Smoking Cessation Research Review™

RESEARCH REVIEW 10 YEARS
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Issue 24 – 2016

In this issue:

Abbreviations used in this issue
NRT = nicotine replacement therapy
OR = odds ratio
pMDI = pressurised metered-dose inhaler

Welcome to issue 24 of Smoking Cessation Research Review.

Encouraging findings suggest that varenicline may increase smoking abstinence rates in light smokers (5–10 cigarettes per day). However, since the study was conducted in a small cohort of predominantly White cigarette smokers, it will be interesting to see whether the results can be generalised to a larger population that is more representative of the real world.

Computer-generated counselling letters that target smoking reduction effectively promote future cessation, report European researchers. Their study enrolled smokers who did not intend to quit within the next 6 months. At the end of this 24-month investigation, 6-month prolonged abstinence was significantly higher amongst smokers who received individually tailored letters compared with those who underwent follow-up assessments only.

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

Kind Regards,

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Independent commentary by Dr Brent Caldwell.
Brent Caldwell was a Senior Research Fellow at Wellington Asthma Research Group, and worked 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 Honorary Associate Professor 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. 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. **FOR FULL BIO CLICK HERE.**

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.

Have combustible cigarettes met their match? The nicotine delivery profiles and harmful constituent exposures of second-generation and third-generation electronic cigarette users

Authors: Wagener TL et al.

Summary: Data are reported from a comparison of nicotine delivery profiles of third- (G3) versus second-generation (G2) e-cigarette devices and their users' exposure to nicotine and select harmful/potentially harmful constituents (HPHCs) as compared with cigarette smokers. Baseline cotinine levels were similar between the smokers (n=10), G2 (n=9) and G3 (n=11) users, whereas levels of exhaled carbon monoxide and total 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL) were 4 and 7 times higher, respectively, among smokers as compared with G2 or G3 users (p<0.01 for both comparisons). Compared with G2s, G3 devices delivered significantly higher power to the atomiser, but G3 users vaped e-cigarette liquids with significantly lower nicotine concentrations. Following a 12-hour nicotine abstinence, G2 and G3 users completed a 2-hour vaping session (i.e. 5 min, 10-puff bout followed by ad libitum puffing for 115 min). Plasma nicotine concentrations were significantly higher following the first 10 puffs during the vaping session among G3 users compared with G2 users (17.5 vs 7.3 ng/mL) and also at 25 and 40 min of ad libitum use. G3 users consumed a significantly higher amount of e-liquid compared with G2 users. In both device groups, vaping urges/withdrawal were reduced following 10 puffs; there were no significant between-group differences.

Comment (NW): Vaping retailers tend to recommend to naïve e-cigarette users to start with a 2nd-generation device due to their ease of use, then transition at a later stage to the more complex 3rd-generation devices. The findings from this paper highlight the opportunity e-cigarettes pose to significantly reduce tobacco-related harm. The Ministry of Health has recently posted information for healthcare workers around e-cigarettes – an important document to read (the document is located at the bottom of this webpage: http://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/e-cigarettes).

Reference: Tob Control. 2016 Oct 11 [Epub ahead of print]
Abstract

Depression motivates quit attempts but predicts relapse: differential findings for gender from the International Tobacco Control Study

Authors: Cooper J et al.

Summary: Using data from 6811 tobacco smokers who participated in Waves 5-8 of the Four Country International Tobacco Control Study (involving smokers from Canada, USA, UK and Australia), this analysis examined whether signs of current depression predict attempts to quit smoking, and short-term abstinence among those who try, and tested moderating effects of gender and cessation support (pharmacological and behavioural). Depression increased the odds of making quit attempts. After controlling for all covariates, depression consistently negatively predicted abstinence. This effect was not affected by cessation support. In an analysis controlling for demographics, there was a significant interaction with gender for quit attempts (p=0.018) and 1-month abstinence among attempters (p=0.049). Whereas depression did not predict abstinence among men, women with depressive symptoms (OR 0.63, 95% CI, 0.49 to 0.81) or a diagnosis of depression (OR 0.46; 95% CI, 0.34 to 0.63) were more likely to relapse in the first month.

Comment (NW): This study highlights the importance of discussing smoking cessation with patients who smoke and have depressive symptoms or a diagnosis of depression. This population wants to quit, despite many people assuming they don't. However, intense focus needs to be placed on relapse prevention. I would suggest continued reinforcement with patients of the importance of smoking cessation medication compliance (even if they have a brief lapse back to smoking). The current NZ smoking cessation guidelines state "There is insufficient evidence to recommend any specific relapse prevention interventions." I would suggest extended treatment with varenicline as a first point of call, based on a Cochrane review of relapse prevention interventions for smokers which found only extended treatment with varenicline combined with behavioural support had an impact on smoking relapse (one trial, placebo-controlled, n=1210, 12 months abstinence, RR=1.18; 95% CI, 1.03-1.36). I think a discussion about e-cigarettes would also be sensible, if the habitual hand-to-mouth action of smoking is hard to break.

Reference: Addiction. 2016;111(8):1438-47
Abstract

A smoking cessation programme for current and recent ex-smokers following diagnosis of a potentially curable cancer

Authors: Ong J et al.

Summary: This study recruited 71 current smokers and recent quitters (<30 days) who had commenced treatment for a potentially curable cancer. The study researchers assessed the impact on quit rates of a tailored smoking-cessation intervention, which involved an initial motivational interview, regular follow-up and pharmacotherapy when appropriate. Forty-one patients (58%) had a smoking-related cancer. Quit rates were measured at 1, 3, 6 and 12 months by self-reported abstinence and biochemical confirmation. The rate of prolonged abstinence at 12 months was 24%. Factors associated with successful quitting included being in the preparation or action phase of readiness to change at study entry (p=0.012) and having complications of treatment requiring hospitalisation (p=0.024). Between baseline and 12 months, quitters reported improvement in self-control (p<0.001) and reduced levels of distress (p=0.03) compared to non-quitters.

Comment (NW): It's not rocket science to work out that anyone with a smoking-related disease will still benefit from a smoking cessation intervention. We must take every opportunity to take advantages of "teachable moments" and provide intensive cessation support combined with relapse prevention for these populations. I'm not a fan of the "stages of readiness for change" – we know that people are fluid in their level of motivation to quit smoking, and change can happen within a minute – so best to deliver support to everyone, and not wait until they are in the right "stage".

Reference: Intern Med J. 2016;46(9):1089-96
Abstract

Efficacy of a nurse-delivered intervention to prevent and delay postpartum return to smoking: The Quit for Two Trial

Authors: Pollak KI et al.

Summary: In this study, 382 pregnant women who had spontaneously quit smoking were randomly assigned to either a smoking abstinence booklet plus newsletters about parenting and stress (control) or a nurse-delivered smoking abstinence intervention that differed in intensity, according to whether the women were at low or high risk of returning to smoking. Intent-to-treat analyses revealed a high rate of biochemically-validated smoking abstinence at 12 months postpartum, with no between-group differences (Control: 36% vs Intervention: 35%; p=0.81). Among women at low risk of returning to smoking, the crude abstinence rate was significantly higher among controls (46%) than among women in the intervention group (33%); among those at high risk of returning to smoking, the crude abstinence rate was slightly lower but not significantly different in the control group (31%) versus the intervention group (37%).

Comment (NW): Helping pregnant women quit smoking and preventing postpartum relapse back to smoking is a 'tough nut to crack'. There are few trials in the area, often with weak or no evidence of effect or evidence of only a short-term effect. The findings from this study highlight the importance of thinking long-term when discussing relapse prevention. For this trial, they developed support out to 9 months postpartum, so as to support women at times of high relapse risk (e.g. returning to work – typically at 3 months; stopping breastfeeding – typically at 6 months).

Reference: Nicotine Tob Res. 2016;18(10):1960-6
Abstract

Varenicline for smoking cessation in light smokers

Authors: Ebbert JO et al.

Summary: This study randomised 93 light smokers (5–10 cigarettes per day) to either varenicline or placebo for 12 weeks. At the end of treatment, 48% of participants were evaluable for efficacy. Point prevalence smoking abstinence rates at 12 weeks were 53.3% with varenicline and 14.5% with placebo (OR 6.69; 95% CI, 2.48 to 18.06; p<0.001); the prolonged smoking abstinence rates were 40.0% and 8.3%, respectively (OR 7.33; 95% CI, 2.24 to 23.98; p=0.001). At 6 months, the point prevalence smoking abstinence rates were 40.0% with varenicline and 20.8% with placebo (OR 2.53; 95% CI, 1.01 to 6.34; p=0.047); the prolonged smoking abstinence rates were 31.1% and 8.3%, respectively (OR 4.97; 95% CI, 1.49 to 16.53; p=0.009). The estimated magnitude of the treatment effect remained consistent across the various missing data assumptions and in gender-adjusted analyses. Nausea and sleep disturbance were more common with varenicline.

Comment (NW): The current NZ guidelines around prescribing of NRT recommend that people smoking less than 10 cigarettes per day should be offered 2mg nicotine gum, 1mg nicotine lozenge or 14mg patch (if their first cigarette is after one hour of waking) or 21mg patch with either 2mg nicotine gum or 1mg nicotine lozenge (if their first cigarette is within one hour of waking). This small trial suggests that varenicline may be another option, although one should note that the trial was undertaken in a predominately white, well-educated population, and excluded priority populations (i.e. those with certain cardiac conditions, kidney disease, cancer, and certain mental health conditions), so it remains unknown how generalisable the findings are.

Reference: Nicotine Tob Res. 2016 Apr 26 [Epub ahead of print]
Abstract

Combination nicotine metered dose inhaler and nicotine patch for smoking cessation: a randomized controlled trial

Authors: Caldwell BO, Crane J

Summary: In this study, 552 adults (aged ≥18 years) were randomly assigned to receive either a simple non-proprietary pressurised metered-dose inhaler (pMDI) containing nicotine plus a nicotine patch for smoking cessation (n=246), or a placebo inhaler plus a nicotine patch (n=256). All participants smoked ≥9 cigarettes per day and wanted to quit. Subjects were instructed to use the aerosols for 6 months when they felt an urge to smoke and the patches daily for 5 months, reduce their smoking and quit by the end of the fourth week. Subjects were followed for 7 months. The primary outcome (defined as not smoking for 7 consecutive days during the prior 6 months) was achieved by 78 (31.71%) participants in the active treatment group as compared with 46 (17.97%) in the control group (OR 2.12; 95% CI, 1.40 to 3.23). Adverse events were reported by 245 (99.6%) and 247 (96.5%) subjects in the active treatment and control groups, respectively. Mild coughing, which decreased with regular use, was common with the nicotine aerosols.

Comment (BC): This simple, non-proprietary metered-dose inhaler more than doubled quit rates compared to active nicotine patch. A Cochrane review found that, collectively, standard NRTs when added to nicotine patch therapy only increase abstinence by 1.43 times. The inhaler gives people the quick hit of relatively safe nicotine without the danger of myriad toxins from smoking, unlike other NRTs that drip-feed nicotine and provide no pleasure. The inhaler is non-proprietary, which is a blessing and a curse. It ensures no-one can put a high margin on it, but it also means no-one who is motivated by profit will manufacture it. Ideally, the government would establish a company akin to Kiwibank to manufacture it in the public's interest. If the government required a profit motive it could tax the inhaler like it taxes cigarettes.

Reference: Nicotine Tob Res. 2016;18(10):1944-51
Abstract

Smoking prevalence in New Zealand from 1996–2015: a critical review of national data sources to inform progress toward the Smokefree 2025 goal

Authors: Ball J et al.

Summary: These researchers reviewed trends in smoking prevalence from 1996 to 2015 among adult New Zealanders (aged ≥15 years), based on three national data sets: the New Zealand Census (Census) conducted by Statistics New Zealand, which included questions on tobacco use in 1996, 2006, and 2013; the Ministry of Health's New Zealand Health Survey (NZHS) which was conducted in 1996/7, 2002/3, 2006/7 and as a rolling study since 2011/12 (reporting annually); and the Health and Lifestyles Survey (HLS) conducted by the Health Promotion Agency (HPA) every 2 years since 2008. The research compared key features of the surveys (e.g. sample size, ethnicity classification), examined composite trends across surveys, and analysed differences between and within surveys over time. Both the Census and HNHS show a decreasing prevalence of smoking over the past 18 years, from around 23–25% in 1996/97 to around 15% in 2014/15. The HLS data are broadly consistent with these findings. However, important inconsistencies exist for daily smoking prevalence trends by ethnicity in the period from 2006 to 2015, with the Census suggesting more encouraging results for declines in smoking amongst Māori and Pacific peoples than the NZHS data, which indicate there has been no statistically significant change amongst these groups since 2006/07.

Comment (BC): This paper highlights the need for the government to fund good quality surveys of smoking. It is essential that we are roused and agitated to action by the minimal and inequitable reduction in smoking prevalence over the past twenty years. We need new and more effective tools to be added to our public health armamentarium. All we have are taxes, plain packaging, nicotine replacement therapies that only help 10% of smokers to quit for a year, and dissuasive health promotion that seems to be as effective as dissuasion was against venereal disease in the Great War. We must fight to victory with our nicotine metered-dose inhalers!

Reference: N Z Med J. 2016;129(1439):11-22
Abstract

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Association between electronic cigarette use and changes in quit attempts, success of quit attempts, use of smoking cessation pharmacotherapy, and use of stop smoking services in England: time series analysis of population trends

Authors: Beard E et al.

Summary: This analysis included smokers registered with the Smoking Toolkit Study, which involves repeated, cross-sectional household surveys of individuals aged ≥16 years in England. Data were aggregated on about 1200 smokers quarterly between 2006 and 2015. Data were also obtained from the national behavioural support programme (NHS smoking cessation services); during the study period, 8,029,012 smokers set quit dates with this programme. The analysis sought to determine the extent to which changes in the prevalence of e-cigarette use have been associated with changes in quit success, quit attempts, and use of licensed medication and behavioural support in quit attempts. The success rate of quit attempts increased by 0.098% (p<0.001) and 0.058% (p<0.001) for every 1% increase in the prevalence of e-cigarette use by smokers and e-cigarette use during a recent quit attempt, respectively. No clear associations were observed between the rate of quit attempts and use of e-cigarettes (β 0.025; p=0.41), use of NRT bought over the counter (β 0.006; p=0.89), use of prescription treatment (β –0.070; p=0.10), or use of behavioural support (β –0.013; p=0.78). There was a negative association between e-cigarette use during a recent quit attempt and use of NRT obtained on prescription (β –0.098; p=0.04).

Comment (BC): Beard and colleagues found that the success rate of quit attempts improved by 1% for every 1% increase in prevalence of e-cig use among English smokers. Therefore, if we could get 100% of Kiwi smokers to use e-cigs, we may increase their quit success by 100% – what are we waiting for? Let's normalise and mainstream the use of safe, rewarding sources of nicotine, like e-cigs and the nicotine metered-dose inhaler. Some people feel uncomfortable with the widespread provision of enjoyable and potentially addictive nicotine delivery devices, just as some groups were ill at ease with the provision of safer sex to soldiers during WWI, because it "made vice safe". Heaven forfend the moralists!

Reference: BMJ. 2016;354:i4645
Abstract

Motivating parents of kids with asthma to quit smoking: the effect of the teachable moment and increasing intervention intensity using a longitudinal randomized trial design

Authors: Borrelli B et al.

Summary: This US study enrolled parents of asthmatic (n=341) or healthy (n=219) children who did not have to want to quit smoking. All parents received two home visits (asthma education or child wellness), and cessation induction using motivational interviewing and second-hand smoke exposure (SHSe) feedback. Parents of children with asthma who experienced a 'teachable moment' (child's asthma exacerbation) and motivational smoking cessation counselling plus SHSe feedback were more than twice as likely to achieve 30-day (OR 2.60; 95% CI, 1.22 to 5.54) and 7-day point prevalence abstinence (ppa) (OR 2.26; 95% CI, 1.13 to 4.51) at 2 months versus parents of healthy children who received the same counselling and SHSe feedback. Post-home visits, parents with asthmatic children were randomised to receive greater intervention intensity with either 6 asthma education telephone calls alone (n=171) or enhanced by 6 smoking cessation calls and repeat SHSe feedback (n=170). The long-term intervention was more likely to achieve 30-day ppa at 4 months (OR 2.12; 95% CI, 1.09 to 4.12) and better asthma outcomes versus the short-term intervention.

Comment (BC): The results of this trial are particularly relevant to New Zealand with our high childhood asthma prevalence. Although the interventions in this trial are probably too intensive to be implemented here, and their effects on smoking cessation only lasted for two months, this trial is useful in demonstrating that a child's admission with an asthma exacerbation is a particularly effective time to deliver smoking cessation support to their parents who smoke, even if their parents are currently unmotivated to quit. Had the active groups in this trial been given more of an emphasis on NRT, the effect on cessation may have been more durable.

Reference: Addiction. 2016;111(9):1646-55
Abstract

Motivating smokers to quit using computer-generated letters that target either reduction or cessation: A population-based randomized controlled trial among smokers who do not intend to quit

Authors: Meyer C et al.

Summary: In this study, 1462 adult smokers (48% female) who did not intend to quit within the next 6 months and who smoked ≥10 cigarettes per day were randomised to 1 of 2 intervention groups or an assessment-only control condition. The interventions consisted of 3 individualised counselling letters that targeted either smoking abstinence or reducing the number of cigarettes smoked per day to promote future cessation. The letters were sent after study entry and at follow-up assessments after 3 and 6 months. At 24 months' follow-up after study inclusion, data on smoking status were provided by 77% of the participants. At this time, 7-day point abstinence rates were 8.4%, 12.9% and 14.7% in the control, abstinence intervention and reduction intervention conditions, respectively, corresponding to numbers needed to treat of 22 and 16. In generalised estimation equation analyses adjusted for potential baseline confounders, the smoking reduction intervention (OR_{adj} 2.3; p<0.01) increased the odds of 6-month prolonged abstinence compared with the control condition; the abstinence intervention had no such effect (OR_{adj} 1.4; p=0.20). No significant between-group differences were observed for the interventions.

Comment (BC): This study adds to existing research that has shown giving advice to reduce smoking does not undermine abstinence but in fact promotes abstinence. Interestingly, this trial showed advice to reduce smoking is even effective without NRT! This is likely to be an inexpensive way to reach a lot of smokers all at once: letters can be computer-generated, and Computer Assisted Telephone Interviews are much cheaper than staffing a call centre. Imagine its potential effect if the letter came with a free nicotine metered-dose inhaler!

Reference: Drug Alcohol Depend. 2016;166:177-86
Abstract

Time spent reading this publication has been approved for CME for Royal New Zealand College of General Practitioners (RNZCGP) General Practice Educational Programme Stage 2 (GPEP2) and the Maintenance of Professional Standards (MOPS) purposes, provided that a Learning Reflection Form is completed. Please **CLICK HERE** to download your CPD MOPS Learning Reflection Form. One form per review read would be required.

Time spent reading this publication has been approved for CNE by The College of Nurses Aotearoa (NZ) for RNs and NPs. For more information on how to claim CNE hours please **CLICK HERE**.