COPD Update

OLTCA COPD Protocol Launch

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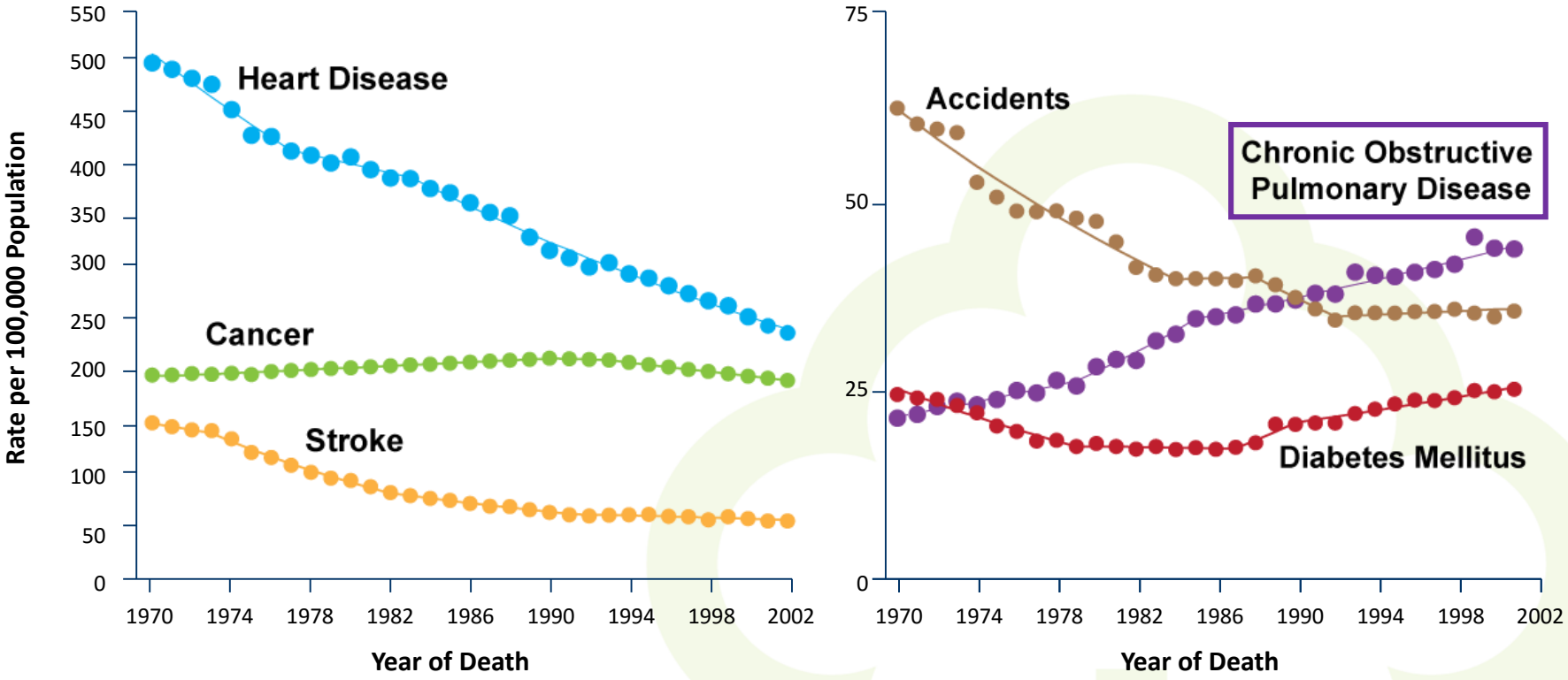
Q: Which major diseases are increasing?

A. Cancer
B. Stroke
C. COPD
D. Heart Disease

1 = A to D
2 = A to C
3 = C
4 = D

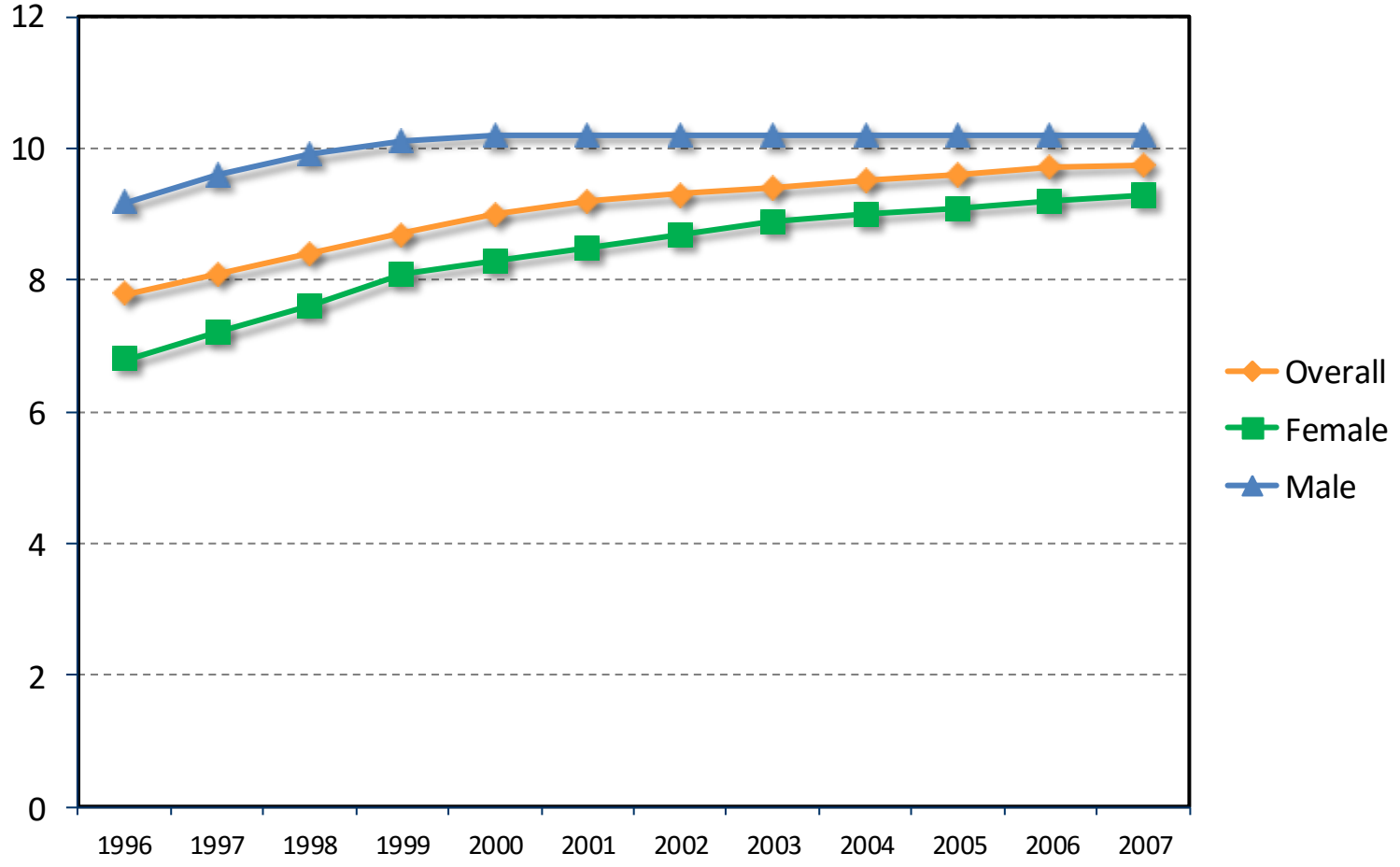
Trends in Death Rates US 1970-2002



Trends in Age-Standardized Death Rates for the 6 Leading Causes of Death in the United States,1970-2002

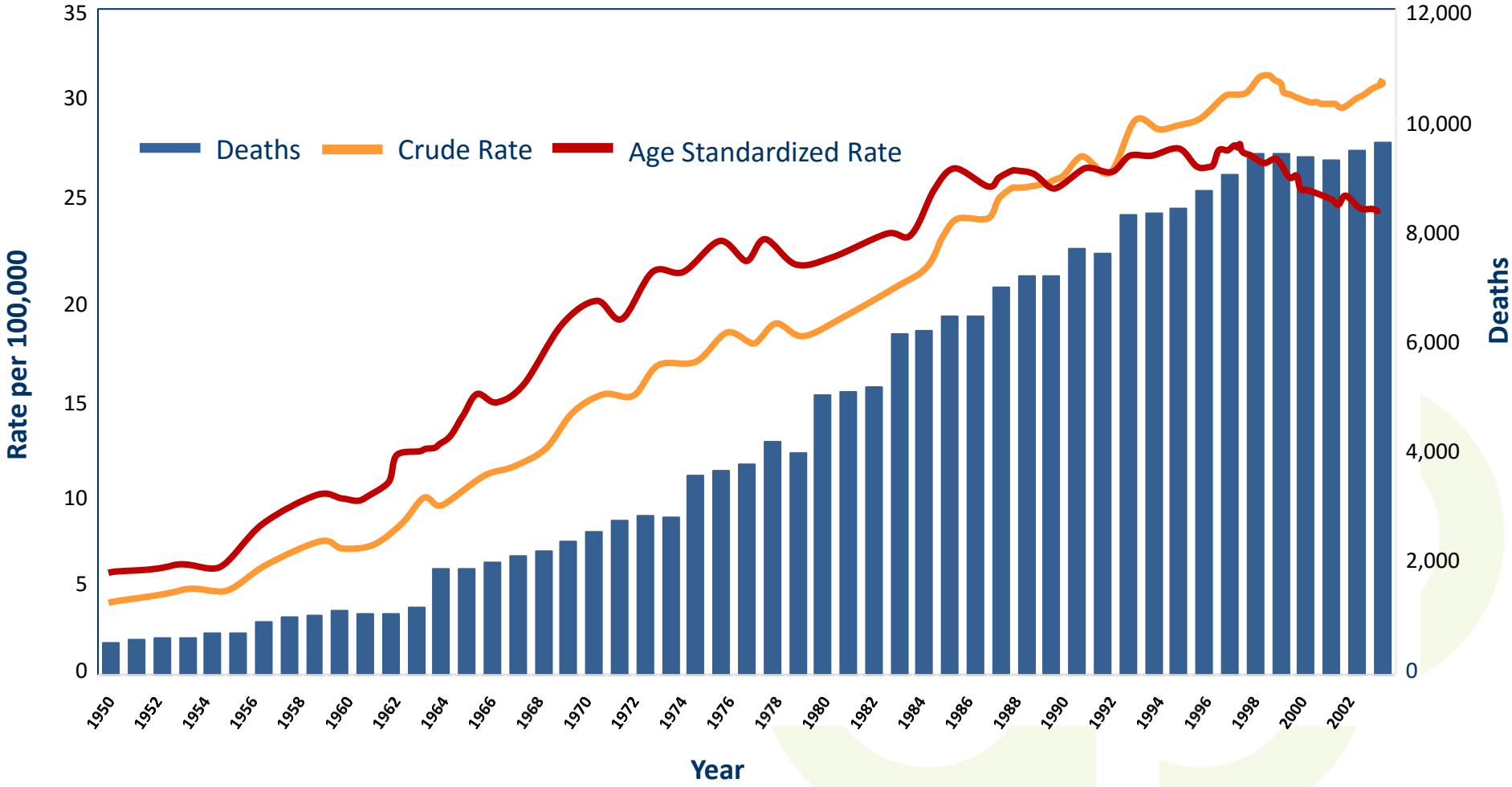
Jemal A, *JAMA* 2005:294:1255

COPD – Prevalence among Canadian adults 1996-2007



Gershon, Arch Int Med 2010

COPD Mortality in Canada, 1950-2002



Public Health Agency of Canada 2006

Ontario LTC COPD Overview

Note increasing prevalence of residents with COPD (emphysema) 2010-2015.

	N	Prevalence	
2014-2015	16,740	16.0%	
2013-2014	16,222	15.9%	
2012-2013	16,059	15.8%	
2011-2012	15,883	15.7%	
2010-2011	15,716	15.3%	

Assessed Residents in Ontario in 2014-2015: 104,467

Definition of COPD

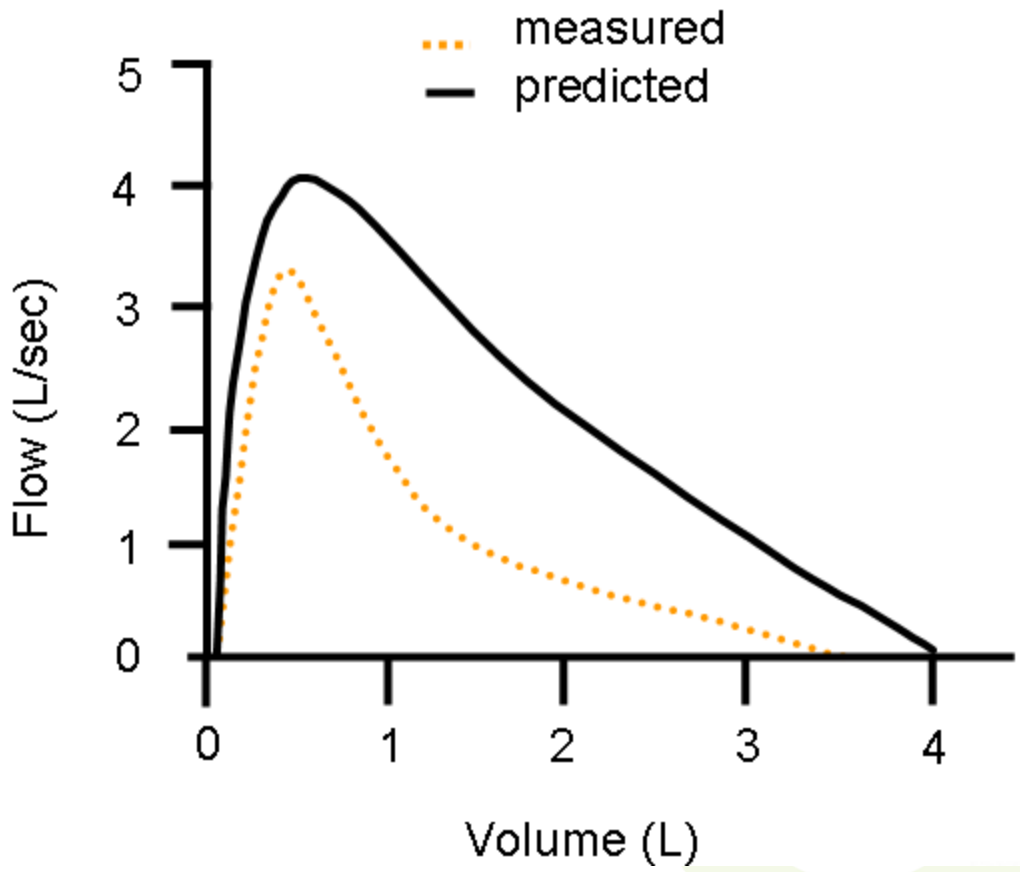
"Chronic obstructive pulmonary disease (COPD) is a respiratory disorder largely caused by smoking. It is characterized by progressive airflow obstruction that is partially reversible. As it progresses it results in functional disability, increased severity and frequency of exacerbations and systemic secondary impairments."

Screening for Possible COPD

- Smoker or ex-smoker? ✓
- >40 years old? ✓
- Cough / congestion? ✓
- Breathless walking up stairs? ✓
- Frequent coughs and colds in winter? ✓

FURTHER DIAGNOSTIC ASSESSMENT REQUIRED

Spirometry – Flow/Volume Loop



Measured

FEV_1 = 2.0 L

FVC = 3.6 L

FEV_1/FVC = 0.56

Predicted

FEV_1 = 3.0 L

FVC = 4.0 L

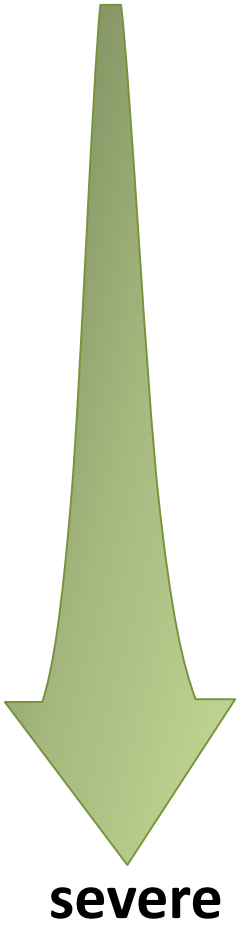
FEV_1/FVC = 0.75

Diagnosis by Spirometry

"A post-bronchodilator FEV_1 < 80% of predicted and an FEV_1/FVC < 70% indicates airflow obstruction."

CTS, 2002

Establishing Function from the MRC Scale



Grade 0 → No breathlessness

Grade 1 → Breathless with strenuous exercise

Grade 2 → Short of breath when hurrying on the level or walking up a slight hill

Grade 3 → Walks slower than people of the same age on the level or stops for breath while walking at own pace on the level

Grade 4 → Stops for breath after walking 100 yards

Grade 5 → Too breathless to leave the house or breathless when dressing

Classification by Severity of Symptoms

COPD Status	Symptoms
At Risk	Asymptomatic smoker or chronic cough/sputum, but $FEV_1/FVC > 0.7$ and or $FEV_1 > 80\%$predicted
Mild	Shortness of breath from COPD when hurrying on the level or walking up a slight hill
Moderate	Shortness of breath from COPD causing the patient to stop for breath after walking 100 yards (or after a few minutes) on the level
Severe	Shortness of breath from COPD resulting in the patient being too breathless to leave the house or breathless when dressing or the presence of chronic respiratory failure or clinical signs of right heart failure

Classification by Impairment of Lung Function

COPD Stage	Spirometry (post bronchodilator)
Mild	$FEV_1 \geq 80\%$ predicted $FEV_1/FVC < 0.7$
Moderate	$50\% \geq FEV_1 < 80\%$ predicted, $FEV_1/FVC < 0.7$
Severe	$30\% \leq FEV_1 < 50\%$ predicted, $FEV_1/FVC < 0.7$
Very Severe	$FEV_1 < 30\%$ predicted, $FEV_1/FVC < 0.7$

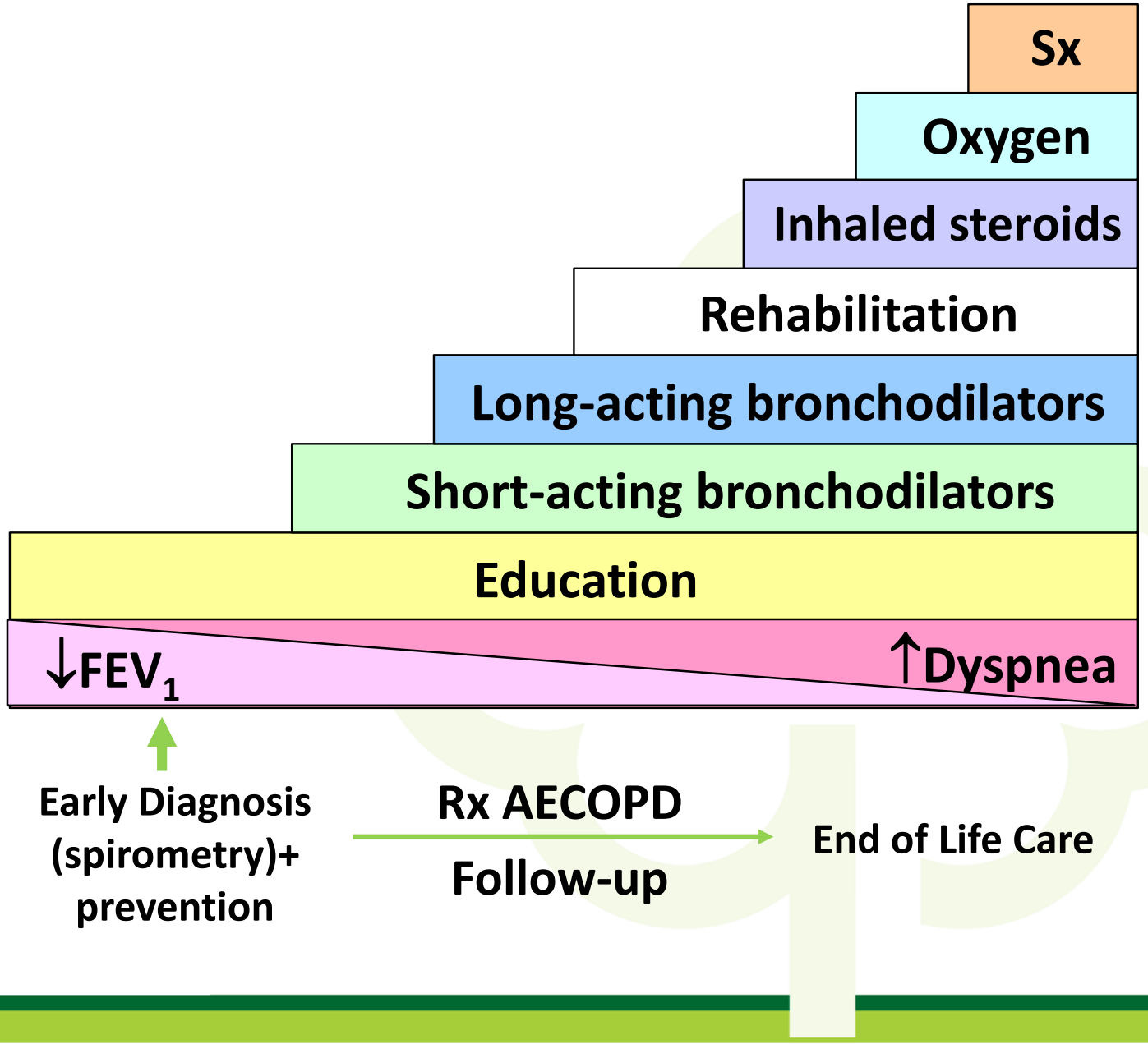
O'Donnell DE, et al. Can Respir J 14 Suppl B, September 2007

Goals of COPD Management

- Prevent disease progression
- Relieve symptoms
- Improve exercise tolerance
- Improve health status
- Prevent and treat exacerbations
- Reduce hospitalizations
- Reduce mortality

GOLD, 2001

Stepwise Symptom Based Management of COPD



Resident and Staff Education

Increased knowledge and skills

Altered behaviors

Reduced disease impact

Improved quality of life

Reduced resource utilization

Issues and Challenges in Managing COPD in a Residential environment

- Under-diagnosis
- Spirometry not accessible in all retirement and LTC homes
- Some residents with cognitive impairment
- Complexity of management
- Lack of available nursing time
- Limited number of qualified staff to manage COPD
- Limited community resources to retirement communities
- Abundance of new drugs to choose from

Q: Pulmonary Exacerbations

A. Reduce exercise capacity

B. Reduce quality of life

C. Associated with further exacerbations

D. Increase mortality

A to D: All of the above

1 = A to D

2 = A to C

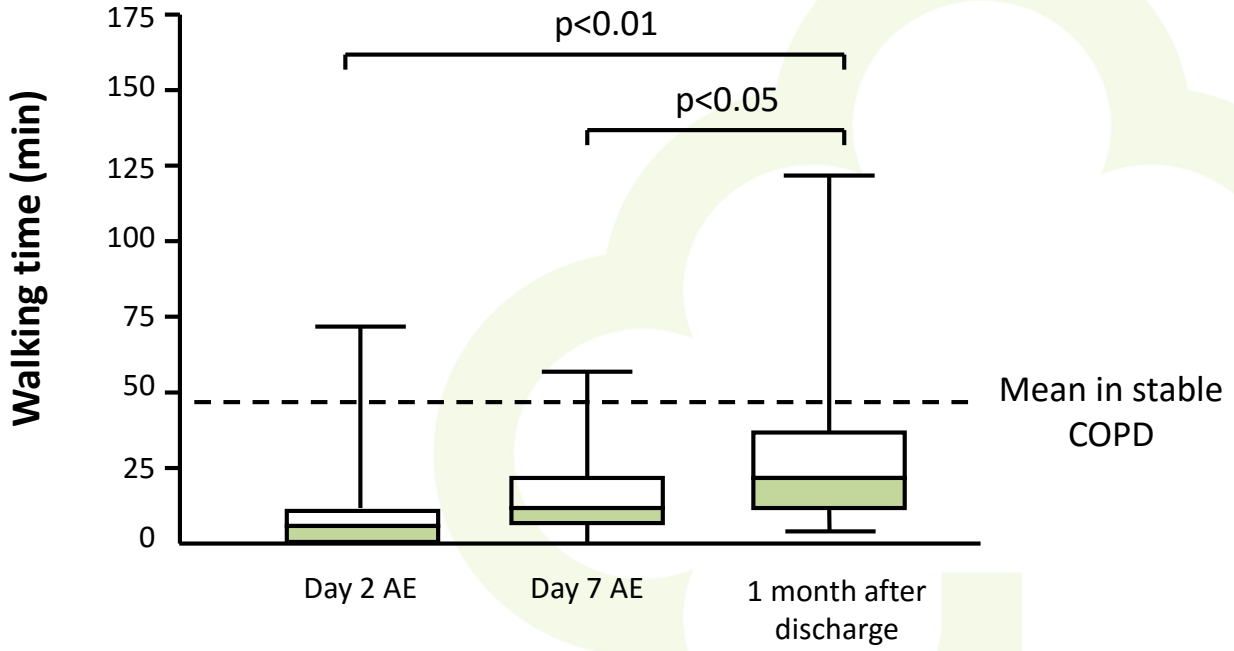
3 = C

4 = D

Exacerbations Drive Morbidity and Mortality

COPD exacerbations lead to:

Hospitalization and Physical Activity Post AECOPD



Pitta F, Chest 2006;129

Clinical Case - Jacqueline

A 55 year-old woman comes to clinic requesting an antibiotic. She has been getting recurrent “colds” over the past year. She notes shortness of breath on climbing hills. She has a long history of smoking. You suspect she might have COPD.

Key Message

"Most patients with COPD are not diagnosed until the disease is well advanced. Spirometry targeted at individuals who are at risk for COPD can establish an early diagnosis."

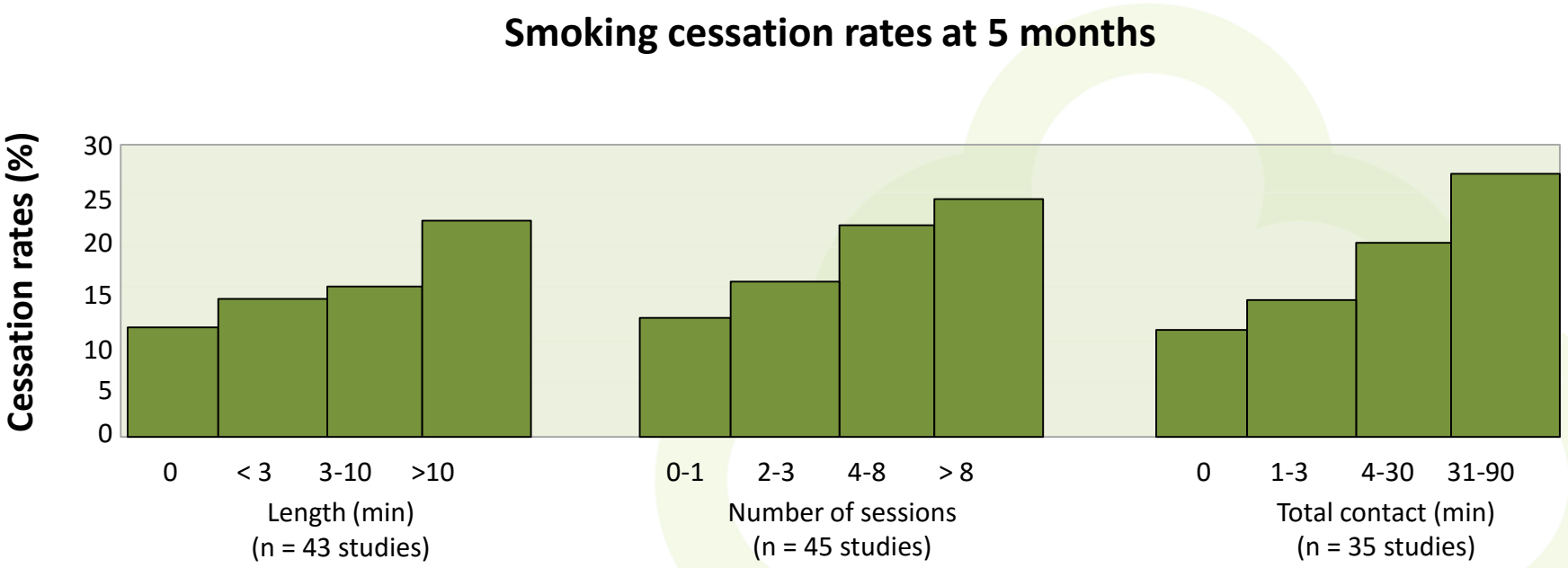
Clinical Case - Jean

You are seeing a 67 year-old man with documented COPD. His FEV1 is 55% predicted. Medications include ipratropium bromide and salbutamol inhalers four times daily. Despite this treatment, he remains short of breath walking 50-75m on level ground at a slow pace. As a result, he has given up golf and playing with his grandchildren.

Key Message

"COPD is treatable at any stage of disease. A management strategy consisting of combined pharmacologic and non-pharmacologic interventions (dual therapy) effectively improves symptoms, activity levels and quality of life, at all levels of disease severity."

Smoking Cessation – Healthcare Professional's Role



Fiore MC, Treating tobacco use and dependence. US Dept. of Health & Human Services, Public Health Service, June 2000

Q: Pulmonary Rehabilitation

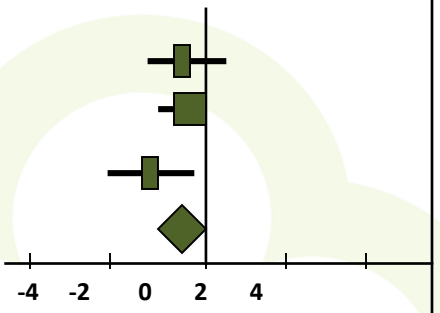
A. Reduces dyspnea and improves exercise
B. Reduces healthcare utilization
C. Reduces quality of life
D. Should not be started in hospital

1 = A-D
2 = A-B
3 = C
4 = D

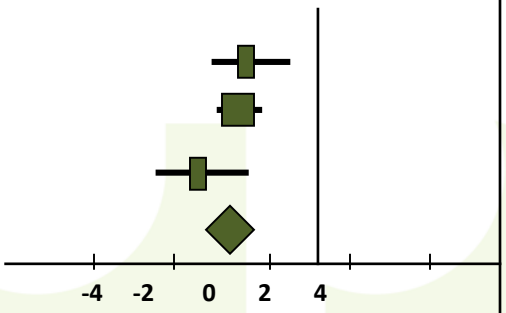
PR More Effective than UC in Reducing Anxiety and Depression

Coventry P, J Psycho Research 2007;63

Study or sub-category	SMD (random) 95% CI
Anxiety: rehabilitation *vs* standard care	
Emery 1988	
Griffiths 2000	
Guell 2006	
Subtotal (95% CI)	
Test for overall effect: Z=2.67 (P=.008)	



Study or sub-category	SMD (random) 95% CI
Depression: rehabilitation *vs* standard care	
Emery 1988	
Griffiths 2000	
Guell 2006	
Subtotal (95% CI)	
Test for overall effect: Z=3.24 (P=.001)	



Conclusion

- COPD is highly prevalent among adult Canadians
- It should be suspected in smokers who cough, especially if they become short of breath
- It is diagnosed by spirometry
- It is treatable rather than curable
- Smoking cessation may be encouraged during brief encounters with healthcare professionals
- Exacerbations increase resource use and decrease quality of life
- Management is a combination of medications and rehabilitation
- Exercise rehabilitation improves breathing, quality of life and anxiety