Application of cost/benefit analysis for surgical gown and drape selection: a case study
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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
This study evaluated the costs and benefits of single-use surgical gowns and drapes compared with reusable gowns and drapes. The authors concluded that single-use gown and drape sets had strong clinical benefits, but were expensive; if their cost was reduced they might become competitive. The methods were appropriate and the reporting was clear. There were a few limitations to the study, but the authors’ conclusions were consistent with the evidence.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to assess the costs and benefits of single-use surgical gowns and drapes in comparison with reusable gowns and drapes.

Interventions
Reusable surgical gowns and drapes were compared with single-use gowns and drapes, used during surgical interventions.

Location/setting
Turkey/secondary care.

Methods
Analytical approach:
The study used a cost-benefit approach and an analytic hierarchy process, which allowed the competing benefits to be classified and ranked. These were then used to assign priorities for decision-making when multiple criteria were involved. The relative importance of the different criteria was based on face-to-face interviews with 10 members of staff at the study hospital. The staff included heads of departments and doctors, each making pair-wise judgements about the selection of gowns and drapes, to reveal the importance of and priorities for decision-making criteria. The ratios of the cost priorities to the benefit priorities, in the analytic hierarchy process, for reusable and single-use gowns, were then compared.

Effectiveness data:
The effectiveness data were from a review of the published literature and the analytic hierarchy process, which used the expert opinion of 10 members of staff at the study hospital, obtained through face-to-face interviews. The main benefit parameters were the reliability or dependability of the gown and drape set, the risk of infection, comfort, waste disposal, and the environmental impact.

Monetary benefit and utility valuations:
Not applicable.

Measure of benefit:
The primary measure of benefit was the benefit-to-cost ratio.

Cost data:
The direct costs of purchasing, through to final disposal, of the gown and drape sets were considered. These included the purchase cost, labour costs (including labour associated with laundry, sterilisation, transport, and disposal), laundry,
sterilisation, waste disposal, and overhead costs. The costs were based on expert opinion, published sources, health care authority data, and gown and drape manufacturer information. All costs were in New Turkish lira (TRY).

Analysis of uncertainty:
One-way sensitivity analyses were carried out on the cost and benefit weights used to calculate the benefit-to-cost ratios.

Results
The benefit priority or weight was estimated to be 0.821 for single-use drapes and gowns compared with 0.179 for reusable drapes and gowns.

The cost was TRY 12,044 for high-price reusable drapes and gowns compared with TRY 115,563 for high-price single-use drapes and gowns, giving a cost weight of 0.094 for reusable sets and 0.906 for single-use sets. The cost was TRY 52,563 for medium-price single-use sets and TRY 12,044 for medium-price reusable sets, which gave a cost-weight of 0.186 for reusable sets and 0.814 for single-use sets.

The benefit-to-cost ratio for reusable drape and gown sets exceeded the benefit-to-cost ratio for single-use drape and gown sets, where high-priced sets were used. If the medium-priced sets were used, the benefit-to-cost ratio for single-use sets exceeded that of reusable sets.

Authors’ conclusions
The authors concluded that single-use gown and drape sets had strong clinical benefits, but were expensive; if the cost of single-use sets was reduced they were likely to be competitive in the gown and drape market.

CRD commentary
Interventions:
Both products were well described and they were appropriate clinical alternatives. They are also likely to be relevant in other settings.

Effectiveness/benefits:
The face-to-face interviews used to obtain the expert opinions were well described, but the methods of the literature review were not described in sufficient detail to conclude that the best available evidence was used. These source studies were not described and their results were not included in the tables.

Costs:
The sources of costs were not referenced, which may limit the ability to replicate the costs for other settings. It also prevents the assessment of whether the best available data was used. The cost items were presented in two tables, which will allow the method of costing to be replicated. The authors did not state the price year. All the relevant costs for this particular cost-benefit analysis appear to have been included. Other costs, such as those for the treatment of infections might differ between the single-use and reusable drape and gown sets.

Analysis and results:
The use of a cost-benefit analysis was appropriate for summarising the benefits and costs to assist decision-makers in choosing between the two alternatives. The authors’ justification for presenting the benefits and costs in a benefit-to-cost ratio was that the benefits in this analysis could not easily be converted into monetary values. The design of the study was fully described and presented in a series of diagrams. The results and the sensitivity analyses were extensively reported, which enhances the generalisability of the findings to other settings.

Concluding remarks:
On the whole, the methods seemed to be appropriate and were clearly and transparently reported. There were a few limitations to the study and these should be considered when interpreting the results.

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