



Considered judgement on quality of evidence

Key question: Should oxygen therapy be part of the CAP bundle?

1. Volume of evidence

Comment here on any issues concerning the quantity of evidence available on this topic and its methodological quality.

Up to end of 2006

In addition to the recommendations of the BTS CAP guidelines there are relevant recommendations in guidelines on the use of oxygen in any breathless patient (Murphy 2001a) and patients with exacerbations of COPD (Murphy 2001b, SIGN 2004)

2007-10

In 2008 BTS published new guidelines on the use of oxygen in breathless patients (BTS 2008)

Observational study (Blot) on the association between delayed oxygenation assessment and mortality in patients with severe CAP.

Cluster RCT on effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting (Austin 2010)

2. Applicability

Comment here on the extent to which the evidence is directly applicable to the NHS in Scotland.

All of the guidelines cited are from the UK

Blot study carried out in Spanish ITUs, cluster RCT (Austin) carried out in Australia

3. Generalisability

Comment here on how reasonable it is to generalise from the results of the studies used as evidence to the target population for this guideline.

The evidence is applicable to our target population

4. Consistency

Comment here on the degree of consistency demonstrated by the available of evidence. Where there are conflicting results, indicate how the group formed a judgement as to the overall direction of the evidence

The 2008 BTS recommendations are more specific, with defined therapeutic ranges rather than minimum saturations as in earlier guidelines.

Any breathless patient:

BTS 2008 recommends that the oxygen delivery system should be adjusted to maintain oxygen saturation between 94-98%. Earlier guidelines for breathless patients recommended maintaining saturation greater than 90% (Murphy 2001a) and BTS CAP guidelines recommended maintaining PaO₂ at >8 kPa and SaO₂ at >92%.

Patients with COPD

BTS 2008 recommends that the oxygen delivery system should be adjusted to maintain oxygen saturation between **88-92% for patients with risk factor for hypercapnia**

This recommendation is consistent with earlier guidelines, which stated that there is no known value in maintaining an oxygen saturation above 93% in patients with COPD but this may cause respiratory acidosis or worsen pre-existing acidosis (Murphy 2001b, SIGN 2004). However the lower limit of oxygen saturations in earlier guidelines was 90%.

Blot study confirms oxygen therapy an essential element of care for patients with severe CAP.

Cluster RCT (Austin) showed that titrated oxygen treatment significantly reduced mortality, hypercapnia, and respiratory acidosis compared with high flow oxygen in acute exacerbations of chronic obstructive pulmonary disease.

5. Clinical impact

Comment here on the potential clinical impact that the intervention in question might have – e.g. size of patient population; magnitude of effect; relative benefit over other

<i>management options; resource implications; balance of risk and benefit.</i>	
Adequate oxygen therapy will improve the effectiveness and safety of the inpatient treatment for a common medical condition. Failure to assess oxygenation timeously may lead to increased mortality.	
6. Other factors <i>Indicate here any other factors that you took into account when assessing the evidence base.</i>	
None	
7. Evidence statement <i>Please summarise the development group's synthesis of the evidence relating to this key question, taking all the above factors into account, and indicate the evidence level which applies.</i>	Evidence level
We have adopted the recommendations of the BTS 2008 guidelines. These guidelines were based on expert opinion supported by case series. However, the two studies published since 2008 provide stronger evidence to support early assessment of oxygen saturation and treatment to target.	2⁺
8. Recommendation <i>What recommendation(s) does the guideline development group draw from this evidence? Please indicate the grade of recommendation(s) and any dissenting opinion within the group.</i>	Grade of recommendation
Assessment of oxygen saturation in all patients and prescription of oxygen if necessary (to maintain O₂ Sats between 94-98% or 88-92% for patients with risk factor for hypercapnia) during first 4 hours should be part of the care bundle	B