

# Smoking Cessation Research Review™

Making Education Easy

Issue 12 – 2013

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### Abbreviations used in this issue

**NRT** = nicotine replacement therapy  
**VTE** = venous thromboembolism

## Welcome to the twelfth issue of Smoking Cessation Research Review.

One of the papers in this issue describes the popularity of pro-smoking applications (apps), which provide information about brands of tobacco products, where to buy them, and encourage their use. Worryingly, not only were many of the apps featured in entertainment and games categories, some were placed in categories directed at children.

A recent survey conducted among mainly Māori and Pacific parents of pre-adolescent children from South Auckland reports poor awareness and low perceived efficacy of smoking cessation medications and services. These are barriers that need to be addressed, if New Zealand is to reach its smokefree 2025 goal of less than 5% smoking prevalence.

A review of culturally targeted anti-tobacco media messages for Indigenous or First Nations people makes some interesting conclusions that New Zealand researchers should know about. Notably, generic fear-based campaigns are apparently more successful in Māori than holistic targeted campaigns. Furthermore, culturally targeted messages appear to be as successful in Māori as generic messages in the general population.

We hope you find this edition stimulating reading, and we welcome any comments or feedback

Kind Regards,

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## Effects of varenicline on smoking cessation in adults with stably treated current or past major depression

**Authors:** Anthenelli RM et al.

**Summary:** This trial randomised 525 adult smokers ( $\geq 10$  cigarettes/day) with stably treated current or past major depression and no recent cardiovascular events to receive varenicline 1 mg twice daily or placebo for 12 weeks. About a third of patients in each group failed to complete the study (31.6% in the varenicline group and 33.5% in the placebo group). More patients in the varenicline group than those in the placebo group stopped smoking (based on carbon monoxide-confirmed continuous abstinence rate [CAR]) in the last 4 weeks of treatment, namely weeks 9–12 (35.9% vs 15.6%), 9–24 (25.0% vs 12.3%) and 9–52 (20.3% vs 10.4%). Observed adverse events were similar to those seen in smokers without psychiatric disorders, and the treatment did not appear to worsen depression or anxiety.

**Comment (NW):** This is the first placebo-controlled trial undertaken looking at the use of varenicline in smokers with stably treated current or past major depressive disorder. Results need to be interpreted carefully in light of the study limitations: findings may not apply to patients with untreated or active depression or co-occurring psychiatric conditions or to those taking mood stabilisers and antipsychotics; the study was funded and undertaken by Pfizer, and a third of patients were lost to follow-up.

**Reference:** *Ann Intern Med* 2013;159(6):390-400

<http://annals.org/article.aspx?articleid=1738494>

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## Comparison of nicotine and carcinogen exposure with water pipe and cigarette smoking

**Authors:** Jacob P 3<sup>rd</sup> et al.

**Summary:** This study recruited 13 healthy volunteers who were experienced in smoking cigarettes and using water pipes (hookahs) who either smoked cigarettes or a water pipe exclusively during the day for 4 days as inpatients at the San Francisco General Hospital. After a week or more each person was readmitted to the hospital and switched to the other product for the next 4 days. When smoking an average of 3 water pipe sessions compared with smoking 11 cigarettes per day, water pipe smoking resulted in a significantly lower intake of nicotine, greater exposure to carbon monoxide, greater exposure to benzene, and high molecular weight polycyclic aromatic hydrocarbon (PAH), but less exposure to tobacco-specific nitrosamines, 1,3-butadiene, acrolein, acrylonitrile, propylene oxide, ethylene oxide, and low molecular weight PAHs.

**Comment (NW):** I've noticed an increase in hookah cafes in New Zealand, which I think we should be concerned about. These cafes are extremely popular in the US, especially among young adults, with some customers believing hookahs are less harmful than cigarettes. This study, whilst small, suggests otherwise – with users exposed to high levels of carbon monoxide and benzene (both have well documented and serious side effects). Certainly people with COPD or heart disease should keep well away from these devices. As an aside, a growing trend in US college students is replacing the water in hookahs with vodka – with scary side effects. Google it and you'll see what I mean.

**Reference:** *Cancer Epidemiol Biomarkers Prev* 2013;22(5):765-72

<http://cebp.aacrjournals.org/content/22/5/765.abstract>

## Current and former smoking and risk for venous thromboembolism

**Authors:** Cheng Y-J et al.

**Summary:** This systematic review and meta-analysis examined the link between smoking and the risk of venous thromboembolism (VTE) in the general population and investigated whether heavy smokers have a higher risk of VTE than light smokers. The study authors identified 32 published observational studies involving 3,966,184 participants and 35,151 VTE events. Compared with never smokers, the overall combined relative risks (RRs) for developing VTE were 1.17 for ever smokers, 1.23 for current smokers, and 1.10 for former smokers, respectively. The risk increased by 10.2% for every additional 10 cigarettes per day smoked or by 6.1% for every additional 10 pack-years. Analysis of studies that adjusted for body mass index yielded a slightly higher RR (1.30) for current smokers compared with never smokers. The population attributable fractions of VTE were 8.7% for ever smokers, 5.8% for current smokers, and 2.7% for former smokers. Smoking was associated with an absolute risk increase of 24.3 cases per 100,000 person-years.

**Comment (NW):** This massive study highlights yet another very good reason why smokers should be encouraged to quit. Blood clots, although rare, are more likely to occur in smokers – with a dose-response relationship observed for cigarettes per day and pack-years. Blood clots can lead to so many other problems, both acute (e.g. sudden death) and chronic (e.g. leg ulceration).

**Reference:** *PLoS Med* 2013;10(9):e1001515

<http://tinyurl.com/kg6s5be>

## Association between nicotine replacement therapy use in pregnancy and smoking cessation

**Authors:** Brose LS et al.

**Summary:** Data were analysed from 3880 pregnant smokers attempting to stop in one of 44 Stop Smoking Services in England. Four-week quit rates (verified by expired-air carbon monoxide level <10 ppm) were compared between those not using medication versus using single form nicotine replacement therapy (NRT) (patch or a faster acting form), or combination NRT (patch plus a faster acting form). In adjusted analyses, combination NRT was associated with higher odds of quitting compared with no medication (OR 1.93; p=0.016), whereas single NRT showed no benefit (OR 1.06; p=0.84).

**Comment (NW):** A Cochrane systematic review has clearly shown that combination NRT is superior to monotherapy in a general population of smokers. However, a Cochrane review of NRT trials in pregnant women found no trials of combination therapy, and no clear treatment effect with single product use (possible due to the low doses of NRT used and poor compliance). Furthermore, nicotine is more rapidly metabolised in pregnancy and therefore higher-dose NRT may be needed. Thus in the absence of trial data, this cross-sectional study, based on a large sample of pregnant women that smoke who accessed the English stop smoking service, provides some of the first evidence that combination NRT increases the odds of quitting. The current NZ cessation guidelines state that NRT can be used in pregnancy following a risk-benefit assessment, with oral NRT preferable.

**Reference:** *Drug Alcohol Depend* 2013;132(3):660-4

<http://www.sciencedirect.com/science/article/pii/S0376871613001464>

## Pro-smoking apps: where, how and who are most at risk

**Authors:** BinDhim NF et al.

**Summary:** These researchers used a third-party app metrics service that aggregates data from app stores about app download popularity by country to investigate the lifetime popularity of 107 pro-smoking applications (apps), which provide information about brands of tobacco products, where to buy them, and encourage their use. Apps were deemed popular if at any time in their lifespan they achieved a top 25 ranking overall across all apps, or a top 25 ranking in any particular category of apps, such as 'educational games'. Over half (58) of the pro-smoking apps reached 'popularity' status in Apple and Android stores in one or more of 49 countries, particularly Italy, Egypt, Germany, Belgium and the USA. In each country, daily downloads numbered between approximately 2000 and 80,000. The Apple store featured 5 of the pro-smoking apps in various categories, and 2 apps were featured by the Android market. Two pro-smoking apps in the Apple store were extremely popular in the 'Educational Games' and 'Kids' Games' categories.

**Comment (NW):** What concerns me about the findings of this study is that tobacco companies have found a new way to reach our youth (who have a very high uptake of smartphones) to promote their product. As an example of their targeted approach "...two pro-smoking apps (both have a smoking stimulation function in which users can smoke virtually by inhaling and exhaling near the device's microphone) were highly popular in the 'education games' and 'kids games' categories...". Such blatant tobacco advertising is in violation of tobacco control laws in many countries, including New Zealand.

**Reference:** *Tob Control* 2013 Sep 17. [Epub ahead of print]

<http://tobaccocontrol.bmj.com/content/early/2013/09/17/tobaccocontrol-2013-051189.abstract>

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## Awareness and perceived effectiveness of smoking cessation treatments and services among New Zealand parents resident in highly deprived suburbs

**Authors:** Cowie N et al.

**Summary:** This paper describes the awareness of smoking cessation medications and quit support services among a population of mainly Māori and Pacific parents in South Auckland, an area of high ethnic diversity and socioeconomic deprivation. A total of 3722 parents of pre-adolescent children from 4 schools surveyed from 2007 through 2009 responded by self-complete questionnaire indicating their awareness and/or perceived effectiveness of various cessation treatments and services. Awareness of the toll-free Quitline service, NRT gum and NRT patch was higher among smokers (94%, 91% and 90%, respectively) than non-smokers (87%, 73% and 64%, respectively). Māori, Pacific, and New Zealand European smokers were more aware of the Quitline than Asian smokers. Few smokers reported cessation interventions as effective (only 41% for Quitline – the intervention perceived effective by most, 20% for NRT gum and 34% for NRT patch). Awareness of varenicline, bupropion and nortriptyline was the lowest among both smokers and non-smokers (<31%).

**Comment (BC):** This survey highlights the very important problem of lack of awareness of smoking cessation medicines, and the prevalent view that they are not effective. It is vital to inform smokers that smoking cessation medicines are safe; that they double their chances of quitting; and that just because they haven't worked for them or for smokers they know, doesn't mean they won't work for them if they use them again. We must ensure that smokers know the best way to use the therapies to maximise their effectiveness and minimise side effects, give them a high enough dose (double patch, combination therapy) to fully replace the nicotine they get from smoking, and encourage them to keep using them for a sufficiently long duration.

**Reference:** *N Z Med J* 2013;126(1378):48-59  
<http://journal.nzma.org.nz/journal/abstract.php?id=5734>

## Undertreatment of tobacco use relative to other chronic conditions

**Authors:** Bernstein SL et al.

**Summary:** Data from the 2005–2007 National Ambulatory Medical Care Survey were analysed to compare the proportion of US office visits in which tobacco users and individuals with hypertension, hyperlipidaemia, diabetes, asthma, or depression received condition-specific treatment. A total of 38,004 patient visits over the study period involved at least 1 study condition. Tobacco users were much less likely to be prescribed medication (4.4% of consultations) than were individuals with other conditions (for hypertension, 57.4%; for diabetes, 46.2%; for hyperlipidaemia, 47.1%; for asthma, 42.6%; for depression, 53.3%;  $p < 0.001$ ). In multivariate analyses, compared with smokers, patients with hypertension, diabetes, hyperlipidaemia, asthma, or depression were much more likely to receive a medication for that condition (adjusted odds ratios of 32.8, 20.9, 16.5, 22.1 and 24.0, respectively; all  $P$  values  $< 0.001$ ). Patients with hypertension, diabetes, or hyperlipidaemia were also more likely to receive behavioural counselling.

**Comment (BC):** It is likely that New Zealand doctors also under-prescribe smoking cessation medicines compared to their prescription of medicines for other chronic diseases. It is important to encourage all smokers to use smoking cessation medicines, even if they are not currently motivated to quit, because this increases their motivation to quit. Doctors could encourage smokers to accept a prescription for cessation medicines by drawing the parallel between the need to take medicines for other chronic conditions and the similar need to do so for smoking. Even if smokers do not quit but use cessation therapies long-term (like other chronic conditions), this will still benefit their health (as long as this helps them reduce smoking by >50%).

**Reference:** *Am J Public Health* 2013;103(8):e59-65  
<http://ajph.aphapublications.org/doi/full/10.2105/AJPH.2012.301112>

## A randomized clinical trial of the efficacy of extended smoking cessation treatment for adolescent smokers

**Authors:** Bailey SR et al.

**Summary:** This study recruited 141 high school students (aged 14–18 years) in the San Francisco Bay Area who were smoking at least 10 cigarettes/day at the time of screening. The trial consisted of 10 weeks of school-based, cognitive-behavioural group counselling in addition to 9 weeks of NRT patch for all participants, followed by 9 additional group sessions over a 14-week period for half of the participants (extended group) or 4 monthly smoking status calls (non-extended group). Follow-ups were conducted at approximately 26 weeks (6 months) following the baseline assessment (Week 0). At 26 weeks' follow-up, the extended treatment group had a significantly higher abstinence rate (21%) than the non-extended treatment (7%; OR 4.24, 95% CI 1.20 to 15.02). Females were more likely to be abstinent at the follow-up than males (OR 4.15, 95% CI 1.17 to 14.71).

**Comment (BC):** Many trials have shown that younger smokers are much less likely to remain abstinent after treatment than older smokers, yet it is essential for smokers to quit before they develop the long-term irreversible health consequences of smoking. Although this study showed that extended-duration CBT is more effective than shorter-duration therapy, this therapy is not widely available in New Zealand and is not publicly funded. Perhaps making this available in schools will help us achieve the 2025 vision.

**Reference:** *Nicotine Tob Res* 2013;15(10):1655-62  
<http://ntr.oxfordjournals.org/content/15/10/1655.long>

## Smoking Cessation Research Review

### Independent commentary by Brent Caldwell.

Brent Caldwell is a Senior Research Fellow at Wellington Asthma Research Group, he is currently working on the Inhale Study. His main research interest is in identifying and testing improved smoking cessation methods, with a particular focus on clinical trials of new smoking cessation pharmacotherapies.



### Independent commentary by Dr Natalie Walker.

Dr Natalie Walker is an epidemiologist and leader of the Addiction Research programme at the National Institute for Health Innovation, University of Auckland. Natalie joined the University in 1995, and completed a PhD in cardiovascular epidemiology in 2000. Natalie currently holds a Heart Foundation Douglas Senior Fellowship in Heart Health (Prevention). Her primary area of interest is the conduct of phase III, community-based, clinical trials, particularly in the fields of smoking cessation, alcohol consumption, and heart health. She is a member of the Society for Research on Nicotine and Tobacco, and a board member of ASH.



### Disclosure Statement:

Natalie Walker has provided consultancy to the manufacturers of smoking cessation medications, received honoraria for speaking at a research meeting and received benefits in kind and travel support from a manufacturer of smoking cessation medications. Natalie has also undertaken two trials of very low nicotine content cigarettes, which were purchased from two different tobacco companies. The companies concerned had no role in development of the study design, data collection, data analysis, data interpretation, or writing of the trial publications.

## Should anti-tobacco media messages be culturally targeted for Indigenous populations? A systematic review and narrative synthesis

**Authors:** Gould GS et al.

**Summary:** These researchers reviewed published quantitative and qualitative papers on culturally targeted anti-tobacco media messages for Indigenous or First Nations people and examined the evidence for the effectiveness of targeted and non-targeted campaigns. Of the 21 included studies, 8 evaluated anti-tobacco TV or radio campaigns; 2 assessed US websites; 3 New Zealand studies examined mobile phone interventions; 5 evaluated print media; 3 evaluated a CD-ROM, a video and an edutainment intervention. The analyses revealed that while Indigenous people had good recall of generic anti-tobacco messages, they preferred culturally targeted messages. New Zealand Māori may be less responsive to holistic targeted campaigns, despite their additional benefits, compared to generic fear campaigns. Culturally targeted internet or mobile phone messages appear to be as effective in American Indians and Māori as generic messages in the general population.

**Comment (BC):** Culturally targeted anti-tobacco media campaigns appeared to be more effective in New Zealand compared to other countries. Further research is required on the utility of fear-based campaigns for Māori. The findings of this review justify an increase in the intensity of culturally targeted television and text-messaging campaigns, including both non-fear-based encouraging messages and fear-based ones. Campaigns should emphasise the need to use evidence-based cessation therapies to improve the chances of abstinence.

**Reference:** *Tob Control* 2013;22(4):e7

<http://tobaccocontrol.bmj.com/content/early/2012/08/21/tobaccocontrol-2012-050436>

## Nicotine replacement therapy distribution to light daily smokers calling a Quitline

**Authors:** Krupski L et al

**Summary:** This study compared quit rates before and after NRT (gum or lozenge) was offered to light daily smokers (1–9 cigarettes) contacting the New York State Smokers' Quitline. A follow-up survey revealed significantly higher quit rates among those given NRT compared with those not offered NRT at both 7 days (33.0% vs 27.2%; RR 2.25;  $p < 0.05$ ) and 30 days (28.0% vs 21.9%; RR 2.63;  $p < 0.05$ ). Numbers of daily cigarettes among continuing smokers increased from enrolment to follow-up in both groups, but by a smaller number in the NRT group. The additional cost associated with providing a 2-week free supply of nicotine replacement to smokers was \$52 for gum and \$74 for lozenge.

**Comment (BC):** Although this was not a randomised controlled trial and there were significant baseline differences between the NRT-group and non-NRT group, the significant increase in quit rates and reduction of smoking after 2 weeks' supply of 2 mg gum or lozenge in this trial suggests that this would be a worthwhile therapeutic approach for light smokers in New Zealand. It is impossible to tell why fewer than 9% continued to use NRT after the 2-week free supply ran out because no explanation was provided and the tolerability of NRT was not reported. Giving light daily smokers quit cards for gum and lozenge for longer than 2 weeks would be warranted to improve cessation rates further.

**Reference:** *Nicotine Tob Res* 2013;15(9):1572-7

<http://ntr.oxfordjournals.org/content/15/9/1572.abstract>

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