Integrating primary medical care with addiction treatment: a randomized control

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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
An integrated model of medical and substance abuse care was examined. The integrated model consisted of both primary health care and addiction treatment provided within the same centre.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised adult men and women meeting the Chemical Dependency Recovery Program (CDRP) criteria for alcohol or other drug abuse or dependence. Further details of the criteria were not reported.

Setting
The setting was the community and primary care. The economic study was carried out at Kaiser Permanente's CDRP in Sacramento, California.

Dates to which data relate
The effectiveness and resource data were gathered between April 1997 and December 1998. The price year was not reported.

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

Link between effectiveness and cost data
The cost data were calculated prospectively using the same patient sample as that used in the effectiveness study.

Study sample
No power calculations to determine the sample size were reported. Medical staff examined a total of 747 prospective patients to determine their medical readiness for treatment and the status of their alcohol or other drug disorder. Of these, 654 patients consented to receive random assignment, and 318 were randomised to the integrated care model and 336 to the independent care model. Post-randomisation, patients with psychosis and dementia (<5%) were considered ineligible and some of the patients were lost to follow-up. Of the initial 654 randomised, 592 were successfully followed and included in analysis. The final sample in the integrated arm comprised 285 patients, while the independent arm comprised 307 patients. SAMCs were identified in 57% of the final sample (169 patients in the integrated model.
and 172 in the independent model).

**Study design**
The study was a randomised controlled trial that was carried out in a single centre. Blocked, stratified randomisation procedures were used to allocate the patients. No blinding was reported. The duration of follow-up was 6 months, during which 91% of the sample was successfully followed for the duration of the study. Of the 9% (62) lost to follow-up, it was unclear how many were excluded post-randomisation due to psychosis and dementia, although the authors did state that it was less than 5%.

**Analysis of effectiveness**
The basis of the analysis of the effectiveness study was treatment completers only. The main outcome measures were abstinence from both alcohol and drugs, which were measured using the abbreviated form of the addiction severity questionnaire. The groups were shown to be comparable in terms of their baseline characteristics, medical status, treatment initiation status, and length of stay by treatment condition. Within the sample, only 1 of the 28 characteristics (family or social problem severity) was found to be statistically different. All analyses were replicated, controlling for baseline variables on which the nonresponders differed.

**Effectiveness results**
Both groups showed improvement on all drug and alcohol measures.

Overall, there was no difference in the total 30-day abstinence rates between the integrated care (68%) and independent care (63%) groups, (p=0.18). There were also no differences in the alcohol abstinence rates (77% versus 71%, p=0.07) and other drug abstinence (81% versus 80%, p=0.41).

For the sub-population of patients without SAMCs, there was also no difference in the total 30-day abstinence rates (between the integrated care (66%) and independent care (73%) group, (p=0.23). Neither were there any differences in the alcohol abstinence rates (73% versus 78%, p=0.41) and other drug abstinence rates (84% versus 87%, p=0.50).

For the sub-population of patients with SAMCs, there were significant differences in the total 30-day abstinence rates for the integrated care (69%) and independent care (55%) groups, (p=0.006), and for alcohol abstinence (80% versus 65%, p=0.002). However, there was no statistical difference for drug abstinence (81% versus 74%, p=0.11).

**Clinical conclusions**
Integrated medical and substance abuse treatment has been found to be effective for individuals suffering with SAMCs.

**Measure of benefits used in the economic analysis**
The summary measure of benefit used in the economic analysis was person abstinence. This was derived directly from the effectiveness results obtained.

**Direct costs**
The unit costs of services were determined through activity-based costing. The direct costs were allocated in proportion to the provider time spent on activities such as individual and group therapy. The costs of visits outside the CDRP were obtained from Kaiser’s cost management information system. The unit costs were derived by allocating the actual CDRP expenses to weighted activity volumes, which were provided by the department. The cost per encounter data were obtained by applying the unit costs of services to their actual use. The overhead costs were allocated in proportion to the direct costs, and were allocated to the unit costs via step-down accounting methods.

**Statistical analysis of costs**
The costs were treated stochastically, using t-tests to compare differences in CDRP treatment and medical costs by treatment group. In addition, the treatment costs were predicted from an ordinary least-squares regression of treatment costs on the same set of predictors used in the outcome model.

**Indirect Costs**
The indirect costs were not included in the analysis.

**Currency**
US dollars ($).

**Sensitivity analysis**
Uncertainties inherent in the incremental cost-effectiveness ratio (ICER) were addressed using 1-way and 2-way sensitivity analysis techniques. This was supplemented by using the bootstrap method to obtain the empirical sampling distribution of the ICER.

**Estimated benefits used in the economic analysis**
Following logistic regression controlling for baseline severity, integrated care was slightly, but not significantly, associated with total abstinence (odds ratio, OR=1.28; 95% confidence interval, CI: 0.91 - 1.80, p=0.16). In addition, patients with SAMCs in the integrated model group were more likely to achieve total abstinence (OR 1.90, 95% CI: 1.22 - 2.97) and alcohol abstinence (OR 2.22, 95% CI: 1.35 - 3.64) relative to patients with SAMCs in the independent model.

**Cost results**
The average total cost per member-month was $428.87 (95% CI: 397.63 - 460.11) for the integrated model and $382.81 (95% CI: 352.59 - 413.03) for the independent model, (p=0.03).

For the non-SAMC sub-population, there was a small but non significant trend of higher costs for the integrated care group ($367.96 versus $324.09, p=0.19).

For the SAMC sub-population, the average cost per member-month was $470.92 (95% CI: 429.65 - 511.97) for the integrated model group and $427.95 (95% CI: 385.24 - 470.66) for the independent group, (p=0.14).

**Synthesis of costs and benefits**
A synthesis was only performed for the SAMC sub-population.

For the SAMC sub-group, the ICER was $1,581 per additional person abstinent in the integrated services relative to the independent services.

The authors conducted a variety of sensitivity analyses, both univariate and multivariate, neither of which affected the optimal choice. These analyses were supplemented by bootstrapping (2,000 replications). The authors found that integrated care had higher abstinence rates than independent care in only 0.78% of the cases.

**Authors' conclusions**
Individuals with substance abuse-related medical conditions (SAMCs) benefit from integrated medical and substance abuse treatment. This study has shown that such an approach can be cost-effective.
The rationale for the choice of comparator was clear. The independent care model was chosen as it represented usual practice, and thus allowed the authors to evaluate the new integrated model of care. You should decide if this represents a valid comparator in your own setting.

**Validity of estimate of measure of effectiveness**
The analysis of effectiveness used a randomised controlled trial, which seems to have been appropriate for the study question. The methods of randomisation and sample selection, and the length and duration of follow-up were all reported, suggesting that the internal validity of the study was likely to be quite high. However, no power calculations were carried out. Despite a fairly high sample size, there is a possibility that the results were obtained by chance. There appears to have been little chance of confounding due to the randomisation and comparability at baseline. Further, although attrition bias may have been present due to the loss to follow-up, the authors dealt with this by reanalysing the data controlling for baseline characteristics on which the nonrespondents differed.

**Validity of estimate of measure of benefit**
The measure of benefit was person abstinence. This was derived directly from the effectiveness data. The use of a summary benefit measure that would allow comparison between other interventions would have been more appropriate (i.e. quality-adjusted life-years).

**Validity of estimate of costs**
The analysis of the costs appears to have been conducted from the perspective of the HMO, although this was not explicitly stated. Thus, it would appear that all the relevant costs have been included. A bootstrap analysis was carried out to quantify the uncertainty of the ICER distribution. The sampling distribution obtained from such analyses can be used to make decisions about the cost-effectiveness in terms of a maximum acceptable ICER, which has applicability to other studies that examine incremental cost-effectiveness. The unit costs and the quantities were not reported separately and no price year was reported. This may limit the generalisability of the cost results obtained.

**Other issues**
The main limitation of the study, as highlighted by the authors, was that the HMOs membership was primarily insurance through employment. Therefore, income and employment levels were higher and addiction levels much lower than in the general population. This fact greatly reduces the generalisability of the results obtained. The authors did not compare their findings with those from other studies. The external validity of the study results could be expected to be quite low.

**Implications of the study**
The findings suggested that patients with physiologic or behavioural conditions related to substance abuse could benefit from having their medical and additional treatment integrated.

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**Bibliographic details**

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Other publications of related interest


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