Cost-effectiveness analysis of case management versus a routine community care organization for patients with chronic schizophrenia

Chan S, Mackenzie A, Jacobs P

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
The study examined case management for the care of mentally ill patients in comparison with traditional care. Case management is a team approach to care with providers being organised into formal teams. The prime liaison between the patient and the team is the case manager, who co-ordinates the care, helping to channel the patient to appropriate modes of care.

Type of intervention
Treatment

Economic study type
Cost-effectiveness analysis.

Study population
The study population consisted of patients with chronic schizophrenia. The inclusion criteria were suffering from schizophrenia for at least 2 years, at least 3 hospitalisations in the past 24 months before admission, requiring supervision in living skills, being unemployed for at least 3 months, and being unreliable in terms of compliance with treatment. Patients aged under 18 or over 65 years were excluded.

Setting
The practice setting was the community. The economic analysis was conducted in Hong Kong.

Dates to which data relate
The effectiveness data were collected between 1997 and 1998. Resource used was derived from the community psychiatric team annual report, which was published in 1998. The price years were not reported.

Source of effectiveness data
The effectiveness data were gathered from a single study.

Link between effectiveness and cost data
The costing was undertaken on the same group as that used in the effectiveness study.

Study sample
No power calculations to determine the sample size were reported. Of the 146 patients assessed in the study, 96 met the criteria for inclusion. Thirty-four patients refused to participate. Thus, the final number of patients was 62. These were randomised to either case management (n=31; experimental group) or conventional care (n=31; control group).
was no significant difference between the groups in the baseline assessment. The age and gender were identical in the two groups.

**Study design**
The study was a randomised prospective study that was conducted in a single centre. Both groups were followed up for 6 months. No loss to follow-up was reported. Ten community psychiatric nurses (CPNs) were chosen as case managers. The case managers were given explicit protocols of care and the patients were monitored closely.

**Analysis of effectiveness**
The analysis of the clinical study was conducted on an intention to treat basis. The primary health outcomes used in the analysis were the patient's mental condition, the behavioural functioning and daily skills of the patient, the patient's satisfaction and the readmission rate. The Brief Psychiatric Rating Scale (BPRS) was used to assess the client's mental condition. Both experimental and control groups were assessed twice, at the time of selection and 5 months after inclusion. The Specific Level of Functioning Scale (SLOF) was used to assess the behavioural functioning and daily skills of the clients. Both experimental and control groups were also assessed twice. The Patient Satisfaction Instrument (PSI) was used to assess patient and client satisfaction with nursing care in the community setting. The satisfaction with the service was assessed after a 5-month intervention period. The readmission rate was assessed after completion of the 5-month intervention.

**Effectiveness results**
The patients in the experimental group had significantly better outcomes in the overall BPRS score, (p<0.001). Also, in the items relating to conceptual disorganisation, (p=0.008), tension, (p<0.001), suspiciousness, (p=0.035), hallucinatory behaviour, (p<0.001), and unusual content, (p=0.011).

The patients in the experimental group had significantly better outcomes in the overall SLOF score, (p<0.001). Also, in the items relating to personal care skills, (p<0.03), interpersonal relationship, (p<0.05), social acceptability, (p<0.03), and community living skills, (p<0.001).

The patients in the experimental group had significantly better outcomes in the PSI.

The experimental group believed that the case managers had more time to talk to them, (p=0.006), and gave them a feeling of security, (p=0.04).

There was no difference between the two groups in the readmission rate.

**Clinical conclusions**
Case management was associated with improvements in psychological and functional outcomes and patient satisfaction.

**Measure of benefits used in the economic analysis**
The authors did not develop a summary benefit measure. Hence, a cost-consequences analysis was performed.

**Direct costs**
The direct costs included only the medical costs. These were the costs of visits from CPNs or case managers, telephone consultations, services from medical social workers and clinical psychologists, outpatient visits, day hospital, sheltered workshops and hospitalisation. The total and mean costs were calculated. The average costs per visit were based on the actual time per visit. The cost estimates were based on service utilisation measurement, as derived from the community psychiatric team annual report (1998). The unit costs were reported. The costs and the quantities were not reported separately. Discounting was unnecessary. The price year was not stated.
Statistical analysis of costs
No statistical analysis of the costs was carried out.

Indirect Costs
No indirect were included in the analysis.

Currency
Hong Kong dollars (HK$). Conversions were undertaken using a rate of HK$8 = US$1.

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The mean cost for each intervention was calculated and compared.

The mean cost was HK$14,833 (standard deviation, SD=$1,539) for the experimental group and HK$11,230 (SD=$7,979) for the conventional group, (p=0,017).

Case management increased the costs by HK$3,600 (US$450) per person.

The major difference between the two groups was due to a large number of case manager visits in the experimental group (mean 9.26, SD=1.72) versus CPN visits in the conventional group (mean 4.94, SD=1.89).

Synthesis of costs and benefits
Not applicable.

Authors' conclusions
Case management was more costly than the conventional Community Psychiatric Nursing Service. During a 5-month period, case management was associated with improvements in psychological and functional outcomes and patient satisfaction.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator was clear. It represented the standard community care for patients with chronic schizophrenia in the authors’ setting. You should consider whether this is a widely used technology in your own setting.

Validity of estimate of measure of effectiveness
The analysis used a randomised prospective study, which was appropriate for the study question. Since the study sample was approximately 5% of the study population, it is uncertain whether it was representative of the study population. The patients were shown to be comparable at analysis in terms of age and gender, so confounding should be low for these variables. The influence of selection bias is also likely to have been low due to randomisation. The authors acknowledged that measurement bias may have been possible (better outcomes in the experimental group) because the case managers were given explicit protocols of care and the patients were monitored closely.
Validity of estimate of measure of benefit
There was no summary measure of benefit in the economic analysis.

Validity of estimate of costs
All the categories of cost relevant to the perspective adopted (health care provider) appear to have been included in the analysis. The costs and the quantities were not reported separately and the costs for a single price year were not explicitly stated. Neither statistical nor sensitivity analyses were carried out, which may limit the internal validity of the findings. These factors tend to limit the generalisability of the cost results to other settings. The authors performed appropriate currency conversions. Discounting was unnecessary since all the costs were incurred in 6 months.

Other issues
The authors made appropriate comparisons of their findings with those from other studies. However, because the authors did not report a synthesis measure of the cost and effectiveness of the intervention (e.g. cost per life-year saved or cost per quality-adjusted life-years gained), it was not possible to compare the results with those from other well-accepted programmes. In addition, given the small sample size, the results of the study may not be generalisable to the study population and to other settings. The authors did not present their results selectively and reported further limitations of their study. In particular, the absence of economic data for caregivers, the relatively small sample size, and the experimental conditions which exclude prediction in a non-experimental situation.

Implications of the study
The results of this study will inform policy makers about resource allocation and policy development in the implementation of case management for the care of mentally ill clients. Further studies using the same model of case management, but with larger sample sizes, are recommended.

Source of funding
Supported by the Health Services Research Committee.

Bibliographic details

PubMedID
10783528

Other publications of related interest


Indexing Status
NHS Economic Evaluation Database (NHS EED)
Subject indexing assigned by NLM

**MeSH**
Adult; Case Management /economics; Community Mental Health Services /economics; Cost-Benefit Analysis; Female; Hong Kong; Humans; Male; Middle Aged; Outcome Assessment (Health Care); Psychiatric Nursing /economics; Schizophrenia /rehabilitation

**AccessionNumber**
22000007580

**Date bibliographic record published**
31/01/2004

**Date abstract record published**
31/01/2004