

Impact on quit attempts of mailed general practitioner 'brief advice' letters plus nicotine replacement therapy vouchers

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ABSTRACT

AIM: To test whether a personalised letter from general practitioners advising their patients who are smokers to quit, together with an exchange card for one month of nicotine gum, prompts them to make quit attempts, is acceptable and feasible.

METHODS: Non-randomised before–after ecological study involving general practices in Auckland, New Zealand. Personalised letters with exchange cards for four weeks of nicotine gum were sent to 831 patients within a single Auckland health board area who were recorded as current smokers on their general practitioner's files. The comparison group was the population in another Auckland health board area. We measured calls to Quitline and vouchers redeemed at pharmacies from both areas before and after the intervention. Follow-up surveys of recipients and general practitioners assessed acceptability.

RESULTS: Quitline calls from baseline to the end of the intervention from the intervention district compared with a comparison district were not significantly higher (5%, 95% CI -2–12%, $p=0.195$), but nicotine replacement therapy (NRT) voucher redemptions were significantly higher (9%, 95% CI 3–16%, $p=.005$). Almost 9% of the exchange cards were redeemed for NRT. Despite initial difficulties in accurately identifying smokers from their records, responding GPs found the strategy very acceptable.

DISCUSSION: The strategy shows potential as a simple way to increase the number of smokers making supported quit attempts through primary care. In the light of the urgent need to increase cessation rates, a randomised trial of this promising approach is warranted.

KEYWORDS: Smoking cessation; Quitline, nicotine replacement therapy; general practice; brief advice

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Introduction

Despite considerable progress in tobacco control in New Zealand (NZ), more than one in five New Zealanders still smoke tobacco regularly and smoking prevalence is much higher for Pacific peoples (28%) and Maori (44%).¹ Innovative approaches are needed to hasten a reduction in tobacco use across all population groups to reduce health inequalities and improve health. More needs to be done to prompt quit attempts

supported by effective treatment. The primary care setting has potential for identifying and documenting smoking, giving advice to quit and providing cessation support or referring to services. Around 80% of adult New Zealanders, 20% of whom are smokers, visit a general practitioner (GP) at least once a year.¹ Brief, opportunistic advice on stopping smoking is feasible in the context of a busy practice and increases biochemically validated cessation rates by 2–3%.² However,

GPs may have concerns about damaging their relationship with patients^{3,4} or lack confidence in intervention efficacy.⁵ Regardless, most smokers want to quit⁶ and even those unmotivated to do so are generally receptive to proactive cessation messages.^{7,8,9} Intensive behavioural support can increase cessation rates by around 20% but is expensive, time-consuming and reaches small numbers of smokers.¹⁰

Medications for treating tobacco dependence are widely accessible and inexpensive in NZ: nicotine replacement therapy (NRT) patches, gum and lozenges are available from community pharmacies when exchanged for vouchers issued by approved providers (including Quitline, the toll-free national telephone cessation helpline). The NZ\$5 dispensing fee for four weeks' supply of NRT obtained this way is half the price of a pack of 20 cigarettes.¹¹ Despite there being few barriers, smokers' knowledge of and use of these proven treatments is still suboptimal.¹²

We wished to explore if 'brief advice' letters from GPs that also included nicotine gum exchange cards could increase quit attempts and access to NRT in patients recorded as smokers. We hypothesised that calls to Quitline would be higher after smokers received the intervention than before and would also show a relative increase in comparison with a comparison district, and that relatively more NRT exchange cards would be redeemed in the intervention district compared with the comparison district. An associated objective of the research was to assess if this approach was feasible and acceptable to patients and GPs.

Methods

GPs from five practices belonging to a single Primary Health Organisation (PHO) located within the same District Health Board (DHB) region in Auckland were selected (because of their reportedly high level of cardiovascular risk assessment) and invited to participate. The DHB region has a higher than average proportion of Maori and Pacific peoples, a younger than average population and a smoking prevalence estimated to be just over 17%.¹³ Overall, 15 out of a possible 29 GPs (50%) in the five practices agreed to take

WHAT GAP THIS FILLS

What we already know: Nicotine replacement therapy (NRT) and general practitioner-delivered smoking cessation advice both assist smoking cessation. A combination has not been tried before by direct mail-out to patients from general practitioners.

What this study adds: Linking these two approaches—a personalised brief advice letter from a patient's general practitioner plus a voucher for one month's nicotine gum—appeared to prompt an increase in quit attempts. This simple strategy shows promise, but needs further testing in a randomised trial.

part. Their electronic medical record databases were searched to identify current smokers, using free-text searches and Read codes¹⁴ (the most widely used system for coding by New Zealand GPs).¹⁵ These yielded fewer patients than thought likely, given estimates of smoking prevalence in the general population. This suggested that the queries were insufficiently sensitive or under-coding of smoking was common. Patients identified as smokers, aged at least 18 years and resident within the DHB region, were eligible for the intervention. Patients known to have a serious illness were excluded if their GP felt it inappropriate to invite them after viewing the list of eligible smokers. The comparison population was defined by the boundaries of another Auckland DHB region with similar population numbers, sociodemographic characteristics and smoking prevalence.

The intervention comprised a mail-out pack to eligible patients containing a personalised letter of advice to stop smoking signed by their GP, an exchange card redeemable at community pharmacies for four weeks of subsidised nicotine gum, an information sheet about nicotine gum and its correct usage, an information sheet about the study and a consent form and postage-paid addressed envelope for recipients to return their contact details if they agreed to be contacted by study personnel for a follow-up phone survey. The vouchers were part of a unique batch of exchange cards usually issued by registered cessation providers and redeemable at community pharmacies for a month's supply of NRT. Unique codes on the cards made it possible to enumerate them when received from community pharmacists by HealthPAC, NZ's agency for making

dispensing fee payments. We specified nicotine gum on the vouchers because it provides rapid relief of cravings with few side effects.¹⁶ The mail-out was carried out in the first week of November 2007.

Aggregate anonymous data on the numbers of calls per month for the two DHB regions were made available by Quitline for two months before and two months after the intervention. We contacted recipients who returned signed consent forms and contact details within four weeks of receiving the letter, and interviewed them by telephone to collect data on demographic and a range of other characteristics.

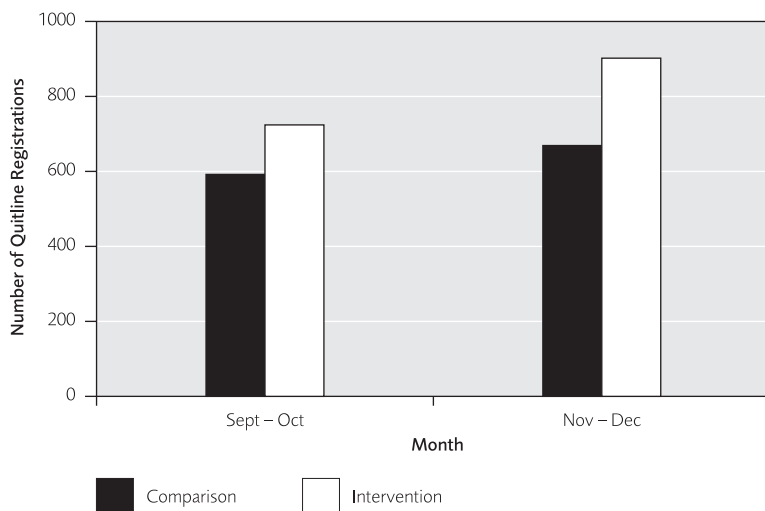
Recipients' experiences of GP-delivered cessation advice and the GPs' own experiences of the process were assessed by questionnaires sent to them after the intervention had been completed. Subsequently, we phoned or emailed GPs who returned completed questionnaires to enquire if participating in the study had changed their practice and if they had received direct feedback from their patients.

We measured two main outcome variables: the number of NRT exchange cards redeemed and the number of Quitline calls made over the two months before the intervention to the end of the intervention period, from people with addresses in the intervention district and the comparison district before and after the intervention period. A sample size of 1000 participants would demonstrate with 90% power and two-sided $p=0.05$ an absolute difference of twice the estimated rate of participants calling Quitline for support between the groups. Data were analysed with SAS (version 9.1.3). Simple proportions and 95% confidence intervals were calculated for the magnitude of the treatment effect. Chi-square statistics were used to test for a difference in proportions between treatment and reference groups. Simple descriptive statistics were used for recipients' self-reported assessment of NRT uptake and efficacy and of the acceptability of the study strategy from their own and the GPs' perspective.

Table 1. Characteristics of patients to whom mail-out was sent ($n=831$)

| | Characteristics | Number | Percent |
|---------------------|---------------------|---------|---------|
| Sex | Female | 394 | 47 |
| | Male | 437 | 53 |
| Ethnic group | Pakeha/NZ European | 424 | 51 |
| | Maori | 108 | 13 |
| | Pacific Island | 243 | 29 |
| | Asian | 31 | 4 |
| | Other ethnic groups | 20 | 2 |
| | Not stated | 5 | 1 |
| Age | Mean Age (SD) | 44 (15) | |
| | Age range | 15–86 | |

Figure 1. Mean number of Quitline registrations from intervention and comparison DHB regions, for the two months before and after the intervention



Ethics approval

The project was approved by the Ministry of Health's Northern Y Regional Ethics Committee No. NTY/07/08/091.

Results

Fifteen out of a possible 29 (50%) GPs in the five practices mailed letters to 831 patients that their register search identified as being current smokers. The characteristics of these patients are shown in Table 1.

Figure 1 shows that there was an increase in Quitline registrations from the two months immediately prior to the intervention to the two months immediately following the intervention period in both intervention and comparison areas.

There were 5% (95% CI -2-12%) more registrations following the intervention (compared to before) in the intervention area compared to the comparison area, but this difference was not statistically significant ($p=0.195$).

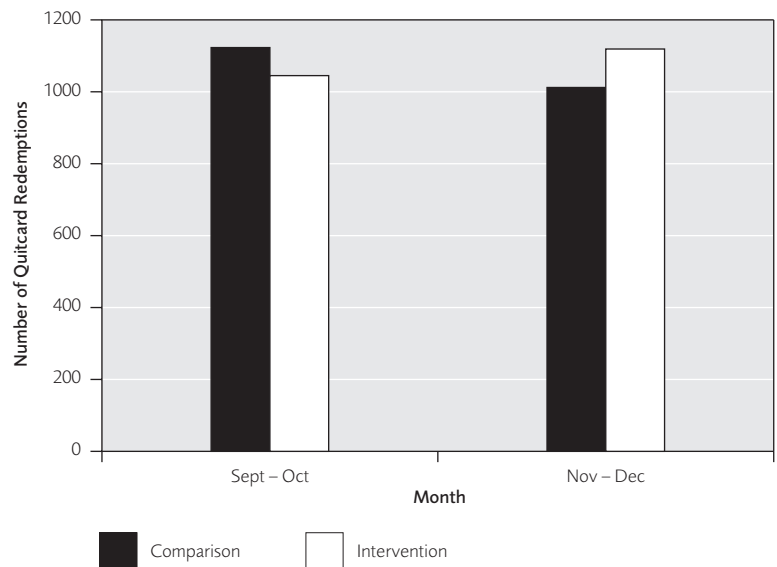
Of the 831 exchange cards sent out, NRT was dispensed for 73 (9%). Figure 2 shows that there were 9% (95% CI 3-16%, $p=0.005$) more exchange cards redeemed compared to before, in the intervention area than in the comparison area.

The few (21) recipients who consented to being contacted after the intervention period (Table 2) cannot be considered to be representative, and the information was self-reported and unvalidated, so these data should not be generalised. Most people in this group reported attempting to cut down or quit smoking. A high proportion relative to the whole sample (13, 62%) said they had redeemed the exchange cards and each had set a quit date. Of those who had tried gum, most had reduced cigarette consumption. Participants reporting continuous gum use reported reducing the number of cigarettes smoked per day (CPD) by at least half. Just over half reported having stopped smoking for at least one day since receiving the mail-out, regardless of having redeemed their exchange card and/or tried the gum or not and CPD in this group decreased from an average of 17 to 10. Over half reported having called Quitline in the past but less than 10% had called since receiving the study mail-out.

Recipients rated the mail-out strategy as highly acceptable, irrespective of whether they had redeemed the voucher. Receiving an unsolicited voucher for NRT in the post was a 'really good idea' according to many of these smokers. Just over 80% reported that their GP had advised them at some time about the risks of smoking and also of the need to stop smoking. One respondent recalled being offered medication to stop smoking, but only four (19%) remembered ever being advised by their GP to call Quitline or other support services.

Only one-third of the participating GPs returned their questionnaires following the implementation of the intervention, hence the findings cannot be claimed to be representative. All indicated

Figure 2. Mean number of study-specific exchange cards redeemed at pharmacies in intervention and comparison DHB regions, for the two months before and after the intervention



that the approach would be something they would consider adopting. There were concerns about the lack of remuneration. One acknowledged the need to update her patients' records. Another suggested that a follow-up letter or phone call to mail-out recipients 'could assist the uptake of the offer'. One had heard that the letter had motivated a number of his patients to make a quit attempt and supported the study approach as a 'very good adjunct to normal general practice'. In response to a question as to how participating in the intervention had affected their day-to-day dealings with their patients who smoked, GPs said they were more attentive to coding smokers but keeping accurate records was challenging given that smoking status is a 'moveable feast of stops and starts'. One GP determined to become 'more aggressive about considering and pursuing smokers and encouraging smoking cessation'. Several reported patients had responded positively to the mail-out:

Someone actually cares enough about the fact that I am smoking to send me a letter.

This has made me think about my smoking again and the effects it is having on my health.

Table 2. Follow-up survey data on mail-out recipients who returned their contact details and consent forms (N=21).

| Question | Results |
|--|--|
| Age | Mean 52 years; range 32–75 years |
| Sex | Female = 9; Male = 12 |
| Ethnic group | Pakeha/NZ European = 17; Maori = 3; Pacific Island = 3; Asian/Other = 2 |
| Number of years smoking | Mean 32 years; range 15–58 years |
| Number of other smokers in household | Other smokers = 7; No other smokers = 14 |
| Type of cigarettes smoked | Factory-made = 14; Roll-Your-Own = 3; Both = 4 |
| Was voucher exchanged for nicotine gum? | Yes = 13; No = 8 |
| If voucher not exchanged for nicotine gum, why not? | Did not want to quit = 1 Did not want to use gum = 2 Intended to redeem voucher but date expired = 2 Lost voucher = 1 Don't know = 2 |
| Was nicotine gum tried? (n=13) | Yes = 9; No = 4 |
| Length of time nicotine gum used* (n=9) | Mean 18 days |
| Ever called Quitline before? | Yes = 12; No = 9 |
| Called Quitline after getting letter? | Yes = 3; No = 18 |
| Ever called Maori quit smoking service before letter? | Yes = 0; No = 21 |
| Called Maori quit smoking service since letter? | Yes = 0; No = 21 |
| Stopped smoking for at least one day since receiving letter? | Yes = 11; No = 10 |
| Smoked at all in last seven days? | Yes = 10; No = 11 |
| Cigarettes smoked per day (pre-intervention) | Mean 16.6; range 4–30 |
| Cigarettes smoked per day (post-intervention)* | Mean 10.0; range 0–25 |
| Acceptability of strategy (1 not at all – 10 extremely) | Mean 9.0; range 5–10 |
| Utility of strategy (1 not at all – 10 extremely useful) | Mean 8.3; range 1–10 |
| GP ever advised of risks of smoking? | Yes = 17; No = 3; Can't remember = 1 |
| GP ever advised trying to quit smoking? | Yes = 15; No = 6; Can't remember = 0 |
| GP ever offered medication to help quit? | Yes = 1; No = 18; Can't remember = 2 |
| GP ever advised Quitline or Maori quit smoking service? | Yes = 4; No = 13; Can't remember = 4 |

Discussion

Summary of main findings

Proactive written, mailed-out GP cessation advice with vouchers for subsidised NRT appeared to prompt a small but significant increase in NRT voucher redemptions among patients who smoked, irrespective of their motivation to quit. This was a real increase and an increase relative to the comparison DHB region. It is possible the intervention prompted the small increase in Quitline calls in the intervention district, but the increase was not statistically significant relative to the increase in the comparison district over the same time period. One explanation is that the letter prompting recipients to contact Quitline may not have been read. There was a large amount of material included in the mail-out for research reasons that would not be included in a standard service, and this could have overwhelmed the recipients. Alternatively they may have felt that their immediate cessation needs were provided by the voucher alone. For some, accessing NRT without needing to register with Quitline or committing to a quit plan may have been attractive. Over half reported using Quitline in the past so may not have seen any benefit in trying again. Finally, ongoing national Quitline promotions on television across all parts of NZ may have diluted any effect of the intervention.

Comparison with existing literature

An increase in quit attempts is consistent with research indicating that people who smoke are receptive to receiving cessation support that is not actively sought.^{9,17} A handful of trials of proactive computer-generated letters all show a small but significant positive effect.^{10,18,19} The self-reported findings from survey participants at follow-up on the use of the gum, the effect on quit attempts or abstinence and the overall reduction in CPD are comparable with other studies of NRT compliance and use with minimal intervention.^{15,20,21} The strategy appeared to be acceptable to the mail-out recipients and GPs alike. Several GPs described positive feedback from their patients about the mail-out. This is in contrast to other studies in which GPs expressed concerns that offering such support may damage

the GP–patient relationship.^{3,4} To the contrary, one GP noted that the intervention opened up dialogue with her patients about smoking on subsequent visits.

Strengths and limitations

This was a non-randomised intervention study with the impact measured at a population level. There was limited individual-level data available, so the role of various confounders cannot be discounted and attribution of the effect to the intervention must be treated with caution. Asian smokers were under-represented and Pacific smokers over-represented reflecting the demographic composition of the area and the practices involved. Nevertheless, we were able to track the use of the exchange cards that were unique to the study and so able to measure directly one aspect of quitting activity that could only be attributed to the intervention. We used a comparison population to control for the effects of wider secular trends and influences (such as mass media campaigns).

The response rate to both the patient and GP follow-up surveys was disappointingly low, limiting external validity. Nevertheless, some useful information was obtained that shed light on the feasibility and acceptability of the intervention.

Implications for future research or clinical practice

The ability to accurately identify patients who are smokers is a critical component in ensuring they receive appropriate cessation support in primary care.²³ It is possible that implementing this or similar strategies may improve the completeness and accuracy of GP recording of smoking status. Initiatives such as this may also energise GP cessation support activity, noted by survey participants as missing from past visits to their GP. In a recent survey of New Zealand GPs, Glover et al.⁴ found that high numbers of GPs reported asking about smoking and advising quitting, but there was a lower degree of giving information on how to quit, use of NRT or referral to the New

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While local factors beside the intervention could have triggered an increase in calls to Quitline in people in the intervention area, we consider this to be unlikely given our familiarity with the local context during the study period. Some patients who received the mail-out may have already quit and some patients who smoked may not have been coded as such.²² In such cases the intervention effect would be underestimated. The participation by GPs was less than we had expected, for reasons that are unclear, but could include a lack of time, a low interest in research (for which we could not offer remuneration) or a range of other reasons discussed earlier in this paper. Smoking status documentation was lower than expected, so the sample size and therefore statistical power were lower than planned.

Zealand Quitline,²⁴ as recommended in the 2007 New Zealand smoking cessation guidelines.²⁵

If scaled up, this strategy has the potential to reach a large number of smokers. It could be undertaken on a regular basis, and linked with mass media smoking cessation advertising. However, the quality of GP records on smoking status would need to be improved through more systematic recoding and coding,²⁶ and a system developed that facilitated semi-automated mail-outs, to make it as feasible and inexpensive as possible. Resistance to participate by some GPs could also be an impediment to wider roll-out. Such GPs may have a higher proportion of patients who smoke who would thus miss out. However, the strategy could be utilised to shift reluctant GP attitudes. That is, slowly introducing this

approach using selected practices where there is GP support may lead over time to improvements in record-keeping and, by demonstrating success, encourage reluctant GPs to take part.

A randomised trial of this intervention is needed to further evaluate its effect on quitting rates, and cost-effectiveness. Further research should also explore GP and patient attitudes to simple approaches to increasing quit attempts linked to effective support in the primary care context, with particular emphasis on population groups with a high burden of smoking-related illness and relative underutilisation of available services.

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COMPETING INTERESTS

This study was designed, conducted, analysed and interpreted independently of all sponsors. Dr Bullen, Donna Watson, Dr Glover, Varsha Parag and Dr Walker have no competing interests to declare. Dr McRobbie has undertaken research and consultancy for, and received honoraria for speaking at meetings for, the manufacturers of smoking cessation medications.