Repeated tobacco-use screening and intervention in clinical practice: health impact and cost effectiveness

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
This study updated a previous one evaluating the clinically preventable burden and the cost-effectiveness of tobacco-use screening and a brief counselling intervention. The authors concluded that repeated counselling was a clinically important and cost-effective practice for tobacco-cessation. Overall, the quality of the study methodology was good and the results were presented clearly. The authors' conclusions appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
This paper updated a previous study evaluating the clinically preventable burden and the cost-effectiveness of tobacco-use screening and brief counselling interventions.

Interventions
The intervention was brief counselling for smoking patients and four alternative models were considered. Model one was one-time counselling without the savings attributable to smoking-related illness prevented. Model two was one-time counselling with these savings. Model three was annual counselling without the savings. Model four was annual counselling with the savings.

Location/setting
USA/primary care.

Methods
Analytical approach:
A decision analytic model was constructed in order to compare the cost-effectiveness of the strategies. The population was a one-year US-born cohort of four million people from 35 to 44 years old. The time horizon of the analysis was a life time. The authors did not report the study perspective.

Effectiveness data:
The effectiveness data were obtained from a variety of published studies including meta-analyses. The main effectiveness estimates were the efficacy of counselling (the quit rate) and the relapse rates for 12-month quitters. The long-term quit rate was derived from a model due to the lack of relevant evidence.

Monetary benefit and utility valuations:
Not reported.

Measure of benefit:
The measures of benefit were quality-adjusted life-years (QALYs) gained. Future benefits were discounted at an annual rate of 3%.

Cost data:
The direct costs were those of office visits, counselling, smoking-cessation aids, and the annual health expenditures of current, former and never smokers. The cost data were obtained from published sources. All costs were expressed in
year 2000 US dollars ($) and were discounted at an annual rate of 3%.

Analysis of uncertainty:
A series of one-way and multi-way sensitivity analyses were performed by varying the main model input parameters, such as the efficacy of repeated counselling, the ratio of personal health expenditures of former smokers over current smokers, and the cost of smoking-cessation medications. The ranges of most inputs used in the sensitivity analyses came from the literature.

Results
In Models one and two, an estimated 190,000 undiscounted QALYs were saved. In Model one, the intervention cost $1,100 per QALY saved (discounted).

In Models three and four, a total of 2.47 million QALYs were saved. In Model four, this was at a cost saving of over $500 per smoker.

These results were highly sensitive to variations in the efficacy of repeated advice and the ratio of personal health expenditures of former smokers to those of current smokers. The cost-effectiveness was also moderately sensitive to the cost of smoking-cessation medications, the portion of those screened and counselled who used a medication, and the average personal health care expenditures for all individuals.

Authors’ conclusions
The authors concluded that the repeated counselling was a clinically important and cost-effective practice for tobacco-cessation.

CRD commentary
Interventions:
The interventions were clearly reported.

Effectiveness/benefits:
An extensive search of databases appears to have been conducted systematically to identify the literature used to obtain the effectiveness evidence. In addition, the search methods, the inclusion and exclusion criteria, and the details of the studies included were clearly reported. The effectiveness data were obtained from published systematic reviews and meta-analyses, which potentially have the greatest level of internal validity. QALYs were appropriately used as the measure of benefit. However, the derivation methods for these were not reported.

Costs:
The authors did not state the perspective adopted in the study, so it is not possible to assess whether the cost categories were appropriate. However, indirect costs were included, such as the cost of patient time and travel to office visits, which is compatible with a societal perspective. The costs were reported at the macro-level and were not broken down into individual items, which will make it difficult to replicate the analysis for other settings. Other costing details, such as the sources of the cost data, price year and discount rate, were provided, which will facilitate the replication of the study for other settings and time periods.

Analysis and results:
No details of the model were provided, which makes the analysis less transparent. The costs and benefits were synthesised and an incremental analysis was appropriately conducted. The uncertainty in the model was examined through extensive one-way and multi-way sensitivity analyses around certain parameters. However, the use of probabilistic sensitivity analyses would have been a more thorough way to deal with model uncertainty. Overall, the methods used in the study were well reported. The results were reported in detail and in their discussion the authors appropriately noted the limitations of their study.

Concluding remarks:
Overall, the quality of the study methodology was good and the study results were presented clearly. The authors’ conclusions appear to be appropriate.
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