

COPD, Admission, Readmission and Management

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Introduction

- One of the top 3 causes of death worldwide
- 90% of the deaths occur in low and middle income countries.
- Heterogeneous disease
 - Dyspnea
 - Wheezing,
 - Sputum Production
 - Exacerbations
 - Bronchitis/bronchiolitis
 - Emphysema

Causes

- Tobacco smoke
- Outdoor and household pollution
- Genetic causes, specifically Alpha-1 Antitrypsin
- Smoke from heating and cooking oils
- Low birth weight, prematurity and childhood respiratory tract infections

Can you see it? Can you hear it?

- Yes and no
- Hyperinflation on CXR
- Pursed lip breathing
- Heterogeneous disease with Genetic and Environmental factors that are not predictable
- Wheezing
- Not all that wheezes is COPD

Diagnostic Criteria

- Typically a greater than or equal to 10 pack-year history of tobacco abuse
- $FEV1/FVC < 0.70$
- Structural processes may be present, not required
- Symptoms
- PRISm -- preserved ratio, impaired spirometry
 - Typically has air-trapping or hyperinflation and symptoms of dyspnea
- **Only about 30% of patients with moderate or severe COPD have had spirometry**
 - **GOLD 2 or worse**

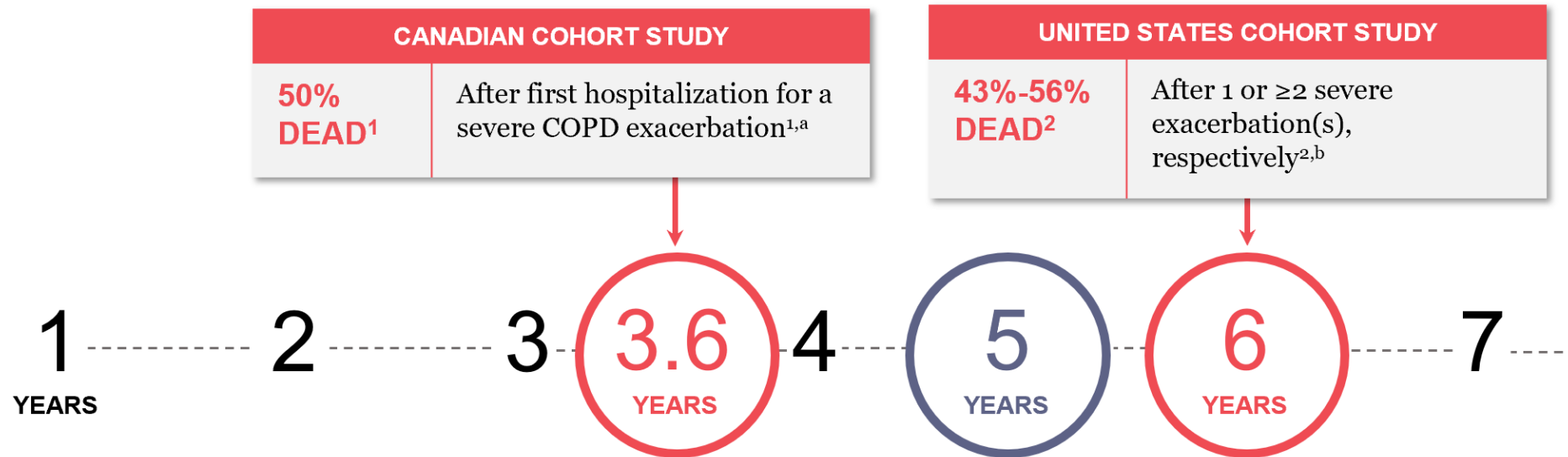
Differentiating from Asthma

- Difficult to do
- History plays a significant role
- Tobacco abuse alone is not the sole criteria
- Variable airflow obstruction
- Worse at night
- Allergy and eczema
- Family history
- Lack of emphysema on CT

What works???

- We only have two clearly identified treatments that improve the mortality of COPD.
 - Tobacco cessation
 - Clear benefit
 - Fletcher curve;
 - Benefit is both in longevity and quality of life
 - Oxygen
 - Clearly adds to lifespan
 - Compliance is problematic
 - Impact in quality of life; Even though less SOB, cumbersome and not desired by patients
 - **Maybe a 3rd opportunity;**

Impact of Exacerbation



^aCohort study evaluating severe COPD exacerbations and their association with mortality in 73,106 patients 55 years and older, admitted for their first severe COPD exacerbation requiring hospitalization in the health insurance program of Québec, Canada. Patients with data available between 1990 and 2005 were identified and followed until death or March 31, 2007.

^bCohort study evaluating whether severe COPD exacerbation frequency predicted mortality in 17,450 patients 18 years and older (only 6% were <40) in the Intermountain Healthcare system (US) from 2009 to 2014. ^cAmerican Heart Association's 2021 Heart Disease and Stroke Statistics Update.

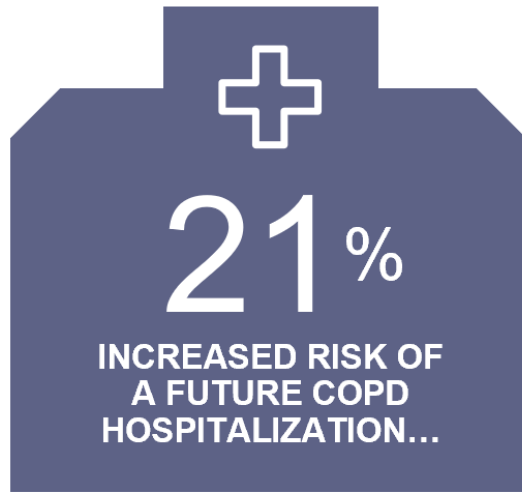
COPD, chronic obstructive pulmonary disease.

1. Suissa S, et al. *Thorax*. 2012;67(11):957-963. 2. Blagev DP, et al. *Chronic Obstr Pulm Dis*. 2018;5(3):208-220. 3. Virani SS, et al. *Circulation*. 2021;143(8):e254-e743.

Impact of Exacerbation

- Mild Exacerbation
 - Increased use of SABA
 - Typically this is not something that “makes the news”
- Moderate Exacerbations
 - Clinic visit
 - Acute increase in Dyspnea, cough, sputum
 - Typically able to manage as outpatient
- Severe exacerbation
 - ER to start and inpatient usually
 - Acute shortness of breath, hypoxia

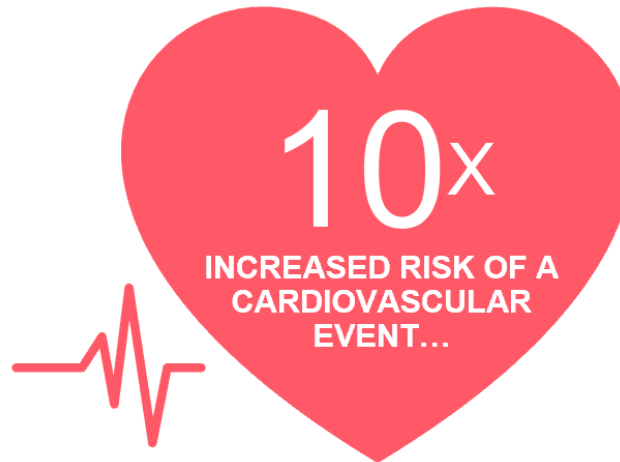
Impact of Exacerbation



for severe COPD exacerbation after just 1 moderate exacerbation^{1,a}

Comparing patients with 1 moderate acute exacerbation of COPD with those who had none

In patients with COPD who had CVD or multiple risk factors for CVD



following hospitalization for a severe COPD exacerbation^{2,b}

In the first 30 days following the onset of an acute exacerbation

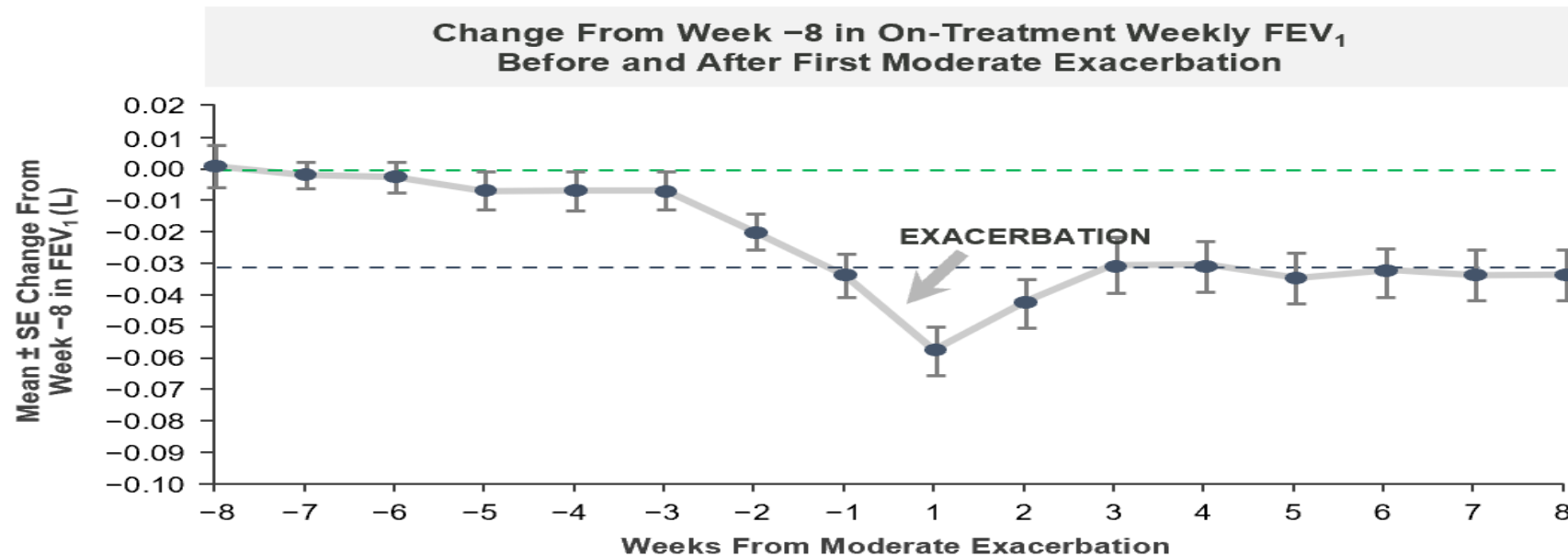


After hospitalization for a severe COPD exacerbation^{3,4,c,d}

^aData from a UK population-based study of ≈100,000 patients with COPD (up to 10 years of follow-up). ^bA post hoc analysis of the multinational SUMMIT trial (N=16,485) was performed to determine whether the risk for cardiovascular events increases after a moderate/severe COPD exacerbation. ^cCohort study evaluating severe COPD exacerbations and their association with mortality in 73,106 patients 55 years and older, admitted for their first severe COPD exacerbation requiring hospitalization in the health insurance program of Québec, Canada. Patients with data available between 1990 and 2005 were identified and followed until death or March 31, 2007. ^dCohort study evaluating whether severe COPD exacerbation frequency predicted mortality in 17,450 patients 18 years and older (only 6% were <40) in the Intermountain Healthcare system from 2009 to 2014. COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease. 1. Rothnie KJ, et al. *Am J Respir Crit Care Med*. 2018;198(4):464-471. 2. Kunisaki KM, et al. *Am J Respir Crit Care Med*. 2018;198(1):51-57. 3. Suissa S, et al. *Thorax*. 2012;67(11):957-963. 4. Blagev DP, et al. *Chronic Obstr Pulm Dis*. 2018;5(3):208-220. 5. National Center for Health Statistics. Data Brief Number 395. Mortality in the United States, 2019. December 2020. Accessed October 10, 2021. <https://www.cdc.gov/nchs/data/databriefs/db395-H.pdf>. 6. Ahmad FB, et al. *JAMA*. 2021;325(14):1400-1408.

Impact of Exacerbation

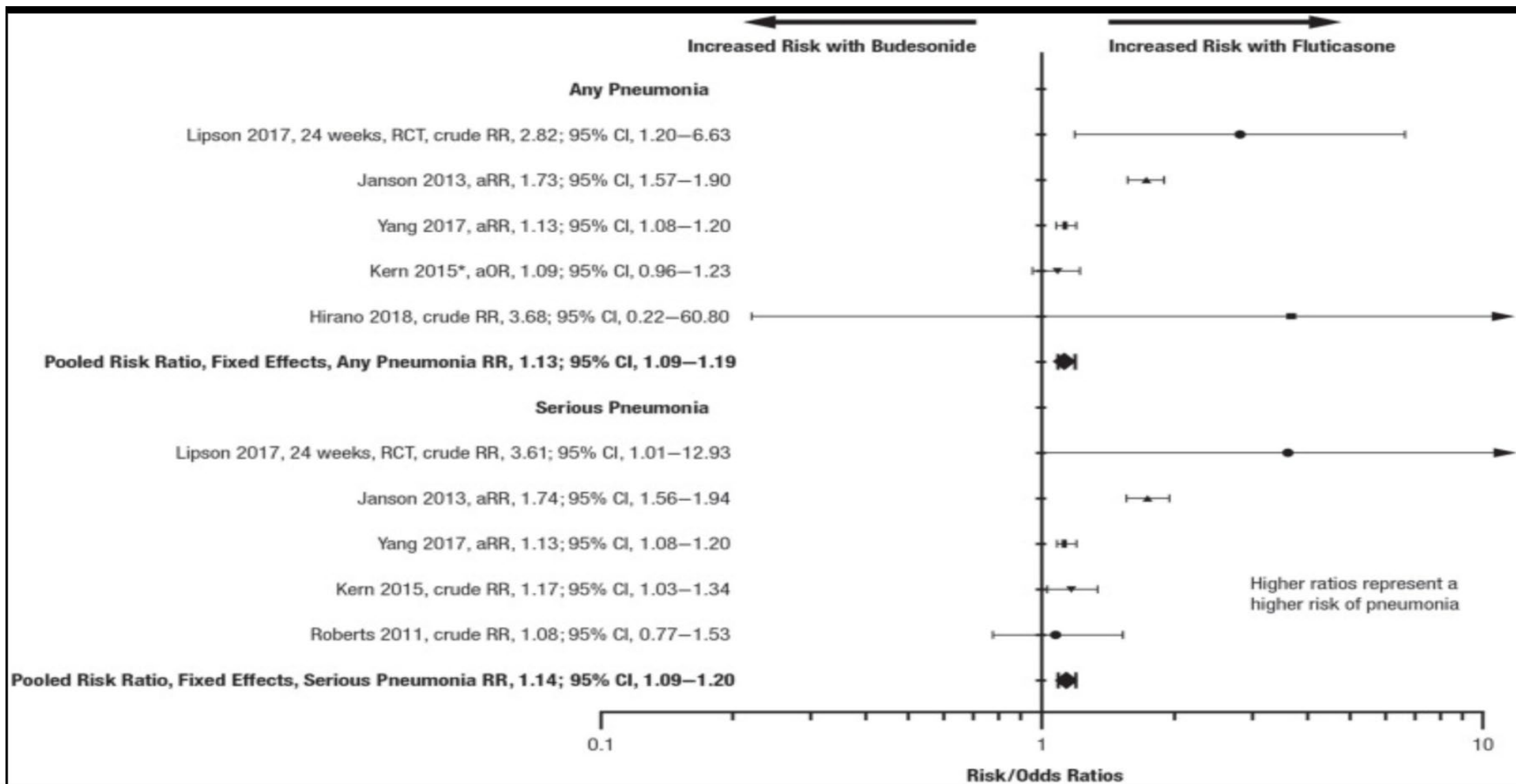
Lung function may not fully recover
after a moderate exacerbation^{5,a}



In some patients, lung function did not recover to pre-exacerbation levels by 8 weeks after the start of the moderate exacerbation

Pneumonia Risk in ICS

- Not all ICS are the same
- Why does this matter?
- It's in GOLD 2023
- Treatment options are driven



Opportunities

- Study completed via retrospective chart review
- Primary endpoint of LOS
- Secondary endpoint of readmission rate (90 day)
- Consultation or No consultation during the hospital stay
- No control group, not blinded

Findings

- Length of stay
 - 4.16 days
 - 4.21 days
- Readmission rate
 - 30.61% at 90 days
 - 57.15% at 90 days
- Follow-up
 - 23 days Pulmonologist
 - 66 days Primary Care

Takeaways

- What matters most
 - FEV1 or the Exacerbation
- Strategies
 - Consultation inpatient vs outpatient
 - Follow up strategy
- Morbidity/Mortality
 - Supplemental strategies such as oxygen an/or medication adjustments

Questions?

