The role of a multidisciplinary pre-assessment clinic in reducing mortality after complex orthopaedic surgery

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The study aimed to audit the effect of a specialised preoperative anaesthetic assessment clinic after hip and knee arthroplasty and revision arthroplasty. The authors recommended specialised preoperative anaesthetic assessment clinics for patients undergoing complex orthopaedic joint surgery. Given that the results of this study were based on a before-and-after cohort study and the costs of the pre-assessment clinics did not appear to be included in the analysis, it is not clear whether the authors’ conclusions are appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study aimed to audit the effect of a specialised preoperative anaesthetic assessment clinic after hip and knee arthroplasty and revision arthroplasty (complex orthopaedic joint surgery).

Interventions
The role of a multidisciplinary pre-assessment clinic was evaluated in reducing mortality and costs after complex orthopaedic surgery. This clinic had a specialised multidisciplinary anaesthetist-lead team (including anaesthetist, orthopaedic senior house officer and nurse practitioner) who assessed all patients preoperatively for the need for a high dependency or intensive care unit bed; the bed was booked as part of the preoperative plan. This intervention was compared with patients managed in a post-anaesthesia care unit on the day of surgery (where there had been no consultant-led preoperative anaesthetic assessment clinic), with patients discharged to a ward, a high dependency unit or an intensive care unit.

Location/setting
UK/in-patient secondary care.

Methods
Analytical approach:
The cost-effectiveness analysis was based on a single clinical study. The time horizon was until discharge from hospital. The perspective adopted was not explicitly reported.

Effectiveness data:
Effectiveness data came from a single before-and-after cohort study. Data were collected prospectively from April 2005 up to March 2006 (298 patients) for the first part of the study with no specialised preoperative anaesthetic assessment clinic phase. Data for the specialised preoperative anaesthetic assessment clinic phase was collected from May 2006 up to April 2009 (1,147 patients). The main effectiveness measures were: the number of deaths prior to return to the ward or during the stay in post-anaesthesia care, high dependency or intensive care unit; the number of days in post-anaesthesia care, high dependency or intensive care unit; and the number of planned and unplanned admissions to post-anaesthesia care, high dependency or intensive care unit.

Monetary benefit and utility valuations:
None.
Measure of benefit:
The measure of benefit was the number of deaths prior to return to the ward, or those during the stay in post-anaesthesia care, high-dependency or intensive care unit.

Cost data:
The direct costs were for high dependency and intensive care unit stays. Length of stay in high dependency and intensive care units were from the before-and-after cohort study. All costs were reported in UK £.

Analysis of uncertainty:
The authors reported that a Student’s t-test was used to assess statistically significant differences (probability values) in admissions, bed days and mortality.

Results
For the phase without a specialised anaesthetic assessment clinic, the mortality prior to the return of patients to a ward was 6.1% compared with 1.2% with a specialised assessment clinic intervention (p=0.001).

For 105 patients, the total costs of intensive care and high-dependency units were £212,142 for the phase with no specialised anaesthetic assessment clinic, compared with £165,166 for the phase with a specialised assessment clinic. This represented a saving of £486.62 per patient with the specialised assessment clinic.

Authors’ conclusions
The authors recommended preoperative assessment clinics for patient undergoing complex orthopaedic joint surgery.

CRD commentary
Interventions:
The interventions were reported clearly and in detail. The comparator was appropriately usual practice (no specialised assessment clinic).

Effectiveness/benefits:
Clinical effectiveness came from a before-and-after cohort study. For both phases of the study, the authors reported that outcome information was recorded prospectively, which limited any potential bias common in studies with historical controls for which patients and data were collected retrospectively. However, as the authors acknowledged, before-and-after studies may be confounded by external factors; for example, in this study, the authors noted that the number of patients who underwent surgery gradually increased, which might have led to an increase in expertise, which may have affected the data.

Costs:
The authors did not report the perspective adopted for the analysis. A simple costing study was performed, in which only the costs of stays in post-anaesthesia care, high dependency and intensive care unit were included, but the sources for the unit costs were not reported. No costs associated with the pre-assessment anaesthetic clinic appeared to have been included. There was no assessment of whether the cost differences between the two groups were statistically significant. The price year was not reported.

Analysis and results:
Cost and outcome information came from a single before-and-after cohort study. The authors performed t-test analyses on all clinical outcomes, regardless of whether the data was continuous or categorical. The study had substantial limitations, including the fact that external factors, such as the gradual rise in surgical rates observed, could have biased the results.

Concluding remarks:
Given that the results of this study were based on a before-and-after cohort study and the costs of the pre-assessment clinics did not appear to be included in the analysis, it is not clear whether the authors’ conclusions are appropriate.

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