Evidence-based care for alcohol use disorders is affordable
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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
The study examined alcohol detoxification and relapse prevention by "optimal care", as advocated in the literature, and current care. Current care was defined as self-reported contact with any health professional (e.g. general practitioner, psychiatrist, psychologist, social worker, nurse, community mental health worker, drug and alcohol counsellor, or any other counsellor). Two levels of alcohol-use disorders were identified in the study. These were harmful use and alcohol dependency. Under current use, harmful use was defined as having two or more contacts with the same type of health professional and being treated with either cognitive behavioural therapy or counselling, while alcohol dependency additionally required medication.

Type of intervention
Secondary prevention.

Economic study type
Cost-utility analysis.

Study population
The target population comprised a hypothetical cohort of residents in the Australian community who met the criteria for an alcohol-use disorder and who identified it as their main principal complaint. They also suffered from mental problems such as stress, anxiety, depression, or dependence on drugs or alcohol.

Setting
The setting was secondary and primary care. The study was conducted in Australia.

Dates to which data relate
The information relating to the effectiveness of current care and optimal care was obtained from papers published between 1997 and 2004. The information on current resource use and unit costs was derived from data collected between 1998 and 2001. The prices related to 1997 to 1998.

Source of effectiveness data
The evidence for the effectiveness data were obtained from a review or synthesis of studies.

Modelling
The authors reported that a model was used to convert the effectiveness of the interventions, measured in effect sizes, into years lived with disability (YLD). Details were given elsewhere (Sanderson et al. 2004, see 'Other Publications of Related Interest' below for bibliographic details).
Outcomes assessed in the review
The outcome assessed was the number of Australian prevalent cases in contact with health services, either with a harmful use of alcohol or with alcohol dependency. Some other outcomes that appeared to have been obtained from the review, but were not explicitly reported, were the severity and duration of the illness associated with each of the interventions under analysis and the disorder prevalence.

Study designs and other criteria for inclusion in the review
The measures of effectiveness of the optimal care packages were derived from two meta-analyses (Moyer et al. 2002 and Irvine et al. 1999, see 'Other Publications of Related Interest' below for bibliographic details). In addition, a large representative Australian survey of residents was reviewed (Andrews et al. 2001, see 'Other Publications of Related Interest' below for bibliographic details). No other criteria were reported to have been used to include studies in the review.

Sources searched to identify primary studies
Not stated.

Criteria used to ensure the validity of primary studies
Not stated.

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
Two studies were cited to support the use of "brief interventions" for the treatment of harmful use of alcohol. Five studies were cited to support the use of outpatient treatments for alcohol dependence, with a further study cited in support of the use of adjunctive medication. Two further studies provided data on the prevalence and other epidemiologic characteristics of the study population.

Methods of combining primary studies
Not stated.

Investigation of differences between primary studies
Not stated.

Results of the review
There were 20,463 Australian people in contact with the health services with harmful use of alcohol and 30,999 with alcohol dependency.

The authors did not report the values of any other estimate of effectiveness obtained from the review of the literature.

Methods used to derive estimates of effectiveness
The authors made several assumptions to derive some of the estimates of effectiveness.

Estimates of effectiveness and key assumptions
It was assumed that "no treatment" did not provide alleviation of the disability. In addition, 10% (range: 10 - 50) of the
patients under treatment (either current or optimal treatment) would be treatment resistant.

**Measure of benefits used in the economic analysis**
The measure of benefit used was the YLD averted using the disability component derived from disability-adjusted life-years. The authors reported that LYD avoided were estimated from the changes in symptom severity, which were translated into disability weight changes using linear functions (Sanderson et al. 2004).

**Direct costs**
The costs were restricted to those incurred by the government. They were estimated for a single year (1997 to 1998). Consequently, discounting was not necessary. The use of services for current and optimal care was described in terms of the estimated percentage of the population receiving alcohol detoxification (high, medium or low level), relapse prevention and consultations with a health professional. Optimal care for patients experiencing alcohol harmful use was assumed to involve a "brief intervention" as described in the literature for all patients. Unit costs, total costs for the cohort of specified size, and average costs per treated case were reported for inpatient care, psychiatric care, psychology care, mental health team care, general practitioner care, medical specialist care and pharmaceuticals. The use of services under the current care option was derived from the National Survey of Mental Health and Wellbeing (Andrews et al. 2001). The unit costs were derived from those reported by the Commonwealth Department of Health and Aged Care 1999 and from another published study (Buckingham et al. 1998, see "Other Publications of Related Interest" below for bibliographic details), and were converted to 1997/98 prices using the Consumer Price Index health deflators. No distinction between marginal and average costs was made.

**Statistical analysis of costs**
The costs were reported as point estimates.

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

**Currency**
Australian dollars (Aus$).

**Sensitivity analysis**
A multivariate sensitivity analysis (using Monte-Carlo simulations) was undertaken to examine variability in the data and the assumptions made. For current use, the ranges were derived from information collected in the survey. For optimal use, the ranges were derived from the literature or from "plausible" values. The influence variables used in the sensitivity analysis were not explicitly reported. A multivariate stepwise regression was then used to determine the strongest predictors of variance in the cost-effectiveness ratios. Finally, a univariate sensitivity analysis was used on variables estimated by the investigators for the "operationalisation of treatment guidelines and expert reviews", such as medication type and percentage of patients who were treatment resistant.

**Estimated benefits used in the economic analysis**
The benefits were expressed for the estimated cohort of patients affected in comparison with a hypothetical "no treatment" option. For harmful use of alcohol, the benefits were 95 LYD averted under current care and 191 YLD averted under optimal care. Both figures related to a cohort of 20,463 people. For alcohol dependence, the benefits were 650 YLD averted under current care and 2,061 YLD averted under optimal care. Both figures related to a cohort of 30,999 people. The LYD averted for the "no treatment" option were assumed to be null. The benefits were modelled for a single year. Side effects were not explicitly considered.
Cost results
The costs per treated case for current care versus optimal care were Aus$449 versus Aus$83 for harmful use patients, and Aus$2,056 versus Aus$3,827 for alcohol-dependent patients.

The estimated costs of treating the above cohorts were:

for harmful use, $9.2 million (95% confidence interval, CI: 8.0 million - 10.8 million) with current care versus Aus$1.7 million (95% CI: 1.0 million - 1.7 million) with optimal care; and

for alcohol dependence, Aus$63.7 million (95% CI: 38.1 million - 89.3 million) with current care and Aus$118.6 million (95% CI: 61.7 million - 192.9 million) with optimal care.

All the costs were compared with no treatment (which was assumed to have a null cost) and were not discounted.

Synthesis of costs and benefits
The costs and benefits were combined as the incremental cost per LYD averted in comparison with a no treatment option.

The incremental costs per LYD of treating harmful use were Aus$96,813 (95% CI: 56,407 - 301,262) with current care and Aus$8,861 (95% CI: 5.202 - 9,360) with optimal care.

The incremental costs per LYD for treating alcohol dependence were $98,095 (95% CI: 45,335 - 197,999) with current care and Aus$57,542 (95% CI: 28,220 - 102,397) with optimal care.

From the regression analysis, the results for the current treatment of harmful use of alcohol were most sensitive to the proportion of the cohort in contact with evidence-based interventions. The corresponding results for optimal treatment were most sensitive to the translation factor used to predict the disability weighting and the effect size. The results for the current treatment of alcohol dependence were most sensitive to the proportion in contact with evidence-based interventions, psychiatric inpatient costs, the prevalence of alcohol dependence, and the translation factor. The corresponding results for optimal treatment were most sensitive to inpatient costs and the translation factor.

The univariate analysis showed the results to be sensitive to treatment resistance for both alcohol harmful behaviour and alcohol dependence. An increase in resistance from 10 to 30% in the optimal care for harmful use of alcohol increased the cost per LYD averted by 50%. An increase in resistance to 50% increased the cost per LYD averted by 100% (i.e. Aus$15,950).

An increase in resistance from 10 to 30% in the optimal care for alcohol dependence increased the cost per LYD averted by 29%. An increase in resistance to 50% increased the cost per LYD averted by 80%. Cost-effectiveness was not sensitive to the type of medication used in the treatment of alcohol dependence. Halving the proportion of alcohol-dependent patients receiving inpatient detoxification reduced the costs by 20%. Under the assumptions tested, current use was never more cost-effective than optimal use for either harmful use of alcohol or alcohol dependence.

Authors' conclusions
There were substantial gaps between current and optimal care for alcohol-use disorders. Optimal care (involving the greater use of psychological treatments) was advocated for the treatment of both harmful use of alcohol and alcohol dependence. The former (treatment of harmful use of alcohol) was both cheaper and more effective than current care, while the latter (treatment of alcohol dependence) was more expensive but more effective and with a lower cost effectiveness ratio than current care.

CRD COMMENTARY - Selection of comparators
Each of the two interventions (treatment for alcohol harmful use and alcohol dependence) and each of the treatment options (current care and optimal care) were compared with a “no treatment” option in accordance with World Health Organization recommendations. The definition of what constituted optimal care was unclear.
Validity of estimate of measure of effectiveness
A systematic review of the literature does not appear to have been performed. The methods used to find, select and assess the validity of the studies reviewed were unclear. Therefore, it would be difficult to comment on the validity of the analysis. There might also have been relevant studies that were not included in the review, thus biasing the study findings. Moreover, most of the effectiveness outcomes collected from the review of the literature were not clearly identified and their values were not reported in the paper. The authors formulated several assumptions, owing to the lack of available data, but these were not tested in a sensitivity analysis.

Validity of estimate of measure of benefit
The method used to estimate the YLD was developed specifically for the current study, as reported by the authors (and published in Sanderson et al. 2004), thus it was difficult to assess its validity. As the authors commented, this new method might require further testing.

Validity of estimate of costs
All the categories of cost relevant to the perspective adopted appear to have been included in the analysis. The costs and the quantities were reported separately. According to the authors, the ranges of the parameters used in the sensitivity analysis were obtained from the published literature and from plausible values. The quantities of resources used under "optimal care" were derived from recommendations in the literature. The quantities were subjected to a sensitivity analysis, with ranges derived from the literature and "plausible" values. Because these values were not reported in the paper it is impossible to determine how reasonable they were. The prices were treated deterministically as point estimates. Since the survey did not provide detailed information on the actual medications used, it was assumed that the medication was acamprosate and the medications were priced accordingly. This assumption was, however, subjected to a sensitivity analysis and found not to be critical to the findings. The authors highlighted that significant indirect costs of alcohol-related behaviour were not included in the analysis because of the perspective adopted. Moreover, service use in the public survey might have been under-reported and this might have biased the cost estimation.

Other issues
The authors related their findings to other evidence concerning low uptake of psychological treatments by the general community. They advocated that steps be taken to overcome this problem. The authors suggested that the analysis would be applicable to other countries, without any substantial supporting reasons given for doing so. The authors do not appear to have presented their results selectively. Given the assumptions made in their model, the conclusions drawn were appropriate. The authors acknowledged that the timescale of 1 year might be too short and there was uncertainty about some of the parameters used.

Implications of the study
The authors suggested that public health interventions are required to increase coverage, and hence reduce the burden, of alcohol-use disorders. They believe that evidence-based treatment for alcohol-use disorders is affordable and should be encouraged. They further suggested that the method used to obtain YLD should be replicated in other studies.

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Bibliographic details

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Other publications of related interest


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