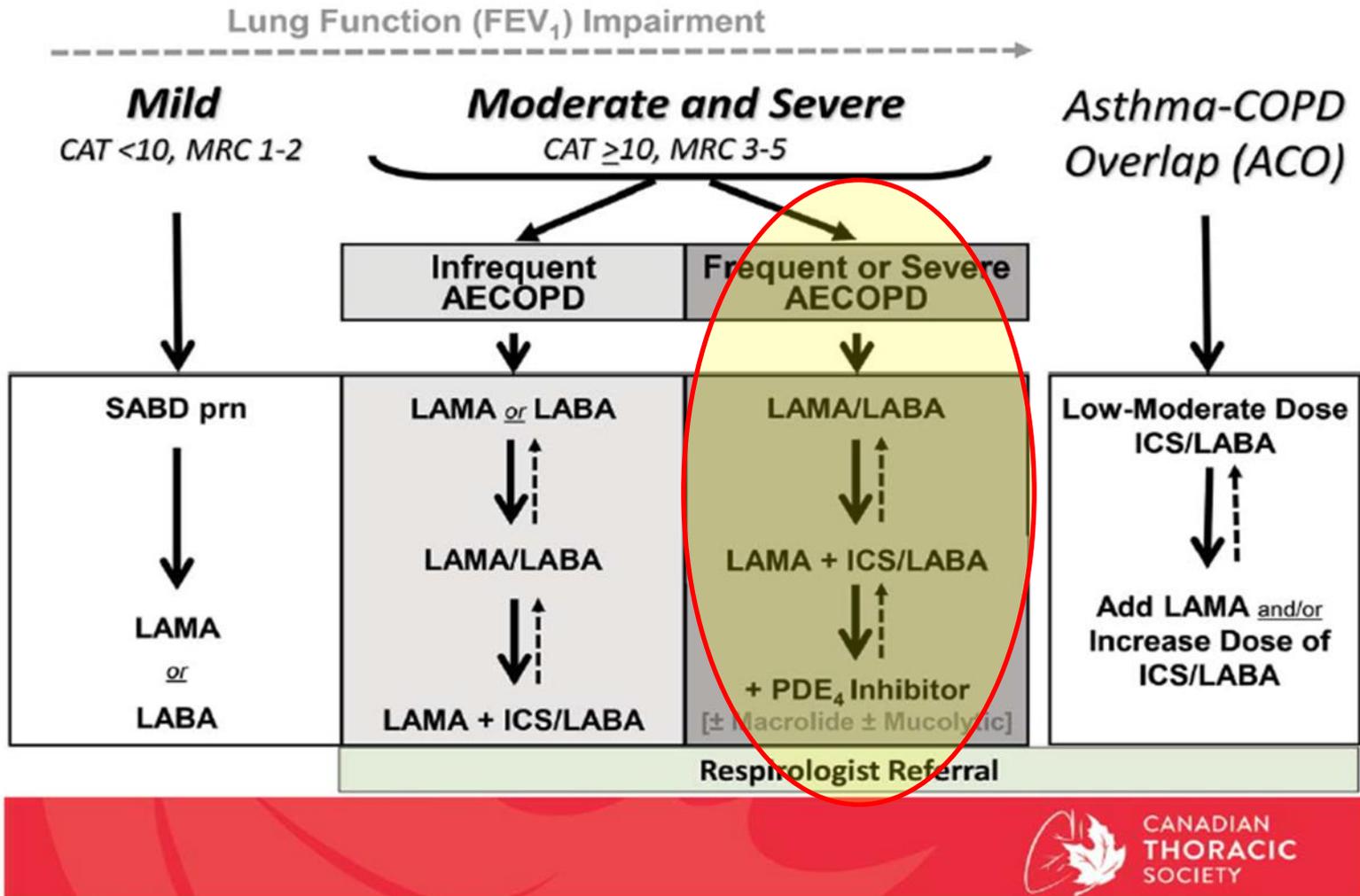
Usual care group

# Pharmacotherapy

- Pharmacologic therapy can reduce COPD symptoms, **reduce the frequency and severity of exacerbations**, and improve health status and exercise tolerance
- Each pharmacologic treatment regimen should be **individualized** and guided by the severity of symptoms, risk of exacerbations, side-effects, comorbidities, drug availability and cost, and the patient's response, preference and ability to use various drug delivery devices

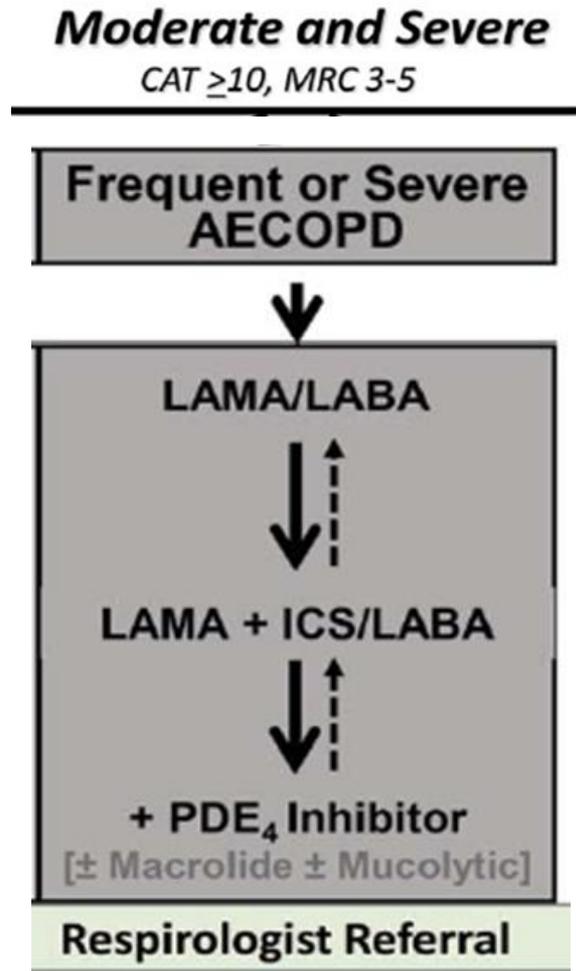


# 2017 CTS COPD guideline



# Evidence-Based Pharmacological Therapies to Prevent Exacerbations

2017 CTS  
COPD guideline





# Palliative Care

- The goal of palliative care is to relieve the suffering of patients and their families by the comprehensive assessment and treatment of physical, psychosocial, and spiritual symptoms experienced by patients
- Clinicians should develop and implement methods to help patients and their families to make informed choices that are consistent with patients' values



# Take-Home Messages (1)

- A COPD hospitalization is considered a severe COPD exacerbation event
- Exacerbations of COPD can be precipitated by several factors - the most common causes are respiratory tract infections
- COPD exacerbations and hospitalizations decrease quality of life, increase health care costs and mortality, and accelerate lung function decline

## Take-Home Messages (2)

- COPD patients with FEV1 < 50%, GERD, symptoms of chronic bronchitis or a history of frequent exacerbations are at increased risk of future frequent exacerbations
- Prompt and appropriate evaluation and treatment of exacerbations can accelerate recovery and postpone the next exacerbation
- Smoking cessation and vaccinations are important
- Pulmonary rehabilitation can help prevent re-hospitalization due to AECOPD

# Take-Home Messages (3)

- Tailor pharmacotherapy based on COPD severity, symptoms and exacerbation frequency
  - LAMA monotherapy can decrease exacerbations and should be considered as a first step in a patient experiencing an exacerbation
  - LABA/LAMA also decreases exacerbations and is an appropriate next step before adding additional therapies
  - Triple puffer therapy (LABA/LAMA/ICS) decreases exacerbations and is useful for those with frequent exacerbations
  - Oral therapies have been shown to be helpful in selected individual