Nicholas Zwar
MBBS, MPH, PhD, FRACGP, is Professor of General Practice, School of Public Health and Community Medicine, University of New South Wales, and Director, General Practice Unit, Sydney South West Area Health Service, New South Wales. nicholas.zwar@sswahs.nsw.gov.au

Smoking cessation

What works?

Background
Prevalence of tobacco smoking in the Australian community has fallen. However, tobacco smoking remains a major cause of illness and death. General practitioners play an important role in assisting their patients to quit smoking.

Objective
This article describes evidence based approaches to smoking cessation that can be applied in general practice.

Discussion
Evidence based approaches to smoking cessation include brief counselling, pharmacotherapy, referral to a specialised service such as Quitline, and follow up. The five As approach – Ask, Assess, Advise, Assist and Arrange follow up – provides a structure for intervention. Smoking cessation pharmacotherapies (nicotine replacement therapy and bupropion) have been shown to double quit rates. A new pharmacotherapy (varenicline) has recently become available which evidence to date suggests is more effective. Clinical suitability, the context of the quit attempt, and patient preference are important considerations in choosing a pharmacotherapy. Active follow up helps to reduce the rate of relapse which is otherwise high in what is commonly a chronic relapsing condition.

Although the prevalence of smoking has decreased, it remains the most prevalent behavioural risk factor for disease and premature death.[1] Tobacco smoking is responsible for the premature death of approximately 16 000 Australians each year.[1] Daily smoking is reported by 17.4% of the population, approximately one in six; and a number of groups within the community such as Indigenous Australians, those from specific ethnic groups, those with a mental health problem, and those with other drug use problems have much higher rates.[2] Nearly three-quarters of smokers report that they want to stop smoking but the success rate of unaided quit attempts is low.[3]

How can GPs help smokers to quit?

There is clear evidence that brief advice from general practitioners to quit has a small effect; 2–3% extra quitters 1 year later.[4] Cessation advice can also be effective when provided by other health professionals such as nurses, pharmacists, psychologists and dentists.[5] The size of the effect can be increased by combining brief advice with other evidence based strategies such as pharmacotherapy, active follow up, and referral to Quitline.[6] *Figure 1* provides a menu of strategies to help patients quit based on the 5As approach.

The 5As approach

Ask

Reliably identifying and documenting tobacco use and providing brief advice to stop has a small effect on quit rates.[7] Being aware of who the smokers are in the practice is also important for effective management of chronic diseases. About one in three smokers attending their GP have not been correctly identified,[8] patients may have tried to quit but have relapsed to smoking and their GP may not be aware of their relapse.

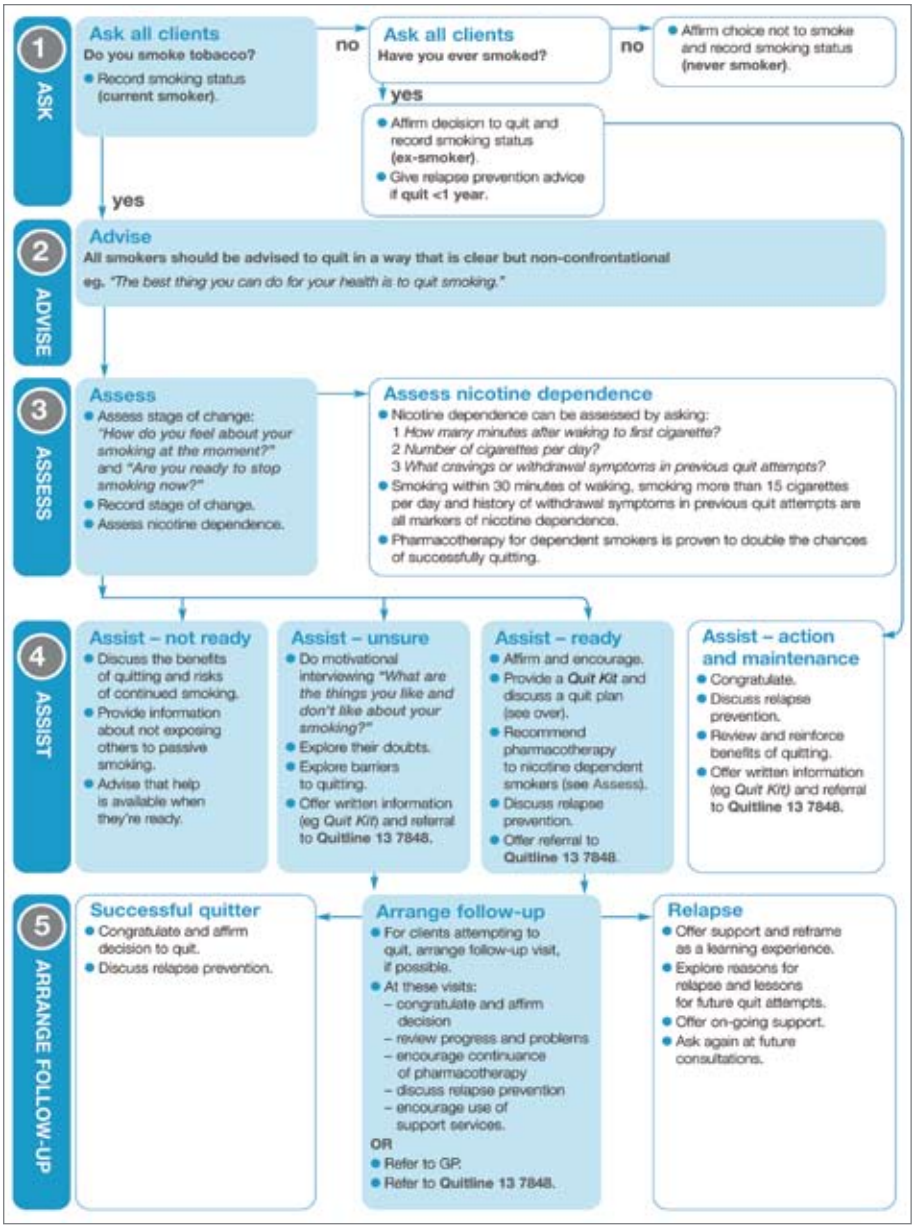
Assess

Assessment of interest in quitting is helpful in tailoring relevant advice to help motivate a quit attempt.[9] Stage of change remains

a useful framework for assessment, although recent evidence shows that people do not necessarily progress in a sequential way through the stages of the model to a planned quit attempt. In fact, unplanned quit attempts are as likely (or even more likely) to be as successful as planned attempts.[10]

Nicotine dependence can be rapidly assessed by asking about time to first cigarette after waking and the number of cigarettes smoked per day.[11] Approximately 70–80% of smokers are nicotine dependent and will experience withdrawal symptoms such as cravings and irritability upon quitting. These symptoms can be prevented or reduced by the use of smoking cessation pharmacotherapy.

Figure 1. The 5As approach to smoking cessation



Reprinted from: Australian Government Department of Health and Ageing, 2004

Advise

Brief assessment and advice to quit, often taking as little as 3 minutes, acts as a prompt to quit attempts and has a measurable effect on quit rates.[7] Providing brief interventions with a larger proportion of patients who smoke can have a bigger impact than spending considerable time with only a small proportion of smokers in the practice, the so called 'reality pyramid' (*Figure 2*).[7]

Assist

All smokers interested in quitting should be offered counselling and support. At the practice level, support can be provided by a GP or a suitably trained practice nurse. Written information such as a 'quit kit' should also be provided. Referral to Quitline is another option. The range of services provided by Quitline is described in *Table 1*.

Assistance also involves recommending the use of smoking cessation pharmacotherapy to smokers with evidence of nicotine dependence. This is discussed in detail below.

Arrange

Tobacco use is typically a chronic disorder. Relapse following a quit attempt is common. Follow up has been shown to increase the likelihood of successful long term abstinence.[12,13] Timing of follow up visits will depend on a number of factors including the need to review and prescribe pharmacotherapy. Approximately 1 week and 1 month after quit day is a suggested schedule.[11]

Smoking cessation pharmacotherapy

A number of medicines have been shown to assist smoking cessation in meta-analyses of randomised clinical trials.[14–17] However, no form of pharmacotherapy is a substitute for motivation and should be given in combination with counselling support from a health professional or a support service.

First line pharmacotherapy

First line pharmacotherapy options are medicines that have been shown to be effective and are licensed for smoking cessation

(*Figure 3*). These include varenicline, nicotine replacement therapy (NRT) and bupropion. From currently available evidence, varenicline is the most effective form of pharmacotherapy;[18,19] although to date, there have been no direct comparative studies with NRT.

Context and patient preference are important in choosing the pharmacotherapy that is most likely to assist the smoker in an attempt to quit: some smokers may prefer a nonprescription medicine such as NRT that they can commence immediately while others may prefer a non-nicotine option that is subsidised by the Pharmaceutical Benefit Scheme (PBS).

Figure 2. The reality pyramid for smoking cessation

Varenicline

Varenicline, specifically developed for smoking cessation, is a partial agonist of the alpha4beta2 nicotinic acetylcholine receptor where it acts to alleviate symptoms of craving and withdrawal. At the same time it blocks nicotine from binding to the alpha4beta2 receptor, reducing the intensity of the rewarding effects of smoking. In two clinical trials, a 12 week course of varenicline produced a continuous abstinence rate of approximately 23% at 12 months, significantly more effective than both bupropion and placebo.[20,21] The main adverse effects were nausea (30%), although less than 3% discontinued treatment due to nausea, and abnormal dreams (13%). Long term use of varenicline can slightly reduce rates of relapse.[22]

Nicotine replacement therapy

The evidence available shows that all forms of NRT (transdermal patch, nasal spray, inhaler, lozenge, sublingual tablet and gum) are effective in aiding cessation, nearly doubling the cessation rate at 12 months compared to placebo.[14] In people smoking more than 20 cigarettes per day, 4 mg gum or lozenge are more effective than 2 mg. Combination therapy (eg. patch and gum) should be recommended to smokers who are not able to quit or experience cravings when using one form of therapy.[11] Nicotine replacement therapy can also help smokers unwilling or unable to stop smoking to reduce their cigarette consumption and a proportion of these smokers will subsequently go on to make a quit attempt.[23]

Based on recent evidence, there have been a number of changes to the indications listed for NRT products:[23,24]

- more than one form of NRT such as patch and gum can be used concurrently
- NRT can be used by pregnant and lactating women (although nonpharmacological methods are preferred)
- all forms of NRT can be used by patients with cardiovascular disease
- all forms of NRT can be used by smokers aged 12–17 years.

Table 1. Quitline services

The national Quitline number is 13 QUIT (137 848) for the cost of a local call (about $0.25; mobile phones extra). A faxed referral can be made to the Quitline in every Australian state and territory using the form in the *Smoking cessation guidelines for Australian general practice* handbook. This form is also available as a template in Medical Director.

Quitline provides access to trained quit smoking advisors/counsellors who can provide reactive or proactive counselling. In the latter, the patient is telephoned by a Quitline counsellor on an agreed number of occasions for proactive support.

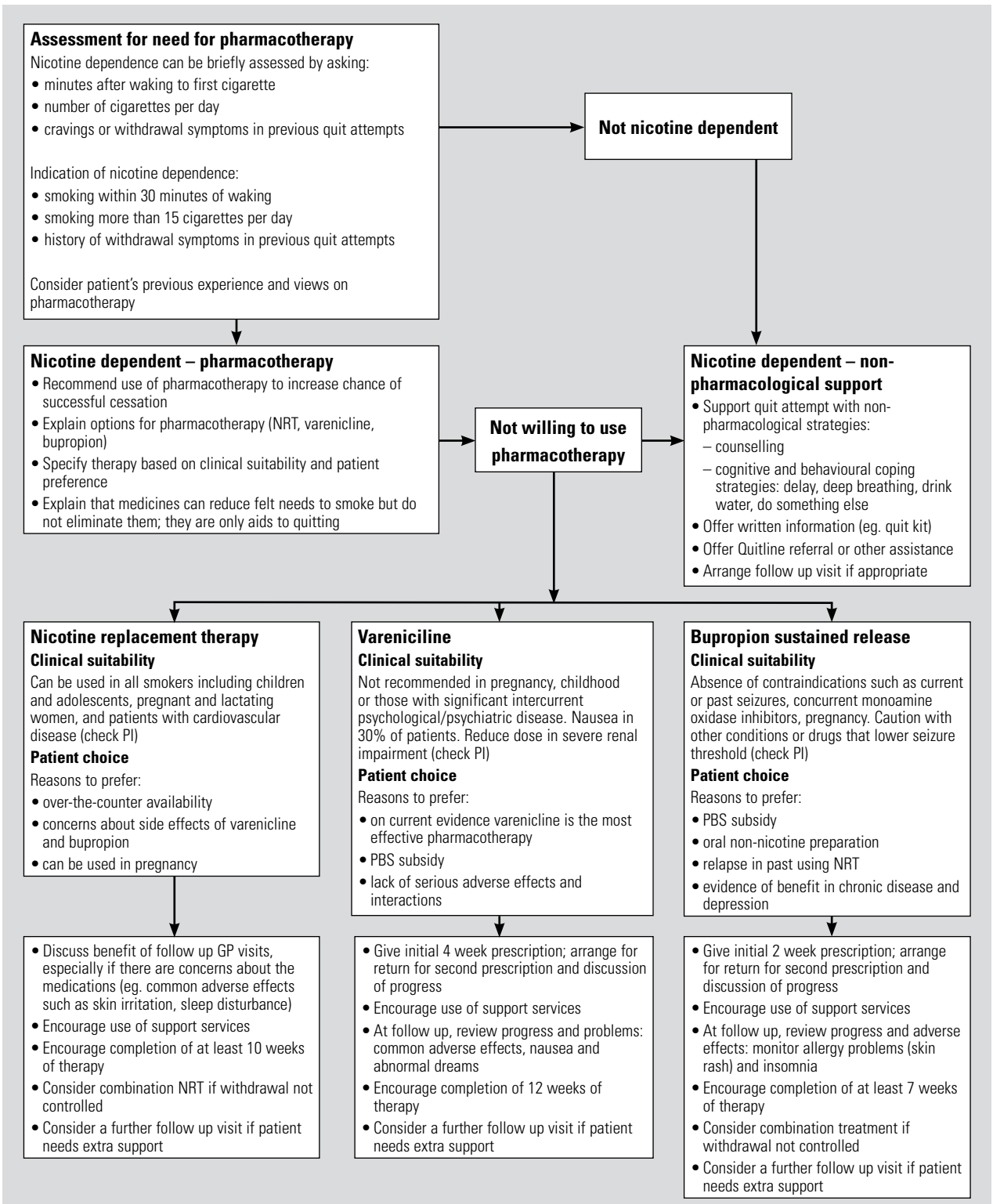
Other Quitline products and services include:

- Quitline adviser/course leader/coach
- Self help books: www.quitbecauseyoucan.org.au
- Online Quit coach support through www.quit.org

Bupropion

Bupropion doubles the cessation rate at 12 months compared to placebo.[15] It has been shown to be effective in a range of patient populations including smokers with depression, cardiac disease and respiratory diseases including chronic obstructive pulmonary disease.[25] It has also been shown to improve short term abstinence rates for people with schizophrenia.[26] However, as bupropion is not as effective as varenicline, it now has a smaller role. Rational use: if varenicline is contraindicated, or in populations where varenicline has yet to be trialled.

Figure 3. Pharmacotherapy options for smoking cessation



Other options

Nortriptyline

The tricyclic antidepressant nortriptyline is not registered for smoking cessation but a 12 week course has been shown to approximately double cessation rates compared to placebo.[17,27] The efficacy of nortriptyline does not appear to be affected by a past history of depression. It is however limited in its application by its potential for serious side effects, including dry mouth, constipation, nausea, sedation and headache, and a risk of arrhythmia in patients with cardiovascular disease. It can be dangerous in overdose. Detailed information on prescribing is contained in the recently published *New Zealand smoking cessation guidelines*.[28]

Alternative methods

Acupuncture and hypnotherapy are both used as aids to smoking cessation. There are only a small number of experimental studies testing these approaches. When tested in controlled trials, active acupuncture does not increase quit rates over sham acupuncture.[29] No benefit was found from hypnotherapy on 6 month quit rates in a meta-analysis of six studies.[30] There are no randomised studies of the Allen Carr Easyway Clinic method.[31]

Special groups

These are a number of priority groups for smoking cessation either because of higher prevalence or higher risk of adverse health effects. High prevalence groups include Indigenous Australians (56% of men and 52% of women); some ethnic communities such as those from Vietnam, Laos and Cambodia (~50% in men but low in women); those with mental health problems; and those with other substance use disorders. Groups with higher risk of health problems include those with pre-existing tobacco related disease and pregnancy.

Conclusion

Smoking cessation has major health benefits and is the single most important thing a patient who smokes can do to improve their health. Cessation can be supported in general practice by: identifying smokers, assessing interest in quitting and nicotine dependence, offering support to quit in the practice or through Quitline referral, pharmacotherapy, and follow up.

Conflict of interest: none declared.

Acknowledgment

Contribution to the content of this article was made by Professor Robyn Richmond, Dr Ron Borland, Professor Matthew Peters, Dr John Litt, Ms Suzanne Stillman, Ms Belinda Caldwell and Mr John Bell.

References

1. Australian Institute of Health and Welfare 2006. Australia's health 2006. AIHW cat. no. AUS 73. Canberra: AIHW, 158.
2. Australian Institute of Health and Welfare 2005. 2004 National drug strategy household survey: detailed findings. AIHW cat. no. PHE 66. Canberra: AIHW, 2005.
3. Owen N, Wakefield M, Roberts L, Esterman A. Stages of readiness to quit smoking: population prevalence and correlates. Health Psychol 1992;11:413–7.
4. Lancaster T, Stead LF. Physician advice for smoking cessation. Cochrane Database of Systematic Reviews 2004, Issue 4. Art. No.: CD000165.
5. Fiore MC, Bailey WC, Cohen SJ, et al for the Guideline Panel. Treating tobacco use and dependence. Clinical practice guideline. Rockville, MD: US Department of Health and Human Services, 2000.
6. The COMMIT Research Group. Community Intervention Trial for Smoking Cessation (COMMIT): II Changes in adult cigarette smoking prevalence. Am J Pub Health 1995;85:193–200.
7. Litt J, Ling M-Y, McAvoy B. How to help your patients quit: practice based strategies for smoking cessation. Asia Pacific Fam Med 2003;2:175–9.
8. Young JM, Ward JE. Implementing guidelines for smoking cessation advice in Australian general practice: opinions, current practices, readiness to change and perceived barriers. Fam Pract 2001;18:14–20.
9. Prochaska JO, Velicer WF. The transtheoretical model of health behaviour change. Am J Health Promot 1997;12:38–48.
10. West R, Sohal T. 'Catastrophic' pathways to smoking cessation: findings from national survey. BMJ 2006;332:458–6.
11. Zwar N, Richmond R, Borland R, Stillman S, Cunningham M, Litt J. Smoking cessation guidelines for Australian general practice. Practice handbook, 2004 edn. Canberra: Australian Government Department of Health and Ageing, 2004.
12. Richmond RL, Austin A, Webster IW. Three year evaluation of a programme by general practitioners to help patients stop smoking. BMJ 1986;292:803–6.
13. Richmond RL, Mackinson RJ, Kehoe LA, Giugni AA, Webster IW. One-year evaluation of three smoking cessation interventions administered by general practitioners. Addict Behav 1993;18:187–99.
14. Silagy C, Mant D, Fowler G, Lancaster T. The Cochrane Library, Issue 2. Oxford: Update Software, 1998. Nicotine replacement therapy for smoking cessation. Database of abstracts of reviews of effectiveness.
15. Hughes JR, Stead LF, Lancaster TR. The Cochrane Library, Issue 2. Oxford: Update Software, 1998. Anxiolytics and antidepressants in smoking cessation. Database of abstracts of reviews of effectiveness.
16. Cahill K, Stead LF, Lancaster T. Nicotine receptor partial agonists for smoking cessation. Cochrane Database of Systematic Reviews 2007, Issue 1. Art. No.: CD006103.
17. Hughes JR, Stead LF, Lancaster T. Antidepressants for smoking cessation. Cochrane Database of Systematic Reviews 2007, Issue 1. Art. No.: CD000031.
18. Varenicline for smoking cessation. NICE technology appraisal guidance 123, 2007. Available at www.nice.org.uk/TA123.
19. Wu P, Wilson K, Dimoulas P, Mills E. Effectiveness of smoking cessation therapies: a systematic review and meta-analysis. BMC Public Health 2006;6:300.
20. Gonzales D, Rennard SI, Nides M, et al. Varenicline, an alpha4beta2 nicotinic acetylcholine receptor partial agonist vs sustained-release bupropion and placebo for smoking cessation. J Am Med Assoc 2006;296:47–55.
21. Jorenby DE, Taylor Hays J, Rigotti NA, et al. Efficacy of varenicline, an alpha4beta2 nicotinic acetylcholine receptor partial agonist vs placebo or sustained-release bupropion for smoking cessation. J Am Med Assoc 2006;296:56–63.
22. Tonstad S, Tønnesen P, Hajek P, et al. Effect of maintenance therapy with varenicline on smoking cessation. J Am Med Assoc 2006;296:64–71.
23. Guidelines for healthcare professionals on using nicotine replacement therapy for smokers not yet ready to stop smoking. ASH February 2007. Available at www.ashaust.org.au.
24. National Institute for Clinical Excellence. Guidance on the use of nicotine replacement therapy (NRT) and bupropion for smoking cessation. Technology Appraisal Guidance No. 39. March 2002. Available at www.nice.org.uk.
25. Richmond R, Zwar N. Therapeutic review of bupropion sustained release. Aust Drug Alcohol Rev 2003;22:203–20.
26. Evins AE, Cather C, Deckersbach T, et al. A double-blind placebo-controlled trial of bupropion sustained-release for smoking cessation in schizophrenia. J Clin Psychopharmacol 2005;25:218–25.
27. Hughes JR, Lindsay F, Stead LF, Lancaster T. Nortriptyline for smoking cessation: a review. Nicotine Tob Res 2005;7:491–9.
28. Ministry of Health. New Zealand smoking cessation guidelines. Wellington: Ministry of Health, 2007. Available at www.health.gov.au/internet/wcms/publishing.nsf/content/health-pubhlth-publicat-document-smoking_cessation-cnt.htm.
29. White AR, Rampes H, Campbell JL. Acupuncture and related interventions for smoking cessation. Cochrane Database of Systematic Reviews 2006 Art. No.: CD000009.
30. Abbot, Stead LF, White AR, Barnes J. Hypnotherapy for smoking cessation. Cochrane Database of Systematic Reviews 1998 Art. No.: CD001008.
31. McRobbie H, Hayek, P, Bullen C, Feigin V. Rapid review on non-NHS treatments for smoking cessation. 2 February 2007. Available at http//guidance.nice.org.uk.

AFP CORRESPONDENCE afp@racgp.org.au