Cost-effectiveness of screening and referral to an alcohol health worker in alcohol misusing patients attending an accident and emergency department: a decision-making approach


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 referral to an alcohol health worker (AHW) for alcohol misusing individuals. Patients received the information leaflet "Think About Drink" with contact details for local and national alcohol agencies, in addition to an appointment card asking the participant to re-attend for an appointment with an AHW. AHWs delivered a brief intervention lasting between 30 and 50 minutes that established the patients' drinking history and their current level of alcohol consumption, and determined what further help could be appropriate.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised adult alcohol misuse patients. These were defined using the Paddington Alcohol Test (PAT) as follows:

any man drinking more than 8 units of alcohol in any one session at least once a week;

any woman drinking more than 6 units of alcohol in any one session at least once a week; and

any person who believed their attendance in the AED could be related to alcohol, were PAT positive, and judged to be misusing alcohol.

Setting
The setting was a hospital AED. The economic study was carried out in the UK.

Dates to which data relate
The effectiveness and resource use data were gathered from March 2001 to April 2002. The costs were assessed using 2001/02 prices.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The costing was carried out prospectively on a sub-sample of the patients included in the effectiveness study.
Study sample
Limited information on the primary study was provided since the clinical trial had already been published. Participating individuals were screened using the PAT. Further, individuals had to be alert and orientated, able to speak English sufficiently well to complete study questionnaires, and be resident within Greater London. Individuals were excluded if they were already in contact with alcohol services, or if they specifically requested help with alcohol problems. PAT-positive patients were asked if they would be willing to receive brief intervention. An overall sample of 599 patients was included, of which 287 were in the intervention group and 312 in the control group. The majority of the patients were men and the mean age was approximately 44 years. Power calculations were carried out, although the results were not reported.

Study design
This was a prospective, single-blind, randomised, clinical trial that was carried out in St. Mary's Hospital in London. The outcomes were assessed either by telephone or in person by a researcher blind to allocation status. The length of follow-up was one year, but clinical outcomes were assessed at 6 and 12 months. It was not stated whether clinical data were missing for some patients.

Analysis of effectiveness
The analysis of the clinical study was conducted on an intention to treat basis. The primary outcome measure was the number of units of alcohol consumed per week. The study groups were comparable at baseline.

Effectiveness results
At 6 months follow-up, the difference in the mean number of alcohol units consumed per week was statistically significantly lower in the experimental group (59.7) than in the control group (83.1), (p=0.02).

By 12 months follow-up, the mean number of units consumed per week remained lower in the experimental group (56.20 versus 67.20 in the control group), but the difference was no longer significant, (p=0.09).

Clinical conclusions
The effectiveness analysis showed that referral to AHWs led to a reduction in the number of alcohol units consumed per week in comparison with standard care.

Measure of benefits used in the economic analysis
The summary benefit measure was the reduction in the number of alcohol units consumed. This was derived directly from the effectiveness study.

Direct costs
The analysis of the costs was carried out from a societal perspective. The direct costs included were contacts with AHWs, other alcohol services, hospital services, primary care services, other social and non-statutory services, and criminal justice services. Other alcohol services comprised inpatient stay, outpatient attendance, day patient attendance, and other alcohol support contacts. Hospital services covered accident and emergency attendance, emergency ambulance call outs, inpatient stay, outpatient attendance, and day patient attendance. Primary care services included contacts with general practitioner, practice nurse, district nurse, community psychiatric nurse, psychiatrist, psychologist, occupational therapist and counsellor. Other social and non-statutory services covered contacts with social worker, social work assistant, home help, advice service and solicitor, fire service call out, and other community service contacts. Criminal justice services covered police contacts, probation officer contacts, prison nights, and court days.

The unit costs were not reported, but the quantities of resources used were presented for all items. Resource use was
mainly derived from the clinical trial, although, owing to missing data on resource use, there were 139 patients in the intervention group and 159 patients in the control group. However, no statistically significant differences were found between individuals who completed the 12-month follow-up and those who provided data only at the 6-month follow-up, apart from gender (higher percentage of men in the missing cases).

The costs were derived from local and national sources for the financial year 2001/02 and published costs. For example, the cost of AHWs was estimated using methods recommended by the Personal Social Services Research Unit, which included all employer costs and appropriate overhead costs. The hospital costs were taken from Trust Financial Returns and NHS Reference Costs. Contacts with the police were estimated from the Metropolitan Police Ready Reckoner and time spent in prison using cost data contained in the Prison Service Annual Report. Discounting was not relevant as the costs were incurred during 12 months. The costs were inflated to 2001/02 where necessary using the Hospital and Community Services Index.

**Statistical analysis of costs**
The authors stated that parametric tests for differences in costs were used, despite the skewed distribution of costs. Non-parametric bootstrapping was also used to assess the robustness of confidence intervals. In the primary analysis of costs, only cases with complete data on resource use were considered.

**Indirect Costs**
The indirect costs (i.e. productivity losses) were appropriately included in the cost analysis since a societal perspective was adopted. The days taken off work were estimated from the sample of individuals included in the clinical trial. The indirect costs were estimated using the human capital approach. However, the source of the costs was not stated. The unit costs were not presented separately from the quantities of resources used. As in the analysis of the direct costs, discounting was not relevant and 2001/02 prices were used.

**Currency**
UK pounds sterling (€).

**Sensitivity analysis**
Univariate sensitivity analyses were carried out to assess the robustness of the base-case costs to various scenarios. In particular, the exclusion of productivity losses; the use of national unit costs rather than local sources; the inclusion of cases of patients with missing data using the last value carried forward technique; and the inclusion of costs associated with domestic accommodation.

**Estimated benefits used in the economic analysis**
The intervention group was associated with a mean reduction of 1 unit of alcohol per individual.

**Cost results**
Over the 12-month time period, the total costs were 5,454 (+/-11,065) in the intervention group and 5,207 (+/-10,419) in the control group, (p=0.85). None of the differences in cost categories reached statistical significance.

The costs were also similar at 6 months, 3,068 in the intervention group versus 3,122 in the control group, (p=0.95).

The highest proportion of the costs was borne by the health care sector (49% and 53% of the total costs for the intervention and control groups, respectively) and by social services (38% and 36%, respectively, for the two groups).

**Synthesis of costs and benefits**
An incremental cost-effectiveness ratio (ICER; i.e. the incremental cost per unit reduction of alcohol consumed per
week) was calculated to combine the costs and benefits.

The ICER with the intervention in comparison with the control group was 22.

The sensitivity analysis showed that the base-case costs were robust to variations in several scenarios.

The cost-effectiveness acceptability curve showed that the probability that the brief AHW intervention is more cost-effective than the control treatment for a willingness-to-pay of 0 for an increment in the benefit measure was greater than 65%. Thus, even at a willingness-to-pay of 0, the probability that no intervention is cost-effective would be 35%.

**Authors' conclusions**

Referral to alcohol health workers (AHWs) for the management of alcohol misuse among individuals presenting to the accident and emergency department (AED) was a cost-effective strategy in comparison with standard care.

**CRD COMMENTARY - Selection of comparators**

The selection of the comparators was appropriate as it reflected standard care in the authors' setting. You should decide whether this is a valid comparator in your own setting.

**Validity of estimate of measure of effectiveness**

The effectiveness evidence came from a clinical trial, which was appropriate for the study question. Since the analysis was based on a published study, few details of the design and other characteristics of the clinical trial were reported. Some information on the method used to select the sample was reported, but the characteristics of the patients included in the study sample were not described. Moreover, the authors stated that several patients in the control group received care by AHWs, which might affect the validity of the clinical estimates. In general, the use of a randomised clinical trial ensures the high internal validity of the analysis. The authors also noted that sample selection took place in a busy AED and that baseline data, which would have been useful to control for baseline differences between groups, could not be gathered for all participants. It was stated that the study groups were comparable at baseline and randomisation was considered successful.

**Validity of estimate of measure of benefit**

The summary benefit measure was specific to the study setting. It would not be comparable with the benefits of other health care intervention. The impact of the referral to AHWs on quality of life was not investigated.

**Validity of estimate of costs**

The perspective adopted in the study was appropriate. All the relevant categories of costs appear to have been included in the analysis, regardless of the payer. Some specific cost categories, namely those associated with domestic accommodation, were included in the sensitivity analysis. Other costs, such as childcare and travel costs, were not included because they were likely to have been negligible. In general, extensive information on resource consumption was provided, although the unit costs were not reported. The source of the costs was given for all cost groups. Typical National Health Service costs were used in the estimation of the direct medical costs. Other costs were estimated from appropriate sources. Several statistical analyses were carried out to assess the significance of the cost comparison. The main analysis considered only those patients with complete resource use data. However, missing data were included in the sensitivity analysis using a specific statistical approach. Alternative cost estimates were considered in the sensitivity analysis. The price year was reported, which will make reflation exercises in other time periods possible.

**Other issues**

The authors presented results from other studies and stated that few economic evaluations had been performed on this intervention. In terms of the generalisability of the study results to other settings, the authors considered alternative scenarios in the sensitivity analysis, which strengthens the external validity of the study. In particular, unit costs from
other UK regions were used instead of data London, thus enabling transfer of the results to the UK as a whole. The analysis referred to alcohol misusing patients and this was reflected in the authors' conclusions. Some strengths and drawbacks of the analysis were also discussed.

**Implications of the study**
The study results support the use of AHWs in an AED for the treatment of alcohol misusing patients.

**Source of funding**
Funded by the Alcohol Education and Research Council.

**Bibliographic details**

**PubMedID**
16006055

**DOI**
10.1016/j.drugalcdep.2005.05.015

**Other publications of related interest**


**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adult; Alcoholic Intoxication /economics /rehabilitation; Alcoholism /economics /rehabilitation; Cost-Benefit Analysis /statistics & numerical data; Emergency Service, Hospital /economics; Female; Follow-Up Studies; Health Resources /economics; Humans; London; Male; Mass Screening /economics; Middle Aged; Outcome and Process Assessment (Health Care) /statistics & numerical data; Psychotherapy, Brief /economics; Referral and Consultation /economics; Resource Allocation /economics; Single-Blind Method; Social Work, Psychiatric /economics; State Medicine /economics; Urban Population

**AccessionNumber**
22005001922

**Date bibliographic record published**
30/04/2006

**Date abstract record published**
30/04/2006