Outcome and cost analysis for outpatient skin grafting

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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
Operative debridement and skin grafting in hospital compared to treatment of the burn wound as an outpatient with performance of the operation in an ambulatory surgery centre.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with burn injuries deemed severe enough to require skin grafting, yet amenable to grafting on an outpatient basis, aged between 7 and 59 years (mean age: 30 years), with burns ranging from 3 to 14% of total body surface area.

Setting
Hospital setting compared to community setting. The study was carried out in the USA.

Dates to which data relate
Effectiveness and resource use data were collected between January 1995 and July 1996. The price year was not stated.

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 study.

Study sample
54 patients were identified and were given a choice between the two treatment options. Twenty patients chose to be hospitalised, while thirty-four patients preferred to care for their wounds on an outpatient basis. Power calculations were not used to determine sample size. Patients with limited mental status, the very young and the very elderly were excluded. The number of patients excluded was not reported.

Study design
This study was a single-centre, prospective cohort study. No patients were lost to follow-up.
Analysis of effectiveness
The analysis of the clinical study was not based on intention to treat. The patients who switched treatment during the study period were discussed separately. The primary study endpoints were the time to skin grafting, the burn area skin grafted, the percentage of patients requiring regrafting, the percentage of patients requiring contracture release and the length of hospitalisation. Groups were similar in age and the extent, depth and distribution of burns.

Effectiveness results
The number of days from burn until surgery was statistically significantly (p<0.05) shorter for hospitalised patients (mean 2.1 days) than for those treated as outpatients (mean 11.5 days). Patients undergoing the outpatient procedure had significantly (p<0.05) less area skin-grafted (mean 178 cm^2 for outpatients compared to 286 cm^2 for hospitalised patients). The percentage of graft take and the number of patients requiring subsequent contracture release or regrafting were similar between inpatient and outpatient group. Inpatients stayed significantly (p<0.05) longer in hospital (mean 8.3 days) than outpatients (mean 1.4 days).

Clinical conclusions
Debridement and skin grafting of burn wounds can be performed successfully as an outpatient procedure with no overt detriment in outcome. Delaying the operative care reduces the residual burn area that is skin-grafted. Finally, there is no difference in infectious complications among both patient groups.

Measure of benefits used in the economic analysis
No single measure of benefit was produced within the economic evaluation. This may be due to the fact that the effectiveness analysis revealed similarity in terms of effectiveness between the intervention and the comparator group. A possible outcome measure is length of hospitalisation.

Direct costs
The estimation of the costs was based on actual data. The quantity/cost boundary reported was that of the hospital. Information on cost figures was based on costs charged to patients. Quantities were not reported separately from costs. It was not stated whether or not costs were discounted and the price year was not reported.

Statistical analysis of costs
A Student's independent t test was used for statistical comparison with significance at p<0.05.

Indirect Costs
No indirect cost figures were gathered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was conducted.

Estimated benefits used in the economic analysis
Inpatients stayed significantly (p<0.05) longer in hospital (mean 8.3 days) than outpatients (mean 1.4 days).

Cost results
Total cost for the burn care was significantly less for those patients who chose to have their care as outpatients. Total costs amounted to $17,000 for inpatients, $5,000 for outpatients and $8,700 for outpatients who subsequently required hospitalisation. Cost figures for surgeon's fees, pharmacy and supplies, antibiotics, anaesthesia, x-rays, recovery and hospital room were also provided.

**Synthesis of costs and benefits**
Not combined. Debridement and skin grafting of burn wounds for selected patients as an outpatient procedure is less costly to perform and is without any overt detriment in outcome. In this respect it can be considered to be dominant.

**Authors' conclusions**
Treating burn wounds on an outpatient basis is only advisable for patients who have a good concept of hygiene and a supportive family. Each treatment option should be targeted towards different patients depending on their personal situation.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of the comparator is clear.

**Validity of estimate of measure of benefit**
The benefits were assumed to be equal to the outcomes as no summary benefit measure was developed.

**Validity of estimate of costs**
Insufficient details of the methods of cost estimation were given. Additionally, it may be preferable explicitly to report mean and confidence interval for each cost variable. The outpatient procedure may involve considerable indirect costs that were not included in the study.

**Other issues**
No sensitivity analysis was carried out, although this may be justified by the fact that the cost difference between the two options was such that no change in any parameter could reverse the conclusion. Moreover, costs were not reported separately from quantities. It may, therefore, be difficult to apply the results to other settings. Finally, the intention to treat principle requires results to be presented based on the original group allocation. Therefore, those outpatients requiring hospitalisation should have been included in the outpatient group. The major flaw of the study, as recognised by the authors, was the self-selection of the patients to the two study groups.

**Implications of the study**
Guidelines should be developed to determine the assignment of patients to each treatment option.

**Source of funding**
None stated.

**Bibliographic details**
Gore D C. Outcome and cost analysis for outpatient skin grafting. Journal of Trauma 1997; 43(4): 597-600

**PubMedID**
9356054

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adolescent; Adult; Ambulatory Surgical Procedures /economics; Burns /surgery; Child; Costs and Cost Analysis; Debridement; Hospitalization /economics; Humans; Middle Aged; Skin Transplantation /economics; Treatment Outcome

**AccessionNumber**
21997001443

**Date bibliographic record published**
31/01/1999

**Date abstract record published**
31/01/1999