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**TITLE:** Feasibility, acceptability and cost of referring surgical patients for post-discharge cessation support from a Quitline.

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**Hunter New England Population Health was the institution responsible for the research.**

## **ABSTRACT**

The aim of the study was to assess the feasibility, acceptability and cost of referral of smoking patients to a proactive Quitline service for post-discharge cessation support. Participants were recruited from the preoperative clinic of an Australian hospital in 2003. Data was collected from project records and a telephone interview with participants 6 months after attending the preoperative clinic. The study found that 64% of the 67 participants accepted an offer of referral to the Quitline by preoperative clinic staff. Seventy four percent of patients referred to the Quitline were contacted by the Quitline after discharge. Smokers contacted by the Quitline and clinic staff referring patients to the Quitline generally responded favorably on items assessing the acceptability of the Quitline service and the process of referral to the Quitline respectively. Referral to the Quitline service cost less than \$US2 per patient. Referral of patients to a Quitline is feasible, generally considered acceptable by surgical patients and staff and was inexpensive.

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## **INTRODUCTION**

Research suggests that smoking cessation interventions delivered only during the inpatient period do not significantly increase long term quit rates as they fail to provide the necessary ongoing support to address the high rate of relapse after discharge.(Wolfenden et al.;Warner et al.;Rigotti et al.) While a variety of methods are available to hospitals to provide post discharge smoking cessation support to smokers, those relying on patient initiation or attendance, such as access to telephone counseling services or referral to group based treatment, fail to reach the majority of smokers (Winickoff et al.;Ockene et al.;Winickoff et al.).

The provision of proactive (provider initiated) telephone-based cessation support represents an effective means for hospitals to ensure post-discharge care for patients. For example a nursing inpatient intervention incorporating up to six proactive telephone counseling calls to discharged patients found that 75% of patients received all six telephone calls (Chouinard and Robichaud-Ekstrand). However, the feasibility of such care being provided by hospitals on an on-going basis is open to question given the resource constraints of hospitals (France, Glasgow, and Marcus).

Smoking cessation help lines (Quitlines) represent a possible alternative and sustainable means of providing proactive telephone-based cessation support to hospital patients after discharge (Ossip-Klein and McIntosh). However evidence regarding the feasibility of using proactive Quitline services in this way is limited. In Wisconsin, a faxed based system to refer patients to a Quitline to receive proactive counseling has been widely utilized by health professionals (Perry et al.). A US study (Bentz et al.) of a primary care physician referral system for proactive Quitline support found that 59% of referred patients received a Quitline contact. Similarly, a study by Winickoff and colleagues, of a smoking cessation intervention

incorporating referral for proactive Quitline counseling for parents of children presenting at a US pediatric clinic (Winickoff et al.) resulted in 42% of parents receiving follow-up counseling from the Quitline. While such research provides some indication of the utility of proactive Quitline services, specific investigation of the use of Quitlines to support patients discharged from hospital has not been conducted.

The aim of this study was to assess the feasibility, acceptability and cost of referral of smoking patients to a proactive Quitline service for post-discharge cessation support.

## **METHOD**

### **Design, Setting and Sample**

The study took place in a non-cardiac surgical preoperative clinic in New South Wales, Australia. The study was part of a controlled smoking cessation trial. Patients were eligible to participate if they were currently smoking, had a booked date for surgery, were not pregnant, not too ill to participate and could read English.

### **Procedure**

A research assistant assessed the eligibility of patients and sought patient consent for participation. Consenting patients completed a touch-screen computer program prior to their clinic consultation which collected patient demographic and smoking characteristic information.

Data on patients randomly allocated to the experimental arm of a multi-component smoking cessation intervention trial which incorporated referral to a Quitline was utilized in this study.

### *Postoperative Quitline telephone counseling*

A fax-based procedure was developed by the research team to refer patients to the NSW Quitline to receive free proactive telephone counseling by trained counselors after discharge. As part of the service, the Quitline offered patients up to six counseling calls over a three month period making up to three attempts to contact a patient for each scheduled call (NSW Department of Health).

Whilst waiting for their preoperative consultation, patients completed a fax form provided by a research assistant, indicating convenient times to receive Quitline calls. During the preoperative consultation, nursing staff completed remaining sections of the form indicating the expected discharge date after which the Quitline could initiate calls. Forms were then faxed to the Quitline by nursing staff.

## **Data collection and measures**

### *Baseline characteristics*

The computer program collected information on patient age, gender, and education attainment, heaviness of smoking (Heatherton et al.), stage of change (Prochaska, DiClemente, and Norcross), and the number of quit attempts in the previous 12 months.

### *Feasibility of Quitline referral*

The number (and proportion) of patients completing referral forms was calculated using project records. The number (and proportion) of patients and receiving Quitline calls was calculated using data from a telephone survey conducted by a research assistant with patients 6 months after attendance at the preoperative clinic.

### *Patient and Staff Acceptability of Quitline referral*

During the 6 month follow-up survey, participants were asked to respond to a series of statements regarding the acceptability of the provision of post-discharge cessation support from the Quitline using a 4 point Likert Scale. Similarly, all nursing staff working in the preoperative clinic were invited to complete a pen and paper questionnaire which asked staff to respond to a series of statements regarding the acceptability of the Quitline fax referral process.

### *Cost of Quitline referral:*

The cost of staff time (according to the relevant industrial award) required to offer post discharge Quitline referral to all patients, to complete the Quitline fax form for patients agreeing to be referred, to fax the form to the Quitline, plus the cost of the Quitline referral form itself was estimated using project records. All other costs (i.e research costs) were excluded.

### **Data analysis**

Data were analyzed using SAS version 8.2 statistical software. Descriptive statistics, were used to describe measures of feasibility and acceptability.

The total cost of Quitline referral process was calculated by summing the estimated cost associated with staff time and consumables. The cost per referred patient was calculated by dividing the total cost of offering Quitline referral to all patients, plus the cost of referral for those interested by the actual number of patients referred to the service. The cost of Quitline referral was converted to and reported in 2003 United States dollars (U.S Federal Reserve).



## **RESULTS**

### **Sample**

Over the study period 93% of eligible patients attending the clinic agreed to participate in a smoking cessation trial, of which 67 identified smokers were allocated to an intervention arm and received an offer of referral to a proactive Quitline service for post-discharge cessation support. Of these, 52 participants completed the 6 month follow-up telephone follow-up, nine participants could not be contacted, five participants refused to participate in the follow-up and one participant was deceased. The smoking and demographic characteristics of participants can be seen in Table 1.

### **Feasibility of Quitline referral**

Forty-three (64%) of all (67) experimental group participants were referred to the Quitline. Of the 52 experimental group patients contacted by the researchers at follow-up, 23 (44%) received post-discharge contact from the Quitline.

Thirty-one of the 43 (72%) patients referred to the Quitline were contacted by the researchers at follow-up. Twenty-three of these 31 (74%) patients received a post-discharge call from the Quitline. The average number of Quitline calls received by these 23 patients was 2.3 (SD=1.5) .

### **Acceptability of Quitline referral**

Forty-three of the 52 (83%) experimental group patients contacted at follow-up considered it acceptable for a Quitline service to offer assistance to quit smoking. Twenty-eight (63%) of these patients completed a Quitline fax referral form. For the 23 smokers who agreed to be referred to the Quitline and reported receiving a Quitline contact after discharge, 15 (65%)

considered the Quitline information helpful, 16 (70%) agreed that the Quitline advice was helpful, 17 (74%) believed that the Quitline information was easy to understand and 18 (78%) felt comfortable speaking with Quitline staff.

All 4 nursing staff working in the preoperative clinic at the time of the study completed the staff acceptability questionnaire. All staff agreed or strongly agreed that it was a role of clinic nursing staff to encourage patients to quit. Three nursing staff agreed or strongly agreed that they felt comfortable encouraging smoking patients to be referred to the Quitline. Two staff members agreed or strongly agreed that completing the fax referral forms was too time consuming.

### **Cost of Quitline referral**

The cost of referring patients to the Quitline was \$US75 in total or \$US1.75 per referred patient.

## **DISCUSSION**

The findings suggest that referral of patients by preoperative staff to a Quitline is feasible, generally acceptable, and at a cost to the preoperative clinic of less than \$US2 per referred patient, relatively inexpensive. The results also suggest that direct referral of patients to a proactive Quitline service represents a more successful method of ensuring the provision of post-discharge support to smokers than other strategies such as referral to group support programs, primary care physicians or free reactive telephone support services (Richman et al.; Ockene et al.; Winickoff et al.).

While the rate of uptake and utilization of the proactive Quitline service in this trial appears to be superior relative to other strategies (Richman et al.;Winickoff et al.;Ockene et al.), 26% of referred patients did not receive a post-discharge call from the Quitline. As part of the intervention protocol, preoperative nursing staff estimated the discharge date of patients, which was used by the Quitline as a commencement date for patient contact. Inaccurate estimation of the discharge date may have contributed to the non-contact of these patients. A more conservative estimate of the discharge date by nursing staff, or incorporating Quitline referral into hospital discharge processes may resolve this problem. Similarly, a change to Quitline protocols to increase the number of attempts to contact patients for scheduled calls may also increase service utilization.

For patients who did receive follow-up support from the Quitline, the average number of calls provided to patients (2.3) fell below the number of calls recommended for discharged smokers (4) (Wolfenden et al.). Anecdotal comments made by patients at follow-up suggest that uptake of the service could have been improved by greater tailoring of the Quitline service to the needs of surgical patients rather than motivated smokers from the community. However, further investigation is required to identify barriers to achieving higher contact rates.

Clinic nursing staff appeared to accept that encouraging patients to quit was a part of their clinical responsibility and felt comfortable encouraging patients to accept a Quitline referral. However, some staff also considered the process of Quitline referral to be time consuming. The referral process was estimated by the clinic nurse unit manager to take approximately two minutes. Despite this appearing to be small in absolute terms, additional strategies designed to facilitate staff use and acceptability may be required.

While the results of this study suggest that referral to a Quitline represents a promising means of providing follow-up support for smokers, the existence of a Quitline service which provides proactive support to referred patients, and which has a clear referral mechanism for health professionals is a pre-requisite for such care. This study suggests that if made available, such services would be considered an acceptable form of care provision by staff and patients and could be used by health providers as a feasible means to provide ongoing support to smokers. However, successful implementation of a Quitline referral system will require health services to demonstrate leadership and provide clinicians with supportive infrastructure such as systems to identify tobacco users, training, and performance feedback to facilitate patient referral. Research suggests that without such support, the provision of cessation care, including Quitline referral will be limited (Wolfenden et al.;Bentz et al.).

A number of limitations of this trial require consideration. The study sample was small and the findings of the research require replication. Furthermore, to assess the feasibility and acceptability of Quitline referral, the trial was largely dependent on patient recollection of Quitline contact at the time of follow-up, as reliable contact information was unavailable from the NSW Quitline. Furthermore, the study utilized data of patients participating in a smoking cessation intervention incorporating preoperative computerized counseling, NRT and a preoperative telephone contact. The extent to which participation in the multicomponent intervention influenced patient reported acceptability with Quitline referral or the receipt of Quitline calls is unknown.

Referral to a community Quitline for proactive post-discharge counseling offers preoperative clinic staff an opportunity to facilitate continued cessation support for patients beyond the

limited window provided by hospitalization. Given the potential public health benefit of Quitline referral systems, further research into the feasibility and efficacy of such a services across a variety of clinical settings is warranted.

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**Table 1: Patient demographic and smoking characteristics**

Variable		
Age	$n=67, \bar{x}=47, \sigma=14.5$	
Female	42/67	63%
High school education or above	42/67	63%
Preparation Stage of Change	39/67	58%
Heavy Smoker Index (mean)	$n=67, \bar{x}=2.4, \sigma=1.7$	
Previous quit attempt	33/67	49%

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