

Smoking Cessation Research Review™

Making Education Easy

Issue 14 – 2014

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Welcome to the fourteenth issue of Smoking Cessation Research Review.

Quitting smoking is significantly linked to improved mental health outcomes in both clinical (chronic psychiatric and/or physical conditions) and general populations, reports a study from the UK. Moreover, the effect sizes were apparently equal to or larger than those of antidepressant treatment for mood and anxiety disorders. These findings challenge the widely-held belief that smoking has mental health benefits.

An interesting, small study from the US reports that varenicline improves quit rates in smokers with serious mental illness. Smokers with schizophrenia or bipolar disorder who received varenicline plus cognitive-behavioural therapy (CBT) were far more likely to quit smoking at 1 year compared with those who received CBT alone. The safety data were reassuring – varenicline was not associated with any worsening of psychiatric symptoms at any time during the study.

We hope you enjoy the selection in this issue, and we welcome any comments or feedback.

Kind Regards,

Brent Caldwell

brentcaldwell@researchreview.co.nz

Natalie Walker

nataliewalker@researchreview.co.nz

Association of strong smoke-free laws with dentists' advice to quit smoking, 2006–2007

Authors: Gonzalez M et al.

Summary: This US-based study examined the association of smoke-free laws with dentists' advice to quit smoking and referral to a quit line among smokers who reported visiting the dentist in the past 12 months. For this analysis, the smoke-free law coverage comprised the 2006 to 2007 Tobacco Use Supplement of the Current Population Survey as well as the American Nonsmokers' Rights Foundation Local Ordinance Database of smoke-free laws. In analysed adjusted for respondent demographics and an index of state-level smoking ban attitudes (to ensure that the effect detected was not the result of social attitudes), smoke-free law coverage was associated with dental advice to quit smoking (odds ratio [OR] 1.27; 95% CI, 1.01 to 1.59; $p=0.041$), but not with referral to a quit line (OR 1.33; 95% CI, 0.79 to 2.25; $p=0.283$).

Comment (NW): In New Zealand we are trying to change the social norm of smoking, focusing on actions that shift environmental norms and attitudes, thereby reducing smoking prevalence. This study found that smoke-free laws were positively associated with an increase in dentists offering their clients advice to quit smoking, although referral for additional cessation support (in this case a Quitline service) was not strong. Little is known in New Zealand about quit smoking support offered by allied health professionals, but this study highlights an opportunity to engage with and support such health experts to help us achieve our Smokefree 2025 goal.

Reference: *Am J Public Health*. 2014;104(4):e88-94

[Abstract](#)

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Advancing the retail endgame: public perceptions of retail policy interventions

Authors: Whyte G et al.

Summary: These University of Otago researchers conducted an online survey of 364 smokers and 402 non-smokers aged ≥ 18 years, who were sampled from a commercial Internet panel in January 2013. They were questioned about their views towards newly endorsed restrictions on tobacco supply. The survey was conducted 6 months after the removal of all tobacco products from open display in New Zealand retail outlets. Both daily smokers and non-smokers strongly supported not selling tobacco products within 500 m of a school, and requiring tobacco retailers to sell nicotine replacement therapy products.

Comment (NW): It's 10 years until 2025 – some big changes are needed and this survey provides excellent data on the acceptability of some new tobacco retailer policies for the government and/or local councils to consider. Many supermarkets already sell NRT and nicotine-free e-cigarettes. However, alcohol is one of the biggest products for supermarkets – I suspect if they were forced to choose tobacco or alcohol to sell they would pick alcohol. Looking at it from the retailer's side of the fence – New Zealand research suggests that small tobacco retailers such as dairies certainly appear happy to promote smoking cessation services and sell smoking cessation products (N Z Med J. 2011;124(1333):65-7).

Reference: *Tob Control*. 2014;23(2):160-6

[Abstract](#)

“A breath of fresh air worth spreading”: media coverage of retailer abandonment of tobacco sales

Authors: McDaniel PA et al.

Summary: This paper comes from the University of California and examines the content of media coverage of retailers abandoning tobacco sales. A search of online media databases for articles published from 1995 to 2011 revealed local and national news items, which were then coded on the volume, type, provenance, prominence, and content of coverage. Two retailers who were the first in their category to end tobacco sales received the most coverage and the majority of prominent coverage. Positive potential impacts of the decision were cited more often than negative potential impacts in news items, and there were frequently references to tobacco-caused disease, death, or addiction. Letters to the editor and editorials were overwhelmingly supportive.

Comment (NW): One step further on from the previous paper, this article examines the media's role in the dissemination of information about retailer abandonment of tobacco sales in the USA. Increasingly in New Zealand, tobacco retailers are opting out of selling tobacco – a trend that should be encouraged. This paper highlights that placement of media stories about these retailers is key to ensuring extended coverage and presumably greater awareness. What I'd like to see in New Zealand is a national chain of stores choosing to end tobacco sales or an entire community with no tobacco retailers – now these would be powerful and influential media stories!

Reference: *Am J Public Health*. 2014;104(3):562-9

[Abstract](#)

Nicotine patches in pregnant smokers: randomised, placebo controlled, multicentre trial of efficacy

Authors: Berlin I et al.

Summary: This paper reports on the efficacy of 16 h nicotine patches among pregnant smokers, with the dose individually adjusted according to saliva cotinine levels (potential range 10–30 mg/day). The study was conducted in maternity wards in France and involved pregnant smokers aged >18 years and between 12 and 20 weeks' gestation, who smoked ≥ 5 cigarettes a day. They were randomly assigned to receive nicotine patches (n=203) or placebo patches (n=199) from quit day up to the time of delivery. Participants were assessed monthly and received behavioural smoking cessation support. Data were available on 192 live births in each group. Complete abstinence (self-report confirmed by carbon monoxide level in expired air ≤ 8 ppm) from quit date to delivery was achieved by similar proportions of women in each group (5.5% in the nicotine patch group and 5.1% in the placebo patch group). The median time to the first cigarette smoked after target quit day was 15 days in both groups. The range in the point prevalence abstinence was 8% to 12.5% in the nicotine patch group and was not significantly difference from the range of 8% to 9.5% in the placebo patch group. The nicotine substitution rate did not differ from 100%, and the self-reported median compliance rate was 85% in the nicotine patch group and 83% in the placebo patch group. Mean birth weights for each group did not differ significantly (3065 g in the nicotine patch group vs 3015 g in the placebo patch group). Diastolic blood pressure was significantly higher in the nicotine patch group than in the placebo patch group. The frequency of serious adverse events was similar between the groups, although more non-serious adverse reactions, mainly of skin, occurred in the nicotine patch group.

Comment (NW): A Cochrane review of trial evidence has shown that behavioural interventions are effective for smoking cessation in pregnancy, plus trial evidence suggests that the use of financial incentives are also beneficial. In terms of pharmacotherapy for smoking cessation in pregnancy only NRT has been investigated in trials, and only as a single treatment not combination treatment. Thus, there remains insufficient evidence to draw conclusions on the efficacy or safety of adding NRT to behavioural support for smoking cessation in pregnancy. However, as stated in the NZ smoking cessation guidelines, NRT provides less nicotine than tobacco smoke and no harmful toxins and thus must be safer than continued smoking.

Reference: *BMJ*. 2014;348:g1622

[Abstract](#)

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Disclaimer: This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.

Research Review publications are intended for New Zealand health professionals.

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.

Maintenance treatment with varenicline for smoking cessation in patients with schizophrenia and bipolar disorder

Authors: Evins AE et al.

Summary: This study examined whether smokers with serious mental illness have higher rates of prolonged tobacco abstinence with maintenance pharmacotherapy than with standard treatment consisting of cognitive-behavioural therapy (CBT). A total of 203 smokers with schizophrenia or bipolar disease received 12 weeks of open-label varenicline plus CBT; 87 met abstinence criteria to enter the relapse prevention intervention and were randomly assigned to receive varenicline plus CBT (1 mg, 2 per day) or CBT alone from weeks 12 to 52. Participants then discontinued study treatment and were followed up to week 76. Sixty-one participants completed the relapse-prevention phase; 26 withdrew (7 varenicline, 19 CBT-only), 18 of these had relapsed prior to dropout. At week 52, point-prevalence abstinence rates were 60% in the varenicline group vs 19% with CBT only (OR 6.2; $p < 0.001$). From weeks 12 through 64, 45% of varenicline recipients vs 15% of CBT-only recipients were continuously abstinent (OR 4.6; $p = 0.004$), and from weeks 12 through 76, 30% in the varenicline group vs 11% in the CBT-only group were continuously abstinent (OR 3.4; $p = 0.03$). There were no significant treatment effects on psychiatric symptom ratings or psychiatric adverse events.

Comment (NW): Cigarette dependence is considered a chronic relapsing disorder that requires a multifaceted treatment approach. Perhaps such dependence should be treated in much the same way that opioid dependence is treated with methadone maintenance treatment? A previous trial has shown that long-term (an additional 12 weeks) maintenance therapy with varenicline in smokers without psychiatric illness can increase abstinence rates at one year. This trial, although small, has shown similar findings when looking at a population with schizophrenia and bipolar disorder. I wonder if similar effects would be seen with nicotine maintenance treatment – the trials are underway already, so watch this space.

Reference: *JAMA*. 2014;311(2):145-54

[Abstract](#)

Change in mental health after smoking cessation: systematic review and meta-analysis

Authors: Taylor G et al.

Summary: These UK-based researchers undertook a systematic review and meta-analysis of observational studies to investigate change in mental health status after smoking cessation compared with continuing to smoke. Data were analysed from 26 longitudinal studies of adults that assessed mental health before smoking cessation and ≥ 6 weeks after cessation or baseline in both general and clinical populations. Anxiety, depression, mixed anxiety and depression, and stress were significantly decreased between baseline and follow-up in quitters compared with continuing smokers, with standardised mean differences (SMDs) as follows: anxiety -0.37 (95% CI, -0.70 to -0.03); depression -0.25 (-0.37 to -0.12); mixed anxiety and depression -0.31 (-0.47 to -0.14); stress -0.27 (-0.40 to -0.13). Psychological quality of life and positive affect were significantly increased between baseline and follow-up in quitters compared with continuing smokers; SMD 0.22 (95% CI, 0.09 to 0.36) and 0.40 (0.09 to 0.71), respectively. The study authors report that there was “no evidence that effect size differed between the general population and populations with physical or psychiatric disorders.”

Comment (BC): Although I am not completely convinced that reverse causation did not confound this study, the results of this study (backed by the plausibility of the biological mechanism that the authors present for why continued smoking may lead to worsened mood) provide strong evidence that smokers can improve their mental health by quitting, and that by quitting they can improve their mood even more than by taking antidepressants. Health professionals could use this message to help motivate and incentivise depressed or anxious patients to quit smoking (but they will need multi-model intensive therapy to help them to quit).

Reference: *BMJ*. 2014;348:g1151

[Abstract](#)

'Real-world' effectiveness of smoking cessation treatments: a population study

Authors: Kotz D et al.

Summary: This study assessed the association between abstinence and use of different smoking cessation treatments by analysing data from the UK Smoking Toolkit Study household survey. The study cohort consisted of 10,335 adults who smoked within the previous 12 months and had made at least one quit attempt during that time. Participants were classified according to their use of cessation aids in their most recent quit attempt: (i) medication (nicotine replacement therapy [NRT], bupropion or varenicline) in combination with specialist behavioural support delivered by a National Health Service Stop Smoking Service; (ii) medication provided by the prescribing health-care professional without specialist behavioural support; (iii) NRT bought over the counter; and (iv) none of these. Analyses adjusted for key potential confounders such as tobacco dependence revealed that, compared with smokers using none of the cessation aids, the likelihood of remaining abstinent up to the time of the survey was 3.25-fold higher (95% CI, 2.05 to 5.15) among users of prescription medication in combination with specialist behavioural support and 1.61-fold higher (95% CI, 1.33 to 1.94) among users of prescription medication combined with brief advice. The odds were similar (0.96-fold higher; 95% CI, 0.81 to 1.13) between users of prescription medication in combination with specialist behavioural support and those who used over-the-counter NRT.

Comment (BC): Many trials over the years have shown that over-the-counter NRT with no behavioural support is ineffective, but what is really encouraging about this report is the extraordinarily high efficacy of NRT in conjunction with specialist behavioural support. The kind of specialist behavioural support in the UK (face-to-face specialist clinics and group therapy with qualified physicians and psychologists) is sadly not available in New Zealand, but nonetheless, this report found that even brief advice plus NRT is effective. The use of NRT combined with brief advice is the bare minimum requirement for successful abstinence, but so many more smokers will be abstinent if they are given intensive behavioural support – we desperately need this in New Zealand.

Reference: *Addiction*. 2014;109(3):491-9

[Abstract](#)

Nicotine content of electronic cigarettes, its release in vapour and its consistency across batches: regulatory implications

Authors: Goniewicz GL et al.

Summary: These researchers analysed the nicotine content and nicotine levels delivered in the vapour of the cartridges in 5 electronic cigarette (e-cigarette) brands (6 products) with high Internet popularity in the UK. The researchers also estimated the safety and consistency of nicotine delivery across batches of the same product as a proxy for quality control for individual brands and within the industry. They purchased 2 samples of each brand 4 weeks apart. The nicotine content of cartridges within the same batch varied by up to 12% relative standard deviation and the mean difference between different batches of the same brand ranged from 1% (95% CI, -5% to 7%) to 20% (95% CI, 14% to 25%) for 5 brands and 31% (95% CI, 21% to 39%) for the sixth. The puffing schedule used in this study vaporised 10–81% of the nicotine present in the cartridges. The nicotine delivery from 300 puffs ranged from ~ 2 mg to ~ 15 mg and was not significantly associated with the variation of nicotine content in e-liquid ($r = 0.06$; $p = 0.92$). None of the tested products allowed access to e-liquid or produced vapour nicotine concentrations as high as conventional cigarettes.

Comment (BC): Perhaps not surprisingly, some e-cigs were more effective at aerosolising larger doses of nicotine than others, regardless of the nicotine concentration in the e-cig cartridges. However, the variation in the emitted nicotine dose on repeated puffing from the same brand of e-cig was within acceptable limits and was never higher than the levels in cigarette smoke. Nicotine overdose is therefore unlikely, but importantly nicotine underdosing is possible, and it is important to encourage e-cig novices to puff intensively and puff very frequently to get a sufficiently high dose and to maximise pulmonary delivery. Wouldn't it be great if the New Zealand government formed a state-owned enterprise to manufacture e-cigs to high-quality pharmaceutical standards and sold them close to the manufacturing cost?

Reference: *Addiction*. 2014;109(3):500-7

[Abstract](#)

Alcohol and tobacco use among maltreated and non-maltreated adolescents in a birth cohort

Authors: Mills R et al.

Summary: This investigation sought to determine whether child maltreatment experience predicts adolescent tobacco and alcohol use, using data obtained from a birth cohort of 5158 subjects participating in the Mater-University Study of Pregnancy (MUSP) and available for analysis at the 14-year follow-up. In analyses adjusted for sociodemographic variables and coexisting alcohol use, reported child maltreatment was associated with early adolescent smoking (odds ratio [OR] 1.76; 95% CI, 1.32 to 2.34). After fully adjusting for confounding variables, including for coexisting alcohol use, adolescent smoking was predicted by both neglect/emotional abuse (OR 2.03; 95% CI, 1.20 to 3.42) and neglect/emotional abuse that included physical abuse (OR 1.85; 95% CI, 1.19 to 2.88). In comparable analyses that adjusted for coexisting smoking, early adolescent alcohol use was predicted only by child neglect/emotional abuse (OR 1.78; 95% CI, 1.06 to 2.97), not by the other types of maltreatment.

Comment (BC): We must be acutely aware that smokers are often very vulnerable people who smoke to relieve severe stress. Smokers who smoke to cope with emotional pain need to be offered alternative strategies for coping, including safe rapid delivery of nicotine. The most effective therapy available in New Zealand is the QuickMist mouthspray; however, it is expensive. Ideally, these smokers need as much wrap-around care as possible, including not only nicotine replacement therapy, but social and psychological help as well, which they might gain from Quitline's blogs, and support groups.

Reference: *Addiction*. 2014;109(4):672-80

[Abstract](#)

Levels of selected carcinogens and toxicants in vapour from electronic cigarettes

Authors: Goniewicz ML et al.

Summary: These investigators screened e-cigarette vapour content for 4 groups of potentially toxic and carcinogenic compounds: carbonyls, volatile organic compounds, nitrosamines and heavy metals. Chromatographic and spectroscopy methods analysed vapours from 12 brands of e-cigs and the reference product, the medicinal nicotine inhaler. Vapours from the e-cigarettes contained some toxic substances, at levels that were 9 to 450 times lower than in cigarette smoke and, in many cases, these were comparable with trace amounts found in the reference product.

Comment (BC): Even though very few e-cig manufacturers have a Good Manufacturing Practice licence for the manufacture of pharmaceutical grade e-cigs and e-cig liquids, it is reassuring that this study (of 11 Polish and 1 UK e-cig) and other studies like it found that e-cigs are many orders of magnitude safer than smoking. Health professionals should have no safety concerns about recommending e-cigs to smokers who have relapsed after conventional therapies and do not want to use these therapies again (due to lack of efficacy or side effects).

Reference: *Tob Control*. 2014;23(2):133-9

[Abstract](#)

Clarification Statement (Brent Caldwell)

In the last issue of Smoking Cessation Review (Issue 13, 2014) I made a comment about a New Zealand trial published in the *Lancet* titled "Electronic cigarettes for smoking cessation: a randomised controlled trial." I stated that "The low rates of abstinence in this study really emphasise the importance of giving smokers much more support than just supplying them with NRT and telephone support." I would like to qualify my comment by noting that all participants in this trial were identified via community advertising then referred by fax or scanned request to Quitline. Quitline then called the participants and offered them telephone behavioural support (with only between 36–40% of participants taking up this offer). Thus, the trial participants, although motivated to quit, were a very different population to smokers who normally initiate contact with Quitline for smoking cessation support. Consequently, the 5.8% six-month continuous abstinence quit rate (15.6% 7-day point prevalence abstinence at six months) observed in the trial for those randomised to NRT patches was much lower than the normal Quitline quit rate of 24.2% for 7-day point prevalence abstinence at six months.

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