Peer-delivered smoking counseling for childhood cancer survivors increases rate of cessation: the Partnership for Health Study

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 health technology studied in this paper was a peer-delivered telephone counselling (PC) intervention to assist smoking cessation in individuals who were survivors of childhood cancer. The aim of the PC intervention was to enhance self-efficacy and social support, increase knowledge about the health risks of smoking, reduce barriers to quitting, help set individual goals, and provide feedback on behaviour change. A peer counsellor provided up to six counselling calls in a 7-month period. Before the first counselling call, the participants received a mailed report containing details of the peer counsellor and provided feedback tailored to the interaction of smoking with cancer type and treatment, risk perception, self-efficacy, motivation to quit smoking, and other topics. Additional information tailored to the individual was provided during the intervention period. Self-help (SH) was explicitly stated as the comparator.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The Childhood Cancer Survivors Study (CCSS) was used to identify participants for the PFH study. The CCSS was a multi-site study in which childhood cancer survivors completed a baseline survey about medical history and health behaviours, including smoking. The inclusion criteria for the CCSS stipulated:

- that patients needed to have had a diagnosis of leukaemia, central nervous system CNS malignancies (all histologies), Hodgkin's disease, non Hodgkin's lymphoma, kidney cancer, neuroblastoma, soft tissue sarcoma, or malignant bone tumour;
- diagnosis and initial treatment at one of the 27 collaborating CCSS institutions;
- a diagnosis date between January 1, 1979 and December 31, 1986;
- age younger than 21 years at the time of diagnosis; and
- survival of at least 5 years from the time of diagnosis.

Details of this study were given elsewhere (Robinson et al. 2002 and Mertens et al. 1997, see 'Other Publications of Related Interest' below for bibliographic details). By using the CCSS baseline questionnaire the authors were able to identify smokers who were then invited to participate in the PFH study. The eligibility criteria for the PFH study were age at least 18 years, not currently in treatment for cancer, mentally able to provide informed consent, able to read and speak English, and current smoker. The target population was the same as the study population.
Setting
The setting appears to have been that of the participants' home. The economic study was carried out in the USA.

Dates to which data relate
Eligibility for the study was assessed during May 1999 to July 2000; following that the study then ran for a year. It appears that the data on resource use have been collected during the interventions.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was carried out prospectively on the same patient sample as that used in the effectiveness study.

Study sample
The sample size was determined using a power analysis set at 80% power to detect a difference of 7 to 10% in quit rates at the p=0.05 level. The CCSS database identified 1,769 current smokers, 1,391 of whom were alive. A further 890 former smokers were also identified from the CCSS survey, of whom 398 were alive and had a known address. Five hundred and twenty-eight of the total identified individuals were not eligible. The PFH team managed to contact 959 of the identified individuals, but were unable to contact 302. A total of 796 were enrolled as participants (83% of the known eligible participants; 63% of the potentially eligible participants) and 162 declined to participate (17% of the known eligible participants; 13% of the potentially eligible participants).

Study design
The study was a randomised controlled trial that was carried out in 22 sites. Details of the methods of randomisation and blinding were not provided. Follow-up was carried out 8 and 12 months after the baseline survey. After 8 months, data were missing for 103 participants in the PC group (56 were lost to further follow-up), and 84 participants in the SH group (36 were lost to further follow-up). After 12 months, data were missing for 102 participants in the PC group (56 were missing at 8 months and 48 were missing only at 12 months) and 2 participants were dead. Data were missing for 76 participants in the SH group (36 were missing at 8 months and 40 were missing only at 12 months).

Analysis of effectiveness
The primary health outcomes measured were:

- psychosocial variables, measured using the 5-point Likert response scale;
- readiness to quit smoking, measured using the Stages of Change algorithm;
- social support, measured using the emotional/informational support sub-scale of the Medical Outcomes Study;
- perceived vulnerability due to cancer and smoking, assessed using a sub-set of items tapping perceived vulnerability and perceived importance of health protection from Tyc's Perceived Importance of Health Protection scale;
- knowledge of the risks of smoking for cancer survivors, assessed using the Tobacco Knowledge scale;
- severity of psychological symptoms, measured using the severity index of the Brief Symptom Inventory (BSI); and
- perceived health status, measured with one item from the 12-item Short Form Medical Outcomes Study Health Survey.

The analysis was conducted on an intention to treat basis. There was no significant difference between the two intervention groups at analysis.
Effectiveness results
The results showed that, at baseline, 40% of the participants reported being ready to quit. The self-efficacy levels for quitting were low (mean 2.21 on a 5-point scale, standard deviation, SD=1.19). This was slightly higher during the next 6 months (mean 3.01, SD=1.21).

Baseline stage of readiness was marginally related to smoking cessation (11% pre-contemplators, 10% contemplators and 16% of those participants in the preparation stage quitting by 12 months, p=0.06).

There was no significant relationship between perceived vulnerability and smoking cessation.

Individuals with higher levels of depressive symptoms were less likely to quit smoking.

The authors did not find any relationship between smoking cessation and baseline levels of social support, quality of life, tobacco-related knowledge or cancer diagnosis.

A multivariable logistic regression model showed that long-term self-efficacy, BSI score and intervention condition were predictors of smoking cessation outcomes.

The PC group had an odds ratio of 1.79 for quitting in comparison with the SH group, (p=0.01).

Clinical conclusions
The clinical conclusions were that the participants in the PC group had a higher chance of quitting smoking.

Measure of benefits used in the economic analysis
Quit rate was used as the measure of benefit in the model.

Direct costs
The direct costs of the providers of the interventions were used in the analysis. These included delivery costs, staff and peer counsellors’ time (including fringe benefits), and resource costs. Details of the resource costs were not provided. The delivery costs were recorded using a tracking system, while staff and peer counselling costs were taken as the salary rates. It was assumed that telephone usage was valued at $0.10 per minute, with actual invoice amounts used for resource costs. The costs and the quantities were not reported separately. Discounting was not relevant given the length of the study. The cost data were collected at the same time as the effectiveness data.

Statistical analysis of costs
The data were deterministic.

Indirect Costs
The indirect costs were not included in the study.

Currency
US dollars ($).

Sensitivity analysis
A sensitivity analysis was not undertaken.
Estimated benefits used in the economic analysis
At the 8-month follow-up, 14.5% of all participants had quit smoking. The quit rate was 16.8% in the PC group compared with 8.5% in the SH group, (p<0.0003).

At the 12-month follow-up, the quit rate was 15% in the PC group compared with 9% in the SH group, (p<=0.01).

The PC group were more likely to quit smoking by the 12-month follow-up than the SH group (odds ratio 1.99, 95% confidence interval: 1.27 - 3.14).

By 12 months, 20% of the SH group had made at least two serious attempts to quit smoking and 37% had made two or more. In the PC group, 18% had made at least two serious attempts to quit smoking and 43% had made two or more.

Cost results
The total cost of the intervention per person was $298.17 for the PC group and $1.25 for the SH group.

Synthesis of costs and benefits
The incremental cost-effectiveness of the PC intervention compared with the SH intervention was $5,371 per additional quit at 12 months.

Authors' conclusions
The Partnership for Health (PFH) counselling intervention doubled smoking cessation rates in comparison with the self-help (SH) intervention.

CRD COMMENTARY - Selection of comparators
The choice of the comparator was justified on the grounds that it emulated standard care. You should decide if this is a widely used health technology in your own setting.

Validity of estimate of measure of effectiveness
The analysis was based on a randomised controlled trial, which was appropriate for the study design. The study sample was representative of the study population and the patient groups were shown to have been comparable at baseline. The analysis was undertaken on an intention to treat basis.

Validity of estimate of measure of benefit
Whilst quit rate was used to measure the health benefit, some measure of quality of life would have been useful to allow meaningful comparisons with other disease areas.

Validity of estimate of costs
All the categories of cost relevant to the perspective adopted appear to have been included in the analysis. The costs and the quantities were not reported separately. No statistical analysis of the quantities or prices was performed.

Other issues
The authors made appropriate comparisons of their findings with those from other studies. They also addressed the issue of generalisability to other settings, stating that their findings would be generalisable only to populations similar to those that participated in the study. The authors do not appear have presented their results selectively. The authors reported a number of further limitations to their study. For example, there was difficulty in reaching potential participants since many people had moved house, gone to university, or changed their name through marriage. In addition, there was limited diversity in terms of race and ethnicity.
Implications of the study
The authors commented that the PFH study provides a road map for the development of a national model for smoking cessation interventions for cancer survivors. They also suggested that more studies evaluating different cessation interventions for this group should be undertaken.

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Other publications of related interest


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