Efficacy and financial benefit of an anaesthesiologist-directed university preadmission evaluation center

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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.

Health technology
Using an algorithm-based, anaesthesiologist-directed preadmission evaluation centre (PEC) or surgeon-directed evaluation procedures in patients undergoing same-day surgery.

Type of intervention
Diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing same-day surgery.

Setting
Hospital. The economic study was carried out in Philadelphia, USA.

Dates to which data relate
The data for the effectiveness analysis and resources used relating to the surgeon-directed group were collected between 1 January 1992 and 19 April 1992. The same data for the anaesthesiologist-directed group were gathered from 20 April 1992 to 31 August 1992. The data for the calculation of the rate of cancellation in the follow-up study were collected between 1 July 1993 and 30 June 1994. The price year used was not reported.

Source of effectiveness data
The evidence for final outcomes was derived from a single study.

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were not used to determine the sample size. 3,062 female and male patients presented for same-day surgery: 1,519 were enrolled in the surgeon-directed group and 1,543 in the anaesthesiologist-directed group. The follow-up study for the calculation of the rate of cancellation in the PEC consisted of 9,454 patients.

Study design
This was a case control study performed in a single centre.

**Analysis of effectiveness**
The analysis of the clinical study was based on intention to treat. The main outcome measures were the number of tests ordered in each group, and the number of cancellations or the number of alterations in intraoperative management attributable to inadequate testing. The rate of cancellation in the PEC was calculated in a one-year follow-up study. The alternative groups were shown to be significantly different in age and ASA physical status.

**Effectiveness results**
The alternative groups had the same number of complete blood count with differentials (CBD). The number of ordered tests was 28.63% fewer in the anaesthesiologist-directed group in comparison to the surgeon-directed group (5,534 versus 7,552, P < 0.0001). No recorded cancellations or apparent changes in intraoperative management attributable to inadequate testing were reported. The rate of cancellation in the PEC in the follow-up study was 0.7% (66 out of 9,454 procedures). The reasons for the cancellations were not related to the routine practice in the PEC.

**Clinical conclusions**
The study revealed that the anaesthesiologist-directed PEC required significantly fewer tests in patients presenting for same-day surgery. The PEC evaluation also had a favourable rate of cancellation in the follow-up study.

**Measure of benefits used in the economic analysis**
A single benefit measure was not produced in the economic evaluation.

**Direct costs**
Only the number of different types of tests ordered in the alternative groups were considered and they were reported separately. The total costs and total average costs were not reported. The average cost of each type of test was reported separately. The incremental cost was reported. The source of the cost data was the financial office of the hospital. The dates of the price data were not specified.

**Statistical analysis of costs**
A statistical test was carried out for the cost comparison between the alternative groups.

**Indirect Costs**
Indirect costs were not reported.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was carried out.

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
The anaesthesiologist-directed group had $20.89 less testing cost per patient (P<0.0001).

**Synthesis of costs and benefits**
A synthesis was not performed since the anaesthesiologist-directed PEC was the dominant strategy.

**Authors' conclusions**
A PEC, in which the anaesthesiologist primarily orders preoperative tests and approves patients' readiness for surgery, is both an efficient and cost-effective system.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of the comparator is clear. You should consider whether this is a widely used health technology in your own setting.

**Validity of estimate of measure of benefit**
Lack of randomisation might have adverse effects on the power of the study to measure the benefits of the alternative techniques. Not using any sort of blinding method may have affected the behaviour of the anaesthesiologists in favour of the PEC evaluation.

**Validity of estimate of costs**
Resource quantities were not reported separately from the costs. Adequate details of the methods of cost calculations were not given. It is impossible to judge whether any important cost items were omitted from the study because of lack of adequate information about the cost estimation methods used.

**Other issues**
As the study lacked randomisation and sensitivity analysis, the results need to be treated with some caution. The issue of generalisability to other settings or countries was not addressed. Appropriate comparisons were made with other studies.

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