In patients with out-of-hospital cardiac arrest, does the provision of dispatch cardiopulmonary resuscitation instructions as opposed to no instructions improve outcome:

a systematic review of the literature

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CRD summary
The authors concluded that there was limited evidence to support the survival benefit of dispatch-assisted cardiopulmonary resuscitation and studies lacked statistical power to draw significant conclusions. The evidence base was very limited and there were some issues with the reporting methods in the review, but the authors conclusions reflect the available evidence and seem reasonable.

Authors' objectives
To compare the effects of dispatch-assisted cardiopulmonary resuscitation instructions versus no instructions on outcomes in adults and children with out-of-hospital cardiac arrest.

Searching
PubMed, EMBASE, SCOPUS and Cochrane Database of Systematic Reviews were searched between 1985 and December 2009. Google Scholar was also searched. Search terms were reported.

Study selection
Studies that compared dispatch cardiopulmonary resuscitation instructions versus no instructions in adults and children, who experienced out-of-hospital cardiac arrest, were eligible for inclusion if they reported survival outcomes.

Included studies were conducted in the United States, Canada and Finland. Studies were in adult populations. Patients were discharged from hospital between 1976 and 2003.

Two reviewers independently screened studies for inclusion and this was checked by an appointed Committee on resuscitation. Discrepancies were resolved by consensus.

Assessment of study quality
Study levels of evidence and quality rating (good, fair or poor) were assessed according to International Liaison Committee on Resuscitation criteria.

The authors did not state how many reviewers performed the quality assessment.

Data extraction
The authors did not state how data were extracted, but data were presented on survival, rate of bystander cardiopulmonary resuscitation, time interval to the recognition of cardiac arrest and start of dispatcher-assisted cardiopulmonary resuscitation, and rate of dispatch cardiopulmonary resuscitation instructions.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
Results were presented as a narrative synthesis and in tables, grouped by outcome measure.

Results of the review
Five studies were included in the review. The total number of patients included in the studies was unclear. Three studies were before-after cardiopulmonary resuscitation training programme studies and two were retrospective cohort studies. All five studies were deemed to have been fair quality.

System-wide implementation of dispatch cardiopulmonary resuscitation programmes showed inconsistent effects on survival (three studies); one study showed improvements with dispatcher assisted instructions, one showed a non-
significant improvement, and the third reported a decrease in overall survival.

Two studies compared bystander cardiopulmonary resuscitation with versus without dispatcher assistance. One indirect comparison study showed improvements with and without dispatcher assistance compared with no bystander cardiopulmonary resuscitation (CPR), with the dispatcher assisted resuscitation showing a trend towards greater improvements when indirectly compared with no dispatcher assistance. The second study showed significantly better survival when bystanders received dispatcher assistance.

Timings on the recognition of cardiac arrest and start of dispatcher-assisted cardiopulmonary resuscitation, rate of bystander cardiopulmonary resuscitation, and rates of dispatcher instructions were reported in the review.

**Authors’ conclusions**
There was limited evidence to support the survival benefit of dispatch-assisted cardiopulmonary resuscitation and studies lacked statistical power to draw significant conclusions.

**CRD commentary**
The review question and inclusion criteria were broad but clearly stated. Several databases were searched for relevant literature, but unpublished data were not searched, which meant that relevant data may have been missed. It was unclear whether any language restrictions were applied. The authors performed study selection in duplicate, but did not state whether quality assessment and data extraction were performed in duplicate. Reviewer error and bias could not be ruled out. Study quality was assessed, although it was unclear which criteria were addressed.

Reporting of patient characteristics was very limited; there were also considerable differences in hospital discharge dates (1976 to 2003) which could reflect differences in procedures over time. Only a small number of fair quality studies were included in the analysis, which the authors acknowledged, so evidence synthesis was limited. The authors acknowledged that the difference in findings could be the consequence of the quality of cardiopulmonary resuscitation given by bystanders. The evidence base was very limited and there were some issues with the reporting methods in the review, but the authors conclusions reflect the available evidence and seem reasonable.

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

**Practice:** As it was demonstrated that dispatch-assisted cardiopulmonary instructions could improve bystander cardiopulmonary resuscitation rates, it was reasonable to recommend they should be provided to all callers who reported a victim in cardiac arrest (until there is further evidence of the overall survival benefit of dispatch-assisted instructions).

**Research:** The authors did not state any implications for practice and research.

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