Review: hospital at home is as effective as inpatient care for mortality and hospital readmissions in patients with acute exacerbations of chronic obstructive pulmonary disease


**Q** Is hospital at home (HaH) as effective as inpatient care for reducing mortality and readmission to hospital in patients with acute exacerbations of chronic obstructive pulmonary disease (COPD)?

**METHODS**

Data sources: Medline, EMBASE/Excerpta Medica, Science Citation Index, Cochrane Controlled Trials register, UK National Research Register, Web of Science, individual respiratory journal websites, and proceedings of the European Respiratory Society, American Thoracic Society, British Thoracic Society, and Thoracic Society of Australia and New Zealand (up to and including May 2003).

Study selection and assessment: randomised controlled trials (RCTs) in any language that compared HaH with inpatient care for patients who were randomised within 72 hours of presenting to the emergency department (ED) with an acute exacerbation and were initially assessed by the hospital medical team. Exclusion criteria included patients with impaired consciousness, acute confusion, acute changes in radiography or electrocardiography, arterial pH < 7.35, concomitant medical conditions, or who attended the ED for social reasons. 2 independent reviewers assessed the methodological quality of studies using the Cochrane approach to assessment of allocation concealment (adequate, uncertain, or clearly inadequate).

Outcomes: readmission to hospital, mortality, number of patients with acute COPD exacerbations, and costs.

**MAIN RESULTS**

Of the 7 RCTs (n = 754) that met the selection criteria, 6 had adequate allocation concealment, and 1 had uncertain allocation concealment. HaH comprised care by a specialist nurse according to initial assessment in the ED (guided by the hospital medical team), and visits by a respiratory nurse until discharge from care. Inpatient care comprised usual treatment at the discretion of the hospital medical team.

Meta-analysis was done using a fixed effects model. The HaH and inpatient groups did not differ for the number of patients readmitted to hospital or for mortality (table). 4 trials reported cost analyses: 2 found that HaH was less expensive than inpatient care (average savings per patient £536, 95% CI £532 to £540), 1 found that the mean health service cost for HaH was approximately half of inpatient care (£667 v £1405, p = 0.003), and 1 trial reported a savings of 201 bed days/year with HaH care.

**CONCLUSION**

In patients with acute exacerbation of chronic obstructive pulmonary disease, hospital at home does not differ from inpatient care for hospital readmissions or mortality.

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**Hospital at home (HaH) v inpatient care for acute exacerbations of chronic obstructive pulmonary disease***

<table>
<thead>
<tr>
<th>Outcomes at 2-3 months after initial exacerbation</th>
<th>Number of trials</th>
<th>Inpatient care</th>
<th>RRR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients readmitted to hospital</td>
<td>7</td>
<td>28%</td>
<td>31%</td>
</tr>
<tr>
<td>Mortality</td>
<td>6</td>
<td>5.3%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

*Abbreviations defined in glossary; RRR and CI calculated from data in article using a fixed effects model.

**Commentary**

Several investigations have compared HaH care with traditional hospital care. Although most studies have shown that HaH is as effective as inpatient care but less costly, the patient populations, inclusion criteria, and endpoints differed. Ram et al pooled the results of 7 studies of patients with COPD who had acute exacerbations. More recent studies reached similar conclusions.

Major strengths of this review include the comprehensive search strategy that was used to identify studies and the well defined inclusion criteria. 2 independent reviewers agreed on the quality of all included RCTs.

A limitation of the findings lies in the original research. Although all of the included studies assessed HaH care by a specialist respiratory nurse, the frequency and length of care varied, as did ancillary services. Patients randomised to inpatient care received usual care, which varied among hospitals. This variability can make evaluation of endpoints difficult and result in flawed estimates of costs and bed-day savings.

The review by Ram et al is relevant to nurses who work in EDs, with respiratory patients, or in home health. Information about cost advantages and patient or family preferences will aid nurses in procuring optimal treatment settings for patients and help to promote early discharge from inpatient settings.

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