Introduction
The American College of Cardiology (ACC)/American Heart Association (AHA) guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery has classified endovascular aortic aneurysm repair (EVAR) as intermediate-risk surgery. This guideline is not evidence-based. The aim of this study was to determine the incidence of major cardiac morbidity and mortality reported in the prospective randomised controlled trials of elective open abdominal aortic aneurysm (AAA) repair versus EVAR. By definition, intermediate surgery should have a combined incidence of 30-day cardiac death and nonfatal myocardial infarction of 1 to 5%, and major surgery should exceed 5%.

Methods
We conducted a meta-analysis of randomised controlled trials of open AAA repair versus EVAR for elective surgery. PubMed was searched from 1966 to 2008 and EMBASE from 1990 to week 20 of 2008. The search terms included ‘endovascular’, ‘aorta’ and ‘randomised’. Data on mortality (all-cause and cardiac), nonfatal myocardial infarction and cardiac death was extracted for all patients on an intention-to-treat basis.

Results
Two-hundred and forty-three potential publications were identified. Eleven publications which reported on five randomised trials met the inclusion criteria. All-cause mortality at 30 days was significantly less in EVAR group compared to open AAA repair (odds ratio (OR) 0.43, 95% confidence interval (CI) 0.26-0.73, P = 0.002), but not at 2 years (OR 1.0, 95% CI 0.80-1.26, P = 0.97). Thirty-day noncardiovascular mortality was significantly less in the EVAR group (OR 0.45, 95% CI 0.26-0.77, P = 0.004) but not cardiovascular mortality (OR 0.40, 95% CI 0.08-1.98, P = 0.26). Thirty-day major adverse cardiac events (MACE) were not significantly different between the groups (OR 0.80, 95% CI 0.21-3.0, P = 0.74). The incidence of MACE was 2% in both the EVAR and open AAA groups.

Conclusions
There is no prospective randomised evidence to suggest that the cardiac morbidity associated with EVAR is significantly less than open AAA. The low incidence of MACE in the open AAA group raises questions about the validity of the data analysed. Indeed 98% of this data was from a single study with no standard definitions, or surveillance for, cardiac events. Categorisation of EVAR into intermediate or major noncardiac surgery based on the prospective randomised data is therefore impossible.

References