Impact of care pathways for in-hospital management of COPD exacerbation: a systematic review

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CRD summary
The authors concluded that based on the limited available research, accurate conclusions on the impact of chronic obstructive pulmonary disease care pathways could not be drawn. This reflects the evidence presented and, despite some potential limitations in the review process, these conclusions are likely to be reliable.

Authors' objectives
To evaluate the impact of care pathways for in-hospital management of chronic obstructive pulmonary disease (COPD) exacerbation.

Searching
MEDLINE, CINAHL, EMBASE and The Cochrane Library and Google were searched from 1990 to May 2010; search terms were reported. Reference lists of selected articles were screened and an expert in the field was consulted for further articles. The European Respiratory Society, European Pathway Association and the international care pathway conference were approached for additional studies.

Study selection
Studies that evaluated care pathways for patients hospitalised with a COPD exacerbation were eligible for inclusion. Study designs could include experimental, quasi-experimental, variance analysis and interviews of professionals and patients. The European Pathway Association definition of a care pathway was used, criteria included: a defined group of patients for a defined period; an explicit statement of goals and elements of care based on evidence, best practice, patients' expectations and characteristics; co-ordination of roles and sequencing of activities of the multidisciplinary care team, patients and relatives; documentation, monitoring and evaluation of variances and outcomes and identification of relevant resources.

Studies included care pathways which were multi-disciplinary structured care plans outlining time-specific clinical interventions and responsibilities by discipline. Outcomes were evaluated using a variety of instruments. One study had usual care as a control group, the remaining studies used pre-intervention historical control groups. Studies were conducted in the USA, Australia, Northern Ireland and Belgium and were published from 1995 to 2006.

One author assessed titles and abstracts. Two reviewers independently selected studies for inclusion from full text of each publication.

Assessment of study quality
Study quality was assessed based on: sampling method; data collection; method and statistics; description of groups; distribution of prognostic factors; description of the intervention; generalisability of the results; and limitations of the studies.

The authors did not state how many reviewers assessed quality.

Data extraction
Data for process, clinical and team outcomes were extracted. Study authors were contacted for additional information, where necessary. The authors did not state how many reviewers extracted the data.

Methods of synthesis
Data were combined in a narrative synthesis with additional data, including differences in means, provided in tables.

Results of the review
Four quasi-experimental studies (approximately 475 participants) were included in the review: one non-randomised
controlled trial (162 participants) and three pre-post test design studies (313 participants, where reported). Sample sizes in each study ranged from 50 to 178 participants, where reported.

There was a statistically significant reduction in length of stay in one study for in-hospital management of patients with COPD exacerbation, but three studies found no statistically significant differences between groups. There were also statistically significant improvements in mean anxiety score for participants of in-hospital management compared to usual care (one study).

There were no significant differences between groups for re-admission (two studies), but one study did report a statistically significant longer interval before readmission for the in-hospital management group compared to usual care.

There were no statistically significant differences between groups for in-hospital mortality (two studies), or complications (one study).

Other results were reported.

**Authors’ conclusions**
Accurate conclusions on the impact of COPD care pathways could not be drawn based on the limited available research.

**CRD commentary**
The review question was clear and inclusion criteria reported. Several relevant sources were searched. Efforts were made to locate unpublished literature which reduced the potential for publication bias. It was unclear whether language restrictions were applied. Study quality was assessed and the results reported narratively for each study. Appropriate methods to reduce reviewer error and bias were used for some stages of the study selection process, but it was unclear whether similar methods were used for quality assessment and data extraction. A narrative synthesis was appropriate given the differences between studies in terms of interventions and reporting of outcomes.

The authors appropriately highlighted weaknesses in the evidence including the small number of studies, with small sample sizes and methodological weaknesses. It should also be noted that the latest study was published in 2006 and so the results may not have been applicable to more recent practice. Some of the review authors were involved in this latest study. The authors cautious conclusions reflect the evidence presented and, despite some potential limitations in the review process, are likely to be reliable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further robust research, such as a cluster randomised controlled trial, was needed to evaluate the impact of COPD care pathways on performance of care processes, clinical outcomes and teamwork. The authors identified one ongoing cluster randomised controlled trial that evaluated the impact of care pathways.

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