INTERVENTIONS FOR SMOKING CESSATION

Best practice and future perspectives

Hayden McRobbie
The New Zealand Guidelines for Helping People to Stop Smoking
ABC – but the focus is on offering C

**A**

Ask about and document every person’s smoking status.

Smoking status definitions

- **Non-smoker** has smoked fewer than 100 cigarettes in their lifetime.
- **Ex-smoker** has smoked more than 100 cigarettes in their lifetime, but has not smoked any tobacco in the last 28 days.
- **Current smoker** has smoked more than 100 cigarettes in their lifetime and has smoked tobacco in the last 28 days.

**B**

Give Brief advice to stop to every person who smokes.

- You can give this advice in 30 seconds.
- Where possible, tailor your brief advice to the person in front of you. Advice could be health or financially related.

**C**

Strongly encourage every person who smokes to use Cessation support and offer them help to access it. Refer to, or provide, cessation support to everyone who accepts your offer.

- The best results are achieved when a person uses behavioural support and stop-smoking medication in combination.
- Where people choose to use stop-smoking medication, check that they understand how to use it and, later, whether they have experienced any adverse effects.
How do you make the offer?

Do you want help to quit?
Making an offer of help to quit

• Strongly encourage every person who smokes to use cessation support
• Briefly explain the options
• Make it emotionally salient
• Help people access it – today!
Client appears unsure?

- Refer them to Quitline

Well, another option is that I ask Quitline to give you a call. They will explain all the options that are available to you, but you won’t be committing yourself to anything just yet. I recommend listening to what they have to say.
Proactive Stop Smoking Support

- Primary healthcare records in New Zealand now have up-to-date smoking status
- Many PHOs have ‘cold-called’ patients to offer smoking cessation support
- A US study examined the effect of proactive calling in 5123 patients
  - Proactive calls (n=2519): patients mailed invitation materials followed by telephone call (at least 6 attempts made a different times of day and week) to offer them a choice of stop smoking services
  - Usual care (n=2604): usual access to stop smoking services, e.g. referral to face-to-face or telephone support
- Followed up at 1 year (outcome = prolonged 6 month abstinence)

Uptake

- Opted for face-to-face support: 77
- Opted for Telephone support: 392
- Interested in stop smoking support: 469
- Contacted during telephone outreach: 1556
- Mailed outreach invitation: 2519

Average of 3.3 calls made

Fu et al. (2014) JAMA Internal Medicine 174(5): 671-677
Treatment utilisation

- Telehone support
- Face-to-face Support
- Used medicines
- Combination counselling and medicine

- Proactive
- Usual Care

p<0.01
p=0.02

Fu et al. (2014) JAMA Internal Medicine 174(5): 671-677
Abstinence rates

6-month prolonged abstinence at 1 year

Increase of 2.6% (95% CI: 0.3% to 4.5%)

Client says no

- That’s OK.
- Document a declined offer

OK, I understand that now’s not the right time, but please don’t be offended when I ask you next time I see you. It’s really important for me to do everything I can to help you quit eventually.
SMOKING CESSATION IN PREGNANCY

1. NRT use – SNAP and SNIPP trials
2. Incentives
SNAP Trial

• 1050 women who smoked at least 5 cigarettes per day
  • 521 received 15 mg/16 hour patches
  • 529 received 0 mg/16 hour patches
• Research midwives provided a mix of telephone and face-to-face support
• NRT provided in 4-week supplies
• Primary outcome – validated abstinence between quit date and delivery
• Birth outcomes and assessment of infant impairment (e.g. disability or behaviour and developmental problem) assessed at 2-years
SNAP - results

Validated Abstinence Rates

OR=2.05 (95% CI: 1.46-2.88)

OR=1.26 (95% CI: 0.82-1.96)

SNAP – Smoking, Nicotine and Pregnancy

Cooper et al (2014) HTA Assessment 18(54)
SNAP – infant outcomes at 2 years

Proportion surviving with no impairment

OR=1.40 (95% CI: 1.05-1.86)

SNAP – Smoking, Nicotine and Pregnancy

Cooper et al (2014) HTA Assessment 18(54)
SNIPP Trial

- 402 women who smoked at least 5 cigarettes per day
  - 203 received nicotine 16 hour patches
  - 199 received placebo 16 hour patches
- Patch doses were adjusted to saliva cotinine levels
  - Daily dose range from 10 – 30 mg
- Participants assessed monthly and provided with behavioural support
- Primary outcome – validated abstinence between quit date and delivery
- Birth weights recorded
SNIPP - results

Validated Abstinence Rates

OR = 1.08 (95% CI: 0.45-2.60)

At delivery

SNIPP – Study of nicotine patch in pregnancy

Berlin et al (2014) BMJ
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Nicotine Patch</th>
<th>Placebo Patch</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight (g)</td>
<td>3065</td>
<td>3015</td>
<td>NS</td>
</tr>
<tr>
<td>Head circumference (cm)</td>
<td>33.7</td>
<td>33.9</td>
<td>NS</td>
</tr>
<tr>
<td>Preterm birth</td>
<td>13.5%</td>
<td>13%</td>
<td>NS</td>
</tr>
<tr>
<td>Transfer to NICU</td>
<td>7.1%</td>
<td>7.2%</td>
<td>NS</td>
</tr>
</tbody>
</table>
Financial Incentives for Smoking Cessation in Pregnancy

Effects of incentives - up to delivery

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental Events</th>
<th>Total</th>
<th>Control Events</th>
<th>Total</th>
<th>Weight</th>
<th>M−H, Fixed, 95% CI</th>
<th>Odds Ratio M−H, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donatelle 2000</td>
<td>32</td>
<td>112</td>
<td>9</td>
<td>108</td>
<td>51.4%</td>
<td>4.40 [1.98, 9.75]</td>
<td></td>
</tr>
<tr>
<td>Heil 2008</td>
<td>9</td>
<td>40</td>
<td>1</td>
<td>42</td>
<td>5.9%</td>
<td>11.90 [1.43, 98.97]</td>
<td></td>
</tr>
<tr>
<td>Higgins 2004</td>
<td>11</td>
<td>31</td>
<td>2</td>
<td>27</td>
<td>10.8%</td>
<td>6.88 [1.36, 34.65]</td>
<td></td>
</tr>
<tr>
<td>Higgins 2010</td>
<td>29</td>
<td>85</td>
<td>6</td>
<td>81</td>
<td>31.8%</td>
<td>6.47 [2.52, 16.65]</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>268</strong></td>
<td><strong>258</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
<td><strong>5.77</strong> [3.34, 9.98]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 81

Heterogeneity: Chi² = 1.00, df = 3 (P = 0.80); I² = 0%

Test for overall effect: Z = 6.28 (P < 0.000001)

Effects of incentives - post-partum

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental Events</th>
<th>Total</th>
<th>Control Events</th>
<th>Total</th>
<th>Weight</th>
<th>M−H, Fixed, 95% CI</th>
<th>Odds Ratio M−H, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donatelle 2000</td>
<td>21</td>
<td>112</td>
<td>6</td>
<td>108</td>
<td>69.5%</td>
<td>3.92 [1.52, 10.15]</td>
<td></td>
</tr>
<tr>
<td>Heil 2008</td>
<td>3</td>
<td>40</td>
<td>1</td>
<td>42</td>
<td>12.6%</td>
<td>3.32 [0.33, 33.37]</td>
<td></td>
</tr>
<tr>
<td>Higgins 2004</td>
<td>8</td>
<td>31</td>
<td>0</td>
<td>27</td>
<td>5.5%</td>
<td>19.89 [1.09, 363.30]</td>
<td></td>
</tr>
<tr>
<td>Higgins 2010</td>
<td>12</td>
<td>85</td>
<td>1</td>
<td>81</td>
<td>12.3%</td>
<td>13.15 [1.67, 103.65]</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>268</strong></td>
<td><strong>258</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
<td><strong>5.86</strong> [2.74, 12.52]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 44

Heterogeneity: Chi² = 2.19, df = 3 (P = 0.53); I² = 0%

Test for overall effect: Z = 4.57 (P < 0.000001)
Effect of different incentives scheme

• 118 pregnant women who smoke randomised to one of three arms

<table>
<thead>
<tr>
<th>Visit Schedule</th>
<th>Incentive scheme 1</th>
<th>Incentive Scheme 2</th>
<th>No incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week 1: 5 visits</strong></td>
<td>• Start at $6.25</td>
<td>• Start at $18.75</td>
<td></td>
</tr>
<tr>
<td><strong>Week 2-8: 2 visits/week</strong></td>
<td>• Increased by $1.25 for each smokefree visit</td>
<td>• Increased by $3.75 for each smokefree visit</td>
<td></td>
</tr>
<tr>
<td><strong>Week 9-12: 1 visit/week</strong></td>
<td>• Max $45 per visit</td>
<td>• Max $33.75 per visit</td>
<td></td>
</tr>
<tr>
<td><strong>Until delivery: 1 visit every other week</strong></td>
<td>• Reset to $6.25 if smoked, but restored if two smokefree sessions</td>
<td>• Reset to $18.75 if smoked, but restored if two smokefree sessions</td>
<td></td>
</tr>
</tbody>
</table>

Point prevalence quit rates


*Significantly different to no incentives

Early pregnancy (1 month)
- Scheme 1
- Scheme 2
- No incentives

Late pregnancy
- Scheme 1
- Scheme 2
- No incentives

* * *
Fetal weight gain

EXERCISE AND SMOKING CESSATION
Fit2Quit Trial

- Examined whether adding an exercise programme to usual care (Quitline support and NRT) could improve 6-month quit rates
- 906 adults smokers interested in quitting
  - 455 exercise intervention
  - 451 usual care
- Intervention
  - 6-month home and community-based exercise programme delivered by Green Prescription
  - Up to 10 telephone counselling sessions to promote and support exercise
  - Aimed for a minimum of 30 mins of moderate – vigorous aerobic based exercise on most days of the week

StopAdvisor – 6 month abstinence rates

RR = 0.98 (95% CI: 0.92-1.05)

RR = 1.01 (95% CI: 0.95-1.07)

A related issue - post cessation weight gain

- Followed 81 smokers over a year and compared changes in body composition

<table>
<thead>
<tr>
<th></th>
<th>Mean difference between smokers and ex-smokers (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Weight</td>
<td>4.43 kg (1.56 - 7.31)</td>
</tr>
<tr>
<td>Lean Mass</td>
<td>1.26 kg (0.24 – 2.28)</td>
</tr>
<tr>
<td>Fat Mass</td>
<td>3.15 kg (0.91 – 5.39)</td>
</tr>
<tr>
<td>Bone Mineral Content</td>
<td>49 g (12 – 86)</td>
</tr>
<tr>
<td>Bone Mineral Density</td>
<td>0.024 g/cm (0.004 – 0.043)</td>
</tr>
<tr>
<td>Handgrip Strength</td>
<td>3.6 kg (1.12 – 6.08)</td>
</tr>
</tbody>
</table>

SMOKING CESSATION TREATMENTS

1. New varenicline studies
2. Effectiveness of treatments in the ‘real world’
Retreatment with varenicline

- People who fail in quit attempts are usually more highly dependent smokers
- Success rates in ‘retreatment’ are usually lower than the initial treatment e.g.
  - NRT – threefold lower in retreatment
  - Bupropion – twofold lower in retreatment
- This study randomised 498 smokers who have previously used varenicline but had relapsed
  - 251 received varenicline
  - 247 received placebo
- Followed up for a year

Gonzales et al (2014) Clinical Pharmacology & Therapeutics 96(3)
Varenicline retreatment – abstinence rates

- Weeks 9-12: OR=7.08 (95% CI: 4.34-11.55)
- Weeks 9-24: OR=5.83 (95% CI: 3.25-10.44)
- Weeks 9-52: OR=9.00 (95% CI: 3.97-20.41)

Gonzales et al (2014) Clinical Pharmacology & Therapeutics 96(3)
Varenicline + NRT

• The results of trials that have examined the effect of adding NRT to varenicline have been mixed
• This study randomised 435 smokers to
  • Varenicline + 15mg nicotine patch
  • Varenicline + 0mg (placebo) patch
• Patches were started two weeks prior to quitting and continued for 12 week post-quit date
• Varenicline was started one week prior to quitting and continued for 12 week post-quit date
• Received behavioural support
• Followed up for 6 months

Varenicline + NRT - abstinence rates

Weeks 5-8: OR=1.50 (95% CI: 1.02-2.22)
Weeks 9-12: OR=1.80 (95% CI: 1.22-2.66)
Weeks 9-24: OR=2.06 (95% CI: 1.33-3.21)

Smoking Cessation Treatments used in the ‘Real World’

Abstinence at 6-month follow-up

- Prescription medicine with specialist support: aOR=2.58 (95% CI: 1.48-4.52)
- Prescription medicine with brief advice: aOR=1.55 (95% CI: 1.11-2.16)
- NRT OTC: aOR=0.68 (95% CI: 0.49-0.94)
- No treatment

N=1560

Effect of National Training and NHS Stop Smoking Service quit rates

- Improvement most strongly predicted by the number of practitioners who completed face-to-face (skills) training as opposed to just (knowledge) training

Brose et al (2014) Preventive Medicine
TECHNOLOGY FOR SMOKING CESSATION

1. Internet based smoking cessation
2. Interactive Voice Recognition
Internet-based cessation interventions

- Potential advantages
  - Extremely cost-effective
  - Convenience and confidentiality
  - Highly accessible
  - Potential for interactivity and tailoring

- Evidence of effectiveness?
  - Yes, but results are mixed

(Civljak et al., 2010; Myung et al., 2009; Shahab & McEwen, 2009)
StopAdvisor

Life after quitting

Below are some videos of ex-smokers talking about life after quitting. Hearing about other people's experiences can help keep your motivation high to remain a non-smoker.
Developing StopAdvisor

- Principles from PRIME theory (West, 2006)
- Evidence from smoking and behavioural science on efficacy of particular BCTs
  - Shabab & McEwen, 2009, Michie, Churchill & West, 2010, variety of other reviews and observational data from the NHS Stop Smoking Services
- Principles of website design identified from study team & usability testing
- Tested with smokers from lower socioeconomic groups

Source: www.rjwest.co.uk
StopAdvisor - RCT

- 4613 smokers randomly assigned to
  - StopAdvisor (n=2321)
    - 1088 low SES
    - 1233 high SES
  - Information only (static) websites (n=2292)
    - 1054 low SES
    - 1238 high SES
- Participants set a quit date within the first month
- Followed up at 7 months after enrollment
- Outcome: biochemically validated sustained abstinence at 6 months

SES = socioeconomic status

StopAdvisor – 6 month abstinence rates

60% of participants had never previously used behavioural support

- aRR = 0.97 (95% CI: 0.78-1.19)
- aRR = 1.43 (95% CI: 1.05-1.96)

Interactive Voice Recognition

- Randomised 397 hospitalised smokers who wanted help to quit after discharge
- Sustained support (n=198)
  - Received automatic interactive voice recognition (IVR) calls and free choice of stop smoking medicine.
  - 5 calls (day 2, 14, 30, 60 & 90 post discharge)
  - A fax was sent to the primary care team to inform them of the treatment programme
  - The IVR calls:
    - Prompted smokers to stay quit
    - Encouraged proper use and adherence to medicines
    - Offered repeat prescriptions
    - Triaged smokers for additional counselling if they were not confident in remaining abstinent or had smoked
- Usual care (n=199)
  - Received recommendations for post discharge pharmacotherapy and counselling
  - Followed up at 6 months post-discharge (biochemically confirmed 7-day point prevalence)

Rigotti et al (2014) JAMA 312(7): 719-728
Treatment utilisation

Completed ≥8 weeks of treatment
IVR: 61% UC: 37% p<0.001

RR=1.32 (95% CI: 1.16-1.49)

RR=1.34 (95% CI: 1.17-1.54)

RR=1.63 (95% CI: 1.19-2.23)

Rigotti et al (2014) JAMA 312(7): 719-728
Abstinence rates

RR = 1.71 (95% CI: 1.14-2.56)

Rigotti et al (2014) JAMA 312(7): 719-728
Bold strategies needed

% shown for Maori women and total population

Cobiac et al 2014. Tobacco Control. Online First
THANK YOU

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