Palliative Care ECHO

Palliative Care in COPD: Bridging the Gap

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September 28, 2020

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No commercial or in-kind support was provided for this activity

Introductions

Our ECHO Team: Planning Committee

Clinical Leadership	Egidio Del Fabbro, MD VCU Palliative Care Chair and Program Director Danielle Noreika, MD, FACP, FAAHPM Medical Director/Fellowship Director VCU Palliative Care
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Palliative Care in COPD
Bridging the gap

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DISCLOSURE STATEMENT

- No disclosures

OBJECTIVES

- COPD SCOPE and BRIEF OVERVIEW OF COPD
- INTEGRATION OF PALLIATIVE CARE INTO COPD CARE
- CASE OVERVIEW
- BRIEF REVIEW OF LITERATURE
- SYMPTOM MANAGEMENT IN COPD

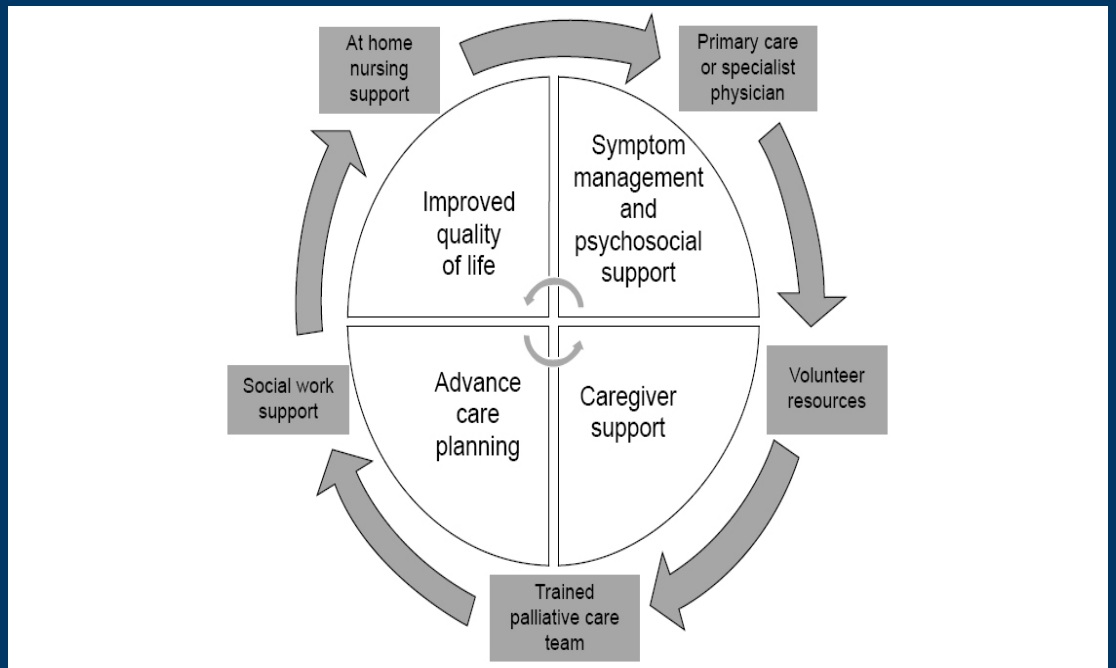
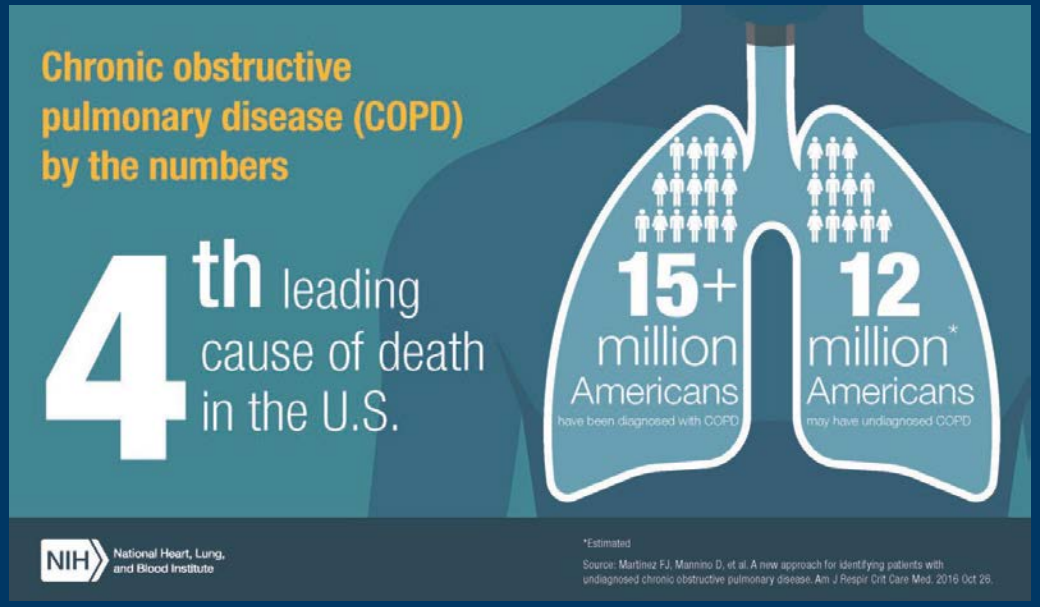


Figure 1 Structure and goals of outpatient palliative care services.

COPD OVERVIEW

- COPD is the 4th leading cause of death in the world
- Projected be 3rd leading cause of death in 2020
- Global prevalence 11.7% (likely under recognized)
- > 30% billion direct cost with greatest proportion due to exacerbations
- Characterized by persistent respiratory symptoms and airflow limitation
- Main risk factor (> 80% of patients) – tobacco smoking



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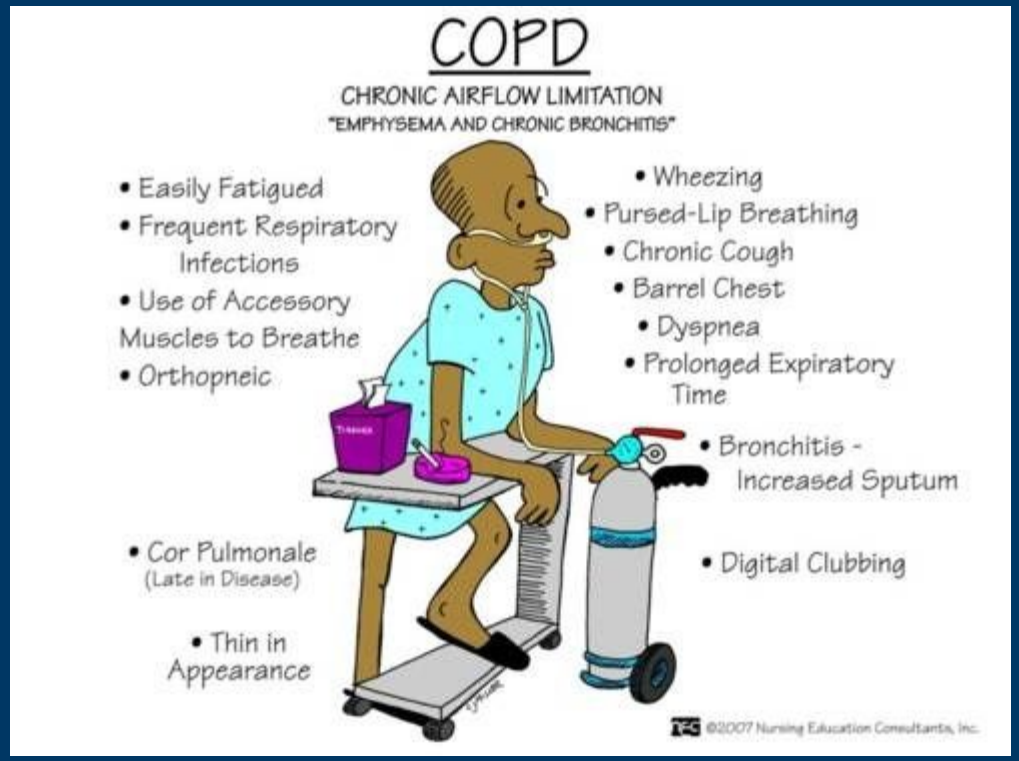
COPD Symptoms

- Frequent coughing and wheezing
- Excess phlegm or sputum
- Shortness of breath
- Trouble taking a deep breath



DIAGNOSING COPD

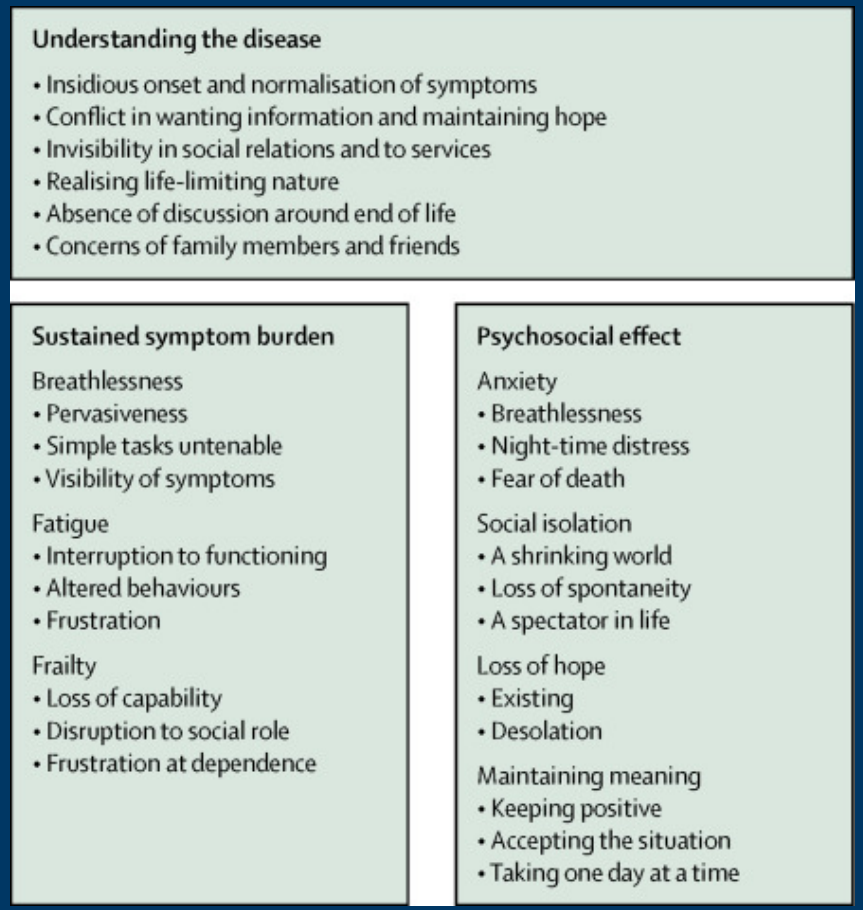
Confirmed by the following

1. FEV1/FVC < 0.7 or less than the lower limit of normal (5th percentile) that is incompletely irreversible after inhaled bronchodilator
2. Absence of an alternative explanation
3. GOLD recommends repeating spirometry on separate occasion if initial FEV1/FVC between 0.6 and 0.8

After diagnosis, search for a cause (most common, of course, tobacco) but other exposures can lead to COPD (biomass fuel, familial, A1AT, etc)

COPD Burden

- Morbidity
- Mortality
- Economic
- Social
  - Global burden of disease study (GBD)
  - Designed method of burden (Disability-Adjusted Life Year, DALY)
    - Sum of years lost because of premature mortality and year of life with disability
    - 2nd leading cause of reduced DALYs (1st – ischemic heart disease)



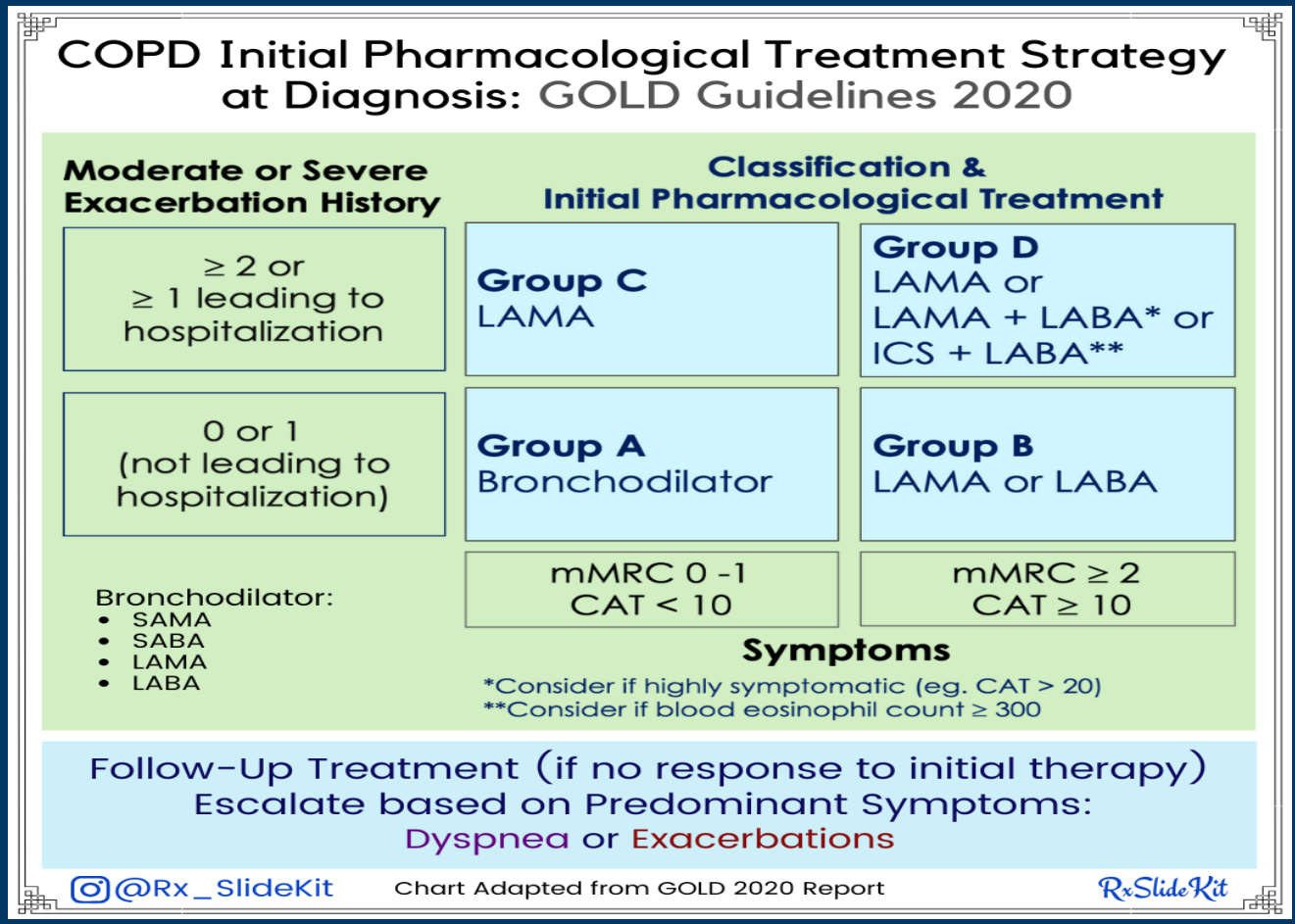
Lancet. 2017

COPD and comorbid conditions

- COPD often coexists with other diseases that may have a significant impact on disease course
- Common at any severity of COPD
  - Cardiovascular disease (CHF, CAD, arrhythmias, PVD, HTN)
  - Osteoporosis
  - Anxiety and depression
  - Lung cancer
  - Metabolic syndrome and diabetes
  - GERD
  - Bronchiectasis
  - OSA
  - Multimorbidity (presence of 2 or more chronic conditions)

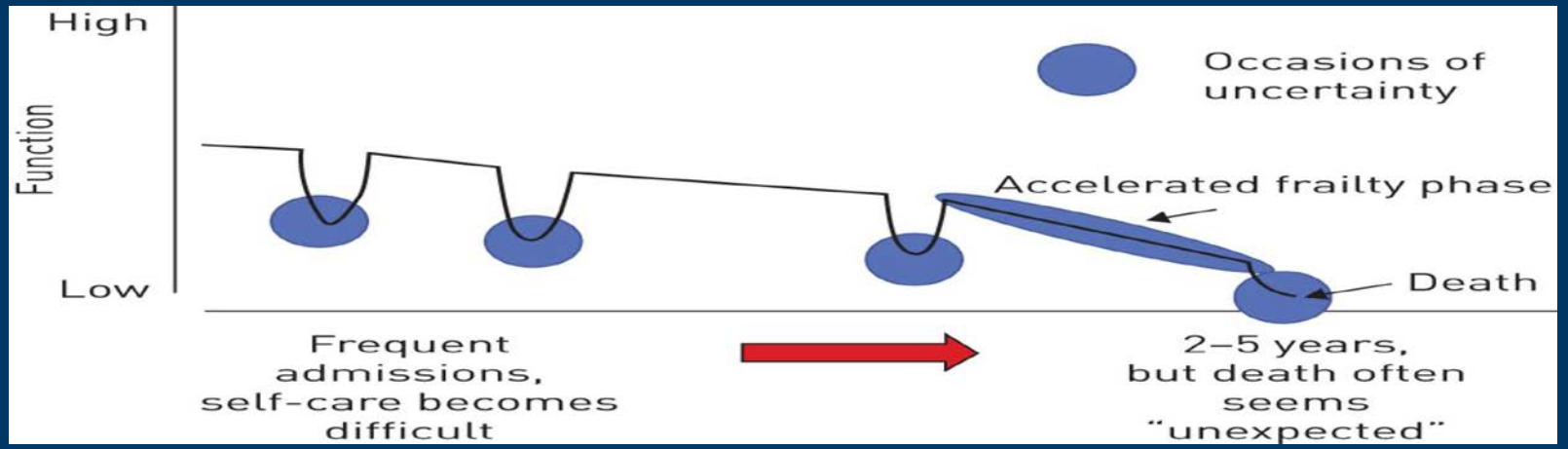
COPD Treatment Overview

- Smoking cessation
- Avoiding tobacco smoke and other air pollutants
- Inhalers, steroids, azithromycin, roflumilast
- Pulmonary rehabilitation
- Avoiding lung infections
- Vaccination
- Supplemental oxygen
- Noninvasive ventilation
- Lung volume reduction surgery
- Bullectomy
- Endobronchial valves
- Lung transplantation



COPD
End-of-life and hospice care
GOLD guidelines

- Disease trajectory – gradual decline in health and increasing symptoms punctuated by exacerbations with increased risk of dying
- Mortality rates after acute exacerbation – 23% to 80%
- Early advanced care planning discussions are recommended



COPD Palliative Care Recommendations

- Prediction of 6-month survival in patients with COPD is unreliable
- Early discussion is key
  - Hospitalization may trigger to initiate discussion and/or referral
- Evidence B
  - In malnourished patients, nutritional supplemental may improve respiratory muscle strength and overall health status
  - Fatigue may be improved with self-management education, pulmonary rehabilitation, nutritional support, and mind-body interventions
- Evidence C
  - Opiates, neuromuscular electrical stimulation (NMES), oxygen, and fans blowing air on to the face can relieve breathlessness

Hospice Criteria for COPD

- National Hospice and Palliative Care Organization Criteria
  - Cor pulmonale
  - FEV1 < 30% predicted
  - pO2 < 55 mmHg while on oxygen, persistent hypercarbia (pCO2 >50 mm Hg)
  - Albumin < 2.5 gm/dL
  - Steroid dependency
  - Progression of disease
    - Frequent hospitalization, ER visits, outpatient visits
    - Frequent episodes of bronchitis or pneumonia
    - Weight loss > 10% in preceding six months
    - Inability to perform ADLs
  - Dyspnea at rest or with minimal exertion
  - Dyspnea unresponsive or poorly responsive to bronchodilator therapy

BODE Index

- B – body mass index
- O – airflow obstruction
- D – dyspnea
- E – exercise capacity

Table. Variables and cutoff values for points 0 to 3 in the BODE index computation.

	Point on BODE index*			
	0	1	2	3
FEV_1 (% of predicted)	≥65	50–64	36–49	≤35
Distance walked in 6 minutes (m)	≥350	250–349	150–249	≤149
Dyspnea scale score	0–1	2	3	4
Body mass index measure	>21	≤21	—	—

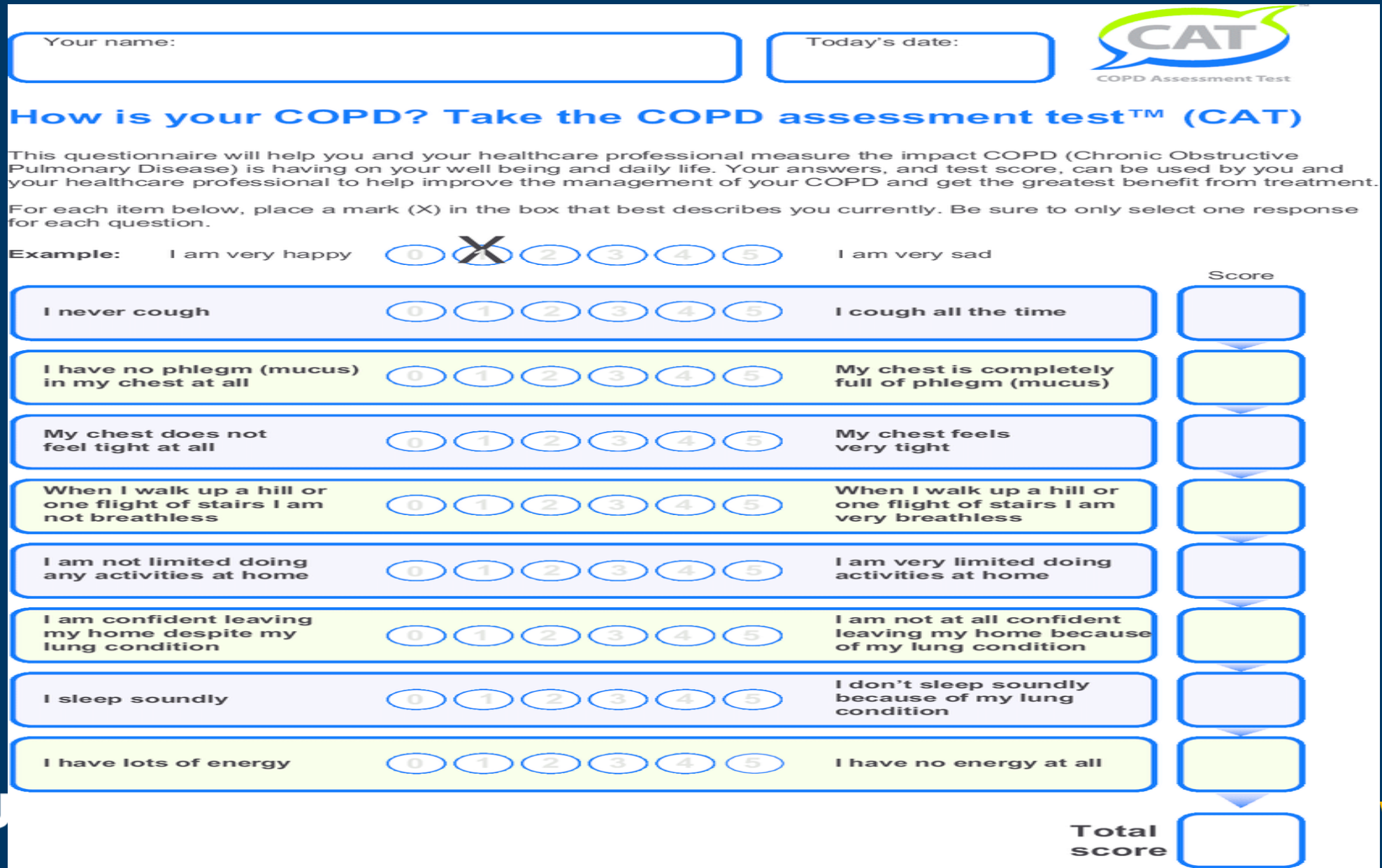
*Values range from 0 (best) to 10 (worst)

Source: Adapted from the Body-mass Index, Airflow Obstruction, Dyspnea, and Exercise Capacity Index in Chronic Obstructive Pulmonary Disease[6]

Modified Medical Research Council (mMRC) Dyspnea Scale

Grade	Description of Breathlessness
Grade 0	I only get breathless with strenuous exercise
Grade 1	I get short of breath when hurrying on level ground or walking up a slight hill
Grade 2	On level ground, I walk slower than people of the same age because of breathlessness, or I have to stop for breath when walking at my own pace on the level
Grade 3	I stop for breath after walking about 100 yards or after a few minutes on level ground
Grade 4	I am too breathless to leave the house or I am breathless when dressing

COPD Assessment Test (CAT)



Your name:

Today's date:

CAT
COPD Assessment Test

How is your COPD? Take the COPD assessment test™ (CAT)

This questionnaire will help you and your healthcare professional measure the impact COPD (Chronic Obstructive Pulmonary Disease) is having on your well being and daily life. Your answers, and test score, can be used by you and your healthcare professional to help improve the management of your COPD and get the greatest benefit from treatment.

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 X 2 3 4 5	I am very sad

			Score
I never cough	0 1 2 3 4 5	I cough all the time	
I have no phlegm (mucus) in my chest at all	0 1 2 3 4 5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	0 1 2 3 4 5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	0 1 2 3 4 5	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	0 1 2 3 4 5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	0 1 2 3 4 5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	0 1 2 3 4 5	I don't sleep soundly because of my lung condition	
I have lots of energy	0 1 2 3 4 5	I have no energy at all	
		Total score	

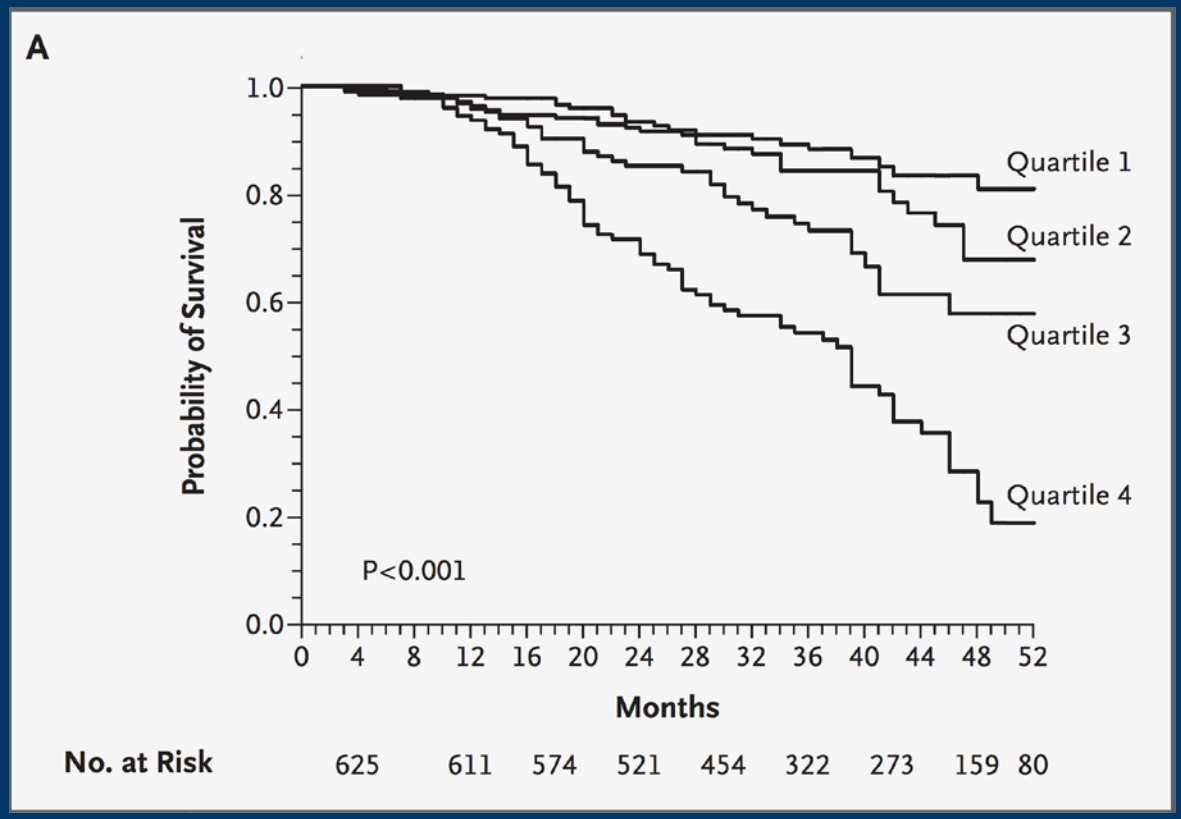
BODE Index

Variable	Points on BODE Index			
	0	1	2	3
FEV1 (% predicted)	≥65	50-64	36-49	≤35
Distance walked in 6 min (meters)	>350	250-349	150-249	≤149
MMRC dyspnea scale*	0-1	2	3	4
Body-mass index (BMI)	>21	≤21		

*MMRC dyspnea scale range from 0 (none) to 4 (4 dyspnea when dressing or undressing).

BODE Index Score	One year mortality	Two year mortality	52 month mortality
0-2	2%	6%	19%
3-4	2%	8%	32%
4-6	2%	14%	40%
7-10	5%	31%	80%

Note: these variables do not appear to help predict prognosis within six months of death.



The Surprise Question

"Would you be surprised if this patient died within the next x months?"

White *et al. BMC Medicine* (2017) 15:139
DOI 10.1186/s12916-017-0907-4

BMC Medicine

RESEARCH ARTICLE Open Access

How accurate is the 'Surprise Question' at identifying patients at the end of life? A systematic review and meta-analysis

Nicola White*, Nuriye Kupeli, Victoria Vickerstaff and Patrick Stone

Abstract

Background: Clinicians are inaccurate at predicting survival. The 'Surprise Question' (SQ) is a screening tool that aims to identify people nearing the end of life. Potentially, its routine use could help identify patients who might benefit from palliative care services. The objective was to assess the accuracy of the SQ by time scale, clinician, and speciality.

Methods: Searches were completed on Medline, Embase, CINAHL, AMED, Science Citation Index, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Open Grey literature (all from inception to November 2016). Studies were included if they reported the SQ and were written in English. Quality was assessed using the Newcastle–Ottawa Scale.

Results: A total of 26 papers were included in the review, of which 22 reported a complete data set. There were 25,718 predictions of survival made in response to the SQ. The c-statistic of the SQ ranged from 0.512 to 0.822. In the meta-analysis, the pooled accuracy level was 74.8% (95% CI 68.6–80.5). There was a negligible difference in timescale of the SQ. Doctors appeared to be more accurate than nurses at recognising people in the last year of life (c-statistic = 0.735 vs. 0.688), and the SQ seemed more accurate in an oncology setting 76.1% (95% CI 69.7–86.3).

Conclusions: There was a wide degree of accuracy, from poor to reasonable, reported across studies using the SQ. Further work investigating how the SQ could be used alongside other prognostic tools to increase the identification of people who would benefit from palliative care is warranted.

Trial registration: PROSPERO CRD42016046564.

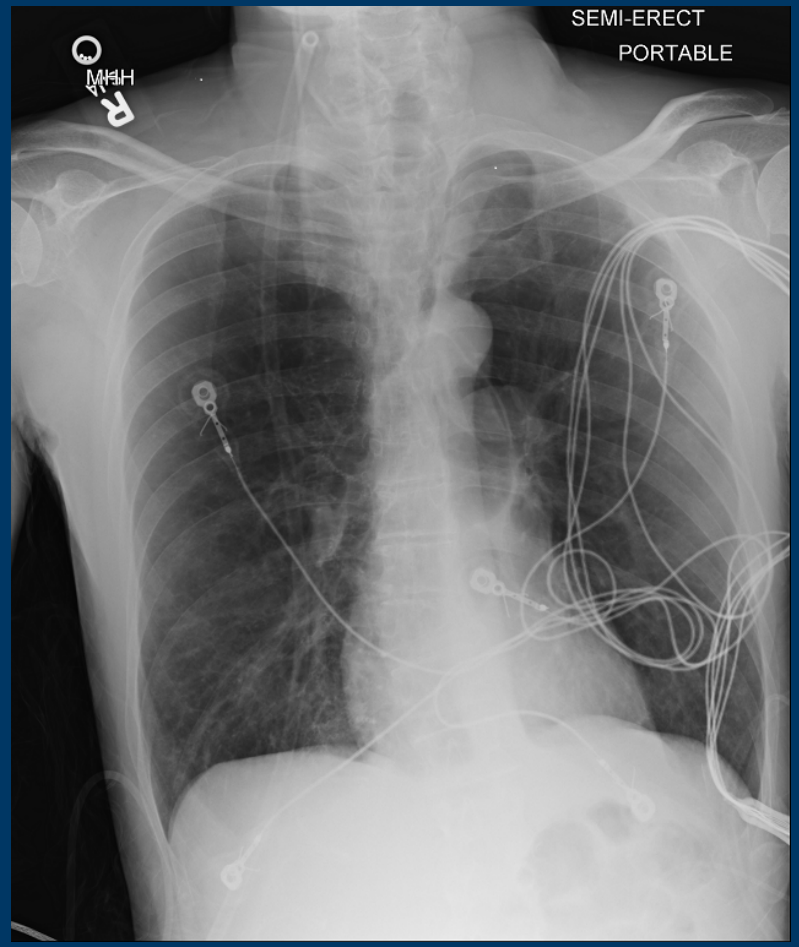
Keywords: Surprise question, Accuracy, Prognosis, End of life, Palliative care, Survival

Experience and Needs of Individuals Living with COPD

- 7 Different themes encountered from 22 different qualitative studies
  - Better understanding of condition
  - Breathlessness
  - Fatigue
  - Frailty
  - Anxiety
  - Social isolation
  - Loss of hope and maintaining meaning

CASE OVERVIEW

56 year-old African American male with history of GOLD group D (FEV1 16%)



Medical/Surgical History

- COPD (FEV1 16%)
  - Diagnosed 2014, followed by pulmonary
  - 3-4 admissions per year for AECOPD (last admission July 2020)
  - History of tracheostomy for failure to wean from the ventilator (since decannulated)
- Chronic hypoxemic/hypercapneic respiratory failure on 4L NC and nightly BIPAP
- Stage I NSCLC s/p SBRT (2015)
  - Seen in supportive care clinic for symptom management in 2016
- Celiac artery aneurysm
- Chronic systolic congestive heart failure (HFrEF)
- Anxiety
- Depression
- Chronic opioid and benzodiazepine dependence
- Chronic chest pain from previous radiation therapy
- Chronic steroid use
- GERD
- Peripheral neuropathy
- Benign prostatic hypertrophy
- Appendectomy
- Cachexia (BMI 18)

Family History

- Mother – asthma, hypertension, stroke

Social History

- Resides at nursing facility for long-term care
- Not married. Has 2 sons and previously lived with his brother
- Occupation – former brick mason (currently on disability)
- Religious/spiritual – Baptist
- Tobacco – former smoker. Quit age 41. ~ 30 pack year history
- Alcohol use – 1-2 beers per month
- Illicit/IV drugs – history of cocaine abuse (last in 2016)

Review of Systems

- Shortness of breath
- Episodic chest tightness
- Baseline sputum production
- Chronic orthopnea
- + Fatigue, + Bilateral feet pain
- Denies lower extremity swelling, fever, chills, weight change, appetite change, abdominal symptoms, current depression or anxiety, suicidality

Medications
Allergies

- No known allergies

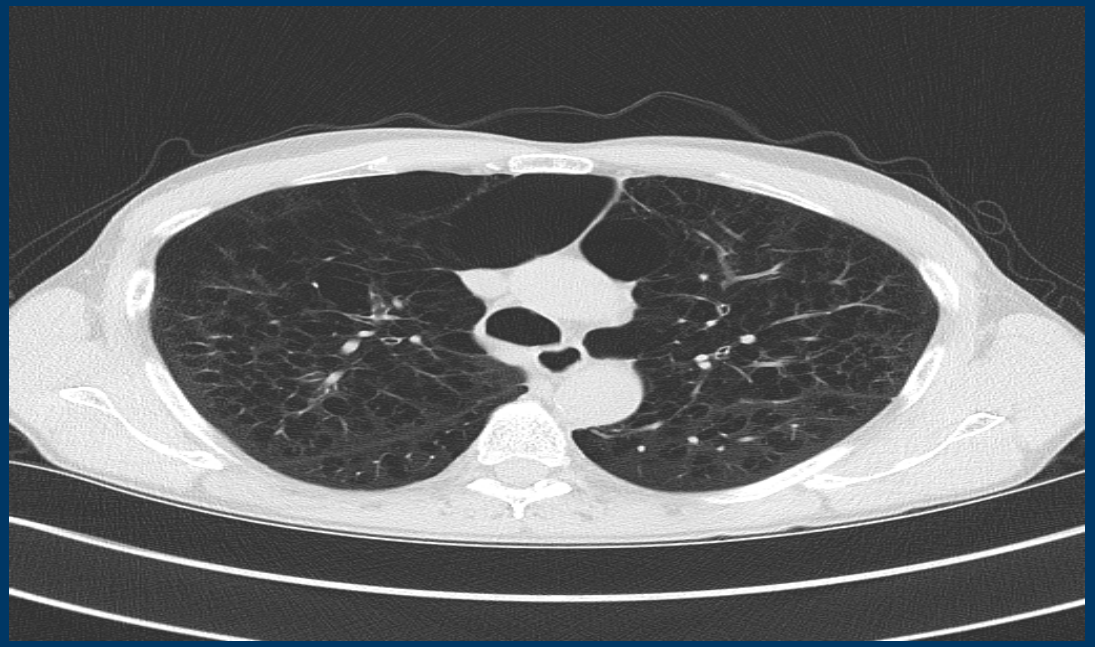
- Acetaminophen 325 mg PO every 6 hours as needed for pain
- Albuterol-ipratropium nebulizers every 4 hours
- Alprazolam 0.25 mg PO daily as needed for anxiety
- Aspirin 81 mg PO daily
- Azithromycin 250 mg PO daily
- Benzonatate 100 mg PO three times per day as needed for cough
- Buspirone 10 mg PO twice a day
- Vitamin D3 1,000 units PO daily
- Vitamin B12 1,000 mcg PO daily
- Diclofenac topical gel every 12 hours as needed for pain
- Docusate 100 mg PO twice a day as needed for constipation
- Dorzolamide ophthalmic 1 drops both eyes twice a day
- Senna 2 tablets PO bedtime as needed for constipation
- Sertraline 25 mg PO daily
- Sodium chloride nasal spray every 8 hours as needed for dry nasal passages
- Spironolactone 12.5 mg PO daily
- Tamsulosin 0.4 mg PO bedtime
- Famotidine 10 mg PO every 12 hours
- Flonase 2 sprays nasal daily
- Fluticasone-vilanterol (Breo) 1 puff daily
- Guaifenesin 200 mg PO every 4 hours as needed for cough
- Latanoprost ophthalmic 1 drops both eyes twice a day
- MVI 1 tablet PO daily
- Losartan 25 mg PO daily
- Oxycodone 5 mg PO every 6 hours as needed for pain
- Prednisone 10 mg PO daily

Physical Exam

- Vital signs – T 98.9F, BP 111/68, HR 130, RR 18, SpO2 97% on 4L NC, BMI 18
- General – Alert and oriented. Pursed lip breathing. Chronic respiratory distress with mild worsening.
- Respiratory – Air entry severely reduced bilaterally. No wheezing.
- Cardiovascular – Regular rate. Tachycardia. No edema.
- Gastrointestinal – Soft, non-tender, non-distended. Normoactive bowel sounds.
- Musculoskeletal – Normal range of motion.
- Integumentary – Warm, dry, no rash.
- Neurologic – Alert, oriented. Cranial nerves II-XII are grossly intact.
- Psychiatric – Cooperative.

Relevant Laboratory/Imaging

- PFTs – FEV1 16%, RV 298%, TLC 128%, DLCO 5%
- Serum bicarbonate 39
- Normal renal function
- Mild macrocytic chronic anemia
- CT chest – severe centrilobular and paraseptal emphysema, post-radiation changes LUL without recurrence
- TTE – LVEF 35%, RV normal size and function, RVSP 32 mm Hg



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Advanced Care Planning

- Patient had not completed an advanced directive
- Goals of care discussion with pulmonologist documented in June 2017
- Re-referred to supportive care clinic on 2018 but did not show to clinic
- Multiple outpatient and geriatric discussions regarding hospice referral but patient declined
- Had discussions about referral for lung transplantation but was never able to make clinic evaluation at other centers
- DNR orders placed during hospitalizations starting in 2017
- Durable DNR completed July 2020

CASE DISCUSSION

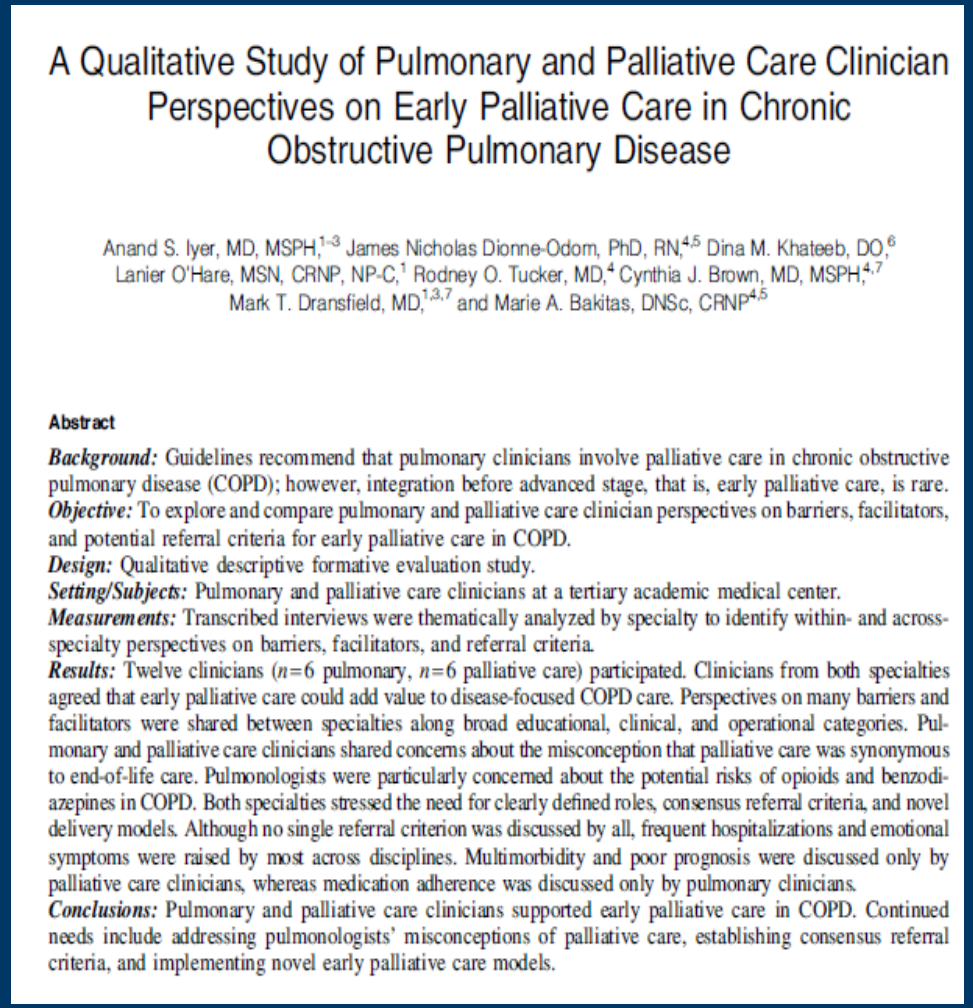
- At last pulmonary clinic, had referred to lung transplant center though passed away before he was able to make his appointment
- Patient had complained of shortness of breath at his nursing facility. Noted to have hypoxia to 88% on his home 4L nasal cannula. Geriatric team advised hospitalization but he declined.
- Prescribed prednisone burst and Augmentin
- Geriatric team notified by nursing facility that patient found on floor unresponsive later that day. CPR was not done as patient DNR/DNI.

QUESTIONS

- What interventions (medications, oxygen, non-pharmacologic therapy, etc.) have been shown to help in symptom management of COPD?

- What interventions were used and what interventions should have been offered to our patient?

INTEGRATING PALLIATIVE CARE INTO COPD

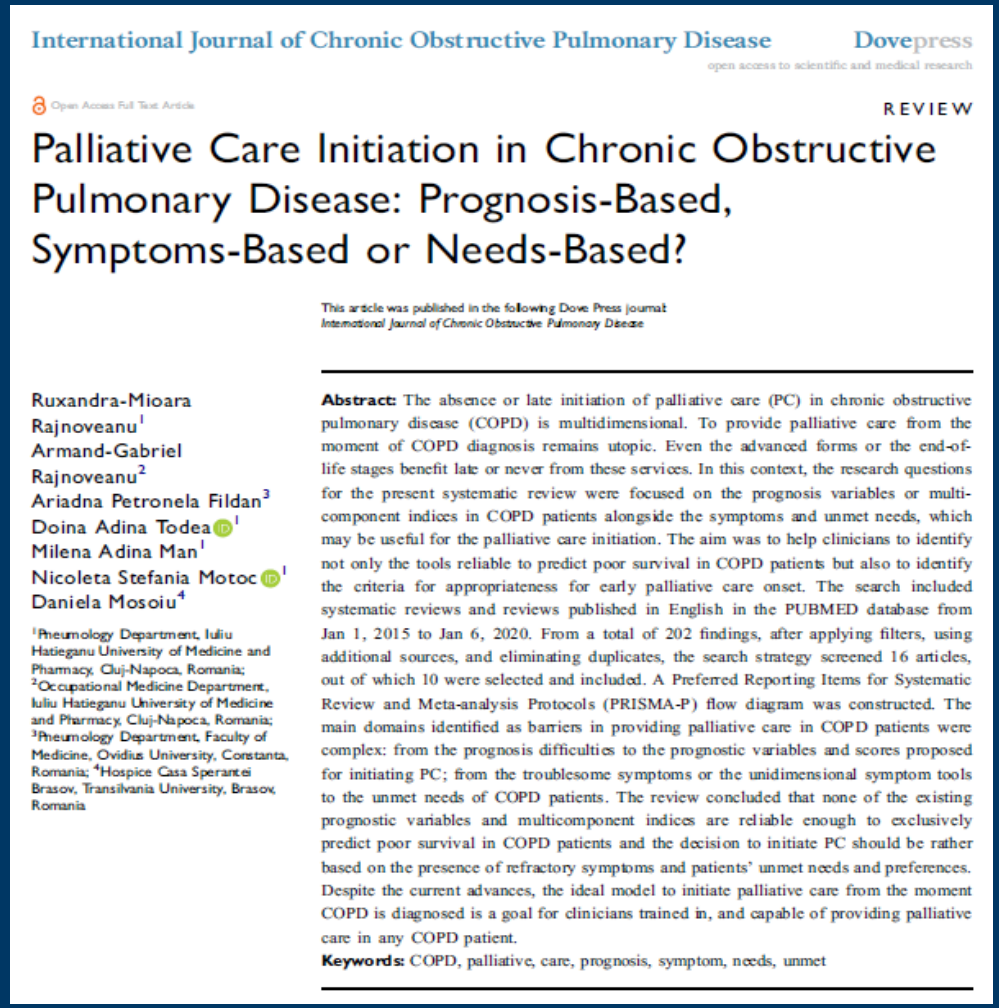


A Qualitative Study of Pulmonary and Palliative Care Clinician Perspectives on Early Palliative Care in Chronic Obstructive Pulmonary Disease

Anand S. Iyer, MD, MSPH,[1–3] James Nicholas Dionne-Odom, PhD, RN,[4,5] Dina M. Khateeb, DO,[6] Lanier O'Hare, MSN, CRNP, NP-C,[1] Rodney O. Tucker, MD,[4] Cynthia J. Brown, MD, MSPH,[4,7] Mark T. Dransfield, MD,[1,3,7] and Marie A. Bakitas, DNSc, CRNP[4,5]

Abstract

Background: Guidelines recommend that pulmonary clinicians involve palliative care in chronic obstructive pulmonary disease (COPD); however, integration before advanced stage, that is, early palliative care, is rare.
Objective: To explore and compare pulmonary and palliative care clinician perspectives on barriers, facilitators, and potential referral criteria for early palliative care in COPD.
Design: Qualitative descriptive formative evaluation study.
Setting/Subjects: Pulmonary and palliative care clinicians at a tertiary academic medical center.
Measurements: Transcribed interviews were thematically analyzed by specialty to identify within- and across-specialty perspectives on barriers, facilitators, and referral criteria.
Results: Twelve clinicians ($n=6$ pulmonary, $n=6$ palliative care) participated. Clinicians from both specialties agreed that early palliative care could add value to disease-focused COPD care. Perspectives on many barriers and facilitators were shared between specialties along broad educational, clinical, and operational categories. Pulmonary and palliative care clinicians shared concerns about the misconception that palliative care was synonymous to end-of-life care. Pulmonologists were particularly concerned about the potential risks of opioids and benzodiazepines in COPD. Both specialties stressed the need for clearly defined roles, consensus referral criteria, and novel delivery models. Although no single referral criterion was discussed by all, frequent hospitalizations and emotional symptoms were raised by most across disciplines. Multimorbidity and poor prognosis were discussed only by palliative care clinicians, whereas medication adherence was discussed only by pulmonary clinicians.
Conclusions: Pulmonary and palliative care clinicians supported early palliative care in COPD. Continued needs include addressing pulmonologists' misconceptions of palliative care, establishing consensus referral criteria, and implementing novel early palliative care models.



International Journal of Chronic Obstructive Pulmonary Disease

Dovepress

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REVIEW

Palliative Care Initiation in Chronic Obstructive Pulmonary Disease: Prognosis-Based, Symptoms-Based or Needs-Based?

This article was published in the following Dove Press journal:
International Journal of Chronic Obstructive Pulmonary Disease

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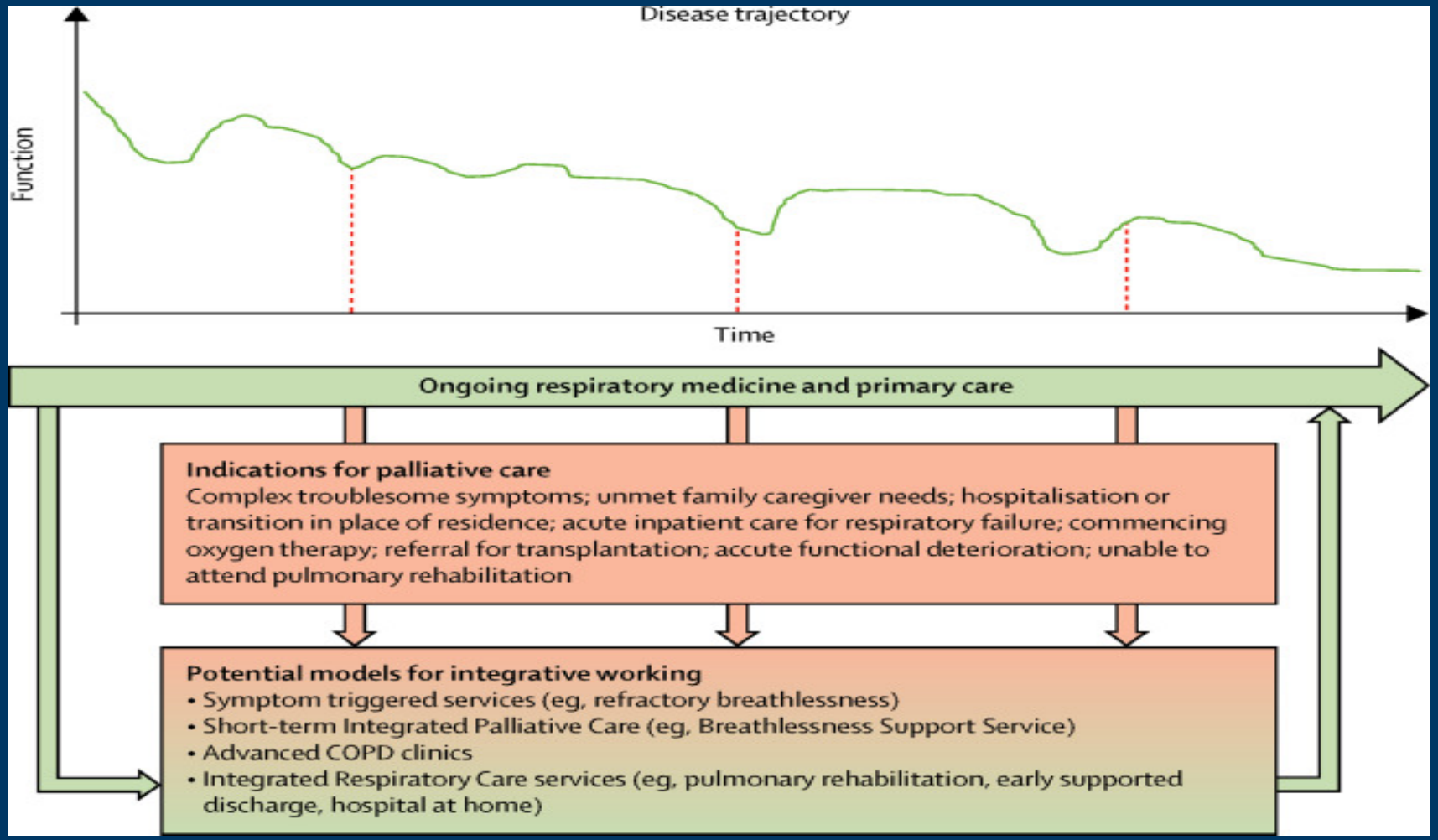
Abstract: The absence or late initiation of palliative care (PC) in chronic obstructive pulmonary disease (COPD) is multidimensional. To provide palliative care from the moment of COPD diagnosis remains utopic. Even the advanced forms or the end-of-life stages benefit late or never from these services. In this context, the research questions for the present systematic review were focused on the prognosis variables or multi-component indices in COPD patients alongside the symptoms and unmet needs, which may be useful for the palliative care initiation. The aim was to help clinicians to identify not only the tools reliable to predict poor survival in COPD patients but also to identify the criteria for appropriateness for early palliative care onset. The search included systematic reviews and reviews published in English in the PUBMED database from Jan 1, 2015 to Jan 6, 2020. From a total of 202 findings, after applying filters, using additional sources, and eliminating duplicates, the search strategy screened 16 articles, out of which 10 were selected and included. A Preferred Reporting Items for Systematic Review and Meta-analysis Protocols (PRISMA-P) flow diagram was constructed. The main domains identified as barriers in providing palliative care in COPD patients were complex: from the prognosis difficulties to the prognostic variables and scores proposed for initiating PC; from the troublesome symptoms or the unidimensional symptom tools to the unmet needs of COPD patients. The review concluded that none of the existing prognostic variables and multicomponent indices are reliable enough to exclusively predict poor survival in COPD patients and the decision to initiate PC should be rather based on the presence of refractory symptoms and patients' unmet needs and preferences. Despite the current advances, the ideal model to initiate palliative care from the moment COPD is diagnosed is a goal for clinicians trained in, and capable of providing palliative care in any COPD patient.

Keywords: COPD, palliative, care, prognosis, symptom, needs, unmet

INTEGRATING PALLIATIVE CARE IN COPD



VCU Health

Lancet. 2017.

Palliative Specific Treatments for COPD

- Patients with COPD are less likely to receive palliative care than patients with lung cancer
- COPD patients at end of life experience more dyspnea than lung cancer patients though are often prescribed less medication
  - Palliative treatment of dyspnea that improve breathlessness:
    - Opiates
    - Neuromuscular electrical stimulation (NMES)
    - Chest wall vibration (CWV)
    - Fans blowing air into face
    - Pulmonary rehabilitation
  - Nutritional Support
  - Pain, anxiety, depression
  - Fatigue

** No evidence for a beneficial effect of benzodiazepines **

** Not enough data to recommend music therapy, relaxation, counseling and support, or psychotherapy **

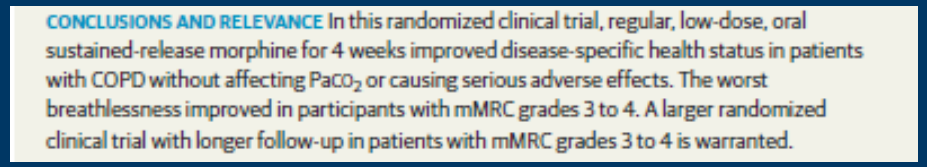
Breathlessness

- Opiates
  - Recent Dutch study (2020) in JAMA examined low dose morphine (10 mg twice a day) vs. placebo for 4 weeks in mMRC grade 2-4
  - Mean breathlessness did not improve in either group
  - PaCO2 values were not different between both groups
  - Subgroup analysis – morphine prevented worse breathlessness in those with grade 3 or 4 mMRC
  - Conclusion – modest benefit and likely should be reserved for patients with most severe refractory dyspnea despite maximal medical therapy

JAMA Internal Medicine | Original Investigation

Effect of Sustained-Release Morphine for Refractory Breathlessness in Chronic Obstructive Pulmonary Disease on Health Status
A Randomized Clinical Trial

Cornelia A. Verberkt, MSc; Marieke H. J. van den Beuken-van Everdingen, MD, PhD; Jos M. G. A. Schols, MD, PhD; Niels Hameleers, MSc; Emiel F. M. Wouters, MD, PhD; Daisy J. A. Janssen, MD, PhD



CONCLUSIONS AND RELEVANCE In this randomized clinical trial, regular, low-dose, oral sustained-release morphine for 4 weeks improved disease-specific health status in patients with COPD without affecting $PaCO_2$ or causing serious adverse effects. The worst breathlessness improved in participants with mMRC grades 3 to 4. A larger randomized clinical trial with longer follow-up in patients with mMRC grades 3 to 4 is warranted.

Breathlessness

- Neuromuscular chest wall stimulation/neuromuscular electrical stimulation (NMES)
- Chest wall vibration (CWV)
- Pulmonary rehab (pursed-lip breathing, walking aids, etc.)
- Fans
  - May help but study involved not just COPD patients
- Buspirone (serotinergic, anxiolytic)
  - Conflicting results for relief of dyspnea
- Tricyclic antidepressants
  - No improvement, side effects common
- SSRIs
  - No significant improvement, side effects common
- Benzodiazepines
  - Small studies with no improvement in dyspnea though well tolerated

Supplemental Oxygen

- Supplemental oxygen reduces mortality in hypoxemic COPD patients
- May reduced dyspnea at rest for hypoxemic patients (conflicting data)
- No benefit in using supplemental oxygen in non-hypoxemic patients

Nutritional Support

- Low BMI and low fat free mass associated with worse outcomes in patients with COPD
- Nutritional supplementation promotes weight gain and improvements in respiratory muscle strength and overall health related quality of life
- Only in malnourished patients, does supplementation improve 6MWT, respiratory muscle strength, and health status

VCU Health

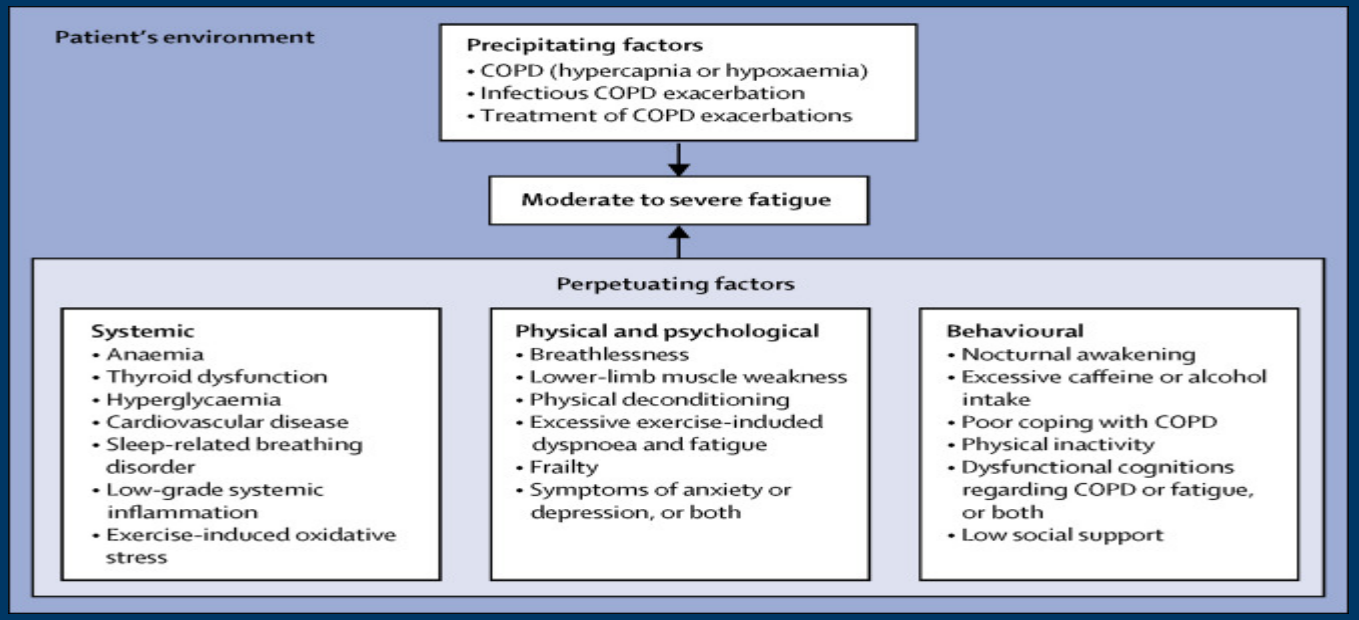
Medicine (Baltimore). 2016.
Cochrane Database Syst Rev. 2012.

Pain
Anxiety
Depression

- Causes in patients with COPD are multifactorial (behavioral, social, and biologic)
- Pulmonary rehab may help reduce anxiety symptoms
- Efficacy of antidepressants in patients with COPD is inconclusive
- Cognitive behavioral therapy and mind-body interventions (yoga, relaxation) can reduce anxiety and depression as well as improve lung function, dyspnea, exercise capacity, and fatigue

Fatigue

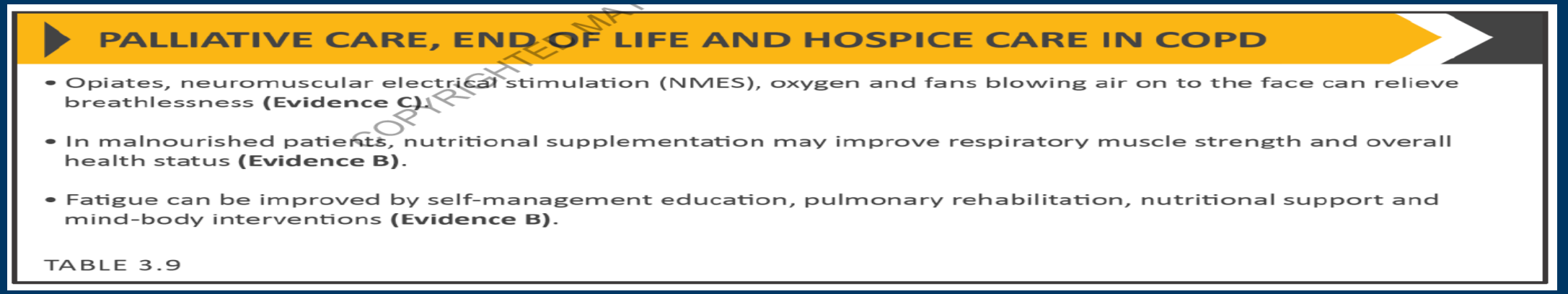
- 3 systematic reviews
  - Impact of self management education program showed improvement in fatigue at 12 months
  - Nutritional support program did not improve fatigue scores
  - Pulmonary rehabilitation improved fatigue scores as compared to conventional care



Cochrane Database Syst Rev. 2012.
Lancet. 2017.

Palliative Specific Treatments Review

- NMES, CWS improve dyspnea
- Opiates and fans may improve dyspnea
- Pulmonary rehab and oxygen can improve dyspnea
- Nutritional support is helpful for low BMI patients
- Cognitive behavioral therapy and mind-body interventions can improve quality of life



PALLIATIVE CARE, END OF LIFE AND HOSPICE CARE IN COPD

- Opiates, neuromuscular electrical stimulation (NMES), oxygen and fans blowing air on to the face can relieve breathlessness **(Evidence C)**.
- In malnourished patients, nutritional supplementation may improve respiratory muscle strength and overall health status **(Evidence B)**.
- Fatigue can be improved by self-management education, pulmonary rehabilitation, nutritional support and mind-body interventions **(Evidence B)**.

TABLE 3.9

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- No specific antidepressants and anti-anxiety medications improve symptoms though limited data
- No evidence that benzodiazepines are helpful

RETURN TO CASE

- Are there any interventions that could have been implemented or applied differently for our patient?
- Any areas where advanced care planning discussions could have happened earlier and/or better?
- Interplay of transplant discussion and palliative care discussions

CONCLUSIONS

- COPD is an often preventable progressive disease with predominant respiratory symptoms often associated with comorbid conditions
- COPD patients often have many symptoms especially at end of life
- COPD patients often receive less support at end of life as compared to cancer patients
- Difficulty in prognostication is a leading challenge in referring to early palliative care
- Integrating palliative care principles in primary care and pulmonary clinics
- Few well established therapies for symptom management confounded by limited data
- Further studies needed to evaluate efficacy for therapies

QUESTIONS?

THANK YOU!