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**TITLE:** Pilot of a comprehensive preoperative smoking cessation intervention incorporating post-discharge support from a Quitline.

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**Issue addressed:** The study sought to assess the potential efficacy of a comprehensive smoking cessation intervention for surgical patients.

**Methods:** The study employed a modified historical controlled trial design. Participants were recruited from a preoperative clinic of an Australian hospital in 2003. Patients allocated to the experimental group received a comprehensive smoking cessation intervention incorporating preoperative computerised smoking cessation counselling, tailored self help material, brief advice from preoperative clinical staff, NRT, telephone counselling, and proactive post-discharge telephone support from a Quitline.

**Results:** At the 6 month follow-up 12% of 66 usual care control group participants and 25% of 52 experimental group participants reported being abstinent ( $p=.07$ ).

**Conclusions:** Comprehensive smoking cessation interventions initiated preoperatively and incorporating post-discharge support from a Quitline may be efficacious in increasing smoking abstinence.

**So what:** The findings are encouraging and warrant a more rigorous randomised trial to confirm the potential efficacy of the comprehensive smoking cessation intervention.

## **INTRODUCTION**

The preoperative period has been identified an opportune time to provide smoking cessation care to patients<sup>1</sup>. During this period, surgical patients are highly motivated to quit and are receptive to smoking cessation intervention<sup>1</sup>. However, evidence of effective intervention strategies to capitalise on this opportunity and encourage permanent smoking cessation is limited. A recent review of the past 20 years of all English language publications on the topic of preoperative smoking cessation interventions identified just one randomised controlled trial examining the efficacy of the intervention on long term cessation (6-12 months post-discharge)<sup>2</sup>. The multi-component intervention significantly increased cessation at the 6 month, but not the 12 month follow-up. Given the limited available evidence, the aim of this pilot study was to assess the potential efficacy of an intensive, multicomponent, smoking cessation intervention.

## **METHOD**

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

The study took place in a non-cardiac surgical preoperative clinic in New South Wales, Australia. Patients were eligible to participate if they currently smoked, had a booked date for surgery, were not pregnant, not too ill to complete the study, and could read English.

Participants were drawn over an 11 month period between 2002 – 2003. To maximize sample size for the study given limited available resources, during the initial 7 months of recruitment, data from participants randomly allocated to the usual care control group of a separate tobacco intervention trial conducted at the preoperative clinic were utilised in this study (Figure 1). For the final 4 months of recruitment, patients were randomly allocated to the

usual care control group and an experimental group to receive the intervention evaluated in this paper. To maximize intervention exposure over these 4 months, 75% of patients were randomly allocated to the experimental group and 25% to the control.

Follow-up data was collected by a scripted telephone interview 6 months after the preoperative clinic visit, by a research assistant who had not participated in patient recruitment or intervention delivery and was blind to group allocation.

INSERT FIG 1

## **Procedure**

### *Patient recruitment and allocation*

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 assessed smoking status and randomly allocated smoking patients to an intervention or usual care control group.

### *Comprehensive smoking cessation intervention*

Experimental group patients received a 6 component comprehensive smoking cessation intervention. The first 5 components of this intervention have been described in more detail elsewhere<sup>3</sup>:

- i) Approximately 20 minutes of tailored smoking cessation counseling delivered by a touchscreen computer program during the preoperative clinic visit.
- ii) Tailored self help material printed for patients by the touchscreen computer program

- iii) Computer prompted brief cessation advice by preoperative clinic staff
- iv) The provision of nicotine replacement therapy (for patients who are nicotine dependent) for use preoperatively and during the patient stay on ward
- v) Preoperative telephone counseling delivered by a trained research assistant.
- vi) Direct referral to the New South Wales Quitline to receive proactive telephone support post-discharge. The first contact by the Quitline was scheduled to occur within 7 days of the expected discharge date. As part of the service, the Quitline offered patients up to six counseling calls over a three month period by trained counselors and would make up to three attempts to contact a patient for each scheduled call<sup>4</sup>. Patient referrals were faxed to the Quitline by preoperative clinic staff on a referral form developed in consultation with the Quitline.

#### *Usual care control group*

The provision of such care was at the discretion of individual preoperative clinic staff but would typically include brief cessation advice by clinic staff.

### **Data collection and measures**

#### *Baseline characteristics*

The computer program collected information on patient age, gender, and education attainment, heaviness of smoking<sup>5</sup>, stage of change<sup>6</sup>, and the number of quit attempts previous 12 months.

#### *Potential efficacy:*

The potential efficacy of the intervention was assessed in terms of the differences between groups on measures of point prevalence abstinence (not smoking at the time of follow-up)

Heaviness of Smoking Index score (HSI)<sup>5</sup> and proportion of patients reporting an improved stage of change<sup>7</sup>.

### **Data analysis**

Data were analyzed using SAS version 8.2 statistical software. Chi-square tests (for categorical variables) and independent sample '*t*' tests (for continuous variables) were used to assess differences between groups on measures of participant characteristics and potential efficacy. All statistical tests were two tailed.

## **RESULTS**

### **Sample**

Figure 1 illustrates patient ineligibility, group allocation and follow-up. As can be seen in Figure 1, 52 experimental group patients (78%) and 66 usual care control group patients (84%) were able to be contacted 6 months after recruitment and agreed to provide follow-up data. At baseline, experimental group patients were less likely to have engaged in a previous quit attempt in the past 12 months ( $p=.02$ ). No other differences existed between groups on demographic or smoking characteristics at baseline ( $p=.23-.93$ ).

INSERT TABLE 1

### **Potential efficacy**

As can be seen in Table 1, 25% of experimental group and 12% of usual care participants were abstinent at the six month follow-up ( $p=0.07$ ). No differences between groups were observed in terms of reduction in heaviness of smoking or advances in patient stage of change ( $p=.74-.87$ ).

## DISCUSSION

The findings suggest that that a comprehensive hospital based smoking cessation intervention has the potential to increase patient smoking cessation rates. The abstinence rates amongst the intervention group compared with usual care participants approached, but did not reach statistical significance ( $p=0.07$ ). A similarly intensive intervention incorporating the provision of preoperative counselling, NRT, self help material and proactive telephone support following discharge found a significant intervention effect at a 6 month follow-up that was not maintained at a 12 month follow-up<sup>7</sup>. Such findings suggest that ongoing cessation support for smokers may be required for preoperative interventions to significantly increase long-term smoking cessation.

While the study findings are promising, a number of limitations of the trial should be considered. First, baseline differences between groups in quit attempts has the potential to confound the findings. Previous quit attempts have been found to predict cessation<sup>8</sup>. The greater prevalence of previous quit attempts by usual care participants may therefore result in these patients being more likely to cease smoking. If this were the case, the observed effect size between groups may represent an underestimate. Second, the study was reliant on self reported assessments of smoking status at follow-up which have been found to over estimate true cessation rates<sup>7</sup>. Third, the historical controlled design of the trial may have introduced temporal biases. However, the cessation rates reported by patients recruited during the first 4 months and final 7 months of the study were identical suggesting that any resultant bias may be minimal. Nonetheless, the findings of this study are encouraging and warrant an adequately powered and designed randomised trial to establish the efficacy of the comprehensive smoking cessation intervention.



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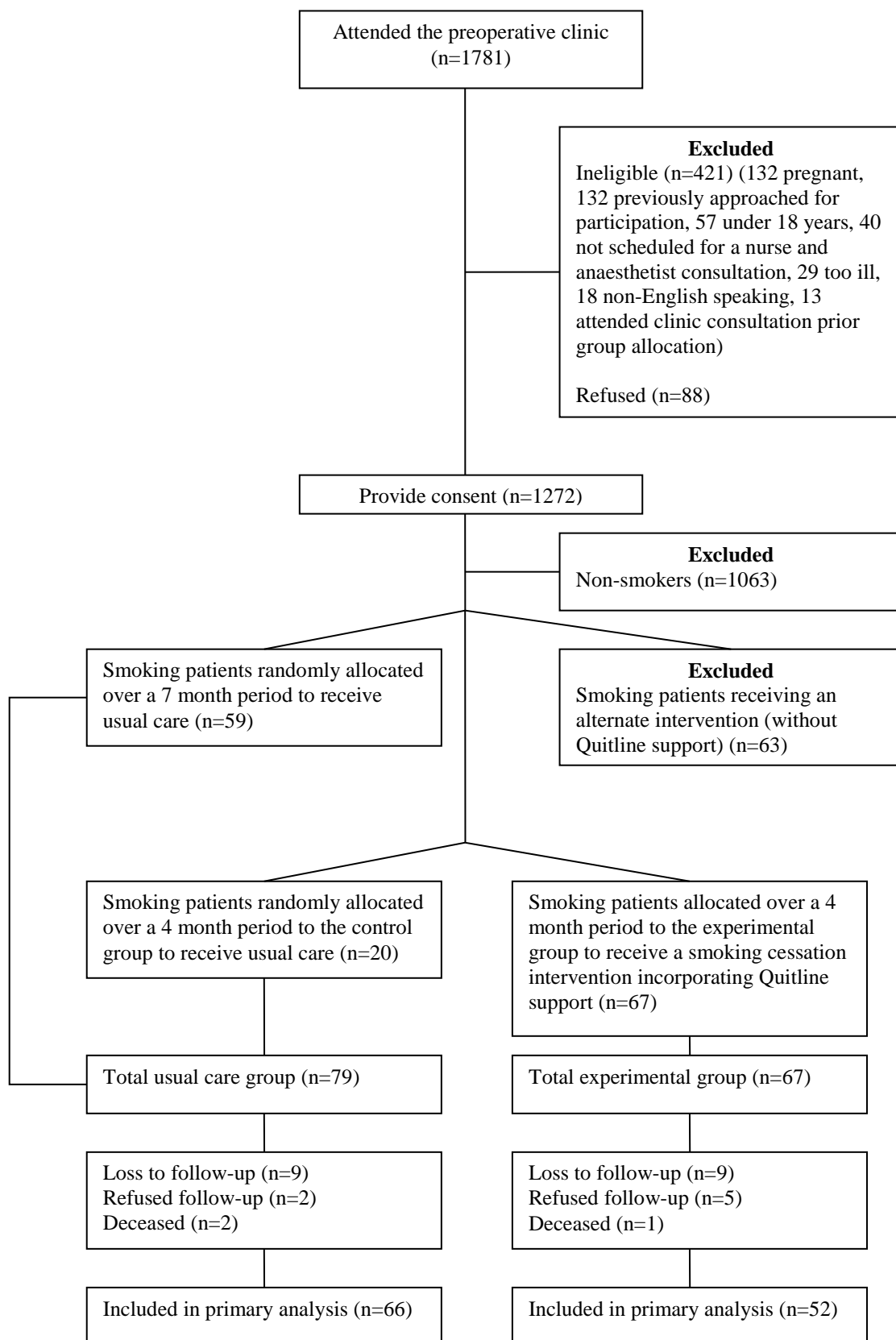
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**Figure 1: Participant recruitment and follow-up**



**Table 1: Measures of potential efficacy by group**

| Outcome Measure                | Control |                               | Experimental |                               | p-value |
|--------------------------------|---------|-------------------------------|--------------|-------------------------------|---------|
| Point prevalence<br>abstinence | 8/66    | 12%                           | 13/52        | 25%                           | .07     |
| Heavy Smoker Index<br>(mean)   | n=58    | $\bar{x} = 2.4, \sigma = 2.0$ | n=39         | $\bar{x} = 2.4, \sigma = 1.8$ | 0.87    |
| Improved Stage of<br>Change    | 12/58   | 21%                           | 7/39         | 18%                           | .74     |

