

## Background

Dyspnoea is a distressing symptom for patients and carers. It is highly prevalent in advanced COPD (90-95%), CHF (60-88%) and cancer (10-70%) [Solano 2006]. The symptomatic treatment of dyspnoea is still limited but research interest is growing to strengthen the evidence.

## Aim

To demonstrate the current evidence of pharmacological and non-pharmacological interventions for dyspnoea in advanced diseases (COPD, cancer, CHF, ILD, and MND).

## Method

Review of the literature. Sources: MEDLINE (1950-2008), EMBASE (1980-2008), Cochrane databases (1993-2008). Search: RCT, review, guideline combined with terms for dyspnoea; in addition, reference search and related articles link; Study selection: well conducted Systematic Reviews & RCTs. The SIGN classification (Scottish Intercollegiate Guideline Network) was used for grading of evidence and grading of recommendation (appropriateness for clinical practice).



**Opioids and walking aids for the management of dyspnoea**

Opium: <http://www.astroberg-gymnasium.de/Lernzettel/Lehrerzettel/inf/Inf2e2.htm>  
Rollator: [http://www.zigpenlein.com/catalog/product\\_info.php?products\\_id/94](http://www.zigpenlein.com/catalog/product_info.php?products_id/94)



## Results

Good evidence for **significant improvement in reducing dyspnoea**:

1. Opioids
2. Pulmonary rehabilitation (COPD)
3. Non-invasive ventilation (COPD, MND)
4. Neuro-muscular electrical stimulation (COPD)
5. Chest-wall vibration (COPD, MND)
6. Walking aids and breathing training (COPD)

Evidence for **no consistent beneficial effect** for:

1. Benzodiazepines (COPD, cancer)
2. Oxygen (Cancer, CHF)

**Limited data** to judge the evidence for:

1. Inhaled furosemide, phenothiazines, antidepressants, heliox
2. Fan, breathlessness service/counselling and support, acupuncture, music, relaxation, psychotherapy

Intervention	Reference	Disease	Design (number of studies/patients)	Level Evid.*	Results	Effect/Grade of recom.*
<b>Pharmacological interventions</b>						
Opioids	Jennings 2001 Abernethy 2003	COPD, Cancer, CHF COPD, Cancer, MND, ILD	Cochrane SysRev (18 RCTs) RCT (38 pts)	1++ 1++	Significant improvement	+ / A
Benzodiazepines	Simon 2009	COPD, Cancer	Cochrane SysRev (7 RCTs, 1 CCT)	1++	No evidence for improvement	- / B
Oxygen	Cranston 2008	Cancer, CHF, Kyphoscoliosis	Cochrane SysRev (8 RCTs)	1++	No consistent beneficial effect	- / B
<b>Non-pharmacological interventions</b>						
Pulmonary rehabilitation	Lacasse 2006	COPD	Cochrane SysRev (31 RCTs)	1++	Significant improvement	+ / B
Non-invasive ventilation	Heffernan 2006 Kolodziej 2007	MND COPD	SysRev (86 observ. Stud., no RCT) SysRev (6 RCTs, 9 non-RCTs)	2++ 1+	Potential beneficial effects (MND) Significant improvement (COPD)	+ / B
Other 1. Neuro-musc. electrical stimulation 2. Chest wall vibration 3. Walking aids (rollator) 4. Breathing training	Bausewein 2008	1. COPD 2. MND, COPD 3.+4. COPD	Cochrane SysRev (47 RCTs)	1++	1.+2. strong evidence 3.+4. moderate evidence	+ / B

**Table – Characteristics of selected reviews/studies demonstrating the evidence for the management of dyspnoea**

(SysRev = Systematic review; COPD = Chronic obstructive pulmonary disease; CHF = Chronic heart failure; ILD = Intestinal lung disease; MND = Motor neuron disease; RCT = Randomized controlled trial; CCT = controlled clinical trial) \*Levels of Evidence and Grade of Recommendation – SIGN classification (www.sign.ac.uk)

## Conclusion

Only a few interventions have shown evidence for the relief of dyspnoea. These interventions were tested mainly in COPD or cancer, but rarely in a broad range of diseases – which limits the grade of recommendation (A-D).

### Implication for clinical practice:

1. Opioids are the gold standard in the pharmacological management.
2. A broad range of non-pharmacological treatments are recommended.
3. Using benzodiazepines and oxygen only after individual testing (n=1).

### Implications for research:

1. Promising interventions should be tested in a broader range of diseases – e.g. rehabilitation, walking aids, support services, inhaled furosemide.
2. Collaboration and multicenter-RCTs are needed.

## References

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