Do guidelines guide pneumonia practice: a systematic review of interventions and barriers to best practice in the management of community-acquired pneumonia

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CRD summary
The authors concluded that interventions which encourage adherence to community-acquired pneumonia guidelines are safe and are associated with improvements in patient and process outcomes. The limited search, inadequate reporting of review methods and quality assessment of the included studies, and the paucity of good quality evidence, make the reliability of such a strong conclusion uncertain.

Authors’ objectives
To evaluate the effects of guidelines for the treatment of community-acquired pneumonia (CAP) and to identify barriers to the adoption and use of CAP guidelines; this abstract concentrates on the effect of the intervention.

Searching
MEDLINE was searched from inception to July 2004 for English language reports; the search terms were reported. In addition, the reference lists of the retrieved studies were screened and experts in the field were contacted.

Study selection
Study designs of evaluations included in the review
Before-and-after studies with concurrent (external) controls, time series and randomised controlled trials (RCTs) were eligible for inclusion. Uncontrolled before-and-after cohort studies and studies that only used a historical control were excluded.

Specific interventions included in the review
Studies that evaluated the use of practice guidelines for CAP were eligible for inclusion. The included studies evaluated site-specific clinical pathways, American Thoracic Society guidelines with local adaptations, locally developed guidelines with and without a multifaceted implementation strategy, and a critical pathway. The interventions were conducted in teaching and community hospitals, hospitals in integrated health care systems and tertiary care hospitals.

Participants included in the review
Studies of patients with CAP were eligible for inclusion; no further participant details were reported.

Outcomes assessed in the review
It was clear that studies that assessed quality of care outcomes and process outcomes were eligible for inclusion. The outcomes reported included length of stay (LOS) or bed days per patient managed (BDPM), mortality, the decision to admit to hospital, the time till administration of first antibiotic, the use of guideline-recommended antibiotics, appropriate monotherapy and the duration of intravenous therapy.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data
For each study, data on LOS or BDPM and mortality were extracted for each treatment group, together with the levels of statistical significance of the difference between treatment groups. The rates of hospital admissions, guideline-recommended antibiotic use and adherence were also extracted.

**Methods of synthesis**

How were the studies combined?
The studies were presented in a narrative.

How were differences between studies investigated?
Differences between the studies were apparent from the data extraction tables.

**Results of the review**

Six studies (n=31,618) were included: 2 cluster RCTs (n=2,351), 2 before-and-after studies with concurrent controls (n=28,840) and 2 time series (n=427).

One cluster RCT, 1 before-and-after study and 1 time series reported statistically significant reductions in LOS or BDPM, and 1 before-and-after study reported statistically significant reductions in mortality when patients received CAP treatment according to the guidelines; other studies reported no significant difference in LOS or BDPM (3 studies) or mortality (4 studies) between patient groups.

All 6 studies reported significant improvements in at least one process measure in patients receiving CAP treatment according to the guidelines. Improvements were found in the hospital admission rates for low-risk patients (1 study), the time till administration of first antibiotic (2 studies), the use of guideline-recommended antibiotics (1 study), and the use of appropriate monotherapy and a shorter duration of intravenous therapy (1 study).

**Authors' conclusions**

Interventions that encourage adherence to CAP guidelines are safe and are associated with improvements in patient and process outcomes.

**CRD commentary**

The review addressed a clear question that was defined in terms of the participants, intervention, outcomes and study design; the inclusion criteria for outcomes and study design were broad. Although experts in the field were contacted (so unpublished studies may have been identified), only one database was searched and only English language studies were included, therefore publication and language bias might have resulted in the omission of relevant studies. Study validity was not assessed and few study details were provided. The methods used to select the studies and extract the data were not described, so it is not known whether any efforts were made to reduce reviewer error and bias.

In view of the diversity of the studies, a narrative synthesis was appropriate. However, the results were not discussed with respect to study design or any other indicator of study quality, and reporting tended to focus on positive results. Only results data for LOS or BDPM and mortality were reported consistently for each study in the tables, and so it was not possible to confirm the reporting for other outcomes. In addition, potential causes of differences among the studies were not discussed. The limited search, the lack of an assessment of the quality of the included studies, and the lack of reporting of review methods and of some results, make it difficult to confirm the reliability of the authors' conclusion. A more cautious conclusion might have been appropriate in view of the inconsistent results from a small number of studies of variable design.

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

Practice: The authors did not state any implications for practice.
Research: The authors stated that future studies which evaluate CAP guidelines should be well designed, examine multiple strategies to overcome barriers to the adoption of guidelines, and convince care providers that adherence to guidelines can improve patient outcomes.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.