

# CAHE JC Critically Appraised Article Summary

## Journal Club Details

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<b>Date of submission</b>	2007
<b>Journal Club location</b>	Southern Cross
<b>JC Facilitator</b>	Jane Campbell

## Clinical Scenario

Home-based interventions for elderly adults with COPD

## Review Question/PICO/PACO

Is a home-based intervention for elderly adults with COPD, recently discharged from hospital, effective in preventing hospital readmission?

- P** People aged over 60 years, recently discharged from hospital with a main diagnosis of COPD
- I** Comprehensive therapy assessment/package in the home
- C** No intervention
- O** QOL, Readmission to hospital (& length of stay), lung function/exercise performance

## Article/Paper

Behnke M, Taube C, Kirsten D, Lehnigk B, Jorres RA & Magnussen H 2000, 'Home-based exercise is capable of preserving hospital-based improvements in severe chronic obstructive pulmonary disease', *Respiratory Medicine*, 94: 1184-1191.

**Article Methodology:** Randomised Controlled Trial

**Returned JC on:** 4 December 2007

**By CAHE staff member:** Mat Prior





Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>The authors asked a clearly focused question in that they specified wanting to determine, in a COPD group recently discharged from in-patient care, "...whether the improvements...could be maintained after discharge by home-based walking integrated into daily activities."</p> <p>However, this question could be further clarified by explicitly stating the outcomes of interest, or what outcomes they are hoping to improve.</p>
2	✓			<p>It appears that this was a randomised controlled trial, and that it was appropriate to do so to provide an answer to the research question.</p> <p>However, whilst we are told that the 46 patients were randomly allocated into either a training or control group, we are not told how this randomisation occurred (eg random number generator, blinded selection of numbers)</p>
3		✓		<p>As aforementioned, whilst we are told that random allocation occurred, we are not told how this took place, and so cannot be sure that 'true' randomisation occurred.</p> <p>However, each group had similar gender and age distributions. The number of, and distribution by type, of subject drop-outs from the initial sample (16 of the initial 46) was similar between groups.</p> <p>Also, there were no between-group differences at baseline in any of the lung function or fitness measures taken.</p>
4			✓	<p>Neither the patients nor staff/study personnel were blinded to group allocation. Notably, the same investigator (lead author) supervised both groups and appears to have taken many of the measures.</p> <p>Thus, there is the potential for bias in this study, notably observer bias.</p>
5	✓			<p>Yes – all patients who entered the trial were accounted for at its conclusion. Of the 46 patients who were entered into the trial, 16 failed to complete the programme. 4 patients had an exacerbation, 6 dropped out due to a lack of motivation, 4 patients contracted unrelated diseases/illnesses, whilst two patients died.</p> <p>Only the 30 patients who completed the trial were analysed. However, particularly with regard to those patients who suffered an exacerbation, collecting and reporting data on their lung function and exercise capacity maintenance following their first discharge would have been very beneficial, and would have provided an insight to determine whether the hospital-based improvements slowly diminished to a point at which an acute exacerbation occurred, or whether improvements were maintained until the acute exacerbation.</p>



Ques No.	Yes	Can't Tell	No	Comments
6			✓	<p>In all patients, lung function, fitness/exercise performance and symptoms were assessed at the same time (1,2,3,6 months after discharge).</p> <p>However, patients in the training group received a face-to-face visit with one of the investigators during the first three months post-discharge, then were checked on via monthly telephone call. It needs to be considered that any results achieved by this group may be as a result of 'performance bias', whereby there is greater motivation on these patients to exercise and conform to the intervention prescribed to them.</p>
7		✓		<p>No power calculations are reported. However, it would appear likely that the sample size may have been inadequate (n=30 patients analysed)</p>
8				<p>Before presenting the results, it should be noted that whilst the study aimed to determine if home-based interventions could maintain hospital-based improvements, most of the follow-up comparisons (3 &amp; 6 months) were made against baseline values, which represent the situation at the time of admission, rather than at the end of in-patient stay. Improvements from baseline, where reported, are to be expected, even in the absence of a home-based program. 'Maintenance' aspects of the results are presented here where able to be determined.</p> <p><b>RE-ADMISSION</b></p> <p>Whilst these patients were not included in formal analysis, 4 patients had further exacerbations (potentially requiring hospitalisation). Only one patient who was allocated to the training group had an exacerbation, compared to three in the control group. (Small numbers precluded calculating the significance of this.)</p> <p><b>QUALITY OF LIFE</b></p> <p>Scores achieved during hospitalisation were maintained in the control group, but significant improvements (p&lt;0.05) were recorded in the training group.</p> <p><b>EXERCISE PERFORMANCE/6MWD</b></p> <p>Whilst 6MWD at 3 &amp; 6 months was significant greater than at day 1 in the training group (p&lt;0.001), but not the control group. From Figure(a), it appears that the 6MWD at discharge was stable in both groups throughout the follow-up periods (overlapping confidence intervals).</p> <p>In the training group, the mean daily distance walked during the home-based intervention period was 2308 ± 532m.</p> <p><b>DYSPNOEA</b></p> <p>We are not explicitly told how to interpret the presentation of dyspnoea scores as measured by the TDI, however as scores increased from baseline to day 11, it would be reasonable to assume increased scores represent less dyspnoea. Whilst groups significantly</p>

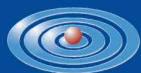


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Ques No.	Yes	Can't Tell	No	Comments
				<p>differed at the end of the in-patient period (Figure (c)), both recorded similar significant decreases by month 2. From months 2 – 6, the training group maintained a stable TDI score, whereas the control group recorded another significant decrease.</p> <p><b>LUNG FUNCTION (FEV, FVC, TLC, RV, ITGV)</b></p> <p>Whilst values were significantly increased compared to baseline, values at 3 and 6 months for both groups were not significantly different compared to day 11.</p>
9				<p>A combination of p values (level of significance <math>p=0.05</math>) and confidence intervals in graphs were used to display the significance of the results. However, most of the summarised results presented above were extrapolated from graphs and tables, as statistical comparisons were made against baseline values (not discharge values)</p>
10			✓	<p>Not all important outcomes were considered. Most notably, only home-based exercise in the training group was monitored and analysed. It is feasible to suggest that many in the control group may have been physically active, and have continued performing their pre-hospitalisation level of activity once discharged.</p> <p>As it can't be determined whether the level of home-based exercise between the two groups actually differed, a definitive statement cannot be made to either advocate or refute the use of such a home-based intervention to maintain hospital-based improvements in COPD patients. Improvements of the hospital-based intervention are not in question, however whether such improvements are maintained by exercise interventions cannot be confidently determined. Moreover, patients who had an exacerbation were excluded from analysis, which could be considered to skew the results in favour of the intervention.</p> <p>However, there is much literature advocating the use of exercise programs in the ongoing management of COPD and other respiratory conditions, and we would continue to advocate their use. It should also be noted that in very few measures in this study did the outcomes diminish – thus maintenance was achieved. Such an intervention described in this study appears inexpensive and relatively simple to administer. Additional health benefits from exercise have been described in various populations, and as such their use is still encouraged.</p>