Smoking Cessation Research Review™

Making Education Easy

Issue 15 – 2014

In this issue:

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Welcome to the fifteenth issue of Smoking Cessation Research Review.

One of the papers that we have included in this issue reports that an internet-based smoking cessation intervention targeted to pregnancy – 'MumsQuit' – is an engaging and potentially helpful form of support for pregnant women who seek cessation support online. These findings are encouraging and warrant conducting a larger trial of MumsQuit intervention. As the study authors note, however, the recruitment rate for this pilot study was low, requiring 18 months to reach the target sample size. They call for future work to identify better ways of recruiting and retaining pregnant smokers in studies of online interventions.

Another paper shows that the adoption of a pharmacotherapy coverage drug policy proved to be an effective intervention for improving 26-week quit rates in Canada. It would be worth testing this strategy 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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Exploring the potential for the drift of secondhand smoke from outdoor to indoor dining areas of restaurants in New Zealand

Authors: van der Deen FS et al.

Summary: This study investigated the issue of possible secondhand smoke (SHS) drift in restaurant settings. The researchers measured fine particulates ($PM_{2.5}$ µg/m^3) of SHS with real-time aerosol monitors as a marker of SHS in outdoor dining/smoking areas and the adjacent indoor dining areas (where smoking is banned) of 8 restaurants in the urban centre of Wellington. Related background data were collected, including number of smokers, time windows/doors were open, etc. Highest overall mean $PM_{2.5}$ levels were observed in the outdoor dining areas (38 µg/m^3), followed by the adjacent indoor areas (34 µg/m^3), the outdoor ambient air (22 µg/m^3) and the indoor areas at the back of the restaurant (21 µg/m^3). Significantly higher $PM_{2.5}$ levels were found at indoor areas near the entrance compared to indoor near the back of the restaurant ($p=0.006$) and in the outdoor smoking areas compared to outdoor ambient levels ($p<0.001$). Mean $PM_{2.5}$ levels did not differ significantly between outdoor smoking areas and adjacent indoor areas ($p=0.149$).

Comment (NW): This study supports previous research that smokefree restaurants do not protect diners inside from SHS exposure, as smoke can drift inside via connecting open doors and windows. I've recently noticed a few restaurants have voluntarily started saying that outdoor dining areas are also smokefree. It would be great if councils starting pushing this cause further by insisting no smoking is allowed within a certain distance of any exit, entrance, opening windows and vents. Anyone who has been to California where such rules apply will understand the enjoyment of being able to sit outside a cafe and have a coffee without having to also inhale your neighbour's cigarette smoke.

Reference: N Z Med J 2014;127(1396):43-52
Abstract

Effectiveness of proactive quitline counselling for smoking parents recruited through primary schools

Authors: Schuck K et al.

Summary: For this study, researchers in the Netherlands recruited smoking parents through their children's primary schools and randomly allocated the parents to either intensive quitline telephone counselling in combination with tailored supplementary materials (n=256) or a standard self-help brochure (n=256). Parents who received quitline counselling were more likely to report 7-day point-prevalence abstinence at the 12-month assessment (34% vs 18%; odds ratio [OR] 2.35) and were more likely to use nicotine replacement therapy (NRT) (p<0.001) than those who received a standard self-help brochure. Among parents who did not achieve abstinence, those who received quitline counselling smoked fewer cigarettes at both the 3-month and 12-month assessments (p<0.001 for both comparisons) and were more likely to make a quit attempt (p<0.001), to achieve 24 hours' abstinence (p<0.001) and to implement a complete home smoking ban (p<0.01).

Comment (NW): This trial is all about taking advantage of a 'teachable' moment to deliver smoking cessation support, with smoking parents of children aged 9–12 identified via schools. The intervention was very intensive (consisting of seven Quitline-initiated telephone calls over three months, plus three accompanying booklets focusing on being a 'Smoke-free parent' delivered at three time-points over six weeks) but was highly effective. Clearly, such an intervention should be considered in New Zealand, with full advantage taken of any other 'teachable' moments to engage with smoking parents (e.g., those parents who have children in hospital with acute respiratory illness).

Reference: Addiction 2014;109(5):830-41
Abstract

Linking birth records to hospital admission records enhances the identification of women who smoke during pregnancy

Authors: Tran DT et al.

Summary: This study linked 846,039 birth records in New South Wales, Australia (2001 through 2010) to hospital admission records (delivery and antenatal), in order to investigate the extent to which combining these data enhances the identification of pregnant smokers, and whether this affects research findings such as estimates of maternal smoking prevalence and risk of adverse pregnancy outcomes associated with smoking. Algorithm 1 combined data from birth and delivery admission records, whereas algorithm 2 combined data from birth record, delivery and antenatal admission records. Algorithm 1 identified 127,612 smokers (smoking prevalence 15.1%), which was a 9.6% and 54.6% increase over the unenhanced identification from birth records alone (prevalence 13.8%), and delivery admission records alone (prevalence 9.8%), respectively. Algorithm 2 identified a further 2408 smokers from antenatal admission records. The enhancement varied by maternal sociodemographic characteristics (age, marital status, country of birth, socioeconomic status); obstetric factors (multi-fetal pregnancy, diabetes, hypertension); and maternity hospital.

Comment (NW): The issue of 'social desirability bias' means that it is becoming increasingly difficult to identify pregnant women that smoke. Routinely collected health records are valuable resources for identifying such women. This study found that linking health data from multiple sources is much more likely to identify pregnant women that smoke than relying on a single data source, particularly for older mothers, immigrants from non-English speaking countries, those who live in high socioeconomic areas, those who have a high-risk pregnancy, and those giving birth in private or rural hospitals. We need to bear this issue in mind when reporting the prevalence of pregnant women that smoke – if a single data source is used then the prevalence will be significantly underestimated.

Reference: Aust N Z J Public Health 2014;38(3):258-64
Abstract

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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.

Pilot randomized controlled trial of an internet-based smoking cessation intervention for pregnant smokers ('MumsQuit')

Authors: Herbec A et al.

Summary: These researchers evaluated a novel online intervention targeted to quitting smoking in pregnancy – 'MumsQuit'. Between March 2013 and October 2013, 200 UK-based pregnant adult smokers aged ≥18 years were recruited online and randomly allocated to MumsQuit (n=99) or an information-only website (n=101). At baseline, participants smoked 15 cigarettes per day on average, 73% were in the first trimester of their pregnancy, 48% were from lower socioeconomic backgrounds, and 43% had never used evidence-based cessation support. Four-week continuous abstinent rates were higher with MumsQuit than with the control intervention (28.3% vs 20.8%), resulting in a point estimate of odds ratio of 1.5 (95% CI, 0.8 to 2.9). Compared with controls, women in the MumsQuit group logged in more often (3.5 vs 1.3; p<0.001), viewed more pages (67.4 vs 5.7; p<0.001) and spent more time browsing the website (21.3 min vs 1.0 min; p<0.001).

Comment (NW): Those of you who like Robert West's PRIME theory of motivation and addiction will enjoy seeing this theory used in a novel online intervention targeted to quitting smoking in pregnancy ('MumsQuit'). The intervention is interactive, personalised, and structured, and designed to emulate the support from an expert smoking cessation advisor from NHS Stop Smoking Services. Web-based health interventions are well known to suffer from low engagement and high dropout over time, and this trial was no different. Recruitment was typically slow for this population (taking 18 months to recruit 200 women), and 34% were lost to follow-up after 8 weeks. However, women allocated to the 'MumsQuit' intervention did engage more with the programme than those allocated a brief advice control website. These findings suggest the intervention merits further development and evaluation in a larger trial.

Reference: Drug Alcohol Depend 2014;140:130-6
Abstract

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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.

Efficacy of varenicline combined with nicotine replacement therapy vs varenicline alone for smoking cessation

Authors: Koegelenberg CFN et al.

Summary: These researchers randomly assigned 446 generally healthy smokers to nicotine or placebo patch treatment 2 weeks before a target quit date (TQD) and continued for a further 12 weeks. Varenicline was begun 1 week prior to TQD, continued for a further 12 weeks, and tapered off during week 13. The efficacy and safety analyses included 435 participants. Active combination treatment was associated with a higher continuous abstinence rate at 12 weeks (as confirmed by exhaled carbon monoxide measurements; 55% vs 41%; p=0.007), after an additional 12 weeks' follow-up (49% vs 33%; p=0.004), and point prevalence abstinence rate at 6 months (65% vs 47%; p=0.002), compared with varenicline alone. The combination treatment group experienced a numerically greater incidence of nausea, sleep disturbance, skin reactions, constipation, and depression, with only one significant between-group difference (skin reactions, 14.4% vs 7.8%; p=0.03); the varenicline-alone group experienced more abnormal dreams and headaches.

Comment (NW): The results of this trial have come as a surprise, given two previous but much smaller studies (n=93 and 120) found no additional benefit of adding varenicline to NRT. What remains unclear is how the additive efficacy of combining the two medications works. It has been hypothesised that nAChR partial agonists like varenicline do not saturate all nicotine receptors and so combining a nAChR partial agonist and NRT may in theory improve withdrawal relief; help to extinguish smoking rewards and lower the risk of lapses translating into relapse; and/or NRT may reduce some withdrawal symptoms which are less sensitive to varenicline and vice versa. The latest New Zealand smoking cessation guidelines state that there is "insufficient evidence to recommend using varenicline with any other stop-smoking medication". This statement may need to be reviewed, given the findings from this trial.

Reference: JAMA 2014;312(2):155-61
Abstract

A pragmatic, randomized, controlled study evaluating the impact of access to smoking cessation pharmacotherapy coverage on the proportion of successful quitters in a Canadian population of smokers motivated to quit (ACCESSATION)

Authors: Selby P et al.

Summary: This community-based study assessed whether the adoption of a smoking cessation medication coverage drug policy increases the proportion of successful quitters. The trial was conducted at 58 Canadian sites between March 2009 and September 2010. Smokers (≥10 cigarettes/day) without insurance coverage who were motivated to quit within 14 days were randomised to receive either full coverage eligibility for 26 weeks (n=696) or no coverage (n=684). Pharmacotherapies covered were varenicline, bupropion, or nicotine patches/gum. All participants received brief smoking cessation counselling. A total of 682 subjects (98%) in the full coverage group and 435 (64%) in the no coverage group were dispensed at least one smoking cessation medication dose. Significantly more participants in the full coverage versus no coverage group achieved the primary endpoint of 7-day point prevalence of abstinence (PPA) at week 26 (21% vs 14%; OR 1.64; 95% CI, 1.23 to 2.18; p=0.001). The difference remained significant for urine cotinine-confirmed 7-day PPA at week 26 (16% vs 10%, respectively; OR 1.68; 95% CI, 1.21 to 2.33; p=0.002). After withdrawal of coverage eligibility at week 26, continuous abstinence rates between weeks 26 and 52 were no longer significantly different between the groups (7% in the full coverage group vs 6% in the no coverage group; OR 1.19; 95% CI, 0.76 to 1.87; p=0.439).

Comment (BC): Although subsidised NRT is available to all NZ smokers, from my experience many smokers are put off by the $5 cost of redeeming a quit card at the chemist, particularly Māori, those from a low socioeconomic background, younger smokers and those on the pension. The cost is particularly high for smokers who need pre-cessation NRT, because they have the cost of cigarettes plus NRT. I would encourage all PHOs to order free NRT from PHARMAC ONLINE to give to their smokers, to limit the cost barrier, and encourage smokers to use plenty of NRTs for a long enough duration to help them quit and remain abstinent. In this trial, cost was a huge barrier for smokers who were motivated to quit – imagine what a barrier cost must be for smokers who are not so motivated!

Reference: BMC Public Health 2014;14:433
Abstract

Evaluating the effect of access to free medication to quit smoking: a clinical trial testing the role of motivation

Authors: Jardin BF et al.

Summary: The results of this study suggest that the distribution of smoking cessation medications should not be limited to only those smokers interested in quitting. The trial recruited 157 current smokers. Motivated smokers wanting to quit in the next 30 days were given a 2-week NRT sample and a referral to a quitline (Group MNQ), while unmotivated smokers were randomised to receive the same treatment (Group UNQ) or a quitline referral only (Group UQ). During the following 3 months, participants were tracked via telephone to assess quitting behaviours and smoking reduction. Between-group comparisons were significant concerning the incidence of any quit attempt (MNQ: 77%, UNQ: 40%, UQ: 18%, p<0.05) and any 24 h quit attempts (62%, 32% and 16%, respectively; p<0.05). Clinically meaningful differences were observed in the rates of floating (19%, 17% and 6%, respectively) and point prevalence abstinence (17%, 15% and 5%, respectively). Daily cigarette consumption was reduced by at least half in a significantly greater proportion of participants in Group MNQ (48%) and Group UNQ (31%) compared with those in Group UQ (11%; p=0.01 for both comparisons). Proxy measures of cessation readiness (e.g., motivation) favoured participants receiving active forms of treatment.

Comment (BC): More evidence that smokers who are not motivated to quit should be offered a free sample of NRT as well as a referral to Quitline! Abstinence among unmotivated smokers could be further improved by giving them a range of NRTs to sample right away at the clinic, to allow clinicians to make sure smokers use them correctly to maximise efficacy and minimise side effects, and to allow smokers to overcome fears and misconceptions about NRT and enable them to choose the NRTs that they enjoy the most, thereby increasing the chance that they will continue to use them often enough to help them quit.

Reference: Nicotine Tob Res 2014;16(7):992-9
Abstract

Proactive tobacco treatment and population-level cessation. A pragmatic randomized clinical trial

Authors: Fu SS et al.

Summary: The Veterans Victory Over Tobacco Study randomised 6400 current smokers aged 18–80 years to usual care or proactive care. Proactive care combined (1) proactive outreach and (2) offer of choice of smoking cessation services (telephone or in-person). Proactive outreach included mailed invitations followed by telephone outreach to motivate smokers to seek treatment with choice of services. Responses from 5123 participants were evaluable for the primary analysis of 6-month prolonged smoking abstinence at 1 year. Rates were higher with proactive care compared with usual care (14% vs 11%; p=0.02). Logistic regression mixed model analysis revealed a significant effect of the proactive care intervention on 6-month prolonged abstinence (OR 1.27; 95% CI, 1.03 to 1.57). In analyses accounting for nonresponse using likelihood-based not-missing-at-random models, the effect of proactive care on 6-month prolonged abstinence persisted (OR 1.33; 95% CI, 1.17 to 1.51).

Comment (BC): Proactively contacting all smokers enrolled in healthcare regardless of their motivation to quit, providing motivational interviewing at the first telephone contact and frequently thereafter, plus provision of combination NRT and counselling, were the key features that led to higher floating prolonged 6-month abstinence in this trial. All of these techniques could be immediately implemented in NZ. The use of a single specialist centre to provide the telephone motivational interviewing and ongoing support, not only ensures that the support is of a consistently high quality, it also makes it much more feasible because it reduces the workload on primary care.

Reference: JAMA Intern Med 2014;174(5):671-7
Abstract

Time-varying processes involved in smoking lapse in a randomized trial of smoking cessation therapies

Authors: Vasilenko SA et al.

Summary: These researchers used a new statistical method, the logistic time-varying effect model (logistic TVEM), to examine ecological momentary assessment (EMA) data on smoking rates among 1106 subjects who achieved initial abstinence while participating in a randomised, placebo-controlled trial of smoking cessation pharmacotherapies. Participants completed up to 4 EMA assessments per day during the 2 weeks after their quit day. Predictors of smoking included baseline nicotine dependence, EMA measures of craving and negative affect, and whether the study participant was assigned to a placebo, monotherapy, or combination therapy condition. In logistic TVEM estimates of the time-varying effects of these predictors, cravings were a significant predictor of smoking throughout the entire 2 weeks after quitting, whereas the effect of baseline dependence was no longer significant by the second week, and the effect of negative affect increased over time. Although subjects in the monotherapy and combination therapy conditions were less likely to be smoking compared with placebo-treated subjects in the first week after quitting, these differences were no longer significant in the second week.

Comment (BC): Unfortunately, this analysis did not examine treatment compliance. It is likely that the effect of craving and negative affect (both withdrawal symptoms) on promoting early relapse could be ameliorated by encouraging greater compliance with NRT, use of higher doses of NRT, and provision of counselling to improve mood. These treatments should be offered regardless of patients' level of nicotine dependence, because nicotine dependence lost its effect on relapse at around the same time that negative affect started to become significant in this study. Perhaps we should forewarn smokers of the dangers of low mood and craving occurring a week after quitting?

Reference: Nicotine Tob Res 2014;16 Suppl 2:S135-43
Abstract

Secondhand exposure to vapors from electronic cigarettes

Authors: Czogala J et al.

Summary: These researchers sought to determine the secondhand exposure to nicotine and other tobacco-related toxicants from electronic cigarettes (e-cigarettes). They measured selected airborne markers of secondhand exposure: nicotine, aerosol particles ($PM_{2.5}$), carbon monoxide, and volatile organic compounds in an exposure chamber. E-cigarette vapour was generated from 3 e-cigarette brands using a smoking machine and controlled exposure conditions. Secondhand exposure was also compared between e-cigarette vapour and tobacco smoke generated by 5 dual users. The analyses revealed that e-cigarettes are a source of secondhand exposure to nicotine but not to combustion toxicants. The air concentrations of nicotine emitted by the e-cigarette brands ranged from 0.82 to 6.23 μg/m^3. The average concentration of nicotine resulting from smoking tobacco cigarettes was 10 times higher than from e-cigarettes (31.60 vs 3.32 μg/m^3, respectively; p=0.0081).

Comment (BC): This study confirms the findings of other trials, and allays fears that second-hand exposure to e-cig vapour could undermine the health benefits of non-smoking environments. E-cig vapour in smoke-free environments will not expose other people to appreciable risk, neither will it undermine quitting smoking in those who use e-cigs in these environments. Trials have shown that people who use NRT, such as e-cigs, to help them deal with urges and withdrawal symptoms and achieve temporary abstinence, are more likely to go on to quit smoking than smokers who temporarily abstain from smoking without using NRT.

Reference: Nicotine Tob Res 2014;16(6):655-62
Abstract