Measuring compliance with surgical antibiotic protocols: an intervention

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Record Status
This is an economic evaluation that meets the criteria for inclusion on NHS EED.

CRD summary
This study aimed to evaluate the effects of prophylactic antibiotic protocols on compliance and the cost of providing preventive antibiotics in elective surgery. The authors did not draw any cost-effectiveness conclusions. The study did not set out to conduct a full cost-effectiveness analysis, and no reliable cost-effectiveness conclusions can be drawn.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study aimed to evaluate the effects of prophylactic antibiotic protocols on compliance and the cost of providing preventive antibiotics in elective surgery.

Interventions
Prophylactic antibiotic protocols were assessed for each of five elective procedures: transurethral resection of the prostate (TURP); cholecystectomy; hysterectomy; joint arthroplasty; and herniorrhaphy.

Location/setting
Australia/secondary care.

Methods
Analytical approach:
Both the compliance and cost analysis were based on one clinical study. The time horizon was six months. The authors did not report their study perspective.

Effectiveness data:
The clinical study was a before-and-after study. The data before intervention were from a six-month period in 1998. The data after intervention were from a six-month period in 2000. The protocols were developed in 1999. Compliance was assessed by a review of medical records, after discharge from hospital, to determine antibiotic use, dosage, timing and duration. There were 659 admissions for before intervention and 518 for after intervention. The use of agents recommended in the protocol was 46% before intervention and 64% after intervention.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The measure of benefit was the compliance rate.

Cost data:
Only the initial dosage of antibiotics was valued. The costs of syringes, other administration equipment, and personnel were excluded. A total of 38.8% of patients had additional antibiotics that could not be assessed. The costs were reported in US $.

Analysis of uncertainty:
Confidence intervals were reported for some outcomes.

Results
Compliance after intervention increased from 46% to 73% for TURP patients, from 15% to 17% for cholecystectomy patients, from 56% to 70% for herniorrhaphy, and from 1% to 25% for hysterectomy. It stayed constant for joint arthroplasty at 95%.

The cost per patient decreased from $11.77 to $4.14 for cholecystectomy patients, from $2.51 to $1.08 for herniorrhaphy, and from $14.36 to $6.83 for hysterectomy. It increased slightly from $19.65 to $19.77 for joint arthroplasty, and from $0.68 to $0.69 for TURP patients.

**Authors' conclusions**
The authors did not draw any cost-effectiveness conclusions.

**CRD commentary**

**Interventions:**
The existing practice for providing prophylactic antibiotics was not described. Each patient group had a new protocol and these were not described.

**Effectiveness/benefits:**
The compliance estimates were based on a before-and-after study, with many potential confounding factors. Compliance is a useful intermediate outcome, but does not capture the health benefits to the patients.

**Costs:**
The costs were evaluated in a very simple manner. The authors acknowledged that several relevant cost items were omitted. This reflects the fact that the authors did not intend to do a thorough cost-effectiveness analysis; the study loosely meets the definition of such an analysis as it presented comparative costs and effects.

**Analysis and results:**
The analysis was described sufficiently. Confidence intervals were produced for some clinical and cost outcomes, but no uncertainty in a cost-effectiveness outcome was evaluated, as this was not the focus of the study. The results were reported, but a table of the group differences and confidence intervals or probabilities would have been helpful.

**Concluding remarks:**
This study did not set out to conduct a full cost-effectiveness analysis, and no reliable cost-effectiveness conclusions can drawn.

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