Modelling the cost-effectiveness of alcohol screening and brief interventions in primary care in England

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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.

CRD summary
The study evaluated the cost-effectiveness of screening and brief intervention for alcohol consumption. The authors concluded that screening and brief intervention was less costly and more effective than no intervention. It was not possible to fully validate the model based on this publication but given that the Sheffield Alcohol Policy Model appears to be considered robust, the results obtained in this analysis are likely to be valid.

Type of economic evaluation
Cost-utility analysis

Study objective
The study evaluated the cost-effectiveness of alcohol screening and brief intervention programmes for the population over 16 years of age in primary care.

Interventions
The screening and brief intervention comprised two elements: screening using the Alcohol Use Disorders Identification Test (AUDIT); and treatment by a brief intervention in the general practice (GP) setting that involved medical staff talking to the patient about alcohol consumption. The base case screening scenario was that screening/treatment was assumed to occur at registration with a new GP. The comparator was do nothing (no intervention). All positive screens were assumed to be immediately offered and accept treatment with screening and brief intervention.

Location/setting
UK/Primary Care

Methods
Analytical approach:
The Sheffield Alcohol Policy Model (see Other Publications of Related Interest) was extended to incorporate the effect of reducing alcohol consumption through the screening and brief intervention. The model was evaluated from a NHS and Personal Social Services perspective over a 30-year period. The model assumed that the screening programme ran for 10 years and that there were no repeat screens.

Effectiveness data:
The primary measure of effectiveness was percentage reduction in alcohol consumption after the brief intervention. This measure was derived from a systematic review of the AUDIT screening survey and intervention (see Other Publications of Related Interest). Screening arrival profiles and sensitivity and specificity of screening were derived from both national and published data. The effect of the intervention was expected to rebound to baseline over a seven-year period. The published model used published epidemiological evidence to translate alcohol consumption into the risk of 47 harmful health effects which were subsequently used to modify mortality and morbidity outcomes. Life tables were used to estimate the effect of the intervention on subgroups of the population based on sex, age and baseline drinking status.

Monetary benefit and utility valuations:
Details were not presented in this publication.
Measure of benefit:
The summary measure of benefit was quality-adjusted life-years (QALYs). Future benefits were discounted at 3.5% annually.

Cost data:
The cost estimates for the intervention were staff time and material costs. The intervention was assumed to last five minutes in the base case at a cost of £0.55/minute assuming that a practice nurse carried out the intervention. The unit costs were derived from Personal and Social Service Research Unit (PSSRU) costs. Alternative assumptions about length of intervention and type of staff performing the intervention were tested in sensitivity analyses. Material costs for performing the screening and intervention were derived from a published economic evaluation of a brief intervention for alcohol consumption. The price year was 2007. Future costs were discounted at 3.5% annually. The impact of reduced morbidity prevalence for the 47 harmful health effects were included but as they were an integral part of the original model full details have not been presented in this publication.

Analysis of uncertainty:
The analysis of uncertainty was evaluated using one-way and scenario analyses where adjusted parameters included: duration of the intervention, who undertook the intervention, effectiveness of the intervention and length of the rebound period. Additional scenarios altered the type of intervention by changing the survey used and varying the intervention characteristics and whether the intervention was carried out at new registration or next consultation with a GP. A three-year rebound rate for the effectiveness of the intervention was tested in sensitivity analyses.

Results
Where screening/treatment by a nurse was assumed to occur at registration with a new GP it was dominant (less costly and more effective) compared with do nothing (no intervention). Costs of delivering screening and brief intervention over a 10-year period was estimated at £95 million but with potential 30-year savings of £215 million and QALY gains of 32,000. The authors felt that the assumptions in this base case (fully reported) represented the best attempt at representing the evidence base.

Alternative scenarios showed that if the intervention was assumed to have a duration of 24.9 minutes (matching the systematic review) it remained dominant when delivered by a nurse and achieved an incremental cost-effectiveness ratio (ICER) of £11,200/QALY if delivered by a GP. The most pessimistic scenario resulted in an ICER of £75,000.

Having established that the base case strategy was cost-effective under most plausible assumptions, alternative comparators were compared against the base case. These analyses suggested that screening at next consultation (rather than new registration) would be cost-effective compared to current practice (the base case) but its implementation would require substantial front-loaded resources.

Authors' conclusions
The authors concluded that screening and brief intervention was less costly and more effective than no intervention.

CRD commentary
Interventions:
The interventions were reported appropriately. Many alternative interventions were examined in sensitivity analyses and this gave policymakers a wide variety of interventions to compare to current practice. The model did not allow repeat screening and only allowed screening to occur over the first 10 years.

Effectiveness/benefits:
The Sheffield Alcohol Policy Model was used to translate the effectiveness of screening (sensitivity/specificity) and intervention effectiveness (reduction in alcohol consumption) into long-term health-related quality-of-life outcomes (QALYs). The model is well validated in other publications but was not reported in detail in this paper. The main effectiveness parameter was derived from a recent systematic review. Diagnostic accuracy was based on a regression analysis of English survey data. Both of these seemed reasonable and were based on published verifiable sources but insufficient details were presented in the paper to allow a full critique.

Due to the use of the Sheffield Alcohol Policy Model it was not possible to assess the validity of the epidemiological
and utility data used in the original publication but the model has been extensively peer reviewed and was appropriate.

Costs:
The costs presented in the paper were the unit cost of a practice nurse, a GP and material costs for the intervention. These costs and their associated resource use were well tested in sensitivity analysis.

The model results were driven by the reduction in morbidity achieved through the reduction in alcohol consumption so the effectiveness of the intervention to reduce consumption was important and was derived from an appropriate source.

Analysis and results:
A brief description of the model workings was presented. The addition of screening and intervention were well described and despite a lack of reporting on data used to inform the Sheffield Alcohol Policy Model, the paper was well reported. But with no details of data inputs to the original model the validity of the overall results could not be assessed fully. Given that the Sheffield Alcohol Policy Model appeared to be considered robust, the results obtained in this analysis are likely to be valid.

Concluding remarks:
It was not possible to fully validate the model based on this publication but given that the Sheffield Alcohol Policy Model appears to be considered robust, the results obtained in this analysis are likely to be valid.

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