Feasibility, cost, and cost-effectiveness of a telephone-based motivational intervention for underserved pregnant smokers


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 objective was to evaluate the clinical and economic impact of a proactively provided telephone-based motivational smoking cessation programme to an under-served population of pregnant women who may or may not be receiving ongoing prenatal care. The authors concluded that the smoking cessation programme might be cost-effective for low-income pregnant smokers. The study was generally well conducted and reported. However, the authors' conclusions should be considered with caution given the lack of an incremental analysis and the limited use of sensitivity analysis.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to evaluate the clinical and economic impact of a proactively provided telephone-based motivational smoking cessation programme, in comparison with no intervention. The programme was provided to an under-served, low-income population of pregnant women who might or might not be receiving ongoing prenatal care.

Interventions
The motivational telephone counselling intervention (MI) was delivered by trained counsellors (not clinicians) using a semi-structured protocol. Women received a quit kit (A Smoker's Guide to Quit Smoking and a video Commit to Quit), a 'Quit and Win' monetary incentive lottery programme (Q&W), and up to three MI calls to discuss their smoking habits and enhance their perception of maternal and fetal risks.

Location/setting
USA/primary care.

Methods
Analytical approach:
This economic evaluation was based on a single study. The time horizon of the study was the duration of pregnancy plus the first six months postpartum. The authors stated that the perspective was that of the agency delivering the smoking cessation programme.

Effectiveness data:
The clinical data came from a randomised controlled trial (RCT), namely the New England Smoking Cessation/Reduction in Pregnancy Trial, which compared the effectiveness of three interventions for smoking cessation. This study reported on only one of these interventions, the MI programme, to which 358 women were randomly assigned. Of these 358 women, only 165 received the three scheduled calls, while 92 women received only one call, and 49 women received two calls. The remaining 52 women received no calls and therefore no specific intervention. These women formed the comparison group. Follow-up evaluations took place at approximately 32 weeks gestation (third trimester) and at six weeks and six months postpartum. A urine sample was used to confirm the self-reported smoking status at each assessment. A statistical approach was used to identify the potential confounding factors. The analysis was based on the intention-to-treat principle.

Monetary benefit and utility valuations:
None.
Measure of benefit:
The summary benefit measure was the quit rate or the percentage of women who smoked at enrolment and quit by the third trimester. This was derived from the clinical study.

Cost data:
The analysis of costs included the staff and non-staff resources such as personnel time and wages to be trained, as well as the routine supervision of MI staff. The cost of the MI counselling included the instructor MI training preparation, training of the MI staff, MI staff meetings, staff materials, the direct services (completed and attempted MI calls), and the MI supervisor costs. The sources of the costs were not fully reported, although some data were based on Medicaid tariffs. All costs were in US dollars ($) and the price year was not reported.

Analysis of uncertainty:
A deterministic sensitivity analysis was performed on quit rates and the cost of MI counselling.

Results
The quit rate was 9.6% in women receiving no calls, 13% in women who received one call, 16.3% in women who received two calls, and 23.0% in women who received three calls.

The total cost was $138 for no intervention, $736 for one call, $735 for two calls, and $3,187 for three calls.

Thus, the average cost per quit was $28 for no intervention, $81 for one call, $92 for two calls, and $84 for three calls.

The base-case findings remained stable in the sensitivity analysis. A regression analysis showed that women who had received all three calls were 84% more likely to quit smoking compared with all the other women.

Authors’ conclusions
The authors concluded that the telephone-based motivational smoking cessation counselling might be cost-effective for low-income pregnant smokers.

CRD commentary
Interventions:
A clear description of the interventions was provided. The comparator appears to have been appropriately selected in order to reflect the current pattern of care in the authors’ setting.

Effectiveness/benefits:
The clinical evidence came from a RCT, a study design which is considered to be a valid source of data. The authors provided extensive details on their methodology in terms of patients’ eligibility criteria, follow-up, and outcome assessment. The baseline comparability of the study groups, the randomised and multicentre design, the use of intention-to-treat and statistical analysis all enhance the internal validity of the study. However, the analysis of the MI represented only one arm of the trial and was not compared with the other interventions in this study. The authors did not report the use of power calculations to justify the sample size. In general, the clinical analysis appears to have been well conducted. The benefit measure is disease-specific and is not comparable with the benefits of other health care interventions.

Costs:
The analysis of costs was consistent with the perspective. A detailed breakdown of cost items was given. The unit costs and resource quantities were presented separately, and this enhances the transparency of the economic study. However, the sources of costs were not clearly stated and the price year was not reported. Furthermore, the cost data were treated deterministically.

Analysis and results:
The synthesis of costs and benefits was carried out using an average cost-effectiveness ratio, while the use of an incremental approach would have been more appropriate. The issue of uncertainty was only partially addressed in the sensitivity analysis as it only investigated two parameters. The authors did not address the issue of transferability of the...
results to other settings, thus these findings should be considered to be specific to the USA. Some limitations of the study, such as the fact that many participants did not provide urine samples, and the low participation rate for all three calls, were acknowledged by the authors.

Concluding remarks:
The study was generally well conducted and reported. However, the authors’ conclusions should be considered with a degree of caution given the lack of an incremental analysis and the limited use of sensitivity analysis.

Funding
Supported by a grant from the National Heart, Lung, and Blood Institute.

Bibliographic details

PubMedID
17943620

DOI
10.1080/14622200701591617

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Counseling /economics /methods; Feasibility Studies; Female; Health Knowledge. Attitudes, Practice; Health Promotion /economics /methods; Humans; Maternal Behavior; Medically Underserved Area; New England; Patient Education as Topic; Pregnancy; Pregnancy Complications /economics /prevention & control; Prenatal Care /economics; Psychometrics; Smoking /prevention & control; Smoking Cessation /economics /methods; Telephone; Tobacco Use Disorder /prevention & control

AccessionNumber
22007002782

Date bibliographic record published
03/02/2009

Date abstract record published
29/04/2009