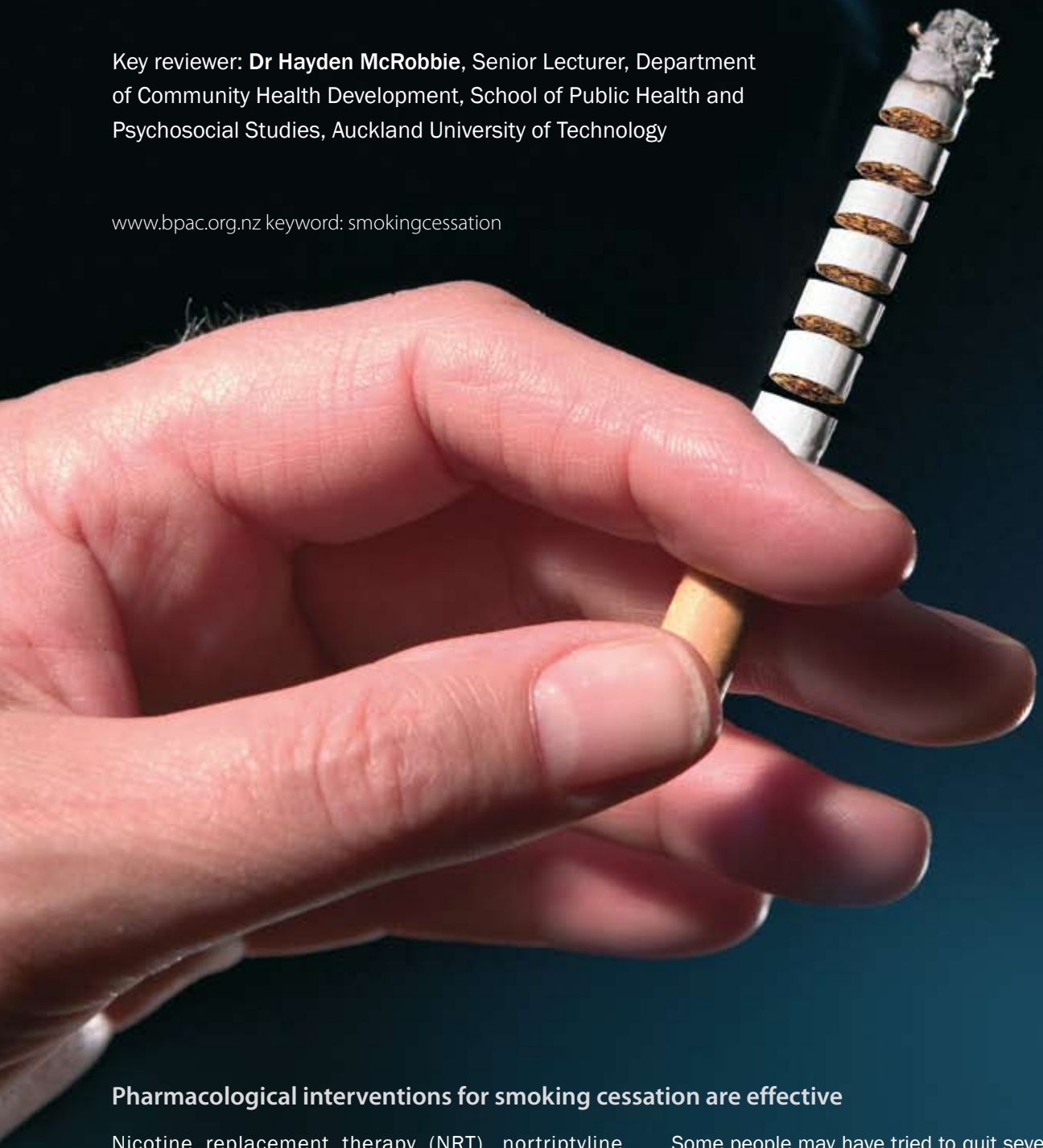
Smoking cessation – Pharmacological therapy

Key reviewer: **Dr Hayden McRobbie**, Senior Lecturer, Department of Community Health Development, School of Public Health and Psychosocial Studies, Auckland University of Technology

www.bpac.org.nz keyword: smokingcessation



Pharmacological interventions for smoking cessation are effective

Nicotine replacement therapy (NRT), nortriptyline, bupropion and varenicline can be effective aids to smoking cessation. For people who have not tried any of the pharmacological therapies for smoking cessation, initial choice can be guided by preference.

Some people may have tried to quit several times before with medication. When choosing a pharmacological intervention for them it is advisable to select one that was previously effective in suppressing the urge to smoke.[1]

It is not advisable to use a medication that:[1]

- Previously caused significant adverse effects for the patient
- Was previously not very effective in suppressing the urge to smoke
- The patient does not believe works

It is useful to explain the risks and benefits of each treatment and allow the patient to help decide which is best for them.[1] NRT is often used initially because of long term experience with its use, its safety profile and cost-effectiveness.[2]

Approximately two to three percent of people who attempt to stop smoking, will quit with no pharmacological or behavioural intervention.[2]

NRT is suitable for most people trying to stop smoking and is available subsidised via Quit Cards

NRT effectively aids smoking cessation, approximately doubling the chances of long term abstinence compared with no treatment.[2] Approximately one in 14 people who would have not otherwise stopped smoking, will do so for at least six months after completing a course of NRT, i.e., the number needed to treat (NNT) for NRT is 14 for abstinence at six months.[2]

NRT is available subsidised on Quit Cards which can now be distributed by general practitioners, nurse practitioners, midwives and dentists. Quit Cards can be ordered at: **http://www.quit.org.nz/page/providers/QuitCards.php**

This website also contains a useful flow chart for initiating people on NRT, including which type and strength NRT to choose, and recommendations for pregnant or breastfeeding women and people aged less than 18 years.

See article on page 58 for more information about NRT

Nortriptyline almost doubles the chances of long-term abstinence from smoking

Nortriptyline is as effective as NRT or bupropion in aiding smoking cessation.[2] The NNT is 11 for abstinence at six months. The efficacy of nortriptyline appears to be independent of its antidepressant effects, and is not restricted to people with a history of depression or depressive symptoms, during smoking cessation.[3]

Common adverse effects associated with nortriptyline include drowsiness, dry mouth, constipation and nausea.[2] It can also be dangerous in overdose.[3]

Dose

Nortriptyline is started while the patient is still smoking and the quit date is set for ten to 28 days later. Initially 25 mg per day is taken and this may be increased up to 75 mg over ten days to five weeks as adverse effects allow. The maximum dose should be taken for eight to twelve weeks and tapered down at the end to avoid withdrawal symptoms.[1, 2]

Bupropion approximately doubles the chances of long term abstinence from smoking

Bupropion therapy approximately doubles the likelihood of smoking cessation.[3] The NNT is 11 for abstinence at six months.[2] Adverse effects associated with bupropion include insomnia, dry mouth and nausea. It is also associated with an increased risk of seizures (estimated to be about one in 1000).[3] This risk is further increased for people with a pre-existing seizure disorder, anorexia nervosa or bulimia (or history), or those concomitantly using drugs that lower the seizure threshold.[4]

Dose

Bupropion is started while the person is still smoking. Initially 150 mg (one tablet) is taken daily for the first three days followed by 150 mg twice daily from day four. The evening dose can be taken early to avoid wakefulness however there should be at least eight hours between doses.[2]

Table 1: Comparison of drug treatments for smoking cessation [8]

	NRT	Nortriptyline	Bupropion	Varenicline
Effectiveness	Approximately doubles the chances of long-term abstinence NNT = 14	Approximately doubles the chances of long-term abstinence NNT = 11	Approximately doubles the chances of long-term abstinence NNT = 11	Approximately doubles to triples the chances of long-term abstinence NNT = 8
Clinically significant adverse effects	–	Adverse effects on cardiovascular function (e.g. ECG changes, arrhythmias)	Increased risk of seizures (risk approximately 1 in 1000)	None noted but post-marketing cases of depression, suicidal ideation and myocardial infarction. Currently being monitored by IMMP
Contraindications	–	Acute recovery phase following an MI	History of seizures, eating disorders, bipolar disorder Acute alcohol withdrawal Breastfeeding	–
Clinically significant drug interactions	–	MAOI's – concomitant use is contraindicated	Any drug known to lower the seizure threshold (e.g. antipsychotics, antidepressants, quinolones, tramadol) MAOI's	–
Available as:	Patch, gum, inhaler*, lozenge, sublingual tablet*	Tablet	Tablet*	Tablet*
Efficacy affected by previous use	No	Not known	Yes	Not known
Use in pregnancy	Yes – intermittent products such as gum or lozenges are preferred as total daily dose is lower than patches	Wide experience and considered safe however may be more appropriate to use NRT	Not recommended	Not recommended
Use in people with CVD	Yes	Best avoided	Yes	Yes
Approximate cost to patient of one course of treatment	$15 for 12-week course of patches, gum or lozenges ($5 per item)	$3 for a 12-week course	$400 for 8-week course	$700 for 12-week course

* not currently subsidised

The quit date should be set for between days eight and 14 after starting bupropion. The person can continue to smoke normally up until that point, and should stop completely by day 14, aiming not to have a single puff after this time.[2]

The recommended duration of treatment with bupropion is seven to nine weeks, however longer treatment can be considered for those who need it.[4]

Varenicline increases the chances of smoking cessation two to three fold

Varenicline approximately doubles to triples the chance of long-term smoking cessation compared with no pharmacological treatment.[5] The NNT is eight for abstinence at six months. Studies have shown varenicline to be more effective than bupropion.[5] One open-label trial showed it to be moderately more effective than NRT, at end of treatment, however this difference disappeared at one year follow up.[6] The efficacy of varenicline on abstinence rates beyond 12 months has not been clearly established.[5, 7]

Common adverse effects include nausea and abnormal dreams. Nausea is often mild to moderate, usually subsides over time and can be minimised by taking varenicline with food and water.[1] There have been reports of serious psychiatric adverse effects, including depression and suicidal thoughts and behaviours (see BPJ 13, May 2008 for further information). There have also been reports of serious cardiac adverse effects such as myocardial infarction. Varenicline is currently being monitored on the Intensive Medicines Monitoring Programme (IMMP), and all clinical events occurring in people taking this medication, should be reported.

Dose

The recommended dose of varenicline is:

- 0.5mg daily for three days
- Followed by 0.5 mg twice daily for the next four days
- Continue with 1 mg twice daily starting at day eight and continuing through until the end of the 12 week course.

Varenicline is started while the patient is still smoking and they should stop smoking one to two weeks later. An initial course is 12 weeks long and patients who have successfully stopped smoking at 12 weeks, can continue on varenicline for an additional 12 weeks, to increase the chances of long term abstinence.[4]

See Table 1 for comparison of pharmacological treatments.

References:

1. Aveyard P, West R. Managing smoking cessation. BMJ 2007; 335: 36-41.
2. Ministry of Health. New Zealand Smoking Cessation Guidelines 2007. Wellington: Ministry of Health.
3. Hughes JR, Stead LF, Lancaster T. Antidepressants for smoking cessation. Cochrane Database of Systematic Reviews 2007; 1 (CD000031).
4. Rennard ST, Daughton DM. Management of smoking cessation. UpToDate 2008. Available from: www.uptodate.com (Accessed February 2009).
5. Cahill K, Stead LF, Lancaster T. Nicotine receptor partial agonists for smoking cessation. Cochrane Database of Systematic Reviews 2008; 3 (CD006103).
6. Aubin HJ, Bobak A, Britton JR, et al. Varenicline versus transdermal nicotine patch for smoking cessation: results from a randomised open-label trial. Thorax 2008; 63(8): 717-724.
7. National Prescribing Service (NPS) RADAR. Varenicline (Champix) for smoking cessation. Available from: http://www.npsradar.org.au/ (Accessed February 2009).
8. Clinical Knowledge Summaries. Smoking cessation. Available from: http://cks.library.nhs.uk/smoking_cessation (Accessed February 2009).