Smoking Cessation Research Review™

Making Education Easy

Issue 1 – 2011

In this issue:

Welcome to the first edition of Smoking Cessation Research Review.

We hope that you find this review informative and enjoyable as a digest of the most recent and relevant papers in the field of smoking cessation.

The Review provides website links to the abstract or fully published papers so you can make your own judgements.

The creation of this publication would not have been possible without support from our sponsors; we thank them for their support. If you have colleagues or friends within New Zealand who would like to receive our publication, send us their contact email and we will include them in the next issue.

We hope you find this edition stimulating reading, and we welcome any comments or feedback.

Kind regards,

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A randomized trial of internet and telephone treatment for smoking cessation

Authors: Graham AL et al

Summary: Outcomes are reported from a comparison of the relative effect of Internet and Internet plus telephone treatment for smoking cessation on smoking abstinence among US adults. The study enrolled 2005 current adult smokers (mean age 35.9 years) who smoked ≥5 cigarettes per day. Study participants were randomised to one of three groups: basic Internet (BI), Internet enhanced with tailored content and social support (EI), or to EI plus proactive telephone counselling (EI+P). At 18 months' follow-up, 68.2% of participants were evaluable for assessment. At 18 months, the 30-day multiple point prevalence abstinence rate across all follow-up intervals (measured at 3, 6, 12, and 18 months) was 3.5% (BI), 4.5% (EI), and 7.7% (EI+P), with EI+P significantly outperforming BI and EI. At 18 months, 30-day single point prevalence abstinence rates were 19.0% (BI), 17.4% (EI), and 19.6% (EI+P) and did not differ among the groups.

Comment: Smoking cessation interventions are increasingly being delivered via electronic media. This study investigated the efficacy of an interactive website (www.quitnet.com) that provides advice and assistance in quitting smoking including setting a quit date, individually tailored behavioural and pharmacological treatment as well as access to a social support network. The two comparison interventions were a basic website containing generic information and the tailored website plus telephone support (up to 5 sessions).

Tailored interventions are often associated with higher quit rates than generic materials. This study found evidence to the contrary. However, adding telephone support to the web-based programme increased quit rates significantly. It would have been useful to have a group that received telephone support alone to determine if the observed effect was due to personal contact. Nonetheless, the results add to the accumulating evidence base showing the effectiveness of electronic interventions, which have a wide reach and a potentially important role to play in improving population health.

Reference: Arch Intern Med. 2011;171(1):46-53.

http://archinte.ama-assn.org/cgi/content/short/171/1/46

Adjustment of nicotine replacement therapies according to saliva cotinine concentration: the ADONIS* trial: a randomised study in smokers with medical comorbidities

Authors: Ivan B et al

Summary: These researchers sought to determine whether adapting the nicotine replacement therapy (NRT) daily dose according to saliva cotinine is superior to standard NRT use. They enrolled 310 smokers attending smoking cessation clinics in France. All smokers had medical comorbidities, smoked at least 10 cigarettes per day and were motivated to quit. NRT was administered for 3 months. The Standard Care group (SCG) received nicotine patches with monthly dose decreases; buccal absorption NRT (e.g. nicotine chewing gum) could be co-administered at the discretion of the investigator. In the Dose Adaptation group (DAG), the aim was a 100 ± 5% nicotine substitution with respect to the smoking state based on saliva cotinine concentrations. NRT daily doses were prescribed according to the previous week's saliva cotinine concentrations in the DAG; saliva cotinine concentrations were not provided in the SCG. The median daily prescribed NRT dose was 30 and 31 mg/day on the first study week and 17.25 and 35.5 mg/day during weeks 9 to 12 in the SCG and DAG, respectively. Saliva cotinine remained stable in the DAG and decreased in the SCG ($p<0.01$) by weeks 9 to 12. The cotinine substitution rate was significantly lower in the SCG than in the DAG. Despite differences in NRT doses and cotinine substitution rates, prolonged (SCG: 26.4%, DAG: 30.3%), continuous (SCG: 8%, DAG: 12%), and point prevalence abstinence rates were similar.

Comment: Continuing with the theme of tailored interventions, this study investigated the effect of individualised NRT dose compared to standard dosing regimens on short-term quit rates. Smokers don't all smoke in the same way and maintain different blood nicotine levels. Traditionally, we have tried to tailor NRT dose by cigarette consumption. However, the number of cigarettes smoked per day is a weak indicator of blood nicotine levels. In this study investigators used salivary cotinine (the primary metabolite of nicotine) as an indicator of blood nicotine levels. The results showed a small but non-significant improvement in quit rates. This lack of effect may in part have been due to the fact that NRT doses were tailored based on the previous week's cotinine and not in 'real-time'.

It is important that smokers using NRT take an adequate dose. One size does not fit all and smokers should be encouraged to use as much as is needed to alleviate urges to smoke and other tobacco withdrawal symptoms.

Reference: Addiction. 2010 Nov 22. [Epub ahead of print]

http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2010.03306.x/abstract

Effects of smoking and smoking cessation on lipids and lipoproteins: outcomes from a randomized clinical trial

Authors: Gepner AD et al

Summary: This study investigated the effects of smoking and of five smoking cessation pharmacotherapies on lipoproteins in 1,504 current smokers (mean age 45.4 years) who smoked 21.4 cigarettes per day at baseline. Of the 923 adult smokers who returned at 1 year, 334 (36.2%) had quit smoking. Fasting nuclear magnetic resonance spectroscopy lipoprotein profiles at 1 year after the target smoking cessation date demonstrated that, compared with continuing smokers, although abstainers had gained more weight (0.7 kg vs 4.6 kg; $p<0.001$), abstainers had significantly greater increases in HDL cholesterol (2.4 vs 0.1 mg/dL; $p<0.001$), total HDL (1.0 vs –0.3 µmol/L; $p<0.001$), and large HDL (0.6 vs 0.1 µmol/L; $p=0.003$) particles. Smoking cessation did not affect LDL cholesterol or particle size. After adjustment, abstinence from smoking ($p<0.001$) was independently associated with increases in HDL cholesterol and total HDL particles. These effects were stronger in women.

Comment: There are relatively few positive changes that smokers can observe when they stop smoking. In fact, some changes are negative; e.g., people typically gain around 5kg of weight in the first year of abstinence. There is no doubt that stopping smoking reduces the risk of an acute cardiac event and stroke, but risks and risk reduction can be difficult to communicate. Many people are familiar with cholesterol and this study shows that smokers who manage to quit long-term are likely to see positive changes (improved HDL cholesterol) in their lipoprotein profiles, even if they gain weight.

These data provide another opportunity for a positive message when giving brief advice to stop smoking, especially for those with abnormal lipoprotein profiles.

Reference: Am Heart J. 2011;161(1):145-51.

http://www.ahjonline.com/article/S0002-8703%2810%2900892-6/abstract

Nicotine receptor partial agonists for smoking cessation

Authors: Cahill K et al

Summary: This Cochrane review examined outcomes from randomised controlled trials (published up to September 2010) that assessed the efficacy and tolerability of nicotine receptor partial agonists, including varenicline and cytisine, for smoking cessation. The pooled risk ratio (RR) (10 trials, 4443 people, excluding one trial evaluating long term safety) for continuous abstinence at ≥6 months for varenicline at standard dosage versus placebo was 2.31 (95% CI 2.01 to 2.66). Varenicline was also effective at lower or variable doses, with an RR of 2.09 ((95% CI 1.56 to 2.78; 4 trials, 1272 people). The pooled RR for varenicline versus bupropion at 1 year was 1.52 (95% CI 1.22 to 1.88; 3 trials, 1622 people). The RR for varenicline versus nicotine replacement therapy for point prevalence abstinence at 24 weeks was 1.13 (95% CI 0.94 to 1.35; 2 trials, 778 people). Two trials that tested the use of varenicline beyond the 12-week standard regimen reported good tolerability during long-term use. The main adverse effect of varenicline was nausea, which was mostly of mild to moderate intensity and usually subsided over time. The one cytisine trial reviewed found that more participants taking cytisine stopped smoking compared with placebo at 2-year follow up (RR 1.61; 95% CI 1.24 to 2.08).

Comment: This Cochrane Review is an update of the evidence on drugs that act as partial agonists of nicotinic acetylcholine receptors. The most commonly used drug of this class is varenicline (Champix), which was designed specifically for smoking cessation. Its primary mechanism of action is to reduce the severity of urges to smoke and other tobacco withdrawal symptoms via its agonist effects. It does, however, have an antagonistic effect that results in reduced reward that is usually associated with smoking.

The meta-analyses from this review show that varenicline at least doubles the chances of long-term quitting compared to placebo. They also demonstrate a 50% increase in quit rates compared with bupropion (Zyban). Regarding the comparison with NRT, varenicline use was associated with higher quit rates at the end of treatment, but not at 1-year follow-up.

Cytisine, an extract found in plants such as Golden Rain and New Zealand Kowhai, is another partial nicotine receptor agonist. Cytisine tablets have been used for smoking cessation in several European countries since the 1960s. This review included only one study that showed higher long-term quit rates compared with placebo (21% vs 13% respectively). The results from a recently completed European RCT of cytisine for smoking cessation are eagerly awaited, as will the results of a New Zealand trial that is due to start in the next few months (see http://www.ctru.auckland.ac.nz/index.php/research-programmes/addiction-research/263-cascaid-cytisine-to-aid-smoking-cessation).

Reference: Cochrane Database Syst Rev. 2010 Dec 8;12:CD006103.

http://www2.cochrane.org/reviews/en/ab006103.html

Do cigarette prices motivate smokers to quit? New evidence from the ITC survey

Authors: Ross H et al

Summary: Longitudinal data from three waves of the International Tobacco Control Policy Evaluation Survey (ITC) were used to examine the importance of cigarette prices in influencing smoking cessation and the motivation to quit. The study cohort comprised 2,000 US and Canadian smokers completing all three waves. Findings revealed significantly higher motivation to quit among smokers living in areas with higher cigarette prices. There was evidence for higher cigarette prices increasing the likelihood of actual quitting. While cheaper cigarette sources apparently do not mitigate cessation, smokers would respond more aggressively (in terms of cessation) to price increases if cheaper cigarette sources were not available.

Comment: On January 1st 2011 the New Zealand Government increased the price of cigarettes by 10%. Anecdotally, this appeared to increase the numbers of people wanting to quit. The Quitline, for example, saw a large increase in the number of calls in the first week of January.

This study contributes to the evidence showing that raising the price of tobacco is an effective tobacco control strategy. Tax increases act as both a motivational tension and a trigger to quit. Healthcare professionals can provide further assistance by providing treatment to aid these quit attempts.

Another price increase is due in January 2012 that will push more smokers over the 'motivational threshold' to try and stop smoking.

Reference: Addiction. 2010 Nov 9. [Epub ahead of print]

http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2010.03192.x/full

Stage-based interventions for smoking cessation

Authors: Cahill K et al

Summary: To test the effectiveness of stage-based interventions in helping smokers to quit, data were analysed from 41 randomised controlled trials (>33,000 participants) that compared stage-based interventions with non-stage-based controls, with 'usual care' or with assessment only. The main outcome was abstinence from smoking for ≥6 months. Four trials using direct comparisons found no advantage for stage-based self-help interventions over their non-stage-based equivalents. Stage-based versus standard self-help materials (2 trials) yielded a relative risk (RR) of 0.93 (95% CI 0.62 to 1.39). Stage-based versus standard counselling (2 trials) gave a relative risk of 1.00 (95% CI 0.82 to 1.22). Six trials of stage-based self-help systems versus any standard self-help support demonstrated a benefit for the staged groups, with an RR of 1.27 (95% CI 1.01 to 1.59). In 12 trials comparing stage-based self help with 'usual care' or assessment-only, the RR was 1.32 (95% CI 1.17 to 1.48). In 13 trials of stage-based individual counselling versus any control condition, the RR was 1.24 (95% CI 1.08 to 1.42). The evidence was unclear for telephone counselling, interactive computer programmes or training of doctors or lay supporters.

Comment: The Transtheoretical or 'Stages of Change' model has been used extensively in smoking cessation. Essentially, the model implies that smokers are at different levels of motivation in terms of stopping smoking (e.g. precontemplation, contemplation, preparation, action, maintenance, and relapse). One of the main criticisms in the utilisation of the model in practice is that arbitrary timelines are often used to delineate each stage. For example, if a smoker was thinking of quitting in the next 30 days then they would be classified as a contemplator, but if it was 40 days then they would be classified as a precontemplator. Smoking cessation programmes utilising this model would base the intervention around the stage.

The findings of this systematic review show that although stage-based interventions are better than nothing at all, they are no better or worse than standard smoking cessation interventions. The key message for healthcare professionals is that all smokers, regardless of their current motivation to quit should be advised to stop smoking and *offered* treatment. Healthcare professionals should not underestimate the influence that they can have in moving smokers who were not thinking about quitting to make a quit attempt.

Reference: Cochrane Database Syst Rev. 2010;11:CD004492.

http://www2.cochrane.org/reviews/en/ab004492.html

An updated meta-analysis of nicotine preloading for smoking cessation: investigating mediators of the effect

Authors: Lindson N, Aveyard P

Summary: These researchers reviewed the most up-to-date data on the effect of nicotine preloading (i.e. using nicotine replacement therapy [NRT] whilst smoking, prior to quitting) and investigated possible mediators or moderators of the effect, which could have implications for individual treatment plans. Four hypotheses were tested: (1) Efficacy is mediated through reduced smoking reward, (2) efficacy is mediated through increased NRT adherence post-quit, (3) efficacy is mediated through increased confidence, and (4) behavioural support modifies efficacy. Eight studies met the inclusion criteria (2,813 participants). The risk ratios (RRs) for short-term abstinence were 1.05 (95% CI 0.92 to 1.19) and 1.16 (95% CI 0.97 to 1.38) for long-term abstinence. Using the nicotine patch was marginally beneficial over gum for preloading, significant at short-term follow-up, and there was no significant benefit of more intensive pre-quit behavioural support.

Comment: Part of the rationale for using NRT prior to quitting is dissociating nicotine delivery from the behaviour (smoking). The theory is that providing nicotine via NRT instead of cigarettes will make smoking less rewarding and quitting easier.

A systematic review published in 2008 (http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2008.02138.x/abstract) suggested that this approach could almost double quit rates compared to standard use of NRT (starting on the quit date). However, several larger RCTs published since then have showed no effect of nicotine preloading.

This updated meta-analysis combines the results of eight studies and shows a very small, and non-significant, effect of nicotine preloading on long-term quit rates. So, until there is evidence to the contrary, healthcare professionals can advise smokers who want to quit to set a quit date and start using their NRT from this date.

Reference: Psychopharmacology (Berl). 2010 Nov 9. [Epub ahead of print]

http://www.springerlink.com/content/836808025jmn1571/

Effectiveness of extended-duration transdermal nicotine therapy: a randomized trial

Authors: Schnoll RA et al

Summary: Rates of abstinence from tobacco were compared between those obtained with extended-duration transdermal nicotine therapy versus standard-duration therapy in 568 adult smokers during the period from September 2004 to February 2008. Participants were randomly assigned to standard therapy (Nicoderm CQ, 21 mg, for 8 weeks and placebo for 16 weeks) or extended therapy (Nicoderm CQ, 21 mg, for 24 weeks). At week 24, extended therapy was associated with higher rates of point-prevalence abstinence (31.6% vs 20.3%; OR, 1.81; 95% CI, 1.23 to 2.66; p=0.002), prolonged abstinence (41.5% vs 26.9%; OR, 1.97; CI, 1.38 to 2.82; p=0.001), and continuous abstinence (19.2% vs 12.6%; OR, 1.64; CI, 1.04 to 2.60; p=0.032) versus standard therapy. Extended therapy reduced the risk for lapse (HR, 0.77; CI, 0.63 to 0.95; p=0.013) and increased the chances of recovery from lapses (HR, 1.47; CI, 1.17 to 1.84; p=0.001). Time to relapse was prolonged with extended versus standard therapy (HR, 0.50; CI, 0.35 to 0.73; p<0.001). At week 52, extended therapy produced higher quit rates for prolonged abstinence only (p=0.027).

Comment: It is recommended that NRT be used for 8–12 weeks. However, it is often difficult to get smokers to use it for this length of time, with many stopping treatment too soon and subsequently relapsing.

This study showed that using NRT for longer was associated with greater long-term quit rates. The finding that continued use of NRT was associated with a reduced risk of relapse is in keeping with existing data showing NRT use can prevent a lapse becoming a full-blown relapse.

Not only is it important that smokers use an adequate dose of NRT, but that they use it for long enough. How long is 'long enough'? Well, smokers should use it until they are confident that they will not smoke without it. Most smokers will not use it past 3 months, but some will need to use it for longer. For those concerned about long-term use of NRT, only a minority of smokers (around 5%) will use NRT for a year or more.

The maximum dispensing rules for funded NRT were removed from 1 January 2011, which gives prescribers (and QuitCard providers) the ability to supply NRT for longer where necessary.

Reference: Ann Intern Med. 2010;152(3):144-51.

http://tinyurl.com/35pce57

Independent commentary by Dr Hayden McRobbie, Senior Lecturer in the School of Public Health and Psychosocial Studies, Auckland University of Technology and Honorary Senior Lecturer in the School of Population Health at the University of Auckland. He is also a Senior Research Fellow at the UK Centre for Tobacco Control Studies, part of Queen Mary, University of London.

Research Review publications are intended for New Zealand health professionals.

Quit in general practice: a cluster randomised trial of enhanced in-practice support for smoking cessation

Authors: Zwar N et al

Summary: This Australian study will test the uptake and effectiveness of a flexible package of smoking cessation support provided primarily by the practice nurse (PN) and tailored to meet the needs of a diversity of patients. General practices will be allocated to one of three groups 1) Quit with Practice Nurse 2) Quitline referral 3) GP usual care. PNs from practices randomised to the intervention group will receive a training course in smoking cessation followed by access to mentoring. GPs from practices randomised to the Quitline referral group will receive information about the study and the process of written referral and GPs in the usual care group will receive information about the study. Eligible patients are daily or weekly smokers aged ≥18 years presenting to their GP and who are able to give informed consent. Patients on low incomes in all three groups will be able to access free nicotine patches. Primary outcomes are sustained abstinence and point prevalence abstinence at 3 and 12 months of follow-up; and incremental cost effectiveness ratios at 12 months. Process evaluation on the reach and acceptability of the intervention approached will be collected through Computer Assisted Telephone Interviews (CATI) with patients and semi-structured interviews with PNs and GPs. The incremental cost effectiveness ratios will be estimated for the 12-month quit rate for the intervention groups compared to usual care and to each other.

Comment: Although only a study protocol, this paper highlights the important role of primary care in smoking cessation and tobacco control. Given than some 80% of the New Zealand population visits their GP each year the potential impact on reducing smoking prevalence is great.

This study will examine the outcomes of 'in-house' smoking cessation provided by a practice nurse (PN), or referral to Quitline, compared with usual care. There are pros and cons of both interventions; e.g., the in-house intervention would offer face-to-face support that is typically associated with higher quit rates than telephone support. However, PN time is often in high demand and costly. The Quitline referral will provide a simple solution that would not add significantly to practice staff time or costs, but may have lower quit rates.

The findings of this study will be of interest to healthcare funders who need to carefully consider how easily these interventions can be implemented into standard clinical practice and balance the efficacy with the potential reach.

Reference: BMC Fam Pract. 2010;11:59.

http://www.biomedcentral.com/1471-2296/11/59

Impact on quit attempts of mailed general practitioner 'brief advice' letters plus nicotine replacement therapy vouchers

Authors: Watson D et al

Summary: This study from New Zealand reports the outcomes of a strategy comprising mailed GP letters with exchange cards for 4 weeks of nicotine gum that were sent to 831 patients within a single Auckland health board area who were recorded as current smokers on their GPs' files. The comparison group was the population in another Auckland health board area. The researchers measured calls to Quitline and vouchers redeemed at pharmacies from both areas before and after the intervention. Follow-up surveys of recipients and GPs assessed acceptability. Quitline calls from baseline to the end of the intervention from the intervention district compared with a comparison district were not significantly higher (5%; p=0.195), but nicotine replacement therapy (NRT) voucher redemptions were significantly higher (9%; p=0.005). Almost 9% of the exchange cards were redeemed for NRT. Despite initial difficulties in accurately identifying smokers from their records, responding GPs found the strategy very acceptable.

Comment: Brief advice to stop smoking is effective in prompting people who smoke to quit. For every 40 smokers advised to quit, one will go on to stop smoking long-term. This study combined written brief advice with an offer of NRT and showed a modest but significant increase in quit attempts as measured by redemption of NRT vouchers. Although the response rate to the qualitative evaluation was low it was largely positive. The paper reports comments from two patients that deserve mention.
'Someone actually cares enough about the fact that I am smoking to send me a letter.'

'This has made me think about my smoking again and the effects it is having on my health.'

This approach is not the answer to addressing tobacco use among patients in a primary healthcare setting. It is however a relatively inexpensive option that may play a role in helping patients who smoke to quit.

Reference: J Prim Health Care. 2010;2(1):4-10.

http://www.rnzcgp.org.nz/assets/documents/Publications/JPHC/March-2010/JPHCOSPWatsonMarch10.pdf