Cost-effectiveness of an intensive telephone-based intervention for smoking cessation

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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 aim was to evaluate the cost-effectiveness of an intensive telephone-based intervention for smoking cessation. The authors concluded that the telephone intervention, in primary care, was cost-effective. Limited description of the clinical trial, and confusion over the incremental outcome (per quit or percentage point change in quit rate), make the findings unclear.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to evaluate the cost-effectiveness of an intensive telephone-based intervention to help primary care patients to quit smoking.

Interventions
An intensive telephone-based intervention was compared with the usual referral to care. The intervention was a series of seven counselling telephone calls, over two months, with additional calls if needed. Usual care was that given at the Veterans Affairs (VA) facility.

Location/setting
USA/primary care.

Methods
Analytical approach:
The cost-effectiveness analysis was based on one clinical study. The time horizon was the duration of the study, which had a follow-up at 12 months. The perspective was reported to be that of the payer, the health care services funded by VA.

Effectiveness data:
The primary effectiveness outcome was the percentage of patients who quit. These clinical data were from the randomised trial, with 12 months of follow-up. Few details were reported, but a reference was given (see Other Publications of Related Interest). There were 838 participants randomised; 19 of them could not be matched to their resource use data and were considered lost to follow-up. Usual care included 412 patients, and the telephone intervention included 407 patients. The intention-to-treat analysis classified those lost to follow-up as continuing smokers (19 patients).

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The measure of benefit was the smoking quit rate.

Cost data:
The intervention costs included the initial information call, behavioural counselling calls, optional calls to discuss medication side-effects, phone line charges, office equipment, office space, facility overheads, and medications. The use of cessation-related services was from case reports. Information on encounters at VA facilities for 12 months after
enrolment was extracted from the VA Decision Support System. Information on care purchased from non-VA providers was from the annual Fee Basis databases. Information on staff time, equipment, office space and utilities, was based on actual costs at the participating centres. All costs were reported in US $.

Analysis of uncertainty:
A cost-effectiveness acceptability curve (CEAC) was derived by bootstrapping the individual patient costs and outcome data from the trial. This curve presented the probability that an intervention was cost-effective over a range of willingness-to-pay values. Probabilities were calculated for some costs. An analysis was conducted, using regression-based multiple imputation, to impute the missing values of smoking abstinence for the 19 patients lost to follow-up, based on their initial characteristics.

Results
At 12 months after enrolment, 13% of those receiving telephone care had been abstinent for at least six months, and 4% of those receiving usual care had been abstinent.

The average cost per patient, over 12 months, was $7,939 with usual care, and $8,959 with telephone care. This resulted in an incremental cost-effectiveness ratio of $11,408 per percentage point increase in quit rate. Using multiple imputation, instead of assuming all continued smoking, this ratio was $10,352.

The likelihood that telephone care was cost-effective at a threshold of $20,000 per percentage point increase in the quit rate was 75%. Using multiple imputation, it was 85%.

Authors’ conclusions
The authors concluded that the telephone care was cost-effective.

CRD commentary
Interventions:
An outline of the intervention was provided; more detail may have been provided in the publication referenced. Usual care was appropriately included, but it was suggested that there were other available interventions for smoking cessation. The authors stated that they investigated whether the whole range of therapies could be improved with telephone counselling. It was not clear if telephone counselling was added to usual care or replaced it. If counselling replaces it, some interventions could be more effective than telephone counselling, but this would be hidden in the data.

Effectiveness/benefits:
The randomised trial was not well reported in this paper, so it was not clear if it was well conducted. It was not clear how the quit outcome was defined; it appeared to be a patient who had been abstinent for least six months, at the 12-month follow-up. As highlighted by the authors, this outcome was self-reported and may have been inaccurate – the quit rates may have been overestimated.

Costs:
The cost analysis was quite well reported. Those costs relevant to the VA health service provider appear to have been included. The cost estimates were directly relevant to the study population. The price year was not stated. Discounting was not necessary, given the short time horizon.

Analysis and results:
The analysis and results were reasonably well presented. The paper described the incremental cost-effectiveness ratio as the incremental mean cost per quit, but it appeared to be the incremental cost per percentage point increase in the quit rate. The measure of benefit was not clearly reported. The authors stated that the intervention was cost-effective by the usual standards, but they did not give references for any willingness-to-pay standards for the outcome of an incremental percentage point increase in the quit rate. They commented on their study limitations, including the point that self-reported smoking abstinence may be higher than actual abstinence.

Concluding remarks:
Limited description of the clinical trial makes it difficult to assess the reliability of the results. With the lack of clarity over the incremental outcome per quit or percentage point change in quit rate, this makes the findings unclear.
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