Effect of casemix funding on outcomes in patients admitted to hospital with suspected unstable angina

Kerr G D, Dunt D, Gordon I R

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
Casemix funding for patients admitted to a coronary care unit with uncomplicated suspected unstable angina.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Low risk patients admitted to hospital with uncomplicated suspected unstable angina.

Setting
Hospital. The economic study was carried out in Melbourne, Victoria, Australia.

Dates to which data relate
The effectiveness and resource use data referred to the period between January 1992 and June 1992 for the before-casemix group, and between July 1993 and December 1993 for the after-casemix group. The fiscal year was not explicitly specified.

Source of effectiveness data
Effectiveness data were derived from a single study.

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

Study sample
Power calculations did not determine the sample size. The study sample consisted of 336 consecutive patients admitted to hospital with suspected unstable angina (156 patients with a mean (SD) age of 62.6 (12.3) in the before-casemix group and 180 patients with a mean (SD) age of 64 (11.5) in the after-casemix group). By suspected unstable angina the authors meant an episode of ischaemic-type chest pain at rest (lasting at least 20 minutes and occurring within the previous 24 hours). All other more complicated cases were excluded from the study. Response rates to a self-administered questionnaire six months after discharge were 96% for the before-casemix group and 95% for the after-casemix group.
Study design
Prospective cohort study, carried out in a single centre. The duration of the follow up was six months after discharge from hospital. The study had no loss to follow-up. No standard protocol of management was followed.

Analysis of effectiveness
The principle used in the analysis of effectiveness was intention to treat. The primary health outcomes measured in the study were: rates of serious cardiac events during hospital stay and after discharge, readmission within 28 days and 6 months of discharge. At analysis, groups were comparable in terms of age, sex and prognostic features. The independent effect of a number of clinical and non-clinical variables on patient outcome after discharge was evaluated using a forward stepwise multiple logistic regression analysis.

Effectiveness results
After the introduction of the casemix funding, there was a 3% reduction in serious cardiac events during the hospital stay (statistically insignificant),

a 1% rise in cardiac events within 28 days after discharge (statistically insignificant),

a 6% fall in cardiac events within 6 months after discharge,

a 3.5% rise in readmissions within 28 days after discharge (statistically insignificant),

and a 9% fall in readmissions within 6 months after discharge.

A history of ischaemic heart disease was the only variable associated with an increased risk of serious cardiac events after discharge (odds ratio, 2.3; 95%, 1.4-3.7; p<0.001).

Clinical conclusions
After the introduction of the casemix system, no increase in serious cardiac complications or readmissions, either during hospital stay or after discharge, was noted. This was also found in a previous study of the effect of prospective payment systems.

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

Direct costs
Costs were not discounted due to the short time frame of the study. Quantities of resources used (in the form of hospital stay and duration of stay in the coronary care unit, as measures of resource utilisation) were reported separately from the costs. Some indices of resource utilisation such as length of stay in hospital and length of stay in the coronary care unit were not converted into costs (no significant differences were found between the groups in terms of those measures). As a result, only the costs of all pathology tests and medical imaging investigations were considered. The cost estimates were based on hospital finance department data. The date to which the price data referred was not explicitly specified.

Statistical analysis of costs
Analysis was carried out to estimate the statistical significance of the differences in the costs of investigations, length of stay in hospital, and length of stay in the coronary care unit. The effects of a number of clinical and non-clinical variables on resource utilisation were evaluated using a forward stepwise multiple regression analysis.
Indirect Costs
Indirect costs were not calculated.

Currency
US dollars ($).

Sensitivity analysis
Sensitivity analysis was not carried out.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The introduction of casemix funding increased the duration of hospital stay by 1% and length of stay in the coronary care unit by 5%. However, both of these increases were statistically insignificant. The casemix funding reduced the total costs of investigations by 39% ($396.8 versus $279.7), which was statistically significant (p-value <0.001, 95% CI: 14% - 70%).

Synthesis of costs and benefits
Not applicable.

Authors' conclusions
Casemix funding had no effect on short-term clinical outcomes but resulted in significantly reduced investigation costs.

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

Validity of estimate of measure of benefit
The internal validity of the effectiveness results may have been adversely affected by the fact that the combined outcome measure used to determine status after discharge relied largely on the patient questionnaire (a fact acknowledged by the authors). The study may be regarded as a cost-consequences analysis.

Validity of estimate of costs
Quantities of resources used (in the form of hospital stay and length of stay in the coronary care unit) were reported separately from the costs. Adequate details of methods of cost estimation were given (with the exception of the fiscal year). Cost results may not be generalisable to other settings or countries.

Other issues
Given the limitations of the study and the lack of sensitivity analysis, care should be exercised in interpreting the study results, as acknowledged by the authors. The authors mentioned that, since the study was carried out in a single institution, it could not be generalised directly to other settings. The study took place soon after the casemix was introduced, and can be used to judge the short-term effects of this intervention technology but not the long-term effects. Appropriate comparisons were made with other studies.
Source of funding
Financial support from Astra Pharmaceuticals and Knoll Pharmaceuticals Australia.

Bibliographic details

PubMedID
9469183

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Angina, Unstable /therapy; Australia; Cohort Studies; Coronary Care Units /utilization; Diagnosis-Related Groups /economics; Female; Follow-Up Studies; Humans; Length of Stay; Male; Middle Aged; Outcome Assessment (Health Care); Patient Readmission /statistics & numerical data; Prospective Studies

AccessionNumber
21998000243

Date bibliographic record published
31/07/2000

Date abstract record published
31/07/2000