Oxygen Therapy in COPD: What Do We Know ?
Drummond M,Wise R AJRCCM 2007; 176:321–326

There are known knowns; there are things we know we know. We also know there are known unknowns, that is to say we know there are some things we do not know.
But there are also unknown unknowns—the ones we don't know we don't know.

Donald Rumsfeld

Οι δαπάνες του προγράμματος Medicare το 2002 για την οξυγονοθεραπεία υπολογίσθηκαν στα 2,2 δισ $
ενώ
προβλέπονταν ετήσια αύξηση 12-13% για τα επόμενα χρόνια

Στον Καναδά το 20% του άμεσου κόστους για την αντιμετώπιση της ΧΑΠ
αφορά στην οξυγονοθεραπεία

TABLE 1. SUMMARY OF THE AVAILABILITY OF COVERAGE FOR LONG-TERM HOME OXYGEN TREATMENT UNDER MEDICARE

Measurement		
Arterial O_2 (mm Hg)	O_2 Saturation (%)	At Rest
≤ 55	≤ 88	*Available*
56–59	89	*Available for dependent edema, pulmonary hypertension, or hematocrit > 56*

Evidence B

Evidence D

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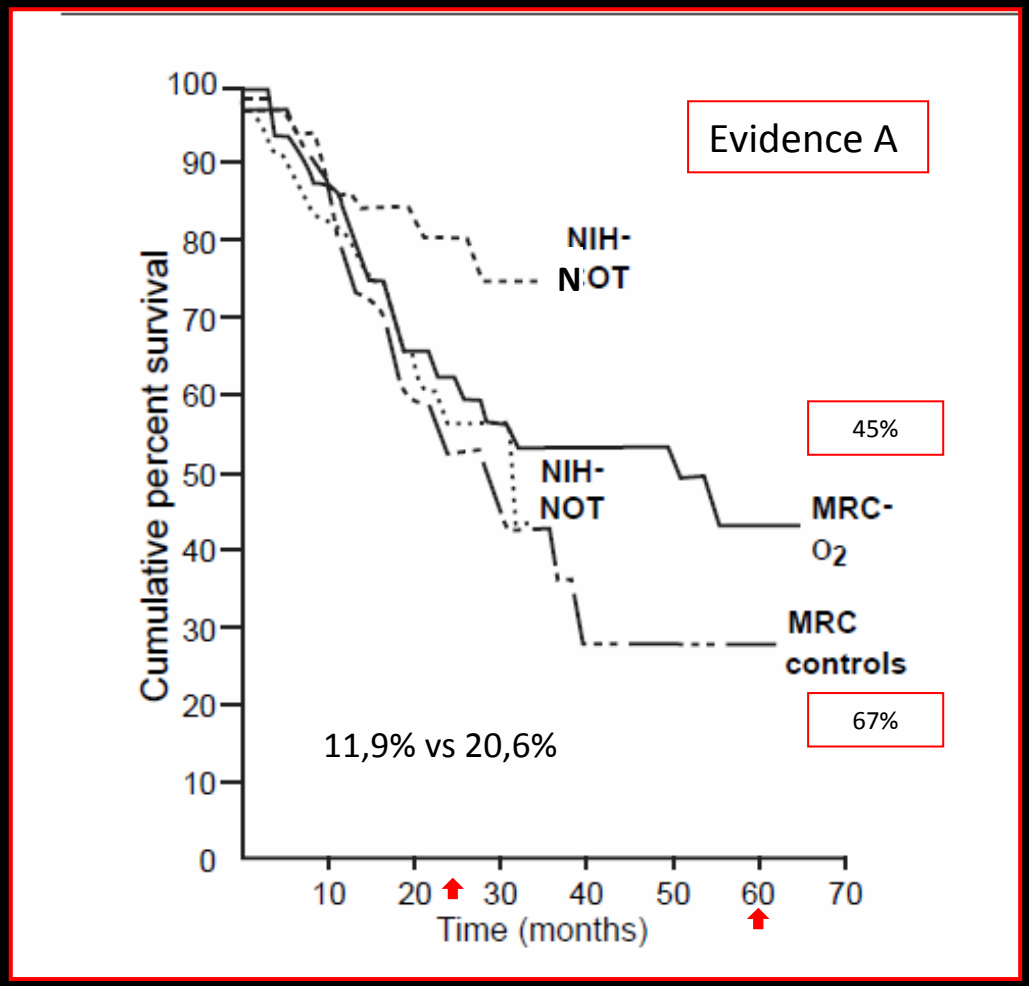
Evidence A
Cumulative percent survival
100
90
80
70
60
50
40
30
20
10
0
NIH-
NOT
45%
NIH-
NOT
MRC-
O2
MRC
controls
67%
11,9% vs 20,6%
10
20
30
40
50
60
70
Time (months)

TABLE 1. COMPARSION OF BRITISH MEDICAL RESEARCH COUNCIL AND NOCTURNAL OXYGEN THERAPY TRIAL LONG-TERM OXYGEN TREATMENT TRIALS

	MRC	NOTT
Number	87	203
Study design	Prospective, controlled	Prospective, controlled
Protocol	No O_2 vs. nocturnal use	Nocturnal vs. continuous use
FEV_1	0.58–0.76 L	29% predicted
Female, %	24	20–23
Pa_{O_2}, mm Hg	49–51	51
Pa_{CO_2}, mm Hg	55–60	43
MPAP, mm Hg	32–35	30
Hours of O_2 use/d	0 vs. 15	12 ± 2.5 vs. 17.7 ± 4.8
Smoking status	25–52%	—

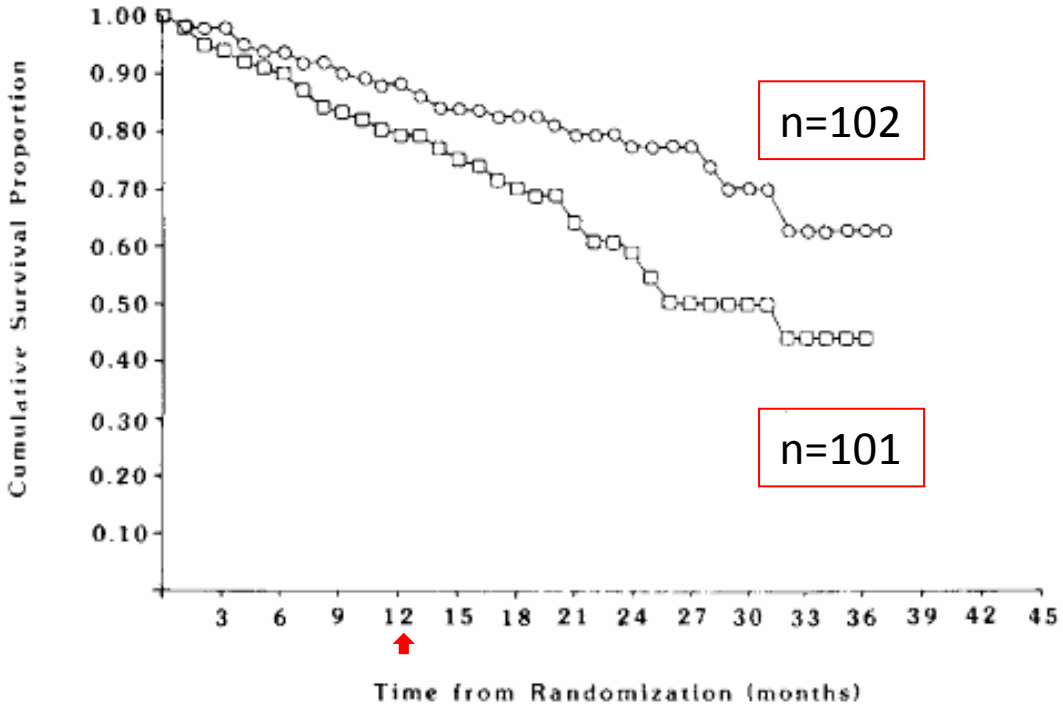

Figure 2. Overall mortality. Ordinate is fraction of patients surviving; abscissa is time from randomization or duration of treatment. Open circles represent continuous O_2 therapy group; squares represent nocturnal O_2 therapy group. Of the total group, 80 nocturnal O_2 and 87 continuous O_2 therapy patients were followed for 12 months, and 29 nocturnal O_2 and 37 continuous O_2 therapy patients were followed for 24 months.

Ann Intern Med 1980; 93: 391-98

Table 1. Entry and Exclusion Criteria

Entry criteria
- Clinical diagnosis of chronic obstructive lung disease
- Hypoxemia
  - $Pa_{O_2} \leqslant 55$ mm Hg
  - $Pa_{O_2} \leqslant 59$ plus one of the following:
    - Edema
    - Hematocrit $\geqslant 55\%$
    - P pulmonale on ECG: 3 mm in leads II, III, aVf
- Lung function*
  - $FEV_1/FVC < 70\%$ after inhaled bronchodilator
  - TLC $\geqslant 80\%$ predicted
  - Age > 35

Exclusion criteria
- Previous O_2 therapy: 12 h/d for 30 days during previous 2 months
- Other disease that might be expected to influence mortality, morbidity, compliance with therapy, or ability to give informed consent

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mental oxygen and with intensive bronchodilator therapy. In practice, patients were initially identified as fitting the entry but not the exclusion criteria, recruited in a preliminary way, and observed for 3 weeks to ensure stability. At the end of this time, if the patients still met these criteria, informed consent was obtained and the patient was hospitalized for a week of baseline studies. At the end of these studies, each patient was randomly allocated by the Data Center to either continuous O_2 or nocturnal O_2 therapy. Randomization schedules were developed sepa-

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TABLE 1. SUMMARY OF THE AVAILABILITY OF COVERAGE FOR LONG-TERM HOME OXYGEN TREATMENT UNDER MEDICARE

Measurement		Condition for Testing[1]	
Arterial O_2 (mm Hg)	O_2 Saturation (%)	At Rest	During Exercise
⩽ 55	⩽ 88	*Available*	Available[2]
56–59	89	*Available for dependent edema, pulmonary hypertension, or hematocrit > 56*	
⩾ 60	⩾ 90	Coverage available only by special approval	
Devices Covered		Stationary ± Ambulatory	Ambulatory ± Stationary

Data from Reference 37. Data in *italics* represent conditions similar to the entry criteria of the NOTT and MRC studies, which showed effects of long-term oxygen treatment on survival in subjects with chronic obstructive pulmonary disease.

[1] While breathing room air in a chronic stable state or no earlier than 2 days prior to hospital discharge.

[2] Requires demonstration that supplemental O_2 improves the exercise-associated hypoxemia.

[3] Also available for subjects who show a greater than normal fall in Arterial O_2 (> 10 mm Hg) or arterial O_2 Saturation (> 5%) during sleep with associated symptoms or signs reasonably attributable to hypoxemia.

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Έχει αποδειχθεί ότι
η χορήγηση O_2 κατά την άσκηση αυξάνει την αντοχή
και/ή μειώνει την ένταση τής μετά την κόπωση δύσπνοιας (Evidence A)

Ωστόσο, δεν υπάρχουν, επί του παρόντος, ικανοποιητικές μελέτες σχετικές με τη χρήση φορητού O_2 από τους ασθενείς με ΧΑΠ

GOLD 2009

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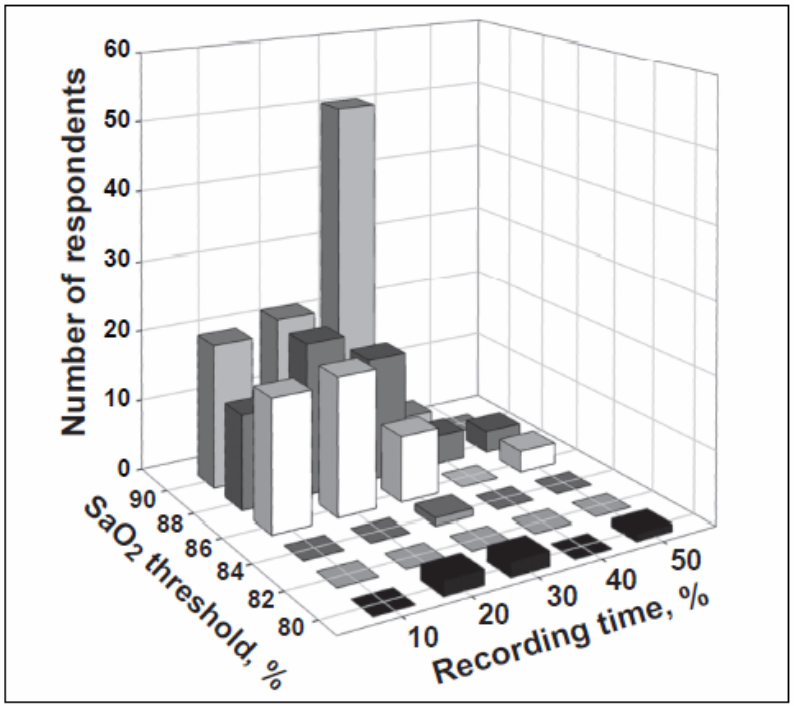
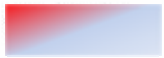


Figure 1) *Definition of 'significant nocturnal oxygen desaturation' (215 respondents; four outliers do not appear on the graph) expressed in terms of percentage of the recording time spent below a given threshold saturation. SaO_2 Arterial oxygen saturation*

Lacasse Y et al Can Respir J 2007; 14: 343-48

TABLE 1
Perceived indications of nocturnal home oximetry in specific clinical circumstances (n=276)

Clinical scenario	Number (%) of respondents who would request a nocturnal oximetry
Scenario #1 Mr W is a 63-year-old patient with severe chronic obstructive pulmonary disease (COPD). He has been stable during the previous year. His resting oxygen saturation is 93%.	
Scenario #2 Mrs X is a patient with physical signs of right heart failure who otherwise does not qualify for long-term oxygen therapy.	
Scenario #3 Mrs Y was hospitalized two months ago for an acute exacerbation of COPD that was complicated by severe hypoxemia. She then left the hospital with a new prescription of home oxygen. Upon re-evaluation, her resting PaO_2 (at room air) is now 65 mmHg.	
Scenario #4 Mr Z is a 74-year-old patient with severe COPD (FEV_1, 36% predicted) who snores and complains of mild daytime sleepiness.	

FEV_1 Forced expiratory volume in 1 s; PaO_2 Arterial oxygen pressure

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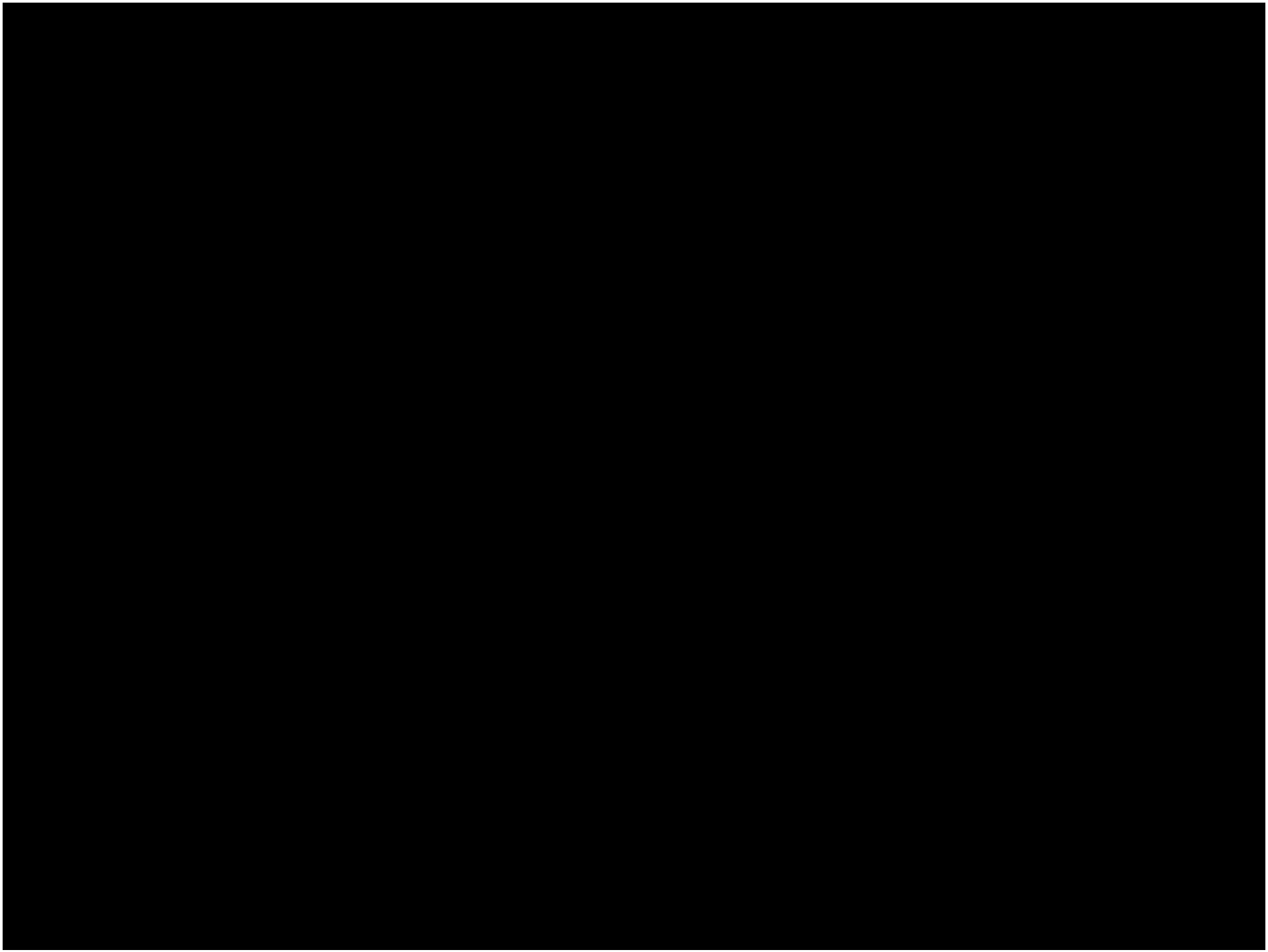
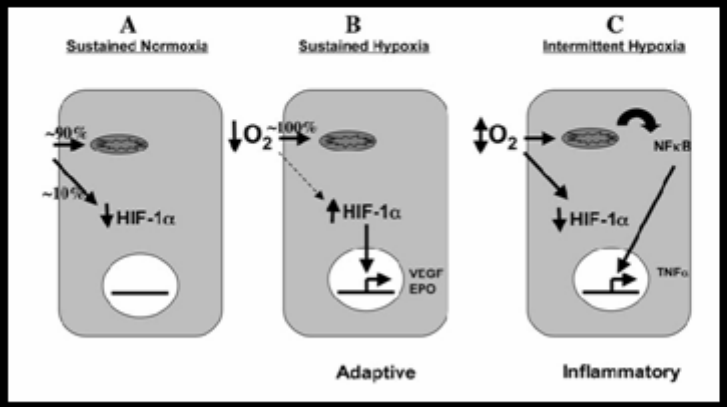
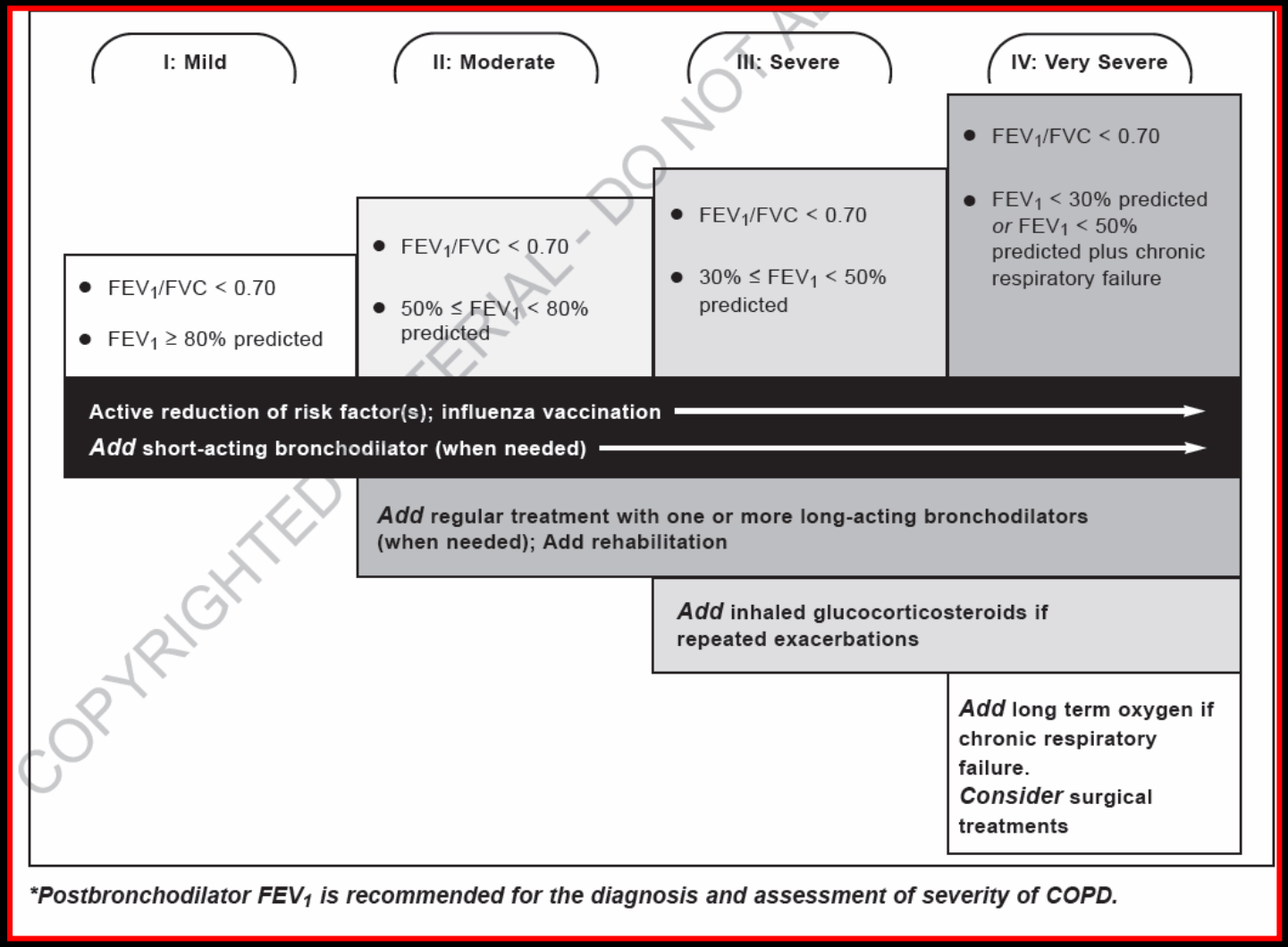


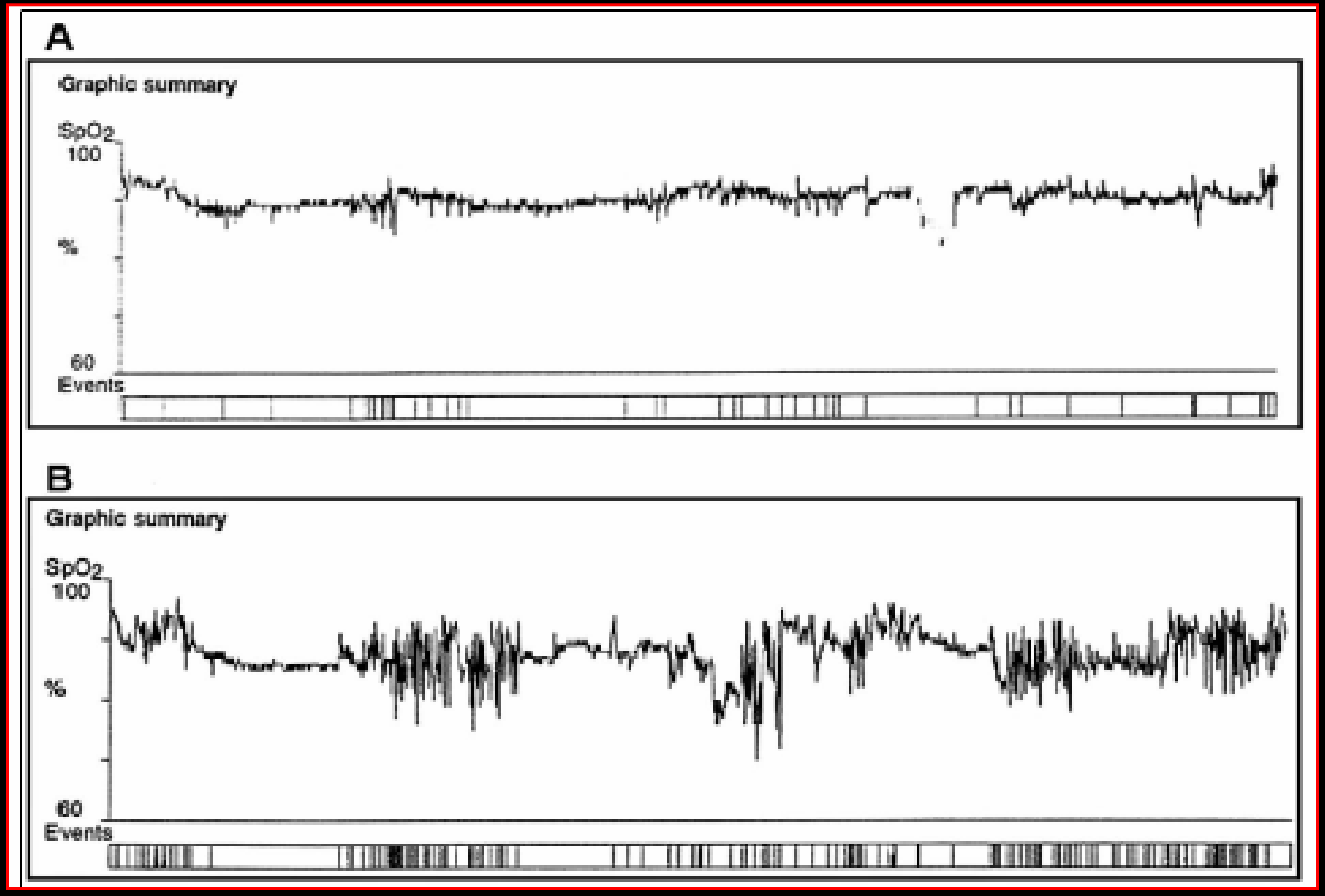
Selective Activation of Inflammatory Pathways by Intermittent Hypoxia in Obstructive Sleep Apnea Syndrome

Silke Ryan, MD; Cormac T. Taylor, PhD*; Walter T. McNicholas, MD*





Postbronchodilator FEV_1 is recommended for the diagnosis and assessment of severity of COPD.



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