

# Can I have a comfortable last breath?



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**MEDICINE & GERIATRICS  
TMH**

**27 AUGUST, 2010**



Ms SK Fung

# Ms SK Fung



- F / 71 yrs
- Chronic smoker
- Lives with family, walks with stick
- ADL (up to feeding) requires assistance
  
- History of COPD

# Ms SK Fung



- Medications:
- Seretide puff 2 puff BD
- Terbutaline sulphate SR 7.5mg BD
- Theophylline SR 150mg BD
- Combivent 4 puff QID

# Ms SK Fung



- Exercise tolerance 15min on levelground
- On long-term oxygen therapy 2L/min
- Frequent admitter
- 7 admissions within 12 months

# Ms SK Fung



- 21 May 2009
- 8<sup>th</sup> admission for COPD exacerbation in 12 months
- Presented with dyspnea, cough and sputum for 2 days
- No fever

# Ms SK Fung



- P/E:
- Afebrile, BP 128/56, P 87
- SpO<sub>2</sub> 90% on 2L O<sub>2</sub>
- JVP not raised, no ankle edema
- Chest: bilateral rhonchi
  
- CXR: bilateral hazziness
- ECG: SR, p-pulmonale

# Ms SK Fung



- Raised WCC 14
- Treated with Augmentin
  
- Developed desaturation and respiratory failure
- Intubated and put on mechanical ventilation
- Self extubated on 27/5 (day 7)
- Put on BIPAP support for few days

# Ms SK Fung



- 6/6 (day 17): developed desaturation again, put on BIPAP support for 6 days
- Raised WCC, CXR: increased hazziness
- Antibiotic stepped up to Maxipime

# Ms SK Fung



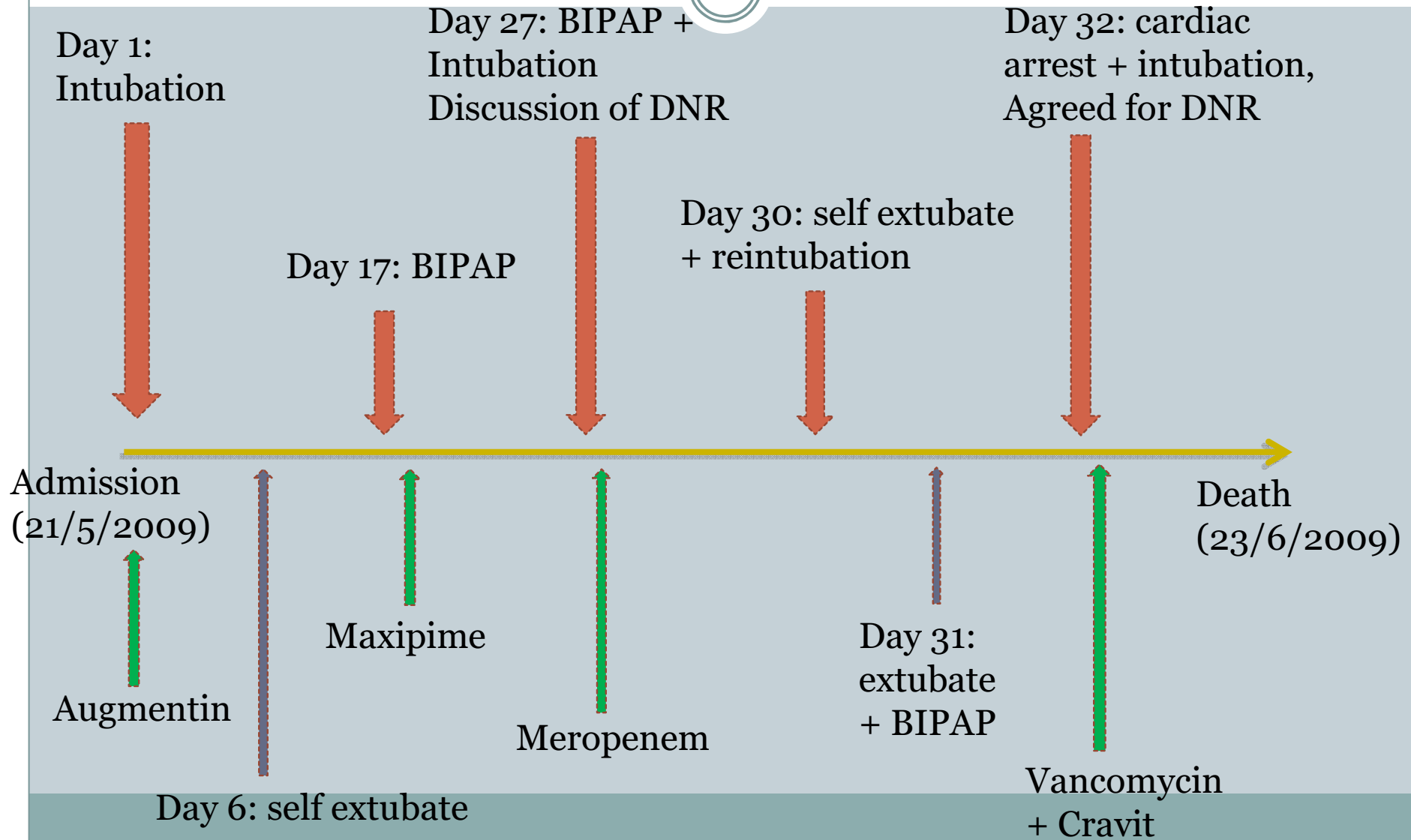
- 16/6 (day 27): desaturation again and put on BIPAP support
- Discussed issue of DNR with patient's relatives, opt for intubation and active resuscitation
- Failed BIPAP support few hours later, intubated again
- Started on Meropenem
  
- 19/6 (day 30): self extubated
- Developed desaturation and reintubated again

# Ms SK Fung



- Weaned off to BIPAP 1 day later
- 21/6 (day 32): developed cardiac arrest, active resuscitation and intubation done
- Patient's relatives finally agreed not for CPR
- Condition further deteriorated, finally succumbed on 23/6 (day 34)

# Ms SK Fung



# Ms SK Fung



- End-stage COPD
- Limited ADL function
- Repeated hospitalization – 8 times within 1 year
- Intubated for 4 times and passed away 34 days after admission

Are we doing our best to **ADD LIFE to YEARS?**

# Ms SK Fung



- Palliative care should be introduced to Ms. Fung and her family earlier

# Quality of life in COPD patients



- Comparing with advanced cancer patients, COPD patients have:
  - poorer quality of life
  - worse functional state
  - higher degree of depression and anxiety
  - similar need for information regarding diagnosis, prognosis and management
  - similar lack of adequate psychological care

Gore J M, Brophy C J, Greenstone M A. How well do we care for patients with end stage chronic obstructive pulmonary disease (COPD)? A comparison of palliative care and quality of life in COPD and lung cancer. *Thorax* 2000; 55:1000-1006

# Quality of life in COPD patients



- 86% cancer patients received palliative care but **NONE** in COPD patients

Gore J M, Brophy C J, Greenstone M A. How well do we care for patients with end stage chronic obstructive pulmonary disease (COPD)? A comparison of palliative care and quality of life in COPD and lung cancer. Thorax 2000; 55:1000-1006

# American College of Chest Physicians



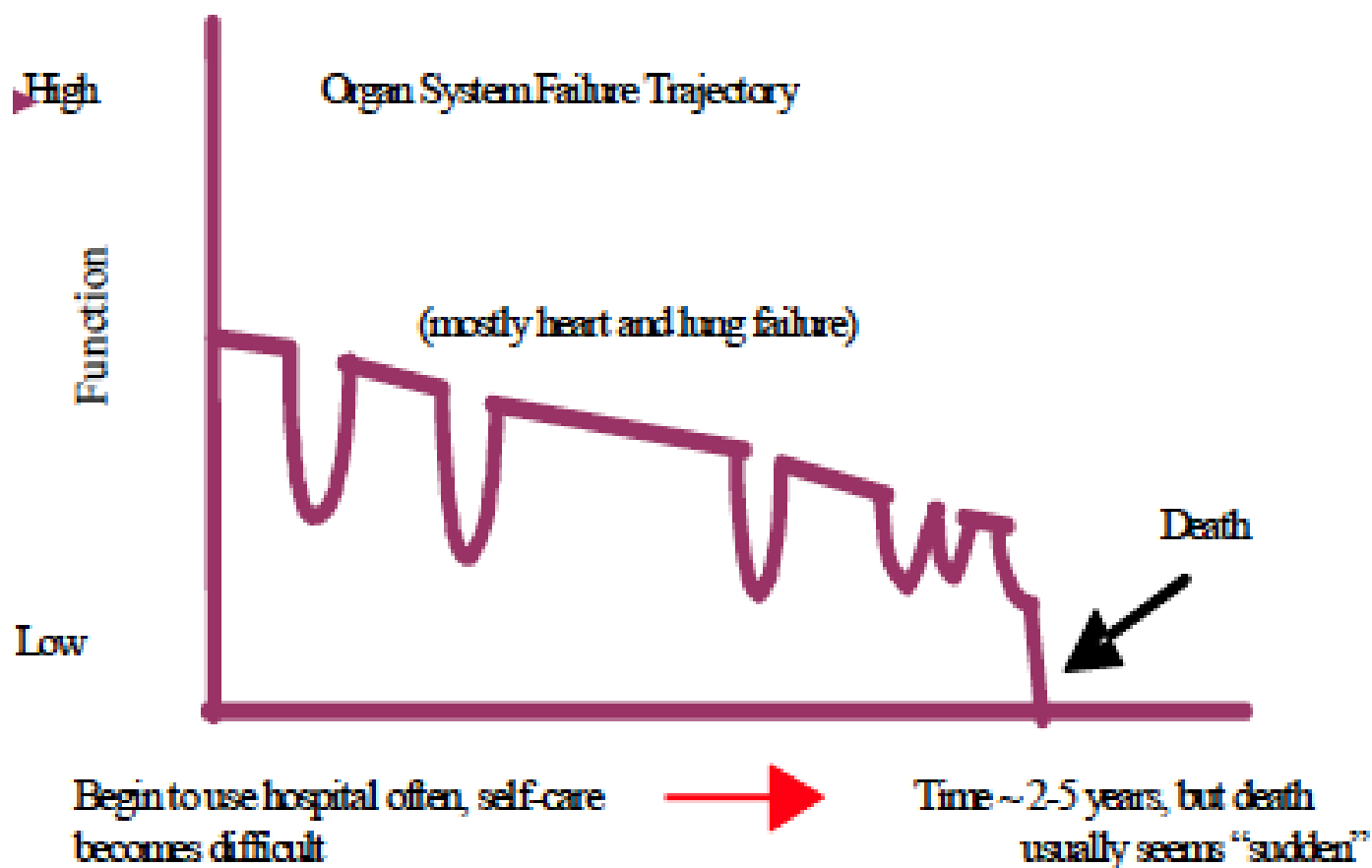
- “..... **strongly supports** the position that such **palliative and end-of-life care** of the patient with an acute devastating or chronically progressive pulmonary or cardiac disease and his/her family should be an integral part of cardiopulmonary medicine. This care is best provided through an **interdisciplinary effort** by competent and experienced **professionals** under the leadership of a **knowledgeable and compassionate physician**..... It is hoped that this statement will serve as a framework within which physicians may develop their own approach to the management of patients requiring palliative care.”

*CHEST 2005; 128:3599–3610*

# Obstacles of Palliative care in COPD



- Uncertainty in predicting prognosis



# Obstacles of Palliative care in COPD



- Poor understanding of the disease by patient and their families
- Infrequent patient-physician communication about end-of-life care
- At risk of other co-morbid conditions



**Many patients receive inadequate palliative care and get unnecessary suffering**

# When is the right time for palliative care?



- Clinical course usually consists of relatively stable disease interspersed by episodic acute decompensation
- As time progresses, acute episodes become more frequent and periods of stability become the exception
- At such a time, interventions by palliative care interdisciplinary team can be invaluable

# Gold Standards Framework



- Established in 2000
- prognostic indicator guidance to identify patients who may need supportive / palliative care
- over 60% of general practices in the UK are using GSF
- Review: improving end-of-life care: a critical review of the gold standards framework in primary care [Palliat Med. 2010 Apr;24\(3\):317-29](#)

# Gold Standards Framework



- Three triggers for Supportive/ Palliative Care are suggested:
  - **The surprise question** ‘Would you be surprised if this patient were to die in the next 6-12months’
  - **Choice/ Need** - The patient with advanced disease makes a choice for comfort care only, not ‘curative’ treatment, or is in special need of supportive / palliative care
  - **Clinical indicators** - Specific indicators of advanced disease for each of the three main end of life patient groups - cancer, organ failure, elderly frail/ dementia

# Gold Standards Framework



## Prognostic indicator guidance for COPD

Severe disease	FEV <sub>1</sub> 30% predicted
Recurrent hospital admission	>3 admissions in 12 months
Fulfils Long Term Oxygen Therapy Criteria	
MRC grade 4/5	shortness of breath after 100 meters on the level or confined to house through breathlessness
Right heart failure	
Other factors	anorexia, previous ITU/NIV/resistant organism, depression
Use of systemic steroids	>6 weeks of systemic steroids in preceding 12 months

# Discussion of palliative care



- Most patients with life-limiting illness prefer to discuss their preferences for end-of-life care relatively early in the course of their illness
  - Curtis JR et al. Understanding physicians' skills at providing end-of-life care: perspectives of patients, families, and health care workers. *J Gen Intern Med* 2001; 16:41–49.
- Understand patient's preferences for end-of-life care

# Palliative care in COPD



- Patient and family-centered
- Identify the goals of care
- Enhance quality of life by anticipating, preventing and treating suffering

# Palliative care in COPD



- Facilitate patient autonomy, access to information and choice
- Help with medical decision making
- Address physical, intellectual, emotional, social and spiritual needs

# Information that COPD patients want to know



## **Components of end-of-life care that patients would like to discuss with their physician**

Diagnosis and disease process

Role of the treatments in improving symptoms, quality of life and duration of life

Prognosis for survival and quality of life

What dying might be like

Advance care planning for future medical care and exacerbations

Curtis JR et al. Patients' perspectives on physicians' skills at end-of-life care: differences between patients with COPD, cancer, and AIDS. *Chest* 2002; 122: 356–362.

# Discussion of palliative care in COPD






- Discuss the most appropriate **location** for terminal care
- Determine patient's **preferences** for life support care
  - NIPPV
  - Intubation and mechanical ventilation

# Symptom burden



## The most prevalent symptoms in advanced COPD patients

Symptom	Prevalence (%)	N
Pain	34-77	372
Depression	37-71	150
 Anxiety	52-75	1008
Confusion	18-33	309
 Fatigue	68-80	285
 Breathlessness	90-95	372
Insomnia	55-65	150
Constipation	27-44	150
Anorexia	35-67	150

Solano JP, Gomes B, Higginson IJ. A Comparison of Symptom Prevalence in Far Advanced Cancer, AIDS, Heart Disease, Chronic Obstructive Pulmonary Disease and Renal Disease. *J Pain Sympt Manage* 2006; 31: 58-68



# Management of Dyspnea

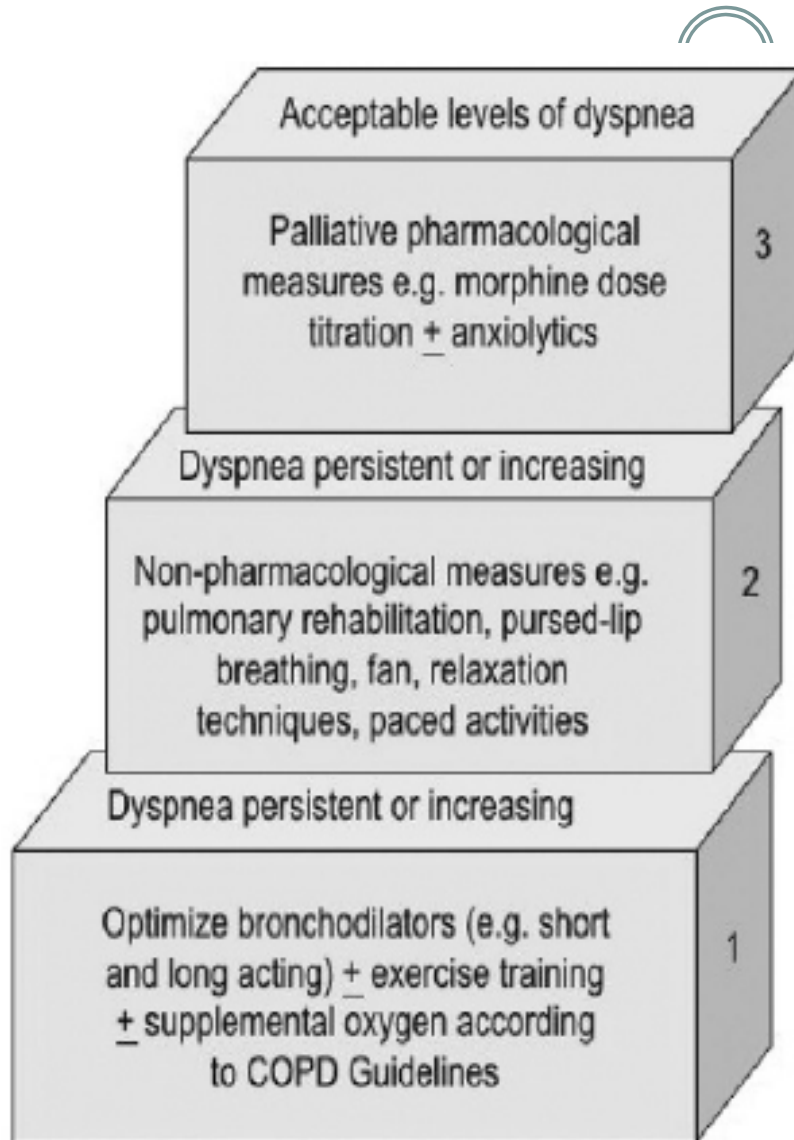
# Dyspnoea



- Uncomfortable awareness of breathing
- Significant source of disability and affects quality of life
- Often poorly controlled and incapacitating
  - Only 50% patients benefit from some degree of palliation

Elkington H et al. The healthcare needs of chronic obstructive pulmonary disease patients in the last year of life. *Palliat Med* 2005;19:485–91

# Dyspnea management in severe COPD



DYSPNEA MANAGEMENT IN SEVERE COPD

Rocker GM et al. Advanced chronic obstructive pulmonary disease: innovative approaches to palliation.  
J Palliat Med 2007;10:783–97.

# Opioids



- Decrease sensitivity to CO<sub>2</sub> in medullary respiratory center
- Reduce response of carotid body to hypoxia
- Cause bradycardia and hypotension due to peripheral vasodilation and reduce preload
- Anxiolytic effects

G Rucker. Palliation of dyspnoea in advanced COPD: revisiting a role for opioids

Thorax 2009;64:910–915

# Effectiveness of opioids



- Both oral and parenteral opioids have more beneficial effects than placebo in managing dyspnea ( $p < 0.001$ )
- Jennings AL et al. A systematic review of the use of opioids in the management of dyspnea. *Thorax* 2002;57:939-44

**Table 1** Multiple dosing studies of opioids for dyspnoea among patients with COPD

Study	Population	Opioid dose regimen (vs placebo)	Setting	Duration of follow-up	Outcome measure	Overall effect on dyspnoea	Side effects
Eiser <i>et al</i> 1991 <sup>21</sup>	n = 18 (pink puffer, mean FEV <sub>1</sub> 36%)	Diamorphine 2.5 or 5 mg orally qid	Pre and 2 week exercise testing in study centre	2 weeks ×3, crossover, no washout	VAS for dyspnoea 6 min walk	NS	4 withdrew (chest infection, itching, constipation, headache), mild nausea: 'several' constipation or vomiting:3/14
Poole <i>et al</i> 1998 <sup>22</sup>	n = 16 (FEV <sub>1</sub> <1.5 l)	Morphine SR 10–20 mg od or bid	Pre and 6 week exercise testing in study centre	6 weeks ×2, plus 2 week washout	CRQ for quality of life, 6 min walk	NS overall, but mastery scale favored placebo; 6 min walk test worse with morphine	Opioid withdrawal syndrome:4/16; patients on morphine "more likely to report nausea, anorexia, constipation or drowsiness" (p = 0.004)
Johnson <i>et al</i> 1983 <sup>23</sup>	n = 19 (FEV <sub>1</sub> <1.2, MRC ≥3)	Dihydrocodeine 15 mg orally 30 min pre-exercise, up to tid	Pre and 1 week pedometer testing in the home	Weekly, cross over×3 (third week alternate day codeine)	VAS for dyspnoea Pedometer distance	Dyspnoea reduced by18%, walk distance up 17%	Similar in placebo and treated groups
Woodcock <i>et al</i> 1981 <sup>24</sup>	n = 12 (MRC >3)	Dihydrocodeine 1 mg/kg orally od vs oxygen, alcohol or caffeine 45 min before exercise	Exercise testing (treadmill, in hospital)	4 consecutive days	VAS for dyspnoea	20% reduction in dyspnoea, 18% increase in exercise tolerance 45 min after codeine	Nausea and vomiting 5/16; constipated/drowsy 2/16
Woodcock <i>et al</i> 1982 <sup>25</sup>	n = 16 (mean FEV <sub>1</sub> 0.75)	Dihydrocodeine 30 mg or 60 mg tid	Exercise testing at 2 weeks in study centres	2 weeks crossover ×3	Oxygen consumption (bicycle ergometer), 6 min walk	"A few patients reported considerable benefit", Lower oxygen consumption (p<0.05)	5 withdrew (nausea and vomiting). Opioid withdrawal syndrome (2 on 60 mg dose), constipation (2/11)
Abemethy <i>et al</i> 2003 <sup>26</sup>	n = 48 (COPD n = 42)	Morphine SR 4-day crossover versus placebo	Clinical study in the community	4 days	VAS for dyspnoea at day 4	Better dyspnoea scores both mornings (p = 0.01) and evening (p<0.05)	More constipation with morphine. Other side effects not significant
Currow <i>et al</i> 2009 <sup>27</sup>	n = 68 (48 with COPD, modified MRC ≥2)	Morphine SR 10–20–30 mg od	Open-label dose-finding long-term clinical study in the community	Mean 3 months; 18.5 patient years of data	VAS for dyspnoea	51% of patients found sufficient benefit over long term to choose to continue	Constipation 6%, nausea 6%, confusion/drowsiness/lethargy/dizziness 12%

# Use of opioids in COPD



- Lack of consensus
- **European Respiratory Society** makes no recommendation
  - O'Donnell DE et al. Pathophysiology of dyspnea in chronic obstructive pulmonary disease: a roundtable. Proc Am Thorac Soc 2007;4:145–68
- The **American Thoracic Society** only recommends the use of opioids in terminal stages of COPD
  - American Thoracic Society. Dyspnea. Mechanisms, assessment, and management: a consensus statement. Am J Respir Crit Care Med 1999;159:321–40

# Use of opioids in COPD



- Both the **Australian** and **Canadian** guidelines on COPD include qualified recommendations for considering opioids for severe dyspnea
  - Abramson MJ, Crockett AJ, Frith PA, et al. COPDX: an update of guidelines for the management of chronic obstructive pulmonary disease with a review of recent evidence. *Med J Aust* 2006;184:342–5
  - O'Donnell DE et al. State of the art compendium: Canadian Thoracic Society recommendations for the management of chronic obstructive pulmonary disease. *Can Respir J* 2004;11(Suppl B):7–59B

# Physicians' barriers in using opioids



- Lack of knowledge and experience
- Fear of respiratory depression and side effects

# Patient's barrier in using opioid



- Fear of implications of using a narcotic
- Negative feedback/personal experience

# Approach to using opioid

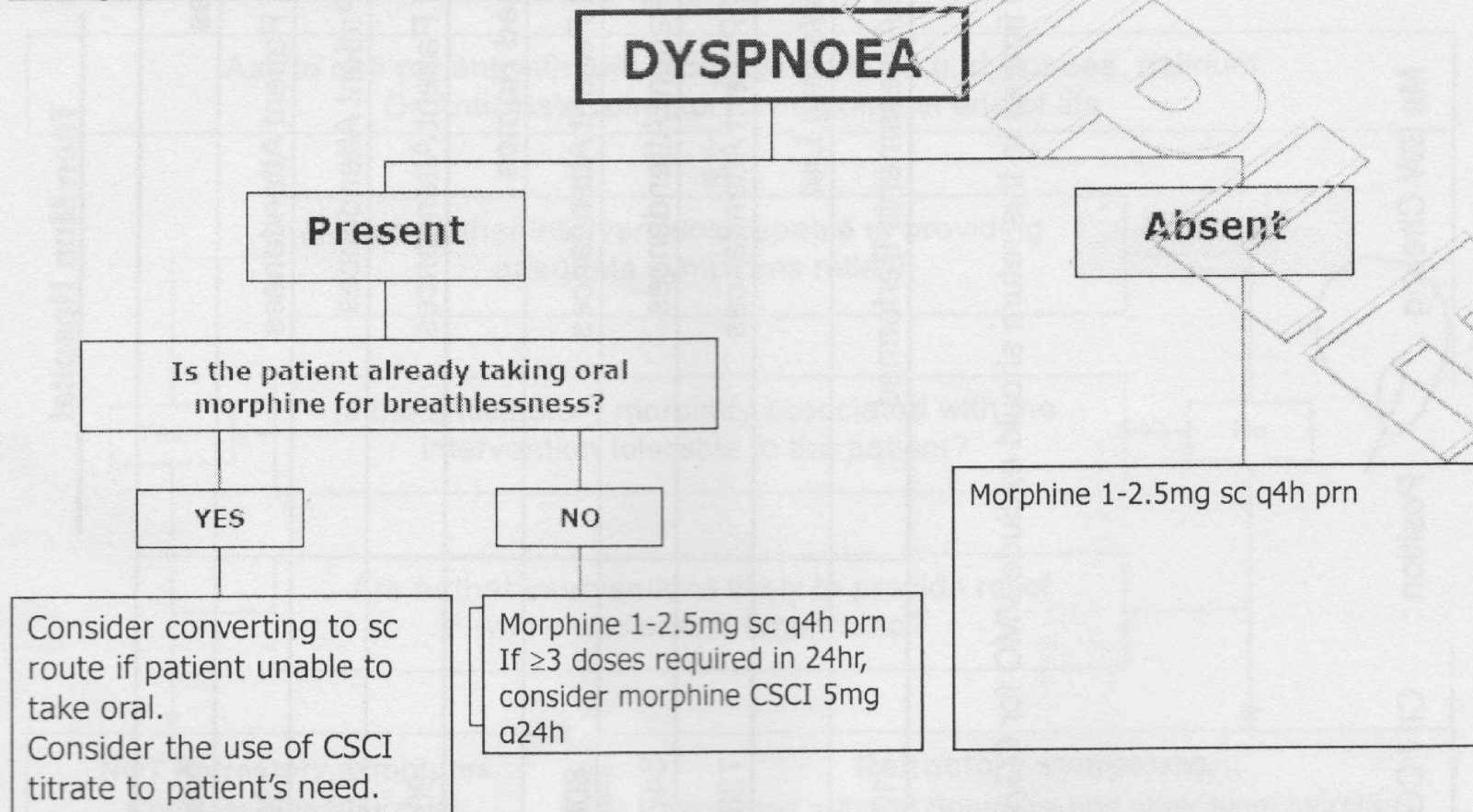


- Start with low-dose
- Morphine 2.5 – 5mg Q4H oral
- Titrate dosage to achieve tolerable levels of dyspnea
- Heart rate / respiratory rate ratio = 5

# Management of dyspnea in TMH

## 5. Management of Dyspnoea

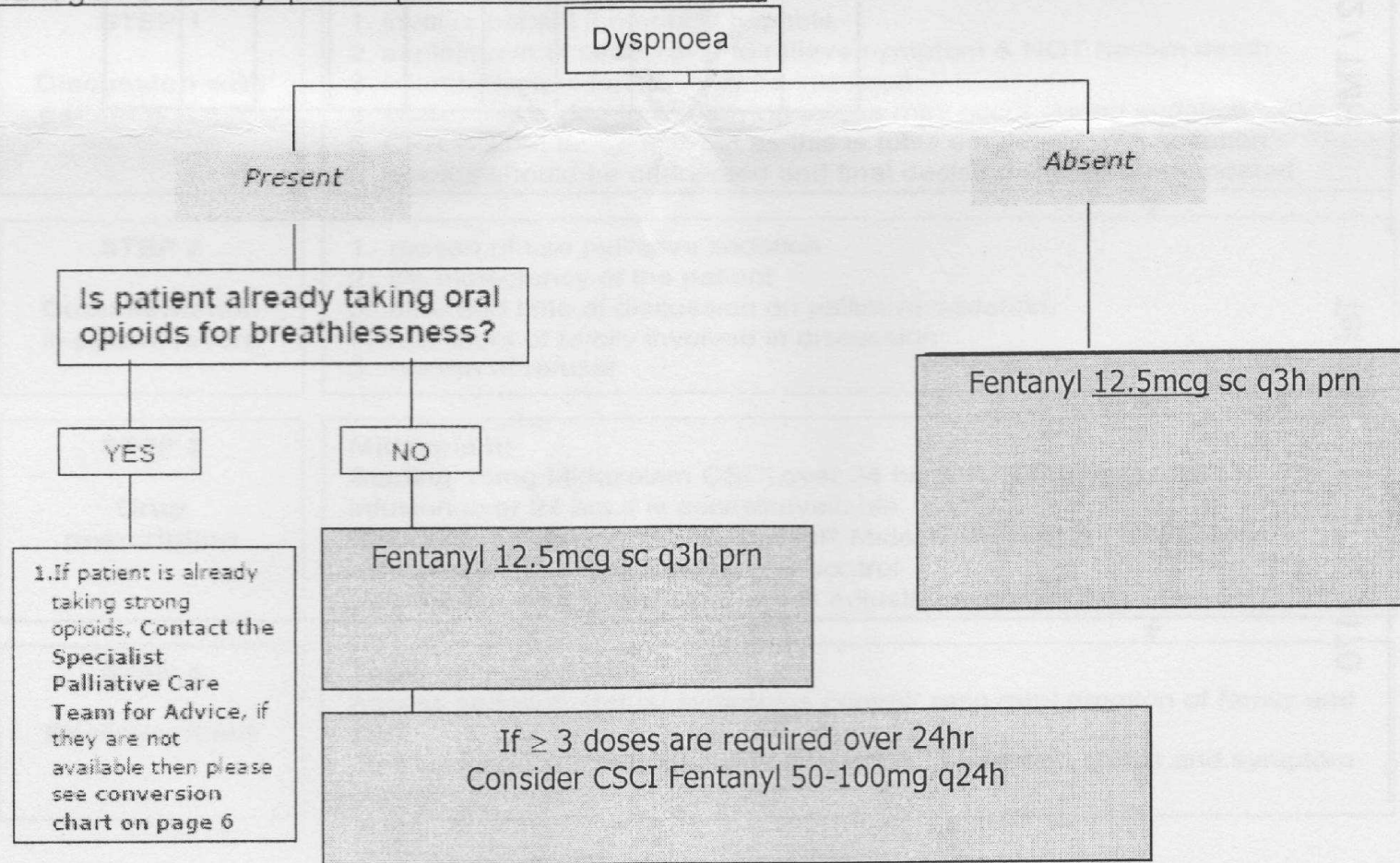
Management of Dyspnoea (normal renal function)



# Management of dyspnea in TMH



## Management of Dyspnoea (ESRD GFR < 30ml/min)



# Use of opioids



- If patient is unable to swallow, parenteral morphine (e.g. subcutaneous route) may be given at 1/3 of oral dose
- Advise on regular use of stool softener and stimulant laxative to prevent constipation



# Management of Anxiety

# Anxiety in COPD



- Psychological consequences of anxiety and depression are rarely addressed
- Prevalence ranging 2–96%
  - generalised anxiety disorder 10–33%
  - panic attacks or panic disorder 8–67%

# Anxiety in COPD



- Fearful of suffocating or smothering to death precipitates anxiety
- Anxiety worsens perception of dyspnea, leads to cyclical pattern of response

# Management of Anxiety



- **Pharmacological**
  - Lorazepam 0.5–1 mg Q4H orally, SL, or IV PRN
- **Non-pharmacological**
  - cool air, fan
  - **breathing technique** (pursed-lip / diaphragmatic breathing)
  - **progressive muscle relaxation**, meditation, music therapy
  - psychosocial support



# Management of Depression

# Depression in COPD



- Prevalence of depression in patients with moderate-to-severe COPD ranged **7–42%**
  - van Ede L et al. Prevalence of depression in patients with chronic obstructive pulmonary disease: a systematic review. *Thorax* 1999; 54: 688–692
- Greater length of hospitalization than non-depressed patients
  - Ng TP et al. Depressive symptoms and chronic obstructive pulmonary disease: effect on mortality, hospital readmission, symptom burden, functional status, and quality of life. *Arch Intern Med* 2007; 167: 60–67

# Outcome of depression



- A cross-sectional study of 101 patients with severe COPD
- Depressed patients were **twice as likely to refuse resuscitation** as non-depressed patients
  - Stapleton RD et al. Association of depression and life-sustaining treatment preferences in patients with COPD. Chest 2005; 127: 328–334

# Depression in COPD



- May influence decisions related to end-of-life issues
- Must consider patient's mental state when considering issues of informed consent and capacity to understand the consequences of accepting or refusing a particular treatment

**Depression should be treated before any potentially negative life-affecting decisions are made**



## Role of NIPPV for palliative care

# Non-invasive positive pressure ventilation



- Effects on quality of life and relief of dyspnea in terminal stage of COPD are less clear
- A 2-year multi-center trial showed that NPPV plus LTOT improved **daytime PaCO<sub>2</sub>, dyspnea and QOL**, although survival was similar to control (LTOT alone) group
  - Clini E. et al. and Rehabilitation and Chronic Care Study Group, Italian Association of Hospital Pulmonologists (AIPO). The Italian multicentre study on noninvasive ventilation in chronic obstructive pulmonary disease patients. *Eur. Respir. J.* 2002; 20: 529–538



# Management of End-stage COPD in TMH



## End-stage COPD in TMH



- Total 2375 deceased patients in M&G TMH in 2008
- 600 patients randomly selected and reviewed
- Using Gold Standards Framework prognostic indicator guidance
- Recruited 24 patients



## End-stage COPD in TMH



- Average age at death: **80.8 yrs**
- 75% are males
- 54.2% are OAH residents



## End-stage COPD in TMH



- Comorbidities: DM, HT, IHD
- Partially dependent to bedbound: 21 (87.5%)
- 15 (62.5%) patients required LTOT

## No. of hospitalizations at last 6 months of life



No. of hospitalization	No. of patients
1	2
2	4
3	5
4	5
5	2
6	1
7	3
8	1
9	1

Mean: 4.1

# Total duration of hospital stay at last 6 months of life



Duration of hospitalization (days)	No. of patients
1 - 30	8
31 - 60	2
61 - 90	10
91 - 120	2
121 - 150	1
151 - 180	0
181 - 210	1

Mean: **63.2** days

## Duration of hospitalization at last admission



Duration of hospitalization (weeks)	No. of patients
1	10
2	2
3	3
4	5
5	2
6	2

Mean: **16.2** days (2 – 42)



## End-stage COPD in TMH



- Use of NIPPV during last admission: **10** (41.7%)
- Any CPR during last admission: **6** (25%)
- Any intubation at last 6 months of life: **6** (25%)
- Discussion of advanced care planning at last 6 months of life: **0**
- Discussion of DNR at last 6 months of life: **21** (87.5%)

# Improvement to current practice



- Early identification of these patients
- Thorough discussion of advanced care planning and palliative care
- Avoid suffering and burdensome interventions (e.g. CPR, intubation)



Case Sharing:  
Patient with EOL Care

Mr CM Wai

# Mr CM Wai



- M/73yrs
- Ex-smoker
- Lives with wife and son in lift landing public housing estate
- Chairbound
- ADL independent up to self feeding
- On long-term oxygen 1L/min

# Mr CM Wai



- Past medical history:
- COPD
- Ca stomach with gastrectomy in 1990
- Old stroke with left hemiparesis in 2004
- Post stroke epilepsy
  
- **6** admissions for COPD exacerbation in recent 12 months

# Mr CM Wai



- 3 August 2010 (Just discharged 1 week ago)
- Admit for COPD exacerbation
- Presented with increased dyspnea, cough and sputum since discharge
- Conscious and alert
- Dyspneic, fever 38.2°C, BP 161/80, P 110
- Chest: bilateral wheeze and sputum sound

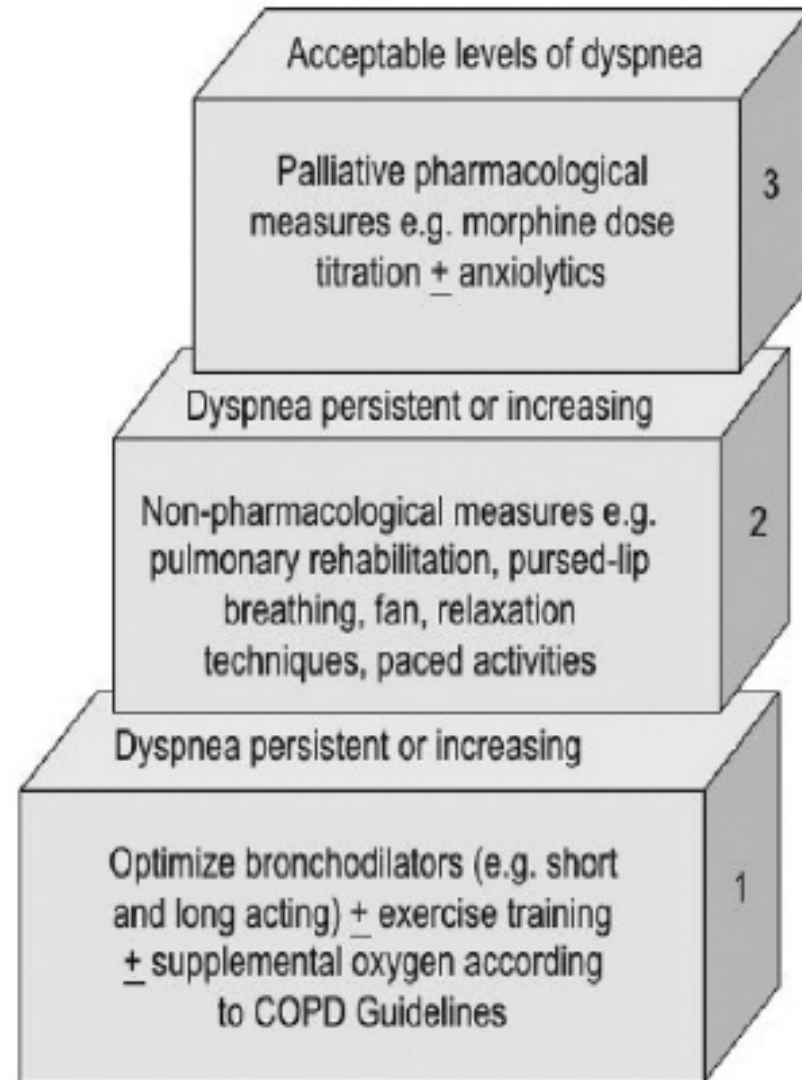
## Mr CM Wai



- Raised WCC 13
- ABG: type II respiratory failure
- CXR: bilateral lower zone consolidation
  
- Treated with Timentin, IV hydrocortisone, Ventolin and Atrovent
- Transferred to geriatric bed on day 4 for convalescence care

# Mr CM Wai

- oral Prednisolone
- Atrovent → Tiotropium
- Chest physiotherapy



DYSPNEA MANAGEMENT IN SEVERE COPD

# Mr CM Wai



- Persistent dyspnea with increased purulent sputum
- Sputum culture: E. coli
- Antibiotic switched to Tazocin according to sensitivity result
- Borderline Swallowing ability assessed by speech therapist:
  - Suggest puree diet, medium thick liquid
  - VFSS +/- tube feeding

# Mr CM Wai

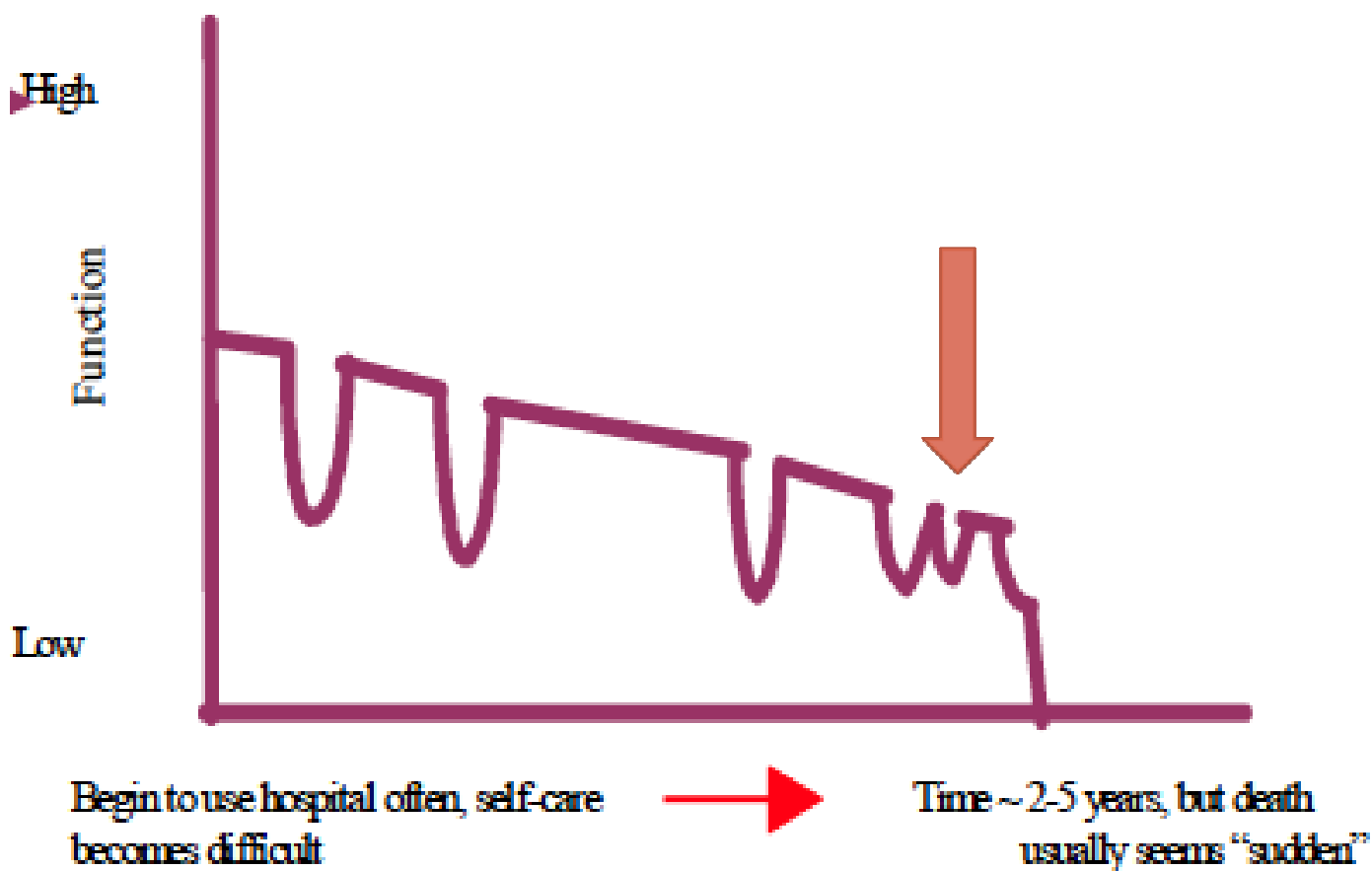


- **Candidate for EOL Care**
  - **Not surprised** if this patient were to die in the next 6-12 months
  - **Clinical indicators**
    - ✦ FEV1 30% predicted
    - ✦ >3 admissions in 12 months
    - ✦ Fulfils long term oxygen therapy criteria
    - ✦ MRC grade 4/5 – homebound because of dyspnea

# End of life care introduced to Mr Wai



- Diagnosis and disease process



# End of life care introduced to Mr Wai



- Role of treatments in improving symptoms, QOL, duration of life
  - Morphine
  - Higher concentration of oxygen
  - BIPAP and mechanical intubation
- Prognosis for survival
- Advance care planning for future medical care and exacerbations
  - Use of more potent antibiotics
  - Issue of intubation and DNR

Introduction of  
EOL care

Readmission

Index admission

FU IDSP

Symptom  
control

Anxiety

Dyspnea

Insomnia

BIPAP

Morphine

# End of life care introduced to Mr Wai



- Implication of VFSS
- Oral feeding vs tube feeding
- Intact mental capacity
- Not depressed
- Fully understood and preferred EOL care

## Mr CM Wai



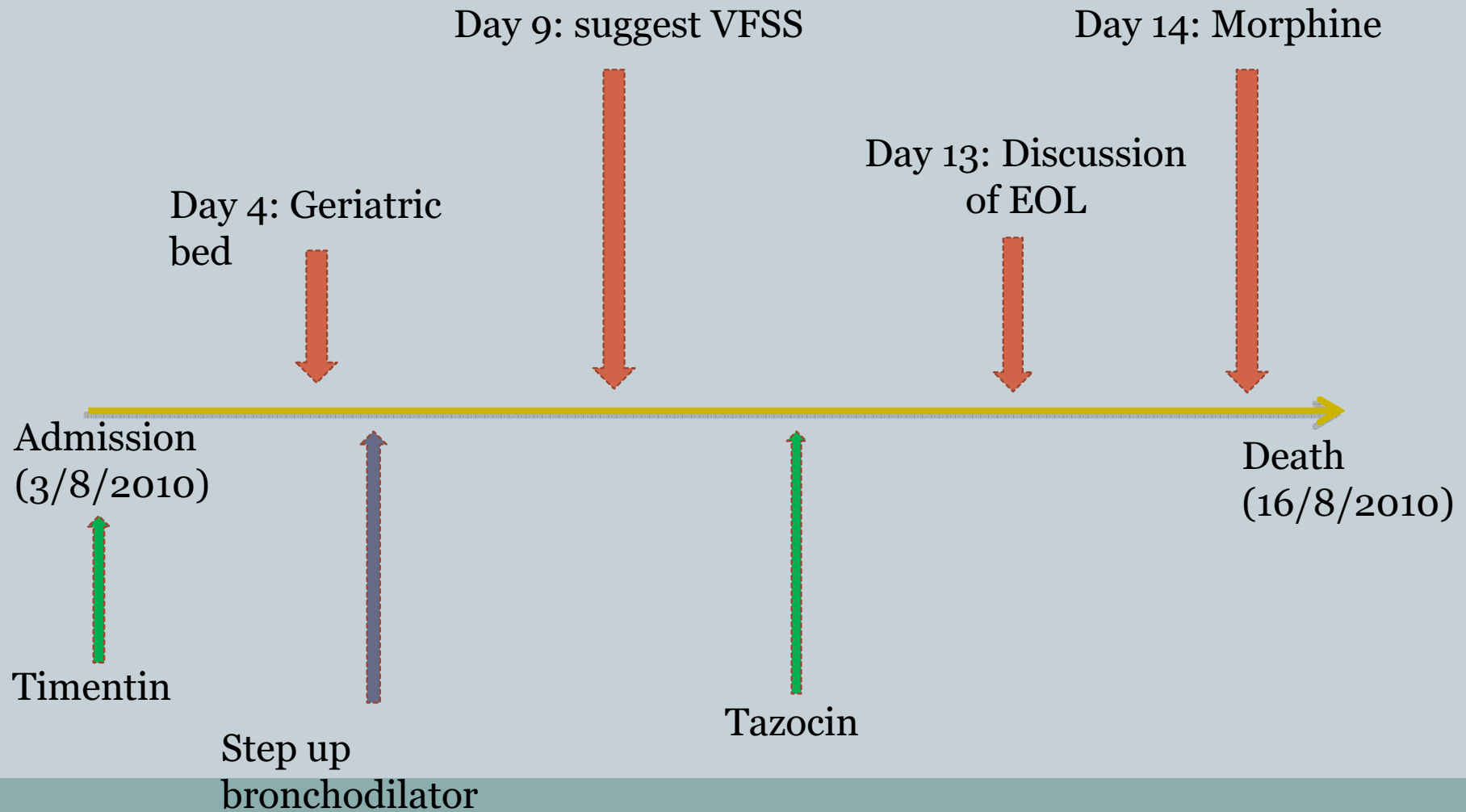
- Preferred oral feeding to tube feeding
- Decided not for escalation of antibiotic
- Wish to have better control on dyspnea
  - with morphine
- Decided not for intubation or BiPAP
- Patient's wish explained to his wife and son, they respected his decision

## Mr CM Wai



- Persistent dyspnea, added on morphine
- Condition further deteriorated
- Finally succumbed peacefully and quietly with the accompany of his beloved family

# Mr CM Wai





- **Emphasize on quality of life rather than curative treatment**
- **Don't simply add years to life but add life to years**
- **AND Never Add Tears to Years**