Smoking Cessation Research Review™

Making Education Easy

Issue 17 – 2015

In this issue:

Abbreviations used in this issue
NRT = nicotine replacement therapy
OR = odds ratio
SUD = substance use disorder

Welcome to the first issue of Smoking Cessation Research Review for 2015.

One of the papers in this issue describes a novel approach to finding pregnant Māori smokers early in pregnancy and providing cessation support. The researchers met with Māori community health workers ("aunties") who are willing to provide cessation and other support in a "Māori way", within established relationships and recognised roles within families. The effectiveness of this approach will be tested in ongoing research.

The plant-based product, cytisine, proved more effective than nicotine replacement therapy (NRT) at helping smokers quit, reports a study from New Zealand. Cytisine is a partial agonist that binds the nicotinic acetylcholine receptor and is a naturally occurring ingredient of the Kowhai tree. After using cytisine for 25 days, a smoker was more likely to have quit smoking at 6 months, compared with those who used NRT for 8 weeks. Cytisine is licensed for use as an over-the-counter medication, on prescription or via the internet in a number of Central and Eastern European countries but is not yet available in New Zealand.

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

Kind Regards,

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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.

Smoking reductions and increased self-efficacy in a randomized controlled trial of smoking abstinence – contingent incentives in residential substance abuse treatment patients

Authors: Alessi SM, Petry NM

Summary: These researchers recruited smokers interested in quitting from a residential substance use disorder (SUD) programme for men and randomised them to frequent smoking monitoring with behavioural support alone (monitoring; n=21) or in combination with smoking abstinence-contingent (expired carbon monoxide [CO] ≤6 ppm; urinary cotinine ≤30ng/mL) incentives (contingency management [CM]; n=24) for 4 weeks. After setting a quit date, the men participated in daily behavioural support and completed smoking self-reports, 2 CO samples (a.m./p.m.) Monday through Friday, and cotinine tests on Mondays. CM participants received escalating draws for prizes ($1, $20, and $100 values) for negative tests; positive and missed samples reset draws. Follow-ups involved samples, self-reported smoking, and self-efficacy (weeks 4, 8, 12, and 24). The CM group had a higher percentage of CO-negative days compared with the monitoring group (median 51.7% vs 0%; p=0.002). Cigarettes per day declined and point-prevalence abstinence increased through follow-up (p<0.01), with no significant group by time effects. Abstinence self-efficacy increased overall during the intervention and by a greater extent with CM compared with monitoring and was associated with abstinence across conditions throughout follow-up.

Comment (NW): Although there are a number of studies/programmes currently underway in NZ where pregnant women that smoke are offered incentives (material or financial) to quit smoking during pregnancy, I am not aware of any that are using incentives in other populations with high rates of smoking, such as individuals with SUDs. This small trial adds to the knowledge base summarised in a Cochrane review looking at competitions and incentives for smoking cessation (see *Smoking Cessation Research Review Issue 4* and http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004307.pub4/abstract). Although the number of cigarettes smoked per day decreases and abstinence rates increase during the monitoring/incentive period, such effects tend to dissipate when the reward is no longer offered.

Reference: Nicotine Tob Res. 2014;16(11):1436-45
Abstract

A randomized trial for hazardous drinking and smoking cessation for callers to a quitline

Authors: Toll BA et al.

Summary: This paper reports on the effect of adding an alcohol intervention to smoking cessation treatment in the context of a quitline. Smokers aged ≥18 years (n=1948) who called the New York State Smokers' Quitline and reported hazardous drinking (exceeding sex-specific weekly limits [14 drinks for men, 7 drinks for women] or meeting/exceeding daily drinking limits [5 drinks for men, 4 drinks for women] at least once in the past year) were randomised to receive either brief motivational counselling to limit or abstain from alcohol plus an alcohol reduction booklet added to standard care (Alcohol + Tobacco Counselling; ATC; n=975), or only smoking cessation counselling plus a smoking cessation booklet added to standard care (Tobacco-Only Counselling; TOC; n=973). In the intention-to-treat (ITT) analysis, ATC was associated with a significantly higher rate of 7-day point prevalence abstinence from smoking at the 7-month follow-up interview compared with TOC (13.5% vs 10.3%; p=0.03). The respondent analysis (ATC 26.2%; TOC 20.4%) paralleled the ITT findings. When controlling for treatment condition, participants who did not report any heavy drinking were significantly more likely to quit smoking than those who reported any heavy drinking (odds ratio [OR] 1.87; 95% CI, 1.29 to 2.71; p=0.001).

Comment (NW): Tobacco smoking and hazardous drinking tend to co-exist in individuals, and cluster in families and communities. For example, in the 2007/8 NZ Health survey, 33% of people that smoked also consumed alcohol at hazardous levels (defined as a score of ≥8 on the Alcohol Use Disorders Identification Test [AUDIT-C]) compared with 13% of non-smokers. Yet research and treatment for smoking and alcohol often only focuses on one addiction at a time, despite evidence from this and other trials showing that people who smoke and have a past history of alcohol dependence can be equally successful at quitting smoking as smokers without such a history. Unpublished data from one of my own trials shows that 20–30% of NZ Quitline callers are drinking at hazardous levels (AUDIT-C score of ≥8). It therefore seems unethical for health services not to be collecting data on alcohol use in smokers and offering some form of brief advice and/or referral to services for those people identified as needing to modify their drinking behaviour.

Reference: J Consult Clin Psychol. 2014 Nov 24. [Epub ahead of print]
Abstract

CLICK HERE to read previous issues of Smoking Cessation Research Review

Left-digit price effects on smoking cessation motivation

Authors: MacKillop J et al.

Summary: Results are reported of a behavioural economic approach to the relationship between the price of cigarettes and the probability of attempting smoking cessation. A total of 1074 adult daily smokers (i.e., 5+ cigarettes/day; aged ≥18 years; ≥8th grade education) completed in-person descriptive survey assessments. Assessments that estimated the probability of making a smoking cessation attempt across a range of cigarette prices revealed that as price increases, the probability of making a smoking cessation attempt increased in an orderly fashion, resembling an inverted demand curve. The largest effect size increases in motivation to make a quit attempt were in the form of 'left-digit effects' (i.e., maximal sensitivity across pack price whole-number changes; e.g., US$5.80–$6.00/pack). Significant differences observed among the left-digit effects suggested that the most substantial effects were for price changes that were most market relevant. A significant association was observed between severity of nicotine dependence and price sensitivity.

Comment (NW): We have long known that tax increases on tobacco significantly increase quit attempts. However, this study shows that the relationship between price and cessation motivation is not linear – in fact "*not all price changes are 'created equal'*". Specifically, the effect of four US$0.20/pack price increases from US$4.00 to US$4.80 has virtually the same effect as a single $0.20/pack price increase from US$4.80 to US$5.00 on motivation to quit. Such evidence is something the NZ government seriously needs to use to their advantage when increasing the tax on tobacco. Furthermore, we need to gain a better understanding of how the tobacco industry intentionally seeks to circumvent these effects.

Reference: Tob Control. 2014;23(6):501-6
Abstract

Reducing smoking in pregnancy among Māori women: "aunties" perceptions and willingness to help

Authors: van Esdonk T et al.

Summary: This paper describes the engagement of Māori community health workers ("aunties") as a means of finding pregnant Māori smokers early in pregnancy and providing cessation support. At regional meetings held throughout New Zealand, the aunties expressed unanimous support of receiving up-to-date information on how best to support pregnant women to stop smoking. They were confident of finding pregnant women in their first trimester who were still smoking by using their networks, the 'kumara-vine' (sweet potato vine), tohu (signs/omens), their instinct and by looking for women in the age range most likely to get pregnant. The aunties were determined to provide cessation and other support in a "Māori way", depending on formed relationships and recognised roles within families. The aunties believed that their own past experiences with pregnancy and/or smoking would be advantageous when providing support.

Comment (NW): Anyone who works in the field of smoking cessation knows how hard it is to engage with, and keep engaged, pregnant Māori women that smoke, particularly those early on in their pregnancy. This study details a novel strategy for 'locating' such women – and is a strategy that may also be relevant to other indigenous populations around the world, not just Māori. I look forward to hearing about the effectiveness of this approach.

Reference: Matern Child Health J. 2014;18(10):2316-22
Abstract

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.

Cytisine versus nicotine for smoking cessation

Authors: Walker N et al.

Summary: This open-label study enrolled 1310 adult daily smokers who were motivated to quit and called the national quitline. They were randomly assigned to receive cytisine for 25 days (n=655) or nicotine replacement therapy (NRT; n=655) for 8 weeks. Cytisine was provided by mail, free of charge, and NRT was provided through vouchers for low-cost patches along with gum or lozenges. Quitline provided low-intensity behavioural support by telephone to both groups. At 1 month, 264 subjects (40%) in the cytisine group and 203 (31%) in the NRT group reported continuous abstinence from smoking, for a difference of 9.3 percentage points (95% CI, 4.2 to 14.5). Cytisine was more effective than NRT for continuous abstinence at 1 week, 2 months and 6 months. In a prespecified subgroup analysis of the primary outcome, cytisine was superior to NRT among women and noninferior among men. Self-reported adverse events over 6 months occurred more frequently in the cytisine group (288 events among 204 participants) than in the group receiving NRT (174 events among 134 participants); adverse events were primarily nausea and vomiting and sleep disorders.

Comment (BC): This is the first trial to compare the efficacy of cytisine to NRT rather than to placebo, and adds to the evidence that cytisine is a very effective therapy. Ideally, cytisine would be compared to varenicline (Champix) in a head-to-head trial, however, because cytisine is off-patent this may require government funding. Even in the absence of a head-to-head comparison of cytisine and varenicline, a recent economic analysis found that it is likely that cytisine would be both more clinically effective and cost-effective than varenicline. If a head-to-head trial shows that cytisine is as effective as varenicline, then it would be one of the most effective cessation therapies currently available.

Reference: N Engl J Med. 2014;371(25):2353-62
Abstract

Projecting future smoking prevalence to 2025 and beyond in New Zealand using smoking prevalence data from the 2013 Census

Authors: van der Deen FS et al.

Summary: Smoking prevalence data from the New Zealand 2013 Census reported a lower than expected smoking prevalence, especially for Māori. These data were combined with smoking prevalence data from the New Zealand 2006 Census to upgrade projections on future smoking prevalence in New Zealand to inform policy around tobacco endgame planning. Between the 2006 and 2013 censuses (adjusted for no tax rises since 2010), initiation of daily smoking by age 20 years decreased annually by 3.4% (95% uncertainty interval 3.2% to 3.6%) and 2.7% (2.5% to 2.8%) for non-Māori men and women, and by 2.9% (2.6% to 3.2%) and 3.2% (2.9% to 3.5%) for Māori, respectively. Annual net smoking cessation rates ranged from 3.7% to 7.7% across demographic groups. These data resulted in estimated smoking prevalence rates of 18.7% and 19.3% for Māori men and women, and 8.3% and 6.4% for non-Māori, respectively.

Comment (BC): The authors of this study state that more intense or novel strategies are required for us to reach the goal of less than 5% prevalence of smoking by 2025, such as permanent tax increases, phase-down of nicotine content in cigarettes, and reduction in number of tobacco retail outlets. I would suggest that one of the most effective methods would be for Government to facilitate bringing to market more effective smoking cessation therapies, such as a pulmonary nicotine inhaler, pharmaceutical-grade electronic cigarettes, and cytisine. I'm sure that many smoking cessation clinicians are desperate to be able to offer their patients a wider variety of therapies and therapies that are more effective than current ones.

Reference: N Z Med J. 2014;127(1406):71-9
Abstract

The use of, and attitudes towards, electronic cigarettes and self-reported exposure to advertising and the product in general

Authors: Li J et al.

Summary: These researchers examined New Zealanders' use of, and attitudes towards, e-cigarettes, their exposure to e-cigarette advertising and their general exposure to this product, among a sample of adult smokers and recent quitters who took part in a fortnightly computer-assisted telephone interviewing survey in 2013. Use of e-cigarettes was reported by between 23% and 39% of respondents (with the highest level among those who had quit or tried to quit recently); 8–16% had used e-cigarettes in the past two weeks. About one-half reported seeing advertising of e-cigarettes in the past two weeks, 22–41% had seen people they knew using e-cigarettes and 10–15% had seen a stranger using them in the past two weeks.

Comment (BC): Although causal inferences cannot be drawn from survey data, it is reassuring that ever-use of e-cigs by New Zealand smokers was significantly higher among smokers who are serious about quitting, because it suggests that smokers who used e-cigs were aiming to quit rather than use them while continuing to smoke. Wouldn't it be great if a Government or non-profit organisation could manufacture e-cigs to pharmaceutical grade and make them readily available to smokers at an affordable price?

Reference: Aust N Z J Public Health. 2014;38(6):524-8
Abstract

Impact of a postdischarge smoking cessation intervention for smokers admitted to an inpatient psychiatric facility

Authors: Stockings EA et al.

Summary: This study investigated whether a smoking cessation intervention initiated during psychiatric hospitalisation and continued postdischarge could effectively reduce smoking behaviours among persons with a mental disorder. A total of 205 smokers in an Australian inpatient psychiatric facility were randomised to a treatment as usual control group (n=101) or to a smoking cessation intervention incorporating psychosocial and pharmacological support for 4 months postdischarge (n=104). At the 6-month follow-up postdischarge, rates of continuous and 7-day point-prevalence abstinence did not differ between treatment conditions, although point prevalence abstinence was significantly higher for intervention (11.5%) than control (2%) participants at 4 months (OR 6.46; p=0.01). Participants in the intervention condition reported significantly more quit attempts (*F*[1,202.5] 15.23; p=0.0001), and lower daily cigarette consumption (*F*[4, 586] 6.5; p<0.001) and levels of nicotine dependence (*F*[3, 406] 8.5; p<0.0001) than controls at all follow-up assessments (at 1 week, 2, 4 and 6 months post-discharge).

Comment (BC): It is really encouraging that this fairly low-intensity intervention (NRT for 16 weeks, one very brief motivational interview, fortnightly phonecalls for 4 months, and referral to telephone Quitline) significantly increased 7-day point prevalence at 4 months, quit attempts at 2, 4, and 6 months, and ≥50% smoking reduction from 2 to 6 months. Although these outcomes seem like a very modest improvement, they are quite remarkable given that psychiatric patients are less likely to attempt to quit, and are more likely to relapse. A trial of a more intensive and longer duration intervention in psychiatric patients is certainly warranted on the basis of the positive findings of this trial.

Reference: Nicotine Tob Res. 2014;16(11):1417-28
Abstract

Symptoms of nicotine toxicity in subjects achieving high cotinine levels during nicotine replacement therapy

Authors: Tonstad S et al.

Summary: These researchers extracted records from a clinical database of randomised controlled clinical trials of NRT conducted between 1989 and 2010. The study sought to determine the incidence and severity of nicotine-related adverse events in subjects with levels of plasma or salivary cotinine, a metabolite of nicotine, that increased by >50% compared with baseline smoking. The trials involved various formulations of NRT (Nicorette®), including patch, gum, oral inhaler, sublingual tablet, nasal spray, mouth spray, and combinations. Twenty-eight studies were eligible and included in this investigation; 24 were smoking cessation studies and 4 were smoking reduction studies. Cotinine levels that increased by >50% above baseline were recorded during treatment in 746 of 7120 subjects (10.5%). Nausea was reported in 16 subjects (0.2% of the total, upper 99% confidence limit [CL] 0.4%), vomiting in 2 subjects (0.0%, upper 99% CL 0.1%), palpitations in 5 subjects (0.1%, upper 99% CL 0.2%), dizziness in 11 subjects (0.2%; upper 99% CL 0.3%), and headache in 35 subjects (0.5%, upper 99% CL 0.7%).

Comment (BC): In my experience, smokers are often nervous about using the full recommended dose of NRT because they are worried about potentially overdosing themselves. The fact that side effects were rare (less than 1%) in this review of safety data, even among smokers whose cotinine levels were high, can be used to reassure smokers about the safety of using the maximal recommended dose and duration of NRT.

Reference: Nicotine Tob Res. 2014;16(9):1266-71
Abstract