Smoking Cessation Research Review™

Making Education Easy

Issue 16 – 2014

In this issue:

Welcome to the sixteenth issue of Smoking Cessation Research Review.

One of the studies that we comment upon in this issue demonstrates that secondhand smoke remains in household air for a considerable period of time after smoking a cigarette; it takes around an hour for at least half the smoke to dissipate.

In another study, good evidence shows that female smokers have an increased risk of developing breast cancer after menopause. Women without a family history of breast cancer or late menarche (≥15 years) were at particularly high risk.

Other topics covered in this issue include an investigation into posting behaviour patterns in on online smoking cessation social network in New Zealand, and a characterisation of patterns of friendships among smokers from low socioeconomic groups.

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

Kind Regards,

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Natural history of attempts to stop smoking

Authors: Hughes JR et al.

Summary: These US researchers explored the complexity of smoking cessation in this prospective study, which recruited 152 tobacco smokers who intended to quit within the next 3 months. Participants called in nightly over a 12-week period to an Interactive Voice Response system to report cigarettes/day, quit attempts, and intentions to smoke or not for the next day. No treatment was provided. During the study period, 60% of smokers made multiple transitions among smoking, reduction, and abstinence. Intention to not smoke or quit often did not result in a quit attempt but were nevertheless strong predictors of a quit attempt and eventual abstinence. Most quit attempts (79%) lasted less than 1 day; about one-fifth (18%) of the participants were abstinent at 12 weeks. The majority of quit attempts (72%) were not preceded by an intention to quit. Such quit attempts were shorter than quit attempts preceded by an intention to quit (<1 day vs 25 days). Most smokers (67%) used a treatment, and use of a treatment was associated with greater abstinence (14 days vs 3 days). Making a quit attempt and failing early predicted an increased probability of a later quit attempt compared to not making a quit attempt early (86% vs 67%).

Comment (NW): We should always be careful around categorising smokers' behaviour, e.g. they are motivated to quit vs not motivated to quit or they are in a 'precontemplation stage' vs 'contemplation stage' (for those who follow the Stages of Change model of behaviour change). This study shows that smokers are actually in a constant state of flux around quitting intent and action. A person motivated to quit one minute, may not be five minutes later. I think such 'flux' applies to all health-related behaviour change, be it quitting smoking, reducing alcohol, increasing exercise, etc. The message to people who smoke remains – "quitting is hard but not impossible, keep trying, if you have a brief lapse don't see this as a failure, simply try again". The paper highlights the need to utilise interventions that can be applied very quickly to take advantage of 'moments' where people want to quit, such as mobile phone interventions.

Reference: Nicotine Tob Res. 2014;16(9):1190-8
Abstract

How long does secondhand smoke remain in household air: analysis of $PM_{2.5}$ data from smokers' homes

Authors: Semple S, Latif N

Summary: Data from a series of studies in which fine particulate matter ($PM_{2.5}$) concentrations were measured every minute in homes were analysed by these researchers in order to identify the $PM_{2.5}$ peak produced by secondhand smoke (SHS) from the last cigarette smoked of the day. They calculated the time taken for this peak to reduce by 50% and also the time between the peak and a return to the World Health Organisation's (WHO) 24-h guidance value for $PM_{2.5}$ of 25 μg/m^3. The dataset comprised more than 230 days' worth of 1-minute resolved $PM_{2.5}$ data gathered from 103 smoking households. The researchers identified 140 suitable peaks. The median time for the SHS peak to decay by 50% was 55 minutes, and the median for the peak to reduce to the WHO guidance value for $PM_{2.5}$ was 160 minutes.

Comment (NW): There are very little data examining how long second-hand smoke (SHS) remains in the air within home settings after a cigarette has been smoked. Data from this study, particularly the figures in the paper, provide a powerful message for those of you who are working with families to reduce SHS exposure for children – "it takes an hour for at least half the smoke to go away." I would suspect the same message would apply for SHS smoke exposure in cars and other forms of smoke (e.g. cannabis). These findings help dispel the perception that if other family members avoid the smoker while they smoke, they are not exposed to harm.

Reference: Nicotine Tob Res. 2014;16(10):1365-70
Abstract

How low should you go? Determining the optimal cutoff for exhaled carbon monoxide to confirm smoking abstinence when using cotinine as reference

Authors: Cropsey KL et al.

Summary: The Society for Research on Nicotine and Tobacco's Subcommittee on Biochemical Verification cite 8–10 parts per million (ppm) for exhaled carbon monoxide (CO) as a viable cut-off to determine abstinence. These researchers examined the relationship between CO and cotinine among 662 subjects participating in a smoking cessation clinical trial. A receiver-operating characteristics curve was calculated to determine the percentage of false positives and false negatives at given CO levels when cotinine was used to confirm abstinence. A CO cut-off of 3 ppm (97.1% correct classification) most accurately distinguished smokers from nonsmokers. The 3 ppm cut-off was accurate across race and gender. The standard cut-offs of 8 ppm (14.0% misclassification of smokers as abstainers) and 10 ppm (20.6% misclassification of smokers as abstainers) produced very high false-negative rates and wrongly identified a large part of the sample as being abstinent when their cotinine test identified them as still smoking.

Comment (NW): This paper is included for the benefit of researchers and clinicians who are using exhaled CO as a method to verify smoking abstinence. Normally, 8–10 ppm for CO is considered a viable cut-off, particularly in situations where a "slip/lapse" is acceptable. However, this paper recommends using a much more stringent cut-off (i.e., 3 ppm) in situations where total abstinence is the goal and "slips/lapses" are counted as smoking. The higher cut-off potentially "*quadruples quit rates, dramatically overestimating the effectiveness of our current cessation treatments*".

Reference: Nicotine Tob Res. 2014;16(10):1348-55
Abstract

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.

Electronic cigarettes: review of use, content, safety, effects on smokers and potential for harm and benefit

Authors: Hajek P et al.

Summary: UK Centre for Tobacco and Alcohol Studies researchers systematically reviewed the available evidence (up to February 2014) on the use, content and safety of electronic cigarettes (e-cigarettes), and on their effects on users, to assess their potential for harm or benefit and to extract evidence for future policy guidance. E-cigarette aerosol can contain some of the toxicants present in tobacco smoke, but at much lower levels. Long-term health effects of E-cigarette use are unknown but when compared with cigarettes, are likely to be much less, if at all, harmful to users or bystanders. E-cigarettes are increasingly popular among smokers, but there is no evidence of regular use by never-smokers or by non-smoking children. E-cigarettes enable some users to reduce or quit smoking.

Comment (NW): E-cigarettes have certainly polarised the tobacco control community, with a diverse range of opinions about their use as a cessation aid, their safety, their marketing, and their influence on non-smokers (particularly children and youth) and ex-smokers. The increasing involvement of tobacco companies in the marketing of e-cigarettes has also caused alarm. As a researcher I find it very difficult and time-consuming to wade through all the papers on the subject, sifting the 'evidence' from 'personal opinion'. This paper I believe takes a good evidence-based approach. However, this website (http://www.treatobacco.net/en/page_492.php) is even better: not only is it evidence-based, it is constantly kept updated as new information becomes available.

Reference: Addiction. 2014;109(11):1801-10
Abstract

Cigarette smoking and postmenopausal breast cancer risk in a prospective cohort

Authors: Nyante SJ et al.

Summary: These researchers analysed data from a prospective cohort involving 186,150 women aged between 50 and 71 years who joined the study in 1995–1996. In total, 7481 breast cancers occurred during 10 years of follow-up. In Cox proportional hazards regression analysis, increased breast cancer risk was associated with current (HR 1.19; 95% CI, 1.10 to 1.28) and former (HR 1.07; 95% CI, 1.01 to 1.13) smoking. The current smoking association was stronger among women without (HR 1.24; 95% CI, 1.15 to 1.35) as compared to those with a family history of breast cancer (HR 0.94; 95% CI, 0.78 to 1.13) (p=0.03). The current smoking association was also stronger among those with later (≥15 years: HR 1.52; 95% CI, 1.20 to 1.94) as compared with earlier (≥12 years: HR 1.14; 95% CI, 1.03 to 1.27; 13–14 years: HR 1.18; 95% CI, 1.05 to 1.32) ages at menarche (p=0.03).

Comment (NW): I've included this paper because I know a number of women at the moment who are receiving treatment for breast cancer. All are smokers and all have told me emphatically that smoking is not a risk factor for breast cancer. Really? Well, here's some evidence to show otherwise. Furthermore, researchers last year from the American Cancer Society reported results from a study showing a 24% higher rate of breast cancer among women who smoked. This risk was even higher among those who started smoking young, either before they started menstruating or before having their first child. See here for more details: http://jnci.oxfordjournals.org/content/early/2013/02/26/jnci.djt023.abstract. We really need to make sure women who smoke get and understand this message.

Reference: Br J Cancer. 2014;110(9):2339-47
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.

The Royal New Zealand College of General Practitioners
Endorsed CPD Activity

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.

Posting behaviour patterns in an online smoking cessation social network: implications for intervention design and development

Authors: Healey B et al.

Summary: Improved quit rates have been observed among smokers who have greater social support. These researchers hypothesised that online cessation support networks (OCSNs) may not only support individual quit attempts but could also promote diffusion of smokefree behaviours. They analysed usage patterns relating to 133,096 OCSN interactions during 2011 and 2012 in New Zealand's largest OCSN and explored implications for OCSN intervention design and evaluation. New user activity demonstrated repeating periodic peaks and troughs in aggregate activity that related not only to seasonality (e.g., New Year), but also persistent day-of-week patterns. Activity was highest during the working week but consistently low on Fridays. Activity levels also consistently fell sharply on the weekend (p<0.001 for Saturday and Sunday compared to Monday in each year). Among 2062 unique users, 69 Highly Engaged Users (180+ interactions each) contributed 69% of all OCSN interactions in 2012 compared to 1.3% contributed by 864 Minimally Engaged Users (≤2 items each). The proportion of Highly Engaged Users increased with network growth between 2011 and 2012, but the proportion of Minimally Engaged Users did not decline substantively.

Comment (BC): Smokers who have a strong social component to their smoking are less likely to achieve long-term abstinence. Clinicians could recommend the Quitline blog to all their smoking patients, especially those who smoke mainly in social situations, and recommend that they utilise and engage with the blogs intensively, to increase their chances of achieving long-term abstinence. Smokers could invite their smoking friends to also join the blogs, and could use the blogs to replace their friends who do not want to quit and who might be a source of risk of relapse.

Reference: PLoS ONE. 9(9):e106603
Abstract

Sustained care intervention and postdischarge smoking cessation among hospitalized adults

Authors: Rigotti NA et al.

Summary: This paper reports long-term smoking cessation rates for an intervention to sustain tobacco treatment after hospital discharge compared with standard care. The study recruited 397 hospitalised daily smokers (mean age, 53 years) who wanted to quit smoking after discharge and received a tobacco dependence intervention in the Massachusetts General Hospital. In the sustained post-discharge intervention, the 198 participants received automated interactive voice response telephone calls and their choice of free smoking cessation medication (any type approved by the US Food and Drug Administration) for up to 90 days. The automated telephone calls promoted cessation, provided medication management, and triaged smokers for additional counselling. The standard care arm (n=199) provided recommendations for post-discharge pharmacotherapy and counselling. Smokers in the sustained care arm used more counselling and more pharmacotherapy at each follow-up assessment than those assigned to standard care. The primary outcome of biochemically validated 7-day tobacco abstinence at 6 months was higher with sustained care than with standard care (26% vs 15%; relative risk [RR] 1.71; 95% CI, 1.14 to 2.56; p=0.009; number needed to treat, 9.4). Sustained care also resulted in higher self-reported continuous abstinence rates for 6 months after discharge (27% vs 16% for standard care; RR 1.70; 95% CI, 1.15 to 2.51; p=0.007).

Comment (BC): The key elements of this intervention were the regular frequent follow-up phonecalls starting as early as two days post-discharge, the emphasis on NRT, and individually tailoring NRT to add more treatment and higher doses according to the initial treatment response. Note that the standard care group was given a recommendation to use NRT and call Quitline. So to gain the additional benefits demonstrated in this trial, it is important to not only give patients a quit-card and advise them to call Quitline, but to also fax a referral to Quitline. Abstinence may be further improved by arranging for hospitalised smokers to regularly see their GP and/or a smoking cessation worker within the GP practice very soon after discharge.

Reference: JAMA. 2014;312(7):719-28
Abstract

CLICK HERE to read previous issues of Smoking Cessation Research Review

Socioeconomic status and smokers' number of smoking friends: Findings from the International Tobacco Control (ITC) Four Country Survey

Authors: Hitchman SC et al.

Summary: This study involved 6321 adult current smokers (at recruitment) from Wave 1 (2002) and Wave 2 (2003) of the International Tobacco Control Project (ITC) Four Country Survey of smokers in Australia, Canada, UK, and US. This investigation sought to clarify patterns of friendships among smokers from low socioeconomic (SES) groups:

- Low SES smokers reported more smoking friends than moderate and high SES smokers.
- Low SES smokers were also more likely to gain smoking friends over time compared with high SES smokers.
- Smokers who were male, younger, and lived with other smokers reported more smoking friends, and were also more likely to gain and less likely to lose smoking friends.
- Smoking behaviours, such as higher nicotine dependence, were related to reporting more smoking friends, but not to losing or gaining smoking friends.

Comment (BC): Low SES, younger age, and higher social and environmental motives for smoking were very strong predictors of lower abstinence in our nicotine mouthspray plus patch trial, regardless of whether participants used active or placebo spray. Clinicians could try to motivate smokers to help themselves and their friends by encouraging their friends to also try to quit at the same time. They will need NRTs that are able to replicate the functions that smoking plays in their lives (stress relief, reward, social interaction), and that are suited to activities related to spending time with other smokers (e.g. the inhalator or electronic cigarettes can be used while drinking alcohol). Those with access to the internet may gain social interaction from Quitline's blogs.

Reference: Drug Alcohol Depend. 2014;143:158-66
Abstract

Combination rapid-acting nicotine mouth spray and nicotine patch therapy in smoking cessation

Authors: Caldwell BO et al.

Summary: This study recruited 1423 smokers aged 18–70 years who wanted to quit smoking, smoked ≥9 cigarettes per day, and had a score of ≥3 on the Fagerström Test of Nicotine Dependence. Participants were randomised to nicotine oral spray (1 mg of nicotine free base per spray) or placebo spray for 6 months, and all received nicotine replacement patches daily for 5 months. All subjects were followed for 12 months. At 6 months, compared with nicotine patch therapy only, the combination therapy showed significant improvements in prolonged abstinence for all measures to 6 months (7 consecutive days at each visit for 6 months: 15.5% vs 10.6%; p=0.006). Between-group differences were no longer significant after month 6.

Comment (BC): The mouth spray used in this trial is very similar to the QuickMist mouth spray available in New Zealand. Long-term abstinence was much higher among those who used the mouth spray more often. Many subjects said that the mouth spray was initially very peppery, and most of them needed a lot of encouragement to persevere with using it in order to develop tolerance to this side effect. All NRTs have a fairly high incidence of irritating side effects, and it is essential to try to motivate smokers to keep using them often enough to develop tolerance. Those who cannot do this need to be encouraged to try different therapies and combinations of therapies to find the ones that suit them best. Hopefully they will find ones that they like before they give up trying!

Reference: Nicotine Tob Res. 2014;16(10):1356-64
Abstract

Disclosure Statement: Brent Caldwell was the lead author of this study, oversaw and participated in the conduct of the trial, analysed the data, and wrote the publication in conjunction with the other authors.

Prevalence and risk factors for tobacco smoking among pre-adolescent Pacific children in New Zealand

Authors: Nosa V et al.

Summary: This study explored risk factors for tobacco smoking among Pacific pre-adolescent intermediate school children. 2208 Pacific students aged between 10 and 13 years from 4 South Auckland intermediate schools were surveyed about their smoking behaviour between 2007 and 2009. In 2007, the prevalence of Pacific ever-smokers was 15.0% in Year 7 and 23.0% in Year 8. In a multivariate analysis, the risk factors for ever-smoking were Cook Island ethnic group (OR 1.72; ref=Samoan), being male (OR 1.47), age (OR 1.65), exposure to smoking in a car within the previous 7 days (OR 2.24), anyone smoking at home within the previous 7 days (OR 1.52) and receiving more than $NZ20 per week as pocket money/allowance (OR 1.91).

Comment (BC): Clinicians may use these findings as part of a discussion with Pacific smokers about their smoking and the impact it has on their children's uptake of smoking. Such a discussion could form the basis of Motivational Interviewing. Smokers could be encouraged to talk about how they feel about the possibility of their children starting to smoke and how they could reduce the chance of this by quitting smoking or at least not modelling the smoking behaviour in front of their children. Pacific smokers need to be warned that giving their children a generous allowance is a risk factor for them smoking, and be encouraged to discuss how this could be mitigated.

Reference: J Prim Health Care. 2014;6(3):181-8
Abstract

Clarification regarding PHARMAC Online (BC):

In the previous issue of this journal I encouraged all PHOs to order subsidised NRT from PHARMAC Online to give to their smokers, to limit the cost barrier and encourage smokers to use plenty of NRT for a long enough duration to help them quit and remain abstinent. However, I subsequently learned that the PHARMAC Online system is only available to certain organisations that have a contract with the Ministry of Health, and Public Health Units (PHUs) within DHBs. The good news is that organisations that do not have a contract with the Ministry of Health can obtain subsidised NRT (at no cost to the organisation) by two methods:

1. If the NRT is going to be used for "teaching and demonstration", then a doctor, medical practice, or nurse practitioners whose scope includes smoking cessation, can use a Practitioner's Supply Order (PSO) to obtain subsidised NRT (at no cost to the doctor, medical practice or nurse). One pack of each form, strength and flavour of NRT can be ordered on each PSO, and it can be used to give smokers the chance to try out the NRTs, so that cessation practitioners can observe how smokers use the therapies, identify incorrect use, guide smokers on how to use the therapies optimally, and enable smokers to choose the product(s) that best suit them – this is consistent with the requirement that PSOs be used for teaching and demonstration purposes.
2. You can ask the PHU within your DHB to provide you with subsidised NRT (at no cost to you). PHUs can order NRT from PHARMAC Online. This mechanism is not restricted to "teaching and demonstration purposes" and could be used to give smokers NRT without them having to pay the $5 co-payment incurred with prescriptions and QuitCards.