Cost and benefit of the trained laparoscopic team: a comparative study of a designated nursing team vs a nontrained team
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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 advanced or a basic laparoscopic surgeon in association with either a designated laparoscopic operative team or a nondesignated team (trained team versus nontrained team) in laparoscopic cholecystectomy (LC) for the treatment of symptomatic cholelithiasis.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing only one uncomplicated laparoscopic cholecystectomy for the treatment of symptomatic cholelithiasis.

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

Dates to which data relate
The effectiveness and resource utilisation data were collected between 1990 and 1993. The price year was not clearly reported.

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

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

Study sample
The medical records for a total of 71 patients were reviewed in the study. No power calculations were reported. One centre (‘alpha’ centre) used a designated team (n=27) whereas the other (‘beta’ centre, n=44) used a nondedicated team. 35 cases (23 at the alpha site, 12 at the beta site) and 36 cases (11 alpha, 25 beta), respectively, were performed by the advanced and basic surgeon.
Study design
The study was a retrospective nonrandomised study with concurrent control, carried out in two centres. The duration of the follow-up was not specified.

Analysis of effectiveness
The principle used in the analysis of the clinical study was treatment completers only. The primary health outcomes of the study were the operating room times, conversion rates (to open surgical procedures) and operative complications. The groups were shown to be comparable in terms of age, sex, and ASA class. Cases of conversion (4) were excluded from the analysis of operating times.

Effectiveness results
Four cases were converted to the open surgical procedure. All of them corresponded to procedures performed at the nondesignated site by a basic surgeon (14% rate; p>0.11 for comparison of difference with other groups). The designated site had a mean total anaesthesia time of 120.8 (SD= 6.6) minutes versus 152.3 (4.8) for the nondesignated site (mean difference of 31.5 min, p=0.001). The corresponding figure for the basic surgeon was 144.2 (11.7) minutes versus 175.7 (5.7), respectively (mean difference of 31.5 min, p<0.05). The corresponding figure for the advanced surgeon was 97.5 minutes (6.3) versus 128.9 (7.7) (mean difference of 31.4 min, p<0.05). No patients in either study group experienced major intraoperative complications.

Clinical conclusions
The study revealed that having a designated laparoscopic trained team was an effective strategy in reducing the operation room time in LC.

Measure of benefits used in the economic analysis
The mean operation time was used as the benefit measure in the economic study.

Direct costs
The costs measured were those associated with the operating room and anaesthesia for the length of anaesthesia time as reported in the clinical study. It was not specified from whose point of view the cost analysis was performed. The price year was not clearly stated, and the analysis was based on charge data from the study hospital system.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
The designated site had a mean total anaesthesia time of 120.8 (SD= 6.6) minutes versus 152.3 (4.8) for the nondesignated site (mean difference of 31.5 min, p=0.001).

Cost results
The cost savings generated in the group of patients with a dedicated team had a mean value of $651.

**Synthesis of costs and benefits**
The costs and benefits were not combined since the dedicated team approach turned out to be the dominant strategy.

**Authors' conclusions**
Based on the study results, the authors recommended increasing OR staff training in laparoscopy and wider acceptance of dedicated laparoscopic OR teams. Although this training takes time and effort, they believe that the result will be a team that is more cost-effective in providing efficient and safer care for the increasing number of patients undergoing minimally-invasive procedures.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparator is clear. It represented the routine OR practices in many hospitals performing LC.

**Validity of estimate of measure of benefit**
The internal validity of the results is questionable due to the retrospective nonrandomised design used in the study.

**Validity of estimate of costs**
Although the length of anaesthesia time was analysed separately from the costs, the cost analysis did not provide adequate details of the methodology used in the analysis. In particular, the price date was not clearly stated.

**Other issues**
In view of the lack of randomisation, sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution. The issue of generalisability to other settings or countries was not adequately addressed.

**Implications of the study**
Further, prospective studies are needed to validate the results about the efficiency of the dedicated team approach to the staffing of laparoscopic cholecystectomy of symptomatic cholelithiasis.

**Source of funding**
None stated.

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