Care pathway reduces hospitalizations and cost for hemodialysis vascular access surgery

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
Hemodialysis vascular access surgery for end-stage renal disease (ESRD).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing hemodialysis vascular access surgery for end-stage renal disease (ESRD).

Setting
Secondary care. Vanderbilt University Medical Centre, Nashville, TN, USA.

Dates to which data relate
Effectiveness and cost data were collected between 1994 and 1995.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
All 168 patients who underwent hemodialysis vascular access as a primary procedure in 1994 were included in the pre-care pathway. 23 subjects were excluded from the study. 140 patients were included in the new care pathway in 1995, 4 of them were excluded from the analysis. The 2 groups were comparable as regards sex, age and aetiology of ESRD. 33 patients (non-care pathway) underwent vascular access surgery in 1995 without entering the care pathway. Seven patients were excluded from the study.

Study design
Retrospective case series.
Analysis of effectiveness
The analysis of effectiveness was based on treatment completers only. The main health outcomes used in the analysis were the rates of major complications occurring during the 14 days following surgery, mortality rates and patient satisfaction (determined by a questionnaire). Access surgery failure was also assessed and defined as the requirement for another surgical procedure.

Effectiveness results
Incidence rates for major complications (life-threatening) were reported to be similar for 1994 patients and 1995 care pathway patients (p-values were not included). 3 deaths were recorded in the 1994 group, 1 in the care pathway 1995 group, and 1 in the non-care pathway group. 47 repeat access procedures were performed in 29 patients in 1994 versus 35 repeat access procedures in 22 care pathway patients in 1995. 12 repeat access procedures were performed in 8 patients from the non-care group. 75 patients from the care pathway answered the questionnaire. The majority of patients who answered the questionnaire were satisfied with access surgery via the care pathway (42 of the 52 patients who answered the survey and who had undergone vascular access surgery as inpatients in 1994).

Clinical conclusions
Vascular access surgery via a care pathway provides a high level of care and patient satisfaction.

Measure of benefits used in the economic analysis
Since the effectiveness analysis showed no difference in effectiveness between the intervention and the comparator, the economic analysis was based on the difference in costs only.

Direct costs
Hospital charges were used as estimates for direct costs. Average charges per patient were considered for: respiratory therapy, medication, laboratory, anaesthesia, room and observation, operation room and supplies, miscellaneous. The price date was not reported. Data on quantities were derived from patients’ medical records. Quantities were not reported separately.

Statistical analysis of costs
Statistical comparisons were made using the unpaired Student's t test, chi-squared analysis, and Bonferroni correction where indicated. Data were presented as mean values +/- SD.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
A sensitivity analysis was not carried out.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The mean total charge was:

- inpatients' group: $10,524 (+/- $5,209)
- care pathway group: $11,196 (+/- $5,806)
- non-care group: $4,687 (+/- $2,912).

The total average charges for the care pathway patients were $5,837 less than those of the 1994 patients, (p<0.02).

**Synthesis of costs and benefits**

Benefits for the new care pathway were similar to the conventional care pathway, while incremental costs were negative.

**Authors' conclusions**

The vascular access care pathway can reduce hospital days and costs while achieving acceptable outcomes for access surgery.

**CRD COMMENTARY - Selection of comparators**

The reason for the choice of the comparator (conventional inpatient care) is clear, as this was a widely used care pathway in the authors' setting. You, as a user of this database, should consider if this applies to your own setting.

**Validity of estimate of measure of benefit**

Data do not appear to have been used selectively to prove a particular point and the choice of health outcomes is justified.

**Validity of estimate of costs**

Hospital charges were used as surrogate for costs. The price year was not stated. Resource quantities were not reported separately.

**Other issues**

Cost data may not be generalizable to other settings or countries. The patient satisfaction survey is not reliable due to the very low response rate.

**Source of funding**

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