ECONOMICS

A brief smoking cessation intervention for adults in hospital was cost effective

Meenan RT, Stevens VJ, Hornbrook MC, et al. *Cost-effectiveness of a hospital-based smoking cessation intervention. Med Care* 1998 May;36:670-8.

Question

Is an in hospital smoking cessation programme for a general population of adult patients cost effective?

Design

Cost effectiveness analysis from the perspective of the implementing hospital, using data from a controlled trial with follow up at 12 months.

Setting

Two 200 bed hospitals managed by Kaiser Permanente Northwest health maintenance organisation in Oregon and Washington, USA.

Patients

1119 patients ≥ 18 years of age (mean age 44 y, 62% women)* who reported smoking regularly in the previous 3 months. Patients with a hospital stay < 36 hours as well as those who were postpartum, admitted for substance abuse, or receiving hospice care were excluded.

Intervention

453 patients were allocated to the intervention and were offered 20 minutes of bedside counselling with an experienced counselor, a 12 minute video, self help materials, and 1-2 follow up telephone calls after discharge*. 666 patients received usual care*.

Main outcome and cost measures

Quit rates (self reported consecutive abstinence from all tobacco use); incremental quit rate (number of patients who quit in the intervention group minus number who quit in the usual care group); cost per incremental quit (incremental costs per smoker divided by incremental quit rate); and discounted life years saved (DLYS). Life years saved were estimated from published data on

smoking related changes in life expectancy. Total intervention costs included costs to identify newly admitted smokers, solicit cooperation, deliver bedside counselling, and follow up after discharge. All costs were reported in 1994 US dollars.

Main results

Analysis was by intention to treat. At 12 months, patients who received the smoking cessation intervention had higher quit rates than patients who received usual care ($p = 0.02$) (table). The cost per incremental quit was US \$3697. At a 5% discount rate and an incremental quit rate of 4.3%, the cost per DLYS was \$3680, which compares favourably with other well accepted healthcare interventions. Sensitivity analysis found incremental costs per incremental DLYS ranging from \$909 to \$53 347 when the quit rate was varied from 8.0% to 0.6% and the discount rate was varied from 2% to 8%.

Conclusion

An in hospital smoking cessation intervention delivered to a general population of adult patients was cost effective.

*Stevens VJ, Glasgow RE, Hollis JF, et al. *Med Care* 1993;31:65-72.

Smoking cessation intervention v usual care at 12 months†

Outcome	Smoking cessation intervention	Usual care	RRI (95% CI)	NNT (CI)
Abstinence	13.5%	9.2%	47% (5.3 to 105)	23 (12 to 174)

†Abbreviations defined in glossary; RRI, CI, and NNT calculated from data in article.

Source of funding: National Cancer Institute.

For correspondence: Dr R T Meenan, Kaiser Permanente Center for Health Research, 3800 N Kaiser Center Drive, Portland, Oregon 97227-1098, USA. Fax +1 503 335 2424.

Commentary

Previous research has found nurse managed smoking cessation programmes for patients in hospital with myocardial infarction to be cost effective.¹ The analysis by Meenan *et al* supports and extends these results. The lower cost effectiveness ratios associated with inpatient counselling programmes compared with outpatient educational programmes² support the notion of a "teachable moment" when smokers are more likely to respond to a cessation message.

The original trial on which the economic analysis was based was not randomised. To avoid contamination, the hospital in which patients received the intervention was alternated each month.³ The original study took place in 2 hospitals that had smoke free policies requiring at least temporary cessation by patients

who smoked. The results may not therefore be generalisable to other regions with differing societal mores and motivations to stop smoking.

Only 52% of patients provided samples for biochemical confirmation of abstinence*. Because of this low rate, it is possible that participants misreported their smoking status. The authors, however, used sensitivity analysis to estimate cost effectiveness even if the incremental quit rate fell from 4.3% to 0.6%.

By combining published data on smoking related changes in life expectancy with overall life expectancy, the analysts could more accurately predict the long term effects of smoking cessation for individuals with differing smoking habits. The long term outcomes were discounted, which assumes that people place greater

value on something they have today than something they will have in the future. The authors were able to investigate the impact of discounting using sensitivity analyses.

The results are relevant to nursing leaders in hospitals who are in a position to implement smoking cessation programmes, as well as staff nurses and outpatient clinicians who can reinforce the programmes.

Patricia Stone, RN, PhD
Nurse Practitioner, Harvard University
Boston, Massachusetts, USA

*Data provided by author.

- 1 Krumholz HM, Cohen BJ, Tsevat J, et al. *J Am Coll Cardiol* 1993;22:1697-792.
- 2 Salkeld G, Phongsavan P, Oldenburg B, et al. *Health Policy* 1997;41:105-19.
- 3 Stevens VJ, Glasgow RE, Hollis JF. *Med Care* 1993;31:65-72.