CRD summary
The authors concluded that dopexamine did not improve in-hospital mortality in patients undergoing major abdominal surgery or in the critically ill. The conclusions reflected the evidence presented, but need to be viewed with caution given the absence of effect from the small number of trials reviewed.

Authors' objectives
To evaluate the effect of dopexamine (beta-2-adrenergic receptor agonist) on in-hospital mortality in patients undergoing major abdominal surgery and in the critically ill.

Searching
MEDLINE (1950 to July 2007), EMBASE (1974 to July 2007), CINAHL, PubMed and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched for studies published in English. Grey literature (abstract and poster conference presentations) and reference lists of related reviews and original articles were handsearched.

Study selection
Prospective, randomised controlled trials (RCTs) that compared dopexamine with a placebo or control in adult patients were eligible for inclusion. Paediatric studies and studies not in English were excluded. The primary outcome measure was all-cause (in-hospital) mortality.

The majority of the included trials included patients who underwent major gastrointestinal, urological and vascular surgery. In included trials, the doses of dopexamine ranged from 0.125 to 2.0 μg/kg⁻¹/min⁻¹. Outcomes assessed included all-cause mortality, 28-day mortality, morbidity, postoperative complications, and gastrointestinal permeability.

Two reviewers independently screened studies for inclusion; there was no disagreement between the reviewers.

Assessment of study quality
Trial quality was assessed using the Jadad scale. Trials were awarded a score of between 0 and 5 points based on the adequacy of randomisation, blinding and level of drop-outs. The adequacy of allocation concealment and intention-to-treat analysis were also assessed using the Cochrane approach.

Two reviewers independently assessed study quality; there were no disagreements between the reviewers.

Data extraction
Two reviewers independently extracted outcome data (proportion of patients with all-cause mortality) using a pre-defined data abstraction form; there was no disagreement between the reviewers.

Methods of synthesis
Pooled relative risks (RR) and 95% confidence intervals (CIs) were calculated using random-effects meta-analysis (DerSimonian and Laird methods). Sensitivity analysis was carried out by examining the impact of excluding selected trials (e.g. where dopexamine was administered in both the control and intervention groups, trials with large sample sizes, low quality trials). Heterogeneity was assessed using the Cochrane Q test and I² statistic. Publication bias was assessed using the funnel plot.

Results of the review
Six RCTs were included in the review (n=935 patients). Four trials had a Jadad score of 3 or more and were considered high quality. The Cochrane Q test for heterogeneity was not significant (p=0.13), while the I² statistic was 42%, indicating moderate heterogeneity. Funnel plot was asymmetrical indicating presence of publication bias.
Dopexamine (0.125 to 2.0 μg/kg⁻¹/min⁻¹) had no effect on in-hospital mortality (RR 0.75, 95% CI 0.48 to 1.18; six RCTs). Similarly, low dose dopexamine (1 μg/kg⁻¹/min⁻¹ or less) had no effect on mortality (RR 0.62, 95% CI 0.37 to 1.06; four RCTs; n=589 patients).

Sensitivity analysis showed that results did not change significantly on omission of selected trials.

**Authors' conclusions**
Dopexamine did not improve in-hospital mortality in patients undergoing major abdominal surgery or in the critically ill.

**CRD commentary**
The review question was clearly stated. Several relevant databases were searched without any language limitations, but exclusion of papers not in English may have introduced language bias. Publication bias was assessed and considered to be significant. The risk of reviewer error and bias was minimised as the review processes were conducted in duplicate.

Quality of trials was assessed using appropriate criteria and the results used to inform synthesis of results. The methods used to account for trial differences in the meta-analysis were justified. The authors acknowledged the potential for publication bias and the small number and sample sizes of included trials.

The authors' conclusions reflected the evidence presented, but need to be viewed with caution given the absence of effect from the small number of trials reviewed.

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

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

**Research:** The authors stated that further high quality RCTs are needed to determine the efficacy of dopexamine on in-hospital mortality in patients undergoing major abdominal surgery and in the critically ill.

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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.