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National Tobacco Strategy 1999 to 2002–03 occasional paper

Smoking cessation interventions

**REVIEW OF
EVIDENCE AND
IMPLICATIONS
FOR BEST
PRACTICE IN
HEALTH CARE
SETTINGS**

RESERVED

August 2001

*National
Drug Strategy*

Smoking cessation interventions

Review of evidence and
implications for best practice in
health care settings

Final report

August 2001

RESCINDED

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Foreword

Australia is widely recognised as being among the world leaders in tobacco control. Our results can be attributed to a range of strategies over a significant period of time. Social marketing campaigns, legislation, taxation, school-based education, and packaging and labelling requirements have all contributed to our progress in continuing to reduce smoking prevalence, particularly in the 1990's where the downward trend resumed after a period of plateauing prevalence. It is widely acknowledged that an effective response to tobacco use requires comprehensive and sustained action on a number of fronts. Government, non-Government, community and professional organisations all have a role to play in helping to maintain this comprehensive approach.

Australia's commitment to comprehensive and collaborative effort is reflected in the *National Tobacco Strategy 1999 to 2002-03: A Framework for Action*, endorsed by all Australian Governments through the Ministerial Council on Drug Strategy. Under the Strategy, regulatory and educational approaches, especially the National Tobacco Campaign, create a supportive climate for interventions at the individual level. One of the best forms of intervention is support by a health professional using acceptable and available techniques that are based on overall evidence of effectiveness. This mix of population and individual strategies is the key to reducing smoking rates. While campaign and other activity has helped to reduce Australia's smoking rate from 27.3% in May 1997 to 20.3% as at November 2000, or the equivalent of around 400,000 smokers, more can be done.

This review follows National Health and Medical Research Council guidelines on gathering evidence to synthesise the available evidence on the effectiveness and potential benefit of smoking interventions delivered by health professionals, including the relative effectiveness of the different methods available. Australia's general practitioners see about 80% of the population every year, and are a respected source of smoking advice on smoking issues. General practitioners and other health professionals can therefore play a pivotal role in helping create a tobacco-free community and better health for all in the 21st century. Development of best practice guidelines and tools to support this work is a key priority for the National Expert Advisory Committee on Tobacco.

The evidence presented in this review provides a sound basis for this work. The completed guidelines will encourage more health professionals to intervene in smoking cessation and do so according to consistent evidence-based principles. They will complement other initiatives aimed to equip professionals to assist Australians to improve their health. The review will also provide a valuable resource for tobacco control advocates and researchers, and is now being published as an important document in its own right.

I commend the review to your attention for the purpose of assisting you in your role in addressing the primary preventable cause of death in Australia.

Professor David Hill
Chair
National Expert Advisory Committee on Tobacco

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1 Executive summary

1.1 Background

Tobacco smoking is the largest preventable cause of death, disease, illness and disability in Australia and places a huge financial drain on the community. Tobacco use greatly diminishes the quality of life of smokers and those around them. Environmental tobacco smoke can also affect the health of non-smokers, particularly children. Many of the adverse health effects of smoking are reversible by cessation.

Tobacco dependence is a chronic condition that for the majority of smokers requires repeated and persistent effort to overcome. Smoking cessation is a staged process, not a single event. Smokers may cycle through some or all of the stages many times before they achieve long-term cessation.

In 1998, over three million Australians over 14 years of age were regular smokers and a further 600,000 were occasional smokers. This represents 25 per cent of males and 20 per cent of females. Around two thirds of smokers are interested in quitting and half try to quit each year. Less than a quarter of smokers who try to quit remain non-smokers for six months or more. Only ten per cent remain abstinent for more than a year.

Despite the difficulty of quitting, 50 per cent of people who have ever smoked eventually successfully quit smoking. The success rate of those who use some form of assistance is double that of those who try to quit 'on their own'.

1.2 Project rationale

The effectiveness and potential public health benefit of intervention by health care professionals to support smoking cessation is well documented. However a number of surveys of Australian health care providers report very low levels of routine provision of smoking cessation advice to their patients who smoke.

There is a need for a review of the evidence of effectiveness of smoking cessation methods available in Australia and a clear statement of best practice with regards to intervention in the health sector and by health care professionals.

1.3 Project objectives

The objectives of this project are to:

- Investigate the effectiveness and appropriateness of smoking cessation methodologies.
- Identify best practice in smoking cessation intervention for a range of health care providers and health sector service levels in the Australian context.

Although important for the implementation of best practice smoking cessation methods, systematic identification of barriers to and promoters of adoption of best practice models in Australia was beyond the scope of the current project.

1.4 Methods

The literature on smoking cessation methods and effectiveness was systematically reviewed using pre-determined scope and criteria. The steps taken in the review were guided by methods recommended in the NHMRC handbook *How to Review the Evidence: Systematic Identification and Review of Scientific Literature* (NHMRC, 2000a).

The basis of the review was existing meta-analyses of relevant randomised-controlled trials (Lancaster et al, 2000; Fiore et al, 2000). This was supplemented by reviews of evidence relating to clinical practice guidelines for health professionals in the United States (Fiore et al, 2000), United Kingdom (West et al, 2000), Scotland (ASH and HEBS, 2000) and New Zealand (National Advisory Committee, 1999). Further literature search was also conducted to identify relevant controlled trials published internationally in peer-reviewed journals since January 1999 and not included in the existing meta-analyses or reviews. Specific effort was also made to identify reports of Australian studies published since 1995 in journals not cited by Medline.

Search methods included systematic searches of electronic data bases, manual journal scanning of major relevant journals not listed in electronic data bases, scanning of relevant websites and conference abstracts, and telephone consultations with tobacco contacts in all Australian states and territories to identify current or unpublished interventions or research relevant to the brief for this review.

For the purposes of the review, the outcome measure for smoking cessation was continuous abstinence from smoking (preferably biochemically assessed) for at least five months. Point prevalence of cessation at six months or more was only considered as a secondary measure (Hughes et al, 2000a).

The scope of the review included interventions conducted by primary health care providers (doctors, nurses, dentists, pharmacists, psychologists, psychiatrists) and smoking cessation specialists in a wide range of health settings including general practice, hospitals and community health centers. Methods of cessation considered include behavioural (both individual and group), pharmacological and alternative (eg acupuncture) interventions.

Target groups for intervention considered separately from the general population include pregnant and lactating women, children and adolescents and Aboriginal and Torres Strait Islander people.

Consideration of barriers to implementation of cessation methods was outside the scope of the review.

Statements of evidence and recommendations for best practice in Australia are made for each type of intervention. The recommendations are based on strength of the evidence, size of the effect and relevance to individuals and the health care system using methods recommended by the NHMRC handbook *How to Assess the Evidence: Assessment and Application of Scientific Evidence* (NHMRC, 2000b). A simplified grading system for levels of evidence was used. This is consistent with the grading system used in the latest US (Fiore et al, 2000), UK (West et al, 2000) and Scottish smoking cessation guidelines (ASH Scotland and HEBS, 2000), and is as follows:

Strength of evidence A: Multiple well-designed, randomised, controlled trials directly relevant to the recommendation, yielding a consistent pattern of findings.

Strength of evidence B: Some evidence from randomised controlled trials, but not optimal. More interpretation of the evidence was needed. For example, there were not many randomised controlled trials, for trials that did exist results were not consistent or the trials were not directly relevant to the recommendation. They may not have been directly relevant because, for example, the study population was different.

Strength of evidence C: No randomised controlled trials but the issue was important enough to merit a recommendation based on published evidence and expert opinion of review panel.

A report on the analysis was prepared with recommendations for ‘best practice’ in cessation interventions for Australia. The report was circulated for comment to key informants in the Commonwealth, State and Territory governments and subjected to informal peer review.

1.5 Summary of evidence

Summary statements of the evidence for each type of intervention are presented below. Reference is also given to the corresponding section of the report for the context and research that underpins the statements.

1.5.1 Behavioural interventions

1.5.1.1 Self help interventions for smoking cessation (See Section 3.1.1)

- Generic self-help materials alone are of small benefit compared to no intervention (**Strength of evidence A**).
- Providing self-help materials other than a brief leaflet in addition to advice does not improve the smoking cessation rates achieved by advice from a health professional (**Strength of evidence A**).
- Providing self-help materials in addition to nicotine replacement therapy does not improve smoking cessation rates (**Strength of evidence B**).
- Tailoring materials to the characteristics of individual smokers improves effectiveness (**Strength of evidence A**).
- Tailoring materials to the characteristics of a population of smokers does not improve effectiveness, with the exception of pregnant women (**Strength of evidence B**).
- Adding follow-up telephone calls improves effectiveness of self-help materials in achieving cessation (**Strength of evidence A**).
- Quit-lines are effective in achieving cessation when promoted in conjunction with advertising programs that reach large populations (**Strength of evidence C**).
- Quit and Win competitions are an effective mass reach approach to achieving cessation when promoted in conjunction with advertising and support programs (**Strength of evidence C**).

There is not enough evidence from comparative studies to recommend one or more types of self-help intervention over others.

1.5.1.2 Minimal clinical intervention (See Section 3.1.2)

Minimal clinical intervention consists of brief cessation advice from health care providers delivered opportunistically during routine consultations to smokers whether or not they are seeking help with stopping smoking. Each session usually lasts three to five minutes and follows a stepped process described as the 4A's (UK, NZ) or 5A's (US) approach (Appendix 4); **A**sk, **A**dvice, **A**ssess, **A**ssist, **A**rrange.

1.5.1.2.1 Step 1: Asking about tobacco use

- Implementing clinic systems designed to increase the assessment and documentation of tobacco use almost doubles the rate at which clinicians intervene with their patients who smoke and results in higher rates of smoking cessation (**Strength of evidence B**).

1.5.1.2.2 Steps 2 and 4: Advising and Assisting

- All health professionals can be effective in providing smoking cessation advice (**Strength of evidence A**).

- Brief cessation advice to smokers from doctors delivered opportunistically during routine consultations has a modest effect size but substantial potential public health impact (**Strength of evidence A**).
- Brief cessation advice delivered to smokers by nurses has a modest effect on the odds of quitting compared to no advice (**Strength of evidence B**).
- Training of health care professionals in brief intervention methods increases their performance of smoking cessation intervention steps with their patients (**Strength of evidence B**).
- Training of health care professionals in brief intervention methods does not appear to significantly increase smoking cessation rates in their patients (**Strength of evidence B**).
- A major benefit of brief opportunistic cessation advice is to motivate a quit attempt and to provide support or referral to aid quit attempts (**Strength of evidence C**).

1.5.1.2.3 *Step 3: Assessment*

- Assessment of readiness to quit is a necessary first step in planning treatment. However assessment of individual and environmental attributes is not essential for effective intervention but may provide information for tailoring treatment (**Strength of evidence B**).

1.5.1.2.4 *Step 5: Arranging follow-up*

- Assessment within the first week after quitting is desirable to support quit attempts (**Strength of evidence C**).
- Relapse prevention therapy reduces relapse rate (**Strength of evidence C**).
- Support of relapsed smokers to make another quit attempt is effective (**Strength of evidence C**).

1.5.1.3 **Intensive clinical intervention** (See Section 3.1.3)

1.5.1.3.1 *Characteristics of effective clinical interventions for sustained smoking cessation*

- There is a strong dose response relationship between the session length of health professional- smoker contact and abstinence rates (**Strength of evidence A**).
- There is a strong dose response relationship between the number of sessions and abstinence rates (**Strength of evidence A**).
- There is a strong dose response relationship between total contact time up to 90 minutes and abstinence rates (**Strength of evidence A**).
- Treatments delivered by more than one type of health professional increase abstinence rates (**Strength of evidence C**).
- Individual, group and proactive telephone counselling, are effective methods of increasing long-term quit rates (**Strength of evidence A**).

1.5.1.3.2 *Types of counselling and behavioural therapies*

- Providing problem-solving skills training and social support as part of treatment, and helping smokers obtain social support outside of treatment are all effective methods of increasing long-term quit rates (**Strength of evidence B**).
- Many behavioral approaches to smoking cessation are not effective in increasing cessation rates when compared to no intervention. These include relaxation/breathing, contingency contracting, weight/diet therapy, cigarette fading and negative affect (associating smoking with negative thoughts) (**Strength of evidence B**).

- The role of physical activity in supporting smoking cessation needs further study (**Strength of evidence C**).

1.5.1.4 Individual behavioural counselling (See Section 3.1.4)

1.5.1.4.1 *More intensive intervention by usual carers eg doctors, nurses*

- There is a small advantage of intensive cessation advice over minimal advice provided to smokers by their doctor (**Strength of evidence A**).
- Follow-up visits with their doctor significantly increases cessation rate of smokers at six months or more compared to no follow-up (**Strength of evidence A**).
- Nurse interventions classified as higher intensity based on the length of initial contact, content of intervention and number of follow-ups, may not be more effective than minimal intervention in achieving successful quitting (**Strength of evidence B**).
- Providing additional physiological feedback in the form of spirometry and demonstrated carbon monoxide level as an adjunct to nursing intervention does not appear to have an effect (**Strength of evidence B**).
- Repeated telephone support by a nurse after an initial intervention with a doctor or nurse increases long-term cessation rate (**Strength of evidence B**).

1.5.1.4.2 *Counselling by a smoking cessation specialist*

- Individual counselling is more effective in achieving sustained smoking cessation than brief advice, usual care or provision of self help materials (**Strength of evidence A**).
- There is limited evidence that intensive counselling, including relapse prevention is more effective than brief counselling (of more than 10 minutes duration) (**Strength of evidence B**).
- There is insufficient evidence of a difference in effect between individual counselling and group therapy (**Strength of evidence B**).

1.5.1.4.3 *Telephone counselling*

- Pro-active telephone counselling is effective in increasing cessation rates when used as a sole intervention modality or when augmenting programs initiated in hospital settings (**Strength of evidence A**).
- Repeated telephone support for up to 12 weeks is more effective than a single telephone counselling session (**Strength of evidence A**).
- Three to four telephone calls over 12 weeks may be as effective as more frequent calls (**Strength of evidence C**).

1.5.1.5 Supportive group sessions (See Section 3.1.5)

- Group behaviour therapy is more effective in achieving sustained smoking cessation than self-help and other less intensive interventions (**Strength of evidence A**).
- There is not enough evidence to determine any difference in the effectiveness of group and individual therapy in achieving sustained smoking cessation (**Strength of evidence B**).
- The addition of group therapy to other forms of treatment such as advice from a health professional and NRT produces few extra benefits (**Strength of evidence B**).
- There is variation in client acceptability of group therapy (**Strength of evidence A**).

There are insufficient studies of similar components of group therapy to confidently identify effective and ineffective components of group programs.

1.5.1.6 Aversion therapy

- There is no evidence of benefit from aversion methods other than rapid smoking techniques (**Strength of evidence A**).
- There is some evidence of benefit of ‘rapid smoking’ smoking aversion therapy (**Strength of evidence B**).

1.5.2 Pharmacological aids

1.5.2.1 Nicotine replacement therapy (See Section 3.2.2)

- Nicotine gum, nicotine trans-dermal patch, nicotine nasal spray and nicotine inhaler all increase quit rates at 5 to 12 months approximately two-fold compared with placebo and regardless of the setting (**Strength of evidence A**).
- There is little difference overall in the effectiveness of different types of NRT in achieving cessation at 5 to 12 months (**Strength of evidence A**).
- Wearing a patch only during waking hours (16 hours/day) is as effective as wearing it for 24 hours/day (**Strength of evidence A**).
- Combinations of different forms of NRT are more effective than one form alone (**Strength of evidence B**).

1.5.2.1.1 Combination of nicotine replacement with other therapies

- Nicotine replacement therapy is effective on its own but there are added benefits of combination with behavioural intervention (**Strength of evidence A**).
- The combination of bupropion and nicotine patch is more effective than nicotine patch alone (**Strength of evidence B**).

1.5.2.2 Anti-depressants (See Section 3.2.3)

- Bupropion SR (Zyban) is an effective smoking cessation treatment (**Strength of evidence A**).
- The combination of bupropion and nicotine patch is more effective than nicotine patch alone (**Strength of evidence B**).
- Nortriptyline is an efficacious smoking cessation treatment (cautions apply) (**Strength of evidence B**).
- Fluoxetine may aid smoking cessation in depressed smokers (**Strength of evidence B**).

1.5.2.3 Other pharmacological aids (See Section 3.2.4)

- Clonidine is an effective smoking cessation treatment (**Strength of evidence A**).
- There is insufficient evidence to draw conclusions about the effectiveness of mecamylamine as an aid to smoking cessation (**Strength of evidence C**).
- There is little evidence that naltrexone aids sustained smoking cessation (**Strength of evidence B**).
- There is little evidence that anxiolytics aid sustained smoking cessation (**Strength of evidence C**).
- Silver acetate has no beneficial effects in smoking cessation (**Strength of evidence B**).

1.5.2.4 Comparison of pharmacotherapies (See Section 3.2.5)

There are insufficient studies directly comparing pharmacotherapies to make definitive recommendations about best choice of pharmacotherapies with the following exceptions:

- Highly dependant smokers who use nicotine gum should use 4 mg not 2 mg doses (**Strength of evidence A**).
- Smokers with a history of depression may be more successful at cessation using bupropion SR or nortriptyline (**Strength of evidence A**).
- Smokers concerned about weight gain may be more successful at delaying (but not preventing weight gain) using bupropion SR or NRT, particularly nicotine gum (**Strength of evidence B**).
- Patient preferences and expectations regarding outcome are important in guiding choice of pharmacotherapies (**Strength of evidence C**).

1.5.3 Other interventions

1.5.3.1 Acupuncture (See Section 3.3.1)

- There is no evidence of a specific effect of acupuncture in smoking cessation other than as a placebo effect (**Strength of evidence A**).

1.5.3.2 Hypnotherapy (See Section 3.3.2)

- There is insufficient evidence to recommend hypnotherapy as a specific treatment for smoking cessation (Strength of evidence C).

1.6 Summary of general implications for Australian practice

1.6.1 Behavioural interventions

1.6.1.1 Self help interventions for smoking cessation (See Section 3.1.1)

- A brief leaflet is sufficient to support pharmacotherapy or smoking cessation advice from a health professional.
- Printed self-help materials are a desirable support to mass reach strategies to encourage smoking cessation.
- Self-help materials should be tailored to the needs and cessation stages of individual smokers and selected population groups (pregnant women, Aboriginal and Torres Strait Islander people).
- Well-promoted quit-lines should be further developed to support self-help cessation attempts.
- The effectiveness of computer-based self-help cessation aides needs further investigation.

1.6.1.2 Minimal clinical intervention (See Section 3.1.2)

- All health care providers should routinely provide brief cessation advice.
- Clinic or institutional systems should be established for identification of smokers.
- Barriers to the provision of smoking cessation advice by all health professionals should be identified and addressed.
- Profession-specific brief intervention guidelines for health care providers should be developed and promoted.

1.6.1.3 Intensive clinical intervention

1.6.1.3.1 Individual behavioural counselling (See Sections 3.1.3 and 3.1.4)

- Health services and health professionals should explore viable methods for incorporating more intensive interventions and follow-up into routine practice for smoking cessation.
- Telephone counselling, including services offered through quitlines, should be further developed to support clinical intervention.
- Counselling options, including those provided as a Pharmaceutical Benefits Scheme (PBS) requirement to Zyban users should be consistent with the evidence for best practice.

1.6.1.3.2 Supportive group sessions (See Sections 3.1.3 and 3.1.5)

- Group therapy is an effective cessation method that should be available for those who are willing to participate.
- Best practice, participation rates and effectiveness of group therapy should be monitored and courses modified as required.

1.6.1.3.3 Aversion therapy (See Section 3.1.6)

- Aversion therapy techniques are outdated and not recommended in Australian practice.

1.6.2. Pharmacological aids

1.6.2.1 Nicotine replacement therapy (See Section 3.2.2)

- All forms of NRT currently available in Australia should be promoted as effective cessation methods alone or with the added efficacy of combination with behavioural intervention.
- Barriers to access to NRT should be reviewed and addressed.
- The potential synergies of combined use of NRT and bupropion is a current area of research the results of which will have implications for future cessation intervention guidelines.
- The use of NRT by specific population groups (ie pregnant women, adolescents, aboriginal people) is an important area for research.

1.6.2.2 Anti-depressants (See Section 3.2.3)

- Use of bupropion (Zyban) for smoking cessation should be accompanied by behavioural counselling shown to be effective in this review.
- Until further evidence is available, interim guidelines for health professionals for recommending alternative or combined use of NRT and bupropion (Zyban) should be developed.
- More comparative studies are needed to make recommendations concerning use of different types of anti-depressant drugs in smoking cessation.

1.6.2.3 Other pharmacological aids (See Section 3.2.4)

- There is sufficient evidence to recommend clonidine as an effective pharmacotherapy for smoking cessation to be used under medical supervision when appropriate.
- There are insufficient controlled trials to make recommendations concerning the use of mecamyaline, anxiolytics, naltrexone and silver acetate for smoking cessation. However, indications from existing evidence is that they are no more effective than placebo treatments.

1.6.2.4 Comparison of pharmacotherapies (See Section 3.2.5)

- Until further evidence is available, interim guidelines for health professionals for recommending different types of pharmacotherapy for smoking cessation should be developed.

1.6.3 Other interventions

1.6.3.1 Acupuncture (See Section 3.3.1)

- Acupuncture should not be actively recommended as a cessation method as there is no evidence for effectiveness other than that indicated by a placebo effect.

1.6.3.2 Hypnotherapy (See Section 3.3.2)

- There is insufficient evidence to support recommendation of hypnosis as a treatment for smoking cessation.
- Information made available to smokers in Australia on quitting methods and products should be consistent with the findings of systematic reviews of evidence on the efficacy of cessation methods such as hypnotherapy.

1.7 Summary of best practice implications for health professionals and health services

1.7.1 Health professionals

1.7.1.1 Doctors (See Section 4.2.1)

- As a minimum, the 4A's or 5A's approach to brief intervention should be implemented in all medical practice contexts.
- Doctors should have ready access to training and practice guidelines for supporting smokers' attempts at smoking cessation.
- Recommendations and strategies for involvement of doctors in provision of smoking cessation interventions need to consider barriers to involvement.

1.7.1.2 Nurses (See Section 4.2.2)

- As a minimum, the 4A's or 5A's approach to smoking cessation intervention should be implemented in all nursing contexts.
- Nurses who smoke should receive cessation support within the workplace.

1.7.1.3 Pharmacists (See Section 4.2.3)

- Pharmacists should be actively involved in smoking cessation programs. As a minimum, they should implement the 4A's or 5A's approach to smoking cessation intervention.
- Pharmacists should develop and demonstrate effective pharmacy-based programs for smoking cessation.

1.7.1.4 Dentists (See Section 4.2.4)

- As a minimum, dentists should implement the 4A's or 5A's approach to providing brief smoking cessation advice to their clients.

1.7.1.5 Smoking cessation specialists (See Section 4.2.5)

- Smoking cessation specialists should implement programs that are consistent with the evidence related to characteristics of effective interventions.
- Smoking cessation specialists should be proactive in supporting other health professionals and health services to deliver effective cessation interventions.

1.7.1.6 Other health professionals (See Section 4.2.6)

- Identifying smokers, intervening and offering advice on smoking cessation should be a core activity of all health professionals with direct patient contact.

1.7.2 Health services

1.7.2.1 Hospitals (See Section 4.3.1)

- All hospitalised smokers should be provided with effective smoking cessation treatments.
- Hospital systems should be implemented to routinely identify and treat smokers.
- Hospitals should become completely smoke-free.
- Hospital staff as well as patients who are smokers should be provided with cessation assistance.

1.7.2.2 Community health services (Section 4.3.2)

- Community based cessation interventions should be implemented to complement and reinforce advice from specific health professionals.
- Smoking cessation should be incorporated into programs and interventions that target other diseases or health problems for which smoking is a contributory factor.

1.8 Summary of best practice implications for special groups

1.8.1 Pregnant and lactating women (See Section 5.2)

- Effective smoking cessation interventions should be offered to pregnant smokers at the first antenatal visit and throughout pregnancy and postpartum.
- Extended psychosocial interventions that exceed minimal advice to quit should be made available for pregnant women.
- Pharmacotherapy should be considered when a pregnant woman is otherwise unable to quit and when the likelihood and benefits of quitting outweigh the risks of pharmacotherapy and continuation of smoking.

1.8.2 Adolescents (See Section 5.3)

- More attention to adolescent smoking cessation issues is warranted, particularly the evaluation of effectiveness of intervention methods.

1.8.3 Aboriginal and Torres Strait Islander people (Section 5.4)

- Smoking cessation methods identified as effective in this review should be provided for Aboriginal and Torres Strait Islander people.

- Effective smoking cessation methods should be modified or tailored to meet the needs of Aboriginal and Torres Strait Islander people, and delivered in culturally appropriate ways.
- Specific barriers to smoking cessation treatment or treatment success for Aboriginal and Torres Strait Islander people need to be addressed.

1.8.4 People with smoking related diseases (See Section 5.5)

- Smoking cessation programs should be part of the management of people with smoking-related illnesses.
- Information about the link between smoking and specific symptoms and illnesses should be provided and reinforced at every opportunity.

1.8.5 People with mental illness (See Section 5.6)

- Smokers with psychiatric disorders should be provided with effective smoking cessation treatments that address their specific needs.

1.9 Limitations

- The conclusions of the review are largely based on the meta-analysis of randomised controlled trials. The main limitation of meta-analysis is loss of detail concerning aspects of intervention. Some genuine effects may not be identified and particular attention may need to be paid to individual studies to decide how to deliver an intervention in a specific situation.
- The main outcome measure for smoking cessation in this review was continuous abstinence from smoking for at least five months. When data were not available for five or six months, data for longer periods of cessation were used (mainly 12 months). This should be considered if comparing the effectiveness of different methods.
- Due to possible variations in response in different study settings, comparisons between methods should be cautious and based on difference between intervention and placebo groups reported as size of effect or odds ratios, not on absolute cessation rates.

1.10 Key conclusions

1. Tobacco dependence is a chronic condition that usually requires repeated intervention.
2. Effective interventions exist that can produce long-term cessation at up to double the rate achieved by smokers without treatment.
3. Because of the potential health benefits and availability of effective interventions every smoker should be offered evidence-based intervention.
4. The identification of smoking status and the provision of brief advice independently increase cessation rate compared to no intervention (see Table 4, Section 3.1.2) and should be routine as part of each contact with health services.
5. Interventions involving individual, group or proactive telephone counselling are more effective than no intervention (see Table 4, Section 3.1.2).
6. There is a strong dose response between the intensity (number and length of sessions) of tobacco cessation counselling and its effectiveness (see Table 4, Section 3.1.2).
7. The types of counselling that are most effective are problem-solving skills training, providing social support as part of treatment, and helping smokers obtain social support outside of treatment (see Table 5, Section 3.1.3).
8. A number of pharmacotherapies are effective and safe (see Table 7, Section 3.2.5).

9. Because pharmacotherapies enhance the quit rates of most other cessation methods every smoker should be offered appropriate pharmacotherapy to support cessation attempts, unless contra-indicated.
10. Special considerations are needed in selecting cessation interventions for pregnant women, youth, people with mental illness and Aboriginal and Torres Straight Islander people (See Part 4).
11. More intervention research is needed to evaluate the effectiveness of cessation methods with specific target groups.

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2 Background and methods

2.1 Introduction

2.1.1 Magnitude of the problem

Tobacco smoking is the largest preventable cause of death and disease in Australia. It accounts for over 19 000 deaths each year (Ridolfo and Stevenson, 2001). Tobacco is responsible for 82 per cent of all drug-caused deaths, and more than one in five cancer deaths (English et al, 1995). International studies indicate that one in two people who smoke long term die early due to smoking, with half of these deaths occurring in middle age (Doll et al, 1994). As well as causing premature death, use of tobacco greatly diminishes quality of life (Hirdes and Maxwell, 1994), and this affects family, friends and colleagues, as well as smokers themselves. Many of the adverse health effects of smoking are reversible by cessation (USDHHS, 1988).

Tobacco smoking also places a huge financial drain on the community. Health economists estimated that in 1992 the direct and indirect costs of smoking to Australia were \$12.7 billion (Collins and Lapsley, 1996). These costs include health care expenditure, lost productivity, costs of tobacco addiction prevention and treatment as well as a number of other indirect costs (Collins and Lapsley, 1996).

2.1.2 Health effects of smoking

Tobacco smoking is a major risk factor for a range of diseases and disabling conditions. These include cardiovascular disease and stroke and many cancers, including cancers of the lung, throat, cervix, bladder and tongue (Winstanley et al, 1995). Smoking adversely affects male impotence, and women who smoke can suffer reduced fertility and/or menstrual problems. Smoking during pregnancy increases risks of miscarriage, premature labour, stillbirth, complications during labour and low-birth weight babies (Winstanley et al, 1995).

Tobacco smoke also affects the health of non-smokers. Passive smoking (environmental tobacco smoke) can cause cardiovascular disease, lung cancer, respiratory tract irritation, and an increased risk of bronchitis, pneumonia, asthma onset in children and increased frequency and severity of asthma symptoms and sudden infant death syndrome (Winstanley et al, 1995).

2.1.3 Smoking rates and trends in smoking in Australia.

In 1998, over three million Australians over 14 years of age were regular smokers and a further 600,000 were occasional smokers. Six million were ex-smokers (AIHW, 2000). Smokers represent 22 per cent of the population over 14 years of age; 25 per cent of males and 20 per cent of females. The highest rate of smoking is amongst 20 to 29 year olds (31%). The majority of smokers smoke more than 11 cigarettes per day.

The proportion of regular smokers declined by two per cent between 1995 and 1998 (AIHW, 2000). The proportion of ex-smokers rose from 38 to 49 per cent, with the greatest increase for males (40 to 43 per cent) compared to females (35 to 36 per cent).

2.1.4 Nicotine dependence

Nicotine is the primary substance found in tobacco that causes dependence on cigarette smoking (Stolerman and Jarvis, 1995). Nicotine reaches the brain very quickly and rapidly accumulates there once absorbed. It works by stimulating release of dopamine, the chemical responsible for positive mood. The acute effects of nicotine dissipate quickly, causing decreased positive mood. As nicotine deprivation occurs, cravings occur causing the smoker to want another cigarette to maintain the pleasurable effects and to prevent withdrawal symptoms such as insomnia, anxiety, anger, restlessness and increased appetite. Withdrawal symptoms commonly occur within 12 hours of cessation, peak at three to four days, but may persist for several weeks (USDHHS, 1988).

2.1.5 The process of smoking cessation

Tobacco dependence is a chronic condition that for the majority of smokers requires repeated and persistent effort to overcome. Theoretical analysis of smoking cessation suggests that it is a process, not a single event (Prochaska and DiClemente, 1983). Stage of change theory suggests that smokers move from being content to smoke, thinking about quitting, planning to quit, attempting to quit, maintaining cessation or relapsing to smoking. Smokers may cycle through some or all of the stages many times before they achieve long term cessation.

North American surveys suggest that two thirds of smokers are interested in quitting (US Centers for Disease Control and Prevention, 1997) but only 20 per cent are planning to quit in the next month (Etter et al, 1997). Overall, almost 50 per cent of smokers try to quit each year (Fiore et al, 2000) but 75 to 80 per cent of smokers that try to quit relapse within six months (Carmody, 1992) and 90 per cent within 12 months. Those who quit for longer may relapse at any time, even after years (Cohen et al, 1989).

Despite the difficulty of quitting, three to five per cent of smokers quit each year for a year or longer (USDHHS, 2000). Overall, there are more ex-smokers in the population than there are smokers (AIHW, 2000). Self-reported data from the US in 1997 suggest that 50 per cent of people who ever smoked successfully quit smoking (USDHHS, 2000). In the past, up to 90 per cent of smokers who successfully quit smoking did so 'on their own'. Current estimates are that 20 to 35 per cent of quit attempts in the United States are associated with medication use or other forms of assistance (Hughes, 1999; Zhu et al, 2000a). The success rate of those who use some form of assistance is double (20% vs 8%) that of those who try to quit 'on their own' (Zhu et al, 2000a).

2.2 Project description

2.2.1 Rationale

Smoking cessation results in health benefits and these benefits can be seen within as little as one year regardless of the duration of smoking (Thomas and Larsen, 1993). The effectiveness and potential for public health benefit of intervention by health care professionals to support smoking cessation is well documented. (Raw et al, 1998; USDHHS, 2000). However a number of surveys of Australian health care providers report very low levels of routine provision of smoking cessation advice to their patients who smoke (Dickinson et al, 1989; Young and Ward, 1998 and 2001; Feeney et al, 1997). There is a need for a review of the evidence of effectiveness of smoking cessation methods available in Australia and a clear statement of best practice with regards to intervention in the sector by health care professionals.

It is important that health care providers are aware of the safety and effectiveness of the interventions available.

Guidelines for the health sector regarding best practice in smoking cessation have been available for several years in a number of other countries including the United States, United Kingdom and New Zealand. The evidence bases for the US and UK guidelines were reviewed and revised in 2000 (Fiore et al, 2000; West et al, 2000) and it is timely to synthesise their findings and recommendations with any new research for the Australian context.

2.2.2 Project objectives

The objectives of this project are to:

- Investigate the effectiveness and appropriateness of smoking cessation methodologies.
- Identify best practice in smoking cessation intervention for a range of health care providers and health sector service levels in the Australian context.

Although important for the implementation of best practice smoking cessation methods, systematic identification of barriers to and promoters of adoption of best practice models in Australia is beyond the scope of the current project.

2.2.3 Project management

A Project Steering Committee was formed, comprising Dr Lyn Roberts, Director Health Development and Delivery, National Heart Foundation; Denise Sullivan, Manager, Policy and Tobacco Program and Director, Target 15, Cancer Foundation of WA (commenced the project as Coordinator Smoking and Health Program, Health Department of WA); and Maurice Swanson, then Chief Executive, National Heart Foundation WA Division, now Director-General, Health Department of WA.

Project consultants Margaret Miller and Lisa Wood conducted the literature review, consulted with key informants, prepared reports and made recommendations to be considered by the Steering Group, key informants and members of NEACT.

2.3 Methods

2.3.1 Protocol

The literature on smoking cessation methods and effectiveness was systematically reviewed using pre-determined scope and criteria (see below). A report on the analysis was prepared with recommendations for 'best practice' in cessation interventions for Australia. The report was circulated for comment to key informants in the Commonwealth, State and Territory governments and subjected to informal peer review. The final report is intended to inform best practice guidelines for smoking cessation in Australia, and the development of new or modification of existing resources/interventions for use by Australian health care providers in delivery of brief smoking cessation interventions.

2.3.2 Scope

Systematic reviews of smoking cessation interventions have been conducted within the last two years to inform governments (USDHHS, 2000, Hopkins et al, 2001) and to provide the evidence base for updates to clinical practice guidelines for health professionals in the United States (Fiore et al, 2000), United Kingdom (West et al, 2000), Scotland (ASH and HEBS, 2000) and New Zealand (National Advisory Committee, 1999).

Reviews specific to high risk sub-groups include US Surgeon General's reports on Women and Smoking (USDHHS, 2001), Preventing Tobacco Use Among Young People (USDHHS, 1994), Tobacco Use Amongst US Racial/ethnic Minority Groups (USDHHS, 1998), and other significant

reviews related to smoking cessation in pregnancy (Windsor et al, 1998; Melvin et al, 2000) and nicotine addiction among adolescents (Henningfield et al, 2000; Wagner, 2000).

The US review of smoking cessation interventions (Fiore et al, 2000) included new meta-analyses of studies whereas the UK, Scottish and NZ reviews relied on existing meta-analyses, mainly by the Cochrane Collaboration Tobacco Addiction Review Group.

The Cochrane Group has reviewed and conducted meta-analyses of clinical trials of various tobacco cessation methods (Lancaster et al, 2000a) including application by various health professionals (doctors, Silagy, 2000; nurses, Rice and Stead, 2000; trained health professionals, Lancaster et al, 2000b and with specific target groups (pregnant women, Lumley et al, 2000; youth, Sowden and Arblaster, 2000).

These reviews provide comprehensive coverage of published studies up to the end of 1999 and, in some Cochrane reviews, until mid-2000. The coverage of the last systematic Australian review of cessation methods (Mattick and Baillie, 1992; Baillie et al, 1994) was up to 1992.

To ensure complete coverage, relevant papers published internationally in peer-reviewed journals since January 1999 were identified and any not covered by the existing reviews were sourced and critically reviewed. Special efforts were also made to identify reports of Australian studies published since 1995 in journals not cited by Medline.

The scope of the review included interventions conducted by primary health care providers (doctors, nurses, dentists, pharmacists, psychologists, psychiatrists) and smoking cessation specialists in a wide range of settings including general practice, hospitals and community health centres.

Methods of cessation considered include behavioural (both individual and group), pharmacological and alternative (eg acupuncture) interventions.

Target groups for intervention considered separately from the general population include pregnant and lactating women, children and adolescents and Aboriginal and Torres Strait Islander people.

2.3.3 Steps in systematic review

The steps undertaken in this review were guided by methods recommended in the NHMRC handbook *How to Review the Evidence: Systematic Identification and Review of Scientific Literature* (NHMRC, 2000a, pp2-4). The steps were:

1. Question formulation
2. Finding studies
3. Appraisal and selection of studies
4. Summary and synthesis of relevant studies
5. Determining the applicability of studies
6. Reviewing and appraising the economics literature

Details of each step as applied to this review are summarised below. Step 6 was outside the brief for this project and was not undertaken.

2.3.3.1 Step 1: Formulation of research questions

Specific research questions to address the project objectives were formulated in consultation with the Project Steering Committee and are included in Appendix 1.

2.3.3.2 Step 2: Search for evidence

The search of published literature and studies that underpins this review was undertaken in October-December 2000. The search strategy methodology was informed by consideration of the search methods and criteria used by:

- The US (Fiore et al, 2000), UK (West et al, 2000), NZ (National Advisory Committee, 1999) and Cochrane Collaboration reviews (Lancaster et al, 2000a) pertaining to smoking cessation interventions.
- The NHMRC guidelines for systematic reviews of scientific literature (NHMRC, 2000a).
- Examples of review methodology and search strategies in relevant published papers.
- Medical librarian advice.

2.3.3.2.1 Search parameters and exclusions

This review has deliberately avoided retrieving and reviewing studies already included in the comprehensive literature reviews and meta-analyses undertaken in the formulation of the US clinical guidelines for smoking cessation (Fiore et al, 2000), the UK smoking cessation guidelines for health professionals (West et al, 2000) and the Cochrane Collaboration series of smoking cessation reviews and updates. However, key studies cited by the existing reviews have been sourced and cited where this has been useful to the review process.

2.3.3.2.2 Broad search parameters

Broad search parameters were:

- Recent (1998-2000) studies not considered by the US, UK or Cochrane reviews;
- Brief intervention types not considered by the US or UK guidelines but considered relevant by the Steering Committee for this Review (eg quitlines, 'quit and win' competitions);
- Published research conducted in an Australian context and/or published in Australia;
- Relevant unpublished research presented at the 2000 World Conference on Tobacco or Health;
- Relevant unpublished research or research in progress in Australian states and territories.

Due to criteria of access, timeliness and relevance:

- All searches were restricted to English language publications;
- Data base searches were limited to journal publications;
- Animal studies were excluded.

As the focus of this review is on determination of best practice and effectiveness for smoking cessation, the search emphasis was on controlled trials and evaluation research studies. Descriptive papers, discussions, commentaries and theoretical papers were excluded, except where they provided relevant background for the review.

2.3.3.2.3 Key word identification

A key word search strategy was developed for the data-base searches based on:

- Key words used in other documented reviews;
- The types of brief interventions, health professional groups and settings that this review has sought to cover;
- MeSH Subject Headings used in a sample of relevant papers;
- Terminology used and recognised in the search engines used;
- Input from the Review steering committee.

Table 1 outlines the key words searched in the various databases accessed. For each database the key words were spelt and entered in applicable format.

2.3.3.2.4 *Literature databases searched*

Initial searches were conducted of Medline and the Cochrane Collaboration library.

The PsychInfo database was searched for research and studies and journals that may not have appeared in Medline, particularly searching for papers focusing on behavioural and psychological interventions.

The AustHealth database was searched to ensure inclusion of relevant Australian research and journals not identified through Medline or Psychinfo.

The CINAHL database was searched for cessation studies related to nursing and the settings in which nurses work.

The MANTIS database has a greater emphasis on alternative therapies and addiction journals, so was searched to ensure inclusion of these as they relate to smoking cessation.

The EMBASE database includes pharmacological studies and journals that may not be included in Medline or PsychInfo.

Table 1 indicates the key words searched in each of these databases.

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Table 1 Search strategy – key words and databases

Search strategy – Key words and parameters			Literature databases searched						
Key words searched – smoking parameters	Intervention criteria key words	Fields within smoking parameters	Med-line	Psych Info	CINAHL	Aust-Health	EM-BASE	MANTIS	Cochrane
Smoking cessation	Evaluate/ evaluation(s)/ trial (s)/effectiveness/ comparison(s)/ reviews/meta-analysis	Therapy/ interventions/ programs/ counselling/ rehabilitation/ courses/ brief intervention/ stop smoking intervention	√	√	√	√	√	√	√
Smoking cessation programs		Health promotion/ health education/ advice/consultation		√	√	√	√	√	
Smoking/ tobacco habit/ tobacco use/ nicotine dependence/ nicotine or tobacco addiction/ nicotine/ tobacco		Physician/ health worker/ health professional/ nurse/ pharmacist/ doctor/ general practitioner/ hospital/ psychologist/dentist	√	√	√	√	√	√	√
		Behaviour therapy/ self-help/ behaviour modification/ nicotine replacement therapy	√	√	√	√	√	√	√
		Hypnotherapy/ acupuncture/ aversion therapy/ homeopathy/ nicotine chewing gum/ nicotine patch/ bupropion	√	√	√	√	√	√	√
		Pregnant/ pregnancy/ adolescent/ Aboriginal and Torres Strait Islander/ aboriginal	√	√		√	√		√
		Competition(s)/ internet/ website/ quit and win/ workplace	√	√					√

2.3.3.2.5 Identification and selection of relevant studies for review

Table 2 outlines the criteria used to further screen search results beyond the key word searches. All abstracts were assessed once the exclusion criteria relating to year of publication, language, and publication type had been applied. The reviewers further refined the search results based on the abstract content and the brief and methodology determined for this review. Where the relevance of a paper was uncertain, full copies of articles were obtained to assess suitability for inclusion. The final row of Table 2 indicates the number of papers selected from each database as being prima facie relevant for consideration. As is to be expected, there was considerable duplication of articles across the various databases searched, and the figures in Table 2 include these duplicates.

Table 2 Search results

	PubMed/ Medline	PsychInfo	Cinahl	AustHealth	EMBASE	Mantis	Cochrane
Year of publication searched	1998-2000	1998-Nov 2000	1999-2000	1998-2000	1999-Oct 2000	1999-2000	1990-2000
Search limitations – year, English language, Human, published journal or review	√	√	√	√	√	√	√
Number of Papers meeting search criteria (as per Table 1 key words plus year restrictions)	717	102	78	58	611	38	20
Number of papers selected as of prima facie relevance to review	181	65	34	20	172	8	17

2.3.3.2.6 Other search sources and methods

Random manual journal scanning was conducted of some major relevant journals (e.g. Journal of Behavioural and Preventive Medicine, Tobacco Control) to check that the database searches were identifying relevant papers.

Websites recognised as a central repository of information sources on tobacco (e.g. ASH (UK), US Center for Disease Control Smoking and Health search engine) were visited to identify relevant reviews or reports.

The conference abstracts from the World Conference on Tobacco or Health (11th World Conference on Tobacco or Health, Chicago, 2000) were manually searched to identify recent studies or research in progress that is relevant to the interventions, health professionals, settings and target groups being considered by this review.

Telephone consultations were conducted with tobacco contacts in all Australian states and territories to identify current or unpublished interventions or research relevant to the brief for this review. A number of studies, research in progress, interventions and papers in press were identified through this process, and these are summarised in Appendix 3.

2.3.3.3 Step 3: Appraisal and selection of evidence

Individual studies identified in steps one and two were assessed and documented using a standard form (Appendix 2).

Criteria for inclusion of particular studies in the review of efficacy followed the example of other major reviews (Lancaster et al, 2000a; Fiore et al, 2000) in that they:

- relate to defined smoking cessation brief intervention(s)
- include a controlled (preferably randomised) evaluation design
- include abstinence from smoking (preferably biochemically assessed) for at least five months (less in pregnancy trials) as an outcome measure.

Studies included in discussion of effectiveness in particular contexts may not always meet such stringent selection criteria. However they are included if considered relevant and their methodological limitations indicated.

2.3.3.4 Step 4: Summary and synthesis of evidence

Key existing recent meta-analyses (various Cochrane reviews, Fiore et al, 2000) provided the basis for synthesis of evidence. The findings of key meta-analyses and more recent trials are presented. Studies published prior to the period covered by the key meta-analyses are not revisited as they are assumed to have been assessed as part of the meta-analysis. Further meta-analysis has not been undertaken as part of this review. Results for each intervention are presented as the odds ratio (OR) with 95% confidence intervals (or if OR not available, the percentage abstinent in intervention and control group), of being smoke free at five months or more compared to placebo or defined control group. The effect size (the difference in the percentage abstinent) between the intervention and control groups are also reported if available. Any significant differences between meta-analyses and studies are discussed.

2.3.3.5 Step 5: Application and transferability of evidence

Recommendations for best practice in Australia are made for each type of intervention. The recommendations are based on strength of the evidence, size of the effect and relevance to individuals and the health care system using methods recommended by the NHMRC handbook *How to Assess the Evidence: Assessment and Application of Scientific Evidence* (NHMRC, 2000b). The levels of evidence recommended by the NHMRC (NHMRC, 2000b, p8) are as follows:

- I Evidence obtained from a systematic review of all relevant randomised controlled trials.
- II Evidence obtained from at least one properly-designed randomised controlled trial.
- III-I Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).
- III-2 Evidence obtained from comparative studies (including systematic reviews of such studies) with concurrent control and allocation not randomised, cohort studies, case-control studies, or interrupted time series with a control group.
- III-3 Evidence obtained from comparative studies with historical control, two or more single group studies, or interrupted time series without a parallel control group.
- IV Evidence obtained from case series, either post-test or pretest/post-test.

Development of the NZ guidelines (National Advisory Committee, 1999) and the 1996 US (Fiore et al, 1996) and 1998 UK (Raw et al, 1998) guidelines used an earlier version of this grading system. The latest US (Fiore et al, 2000) and UK (West et al, 2000) guidelines use a simplified grading system as follows:

A: Multiple well-designed, randomised, controlled trials directly relevant to the recommendation, yielding a consistent pattern of findings.

B: Some evidence from randomised controlled trials, but not optimal. More interpretation of the evidence was needed. For example, there were not many randomised controlled trials, for trials that did exist results were not consistent or the trials were not directly relevant to the recommendation. They may not have been directly relevant because, for example, the study population was different.

C: No randomised controlled trials but the issue was important enough to merit a recommendation based on published evidence and expert opinion of review panel.

The NHMRC I-IV and the ABC grading systems overlap as follows:

I=A, II=B, III-IV=C.

Given that Level I and II evidence will be the main basis for recommendations and that the detailed breakdown in Levels III-IV will have little impact on recommendations, the ABC grading system was used to simplify the review task.

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3 Summary of evidence

3.1 Behavioural interventions

3.1.1 Self help interventions for smoking cessation

3.1.1.1 Background

Historically, around 90 per cent of successful quitters gave up smoking on their own (Fiore et al, 1990), but usually required several quit attempts (Hughes, 1999). With the advent of new treatments, between 20 and 35 per cent of smokers are using some kind of assistance (Hughes, 1999; Zhu et al, 2000a). Brief and more intensive therapist-delivered interventions can be effective but they only reach a small proportion of smokers. Methods to support unaided cessation attempts have the potential to reach many more smokers.

Self-help cessation materials are a common component of most smoking cessation interventions, ranging from brief clinical interventions to community campaigns, but their effectiveness is not often evaluated due to practical difficulties in 'real world settings'. In particular, there are difficulties with follow-up of recipients and in disentangling the effects of a self-help resource from the effects of other cessation intervention components (Lancaster and Stead, 2000a; USDHHS, 2000). There are also difficulties in generalising about the efficacy of a particular method due to the lack of standardisation of content (eg self-help manuals, (Glynn et al, 1990)).

3.1.1.2 Description of the method

Self-help materials provide behavioural methods for smokers trying to quit without intensive contact with a therapist or counsellor. Most commonly, self-help materials are printed leaflets or manuals, although use of audiotapes and videotapes is also well established. The new generation of self-help materials is computer-based on CDs or internet websites or linked to television programs. In some settings, self-help materials are provided without face-to-face contact or additional motivating strategy. They may be requested or unsolicited. In health care settings, self-help materials are more likely to be used as an adjunct to advice and nicotine replacement therapy. Materials may be provided in one 'dose' or staged modules. They may be generic or tailored to individual needs based on psychosocial factors or stage of cessation behaviour.

Other forms of behavioural interventions that are predominantly self-help are client-initiated telephone quit lines and Quit-and-Win competitions. Quit-line services provide a contact point for provision of written self-help materials and may also employ counsellors to assist and support people during cessation attempts. The quit-line number is promoted extensively. The key elements for an effective quit-line are public access, quit smoking resources and information, counselling, training of counsellors and referral services (Carroll, 2000). Quit-lines are difficult to evaluate using randomised, controlled methods because self-selection by users is part of the method and identification and enrolment of suitable controls is difficult.

Quit and Win competitions are a mass smoking cessation method that have been conducted within settings, nationally and internationally (Sun et al, 2000). The objective of quit and win competitions is to provide motivation and an opportunity for action to quit smoking. As for quit-lines, success relies on high level promotion in the media and/or direct mail, as well as access of participants to cessation support such as nicotine replacement therapy, group counselling and other means of social support (Korhonen et al, 1997).

3.1.1.3 Sources of evidence

3.1.1.3.1 Major evidence reviews

Significant recent reviews that have conducted meta-analyses of self-help methods in tobacco cessation are:

- Meta-analysis by the Cochrane Collaboration of research on self-help interventions in tobacco cessation updated to September 1999 (Lancaster and Stead, 2000a);
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for the US Government guidelines, *Treating Tobacco Use and Dependence* published in June 2000 (Fiore et al, 2000);
- Review in the Surgeon General's report on *Reducing Tobacco Use* (USDHHS, 2000, Chapter 4, p100) section on self-help manuals.
- Review of quit-line operations in Australia and recommendations for best practice (Carroll, 2000).

3.1.1.3.2 Recent evidence not included in reviews

Recent reports include an analysis of the impact of a telephone quit-line (Owen, 2000), assessment of the effectiveness of cessation material mailed to discharged hospital patients (Schofield et al, 1999) and an international comparison of the implementation and outcomes of Quit and Win competitions (Sun et al, 2000).

3.1.1.4 Synthesis of evidence

Generic self-help materials alone are of small benefit compared to no intervention (Strength of evidence A).

- Provision of self-help materials of any type compared to no intervention, produced a small but significant increase in the odds of quitting at six months or more (OR= 1.23, 95% CI 1.01, 1.51) (Meta-analysis of 41 trials, Lancaster and Stead, 2000a) (Table 3).
- Single or multiple types of self help materials, when offered without person to person interventions, did not enhance abstinence rates (OR 1.0 (95% CI 0.9, 1.1) and OR 1.1 (95% CI 0.9, 1.5); effect sizes 0.1% to 1.3% for single and multiple types respectively) (Meta-analysis of 27 trials of single and 10 trials of multiple types, Fiore et al, 2000) (Table 3).
- Using generic self-help materials and no other assistance will assist an additional one in 100 smokers stop smoking for at least six months (Lancaster and Stead, 2000a)
- The effect size of manual-based interventions on long-term prevalence of cessation is about five per cent (USDHHS, 2000, p100)

There is not enough evidence from comparative studies to recommend one or more types of self-help intervention over others.

- Four trials comparing different methods of self-help were too heterogeneous to allow meta-analysis (Lancaster and Stead, 2000a).

Providing self-help materials other than a brief leaflet in addition does not improve smoking cessation rates achieved by advice from a health professional (Strength of evidence A).

- Provision of self-help materials (other than a simple leaflet), as an adjunct to clinical advice compared to advice alone produced no significant increase in the odds of quitting at six months or more (OR 1.15, 95% CI 0.9,1.1) (Meta-analysis of 11 trials, Lancaster and Stead, 2000a) (Table 3).

Providing self-help materials in addition to nicotine replacement therapy does not improve smoking cessation rates (Strength of evidence B).

- Three trials that examined the effect of self help materials in addition to NRT (Killen et al, 1990; Killen et al, 1997; Lando et al, 1988) found no benefit of the materials above the relatively high quit rates attributable to NRT (Lancaster and Stead, 2000a).

Tailoring materials to the characteristics of individual smokers improves effectiveness (Strength of evidence A).

- Materials tailored to the characteristics of individual smokers (especially stage of change) were more effective than standard materials in achieving sustained cessation at six months (OR 1.51, 95% CI 1.13, 2.02) (Meta-analysis of eight trials, Lancaster and Stead, 2000a).

Tailoring materials to the characteristics of a population of smokers does not improve effectiveness, with the exception of pregnant women (Strength of evidence B).

- Materials tailored to the characteristics of populations of smokers (young mothers, African Americans, aged) did not improve the odds of sustained cessation at six months (OR 1.13, 95% CI 0.85,1.50) (Meta-analysis of three trials, Lancaster and Stead, 2000a).

Adding follow-up telephone calls improves effectiveness of self-help materials in achieving cessation (Strength of evidence A)

- Adding follow-up telephone calls from counsellors to provision of self-help materials increases rate of quitting at six months by 60 per cent (OR 1.62, 95% CI 1.33,1.97) (Meta-analysis of six trials, Lancaster and Stead, 2000a).

Table 3: Details and results of meta-analyses related to self-help, undertaken for the Cochrane review (Lancaster and Stead, 2000a) and to inform the development of the US Government guidelines, Treating Tobacco Use and Dependence (Fiore et al, 2000)

Comparisons	No. study groups	Estimated odds ratio (95% CI)	Effect size % (95% CI)	Estimated abstinence rate (95% CI)
Self help vs no intervention <i>Fiore et al, 2000</i>				
No self help	17	1.0		14.3
One type self help	27	1.0 (0.9, 1.1)	0.1 (-1.4, 1.6)	14.4 (12.9, 15.9)
Two or more types self help	10	1.1 (0.9, 1.5)	1.3 (-2.0, 4.9)	15.7 (12.3, 19.2)
<i>Lancaster & Stead, 2000</i>				
Standard-self help (mailed)	9	1.23 (1.01,1.51)		
Individually tailored vs standard	8	1.41 (1.14,1.75)		
Standard self-help with telephone followup vs no followup	6	1.62 (1.33,1.97)		
Population tailored vs standard	3	1.13 (0.85,1.50)		
Advice plus self-help vs advice <i>Lancaster & Stead, 2000a</i>				
Advice	8	0.91 (0.70,1.17)		
Advice plus self-help	3	1.15 (0.77,1.72)		
Staged vs standard written <i>Lancaster & Stead, 2000a</i>				
	4	1.02 (0.85,1.22)		

Quit-lines are effective in achieving cessation when promoted in conjunction with advertising programs that reach large populations (Strength of evidence C).

1992 Health Education Board of Scotland Smokeline Campaign (Platt et al, 1997)

- An estimated 5.9 per cent of adult smokers in Scotland called the Smokeline quit-line in its first year of operation.
- Point prevalence of cessation (by self-report) was 23.6 per cent (95% CI 20.2, 27.0).
- Period prevalence of cessation for 12 months was 8.2 per cent (95% CI 6.0, 10.4%) at 12 months.
- An estimated 1.4 per cent (95% CI 1.2, 1.6) of adult smokers quit as a result of contact with Smokeline (Platt et al, 1997).
- The Smokeline campaign is estimated to have contributed an extra 3.4 per cent to the reduction in smoking prevalence compared to that which would be expected from the decline in the eight years prior to the campaign (0.8% per year).

Australia's National Tobacco Campaign National Quitline Service (Wakefield and Miller, 1999)

- In the first year an estimated 3.6 per cent of adult smokers in Australia called the Quitline.
- Point prevalence of cessation (by self-report) was three per cent at baseline, 24 per cent at six months and 29 per cent at 12 months.
- Period prevalence of cessation for six months was eight per cent at six months and 14 per cent at 12 months.
- Period prevalence of cessation for 12 months was six per cent at 12 months.

South Australian Quit Advisory Service (Owen et al, 1995)

- Point prevalence of cessation was 18 per cent at 12 months, assuming all lost to follow-up were smokers.

UK Health Education Authority Quitline (Owen, 2000)

- An estimated 4.2 per cent of adult smokers in England call the Quitline each year.
- Point prevalence of cessation (by self-report) was 22 per cent (95% CI 18.4, 25.6) at 12 months.
- Adjusted point prevalence of cessation at 12 months allowing for non-respondents and deceptive reports was 15.6 per cent (95% CI 12.7, 18.5).
- Period prevalence of cessation for 12 months was 6.8 per cent at 12 months.

Quit and Win competitions are an effective mass reach approach to achieving cessation when promoted in conjunction with advertising and support programs (Strength of evidence C).

Reach

Approximately one per cent of eligible smokers entered Quit and Win competitions in China and Finland (Korhonen et al, 1997; Sun et al, 2000) and two per cent in North Karelia (Korhonen et al, 1997).

Effectiveness

Continuous abstinence of Quit and Win participants in 1996 at one year was 38 per cent for Chinese adults and 12 per cent for Finnish adults (Sun et al, 2000).

3.1.1.5 Subgroups

Gender

- The few studies that have explored gender specific differences in self-help treatments have generally found no difference (USDHHS, 2001p554).
- A slightly higher proportion of callers to quit lines are females (Owen et al, 1995; Platt et al, 1997, Wakefield and Miller, 1999; Owen, 2000).
- Women participants in Quit and Win competitions achieved higher 12 month continuous abstinence rates than men in China (50% vs 36%) but lower in Finland (9% vs 14%). (Sun et al, 2000).

Youth

- Computer-based self help smoking cessation interventions targeting adolescents achieved high participation and initial quit rates, but abstinence was poorly maintained at six months (Pallonen et al (1998).

Dependency

- A higher proportion of heavy smokers (20 or more cigarettes a day) called quit lines (Owen et al, 1995; Platt et al, 1997; Wakefield and Miller, 1999; Zhu et al, 2000c; Owen, 2000).

Socioeconomic status

- There was no difference from the general population in the social class of callers to the UK Quitline (Owen, 2000).

High risk groups

- Direct mailing after hospital discharge of a smoking cessation manual and personalised letter from their consultant increased cessation amongst smokers with a smoking-related medical diagnosis but not the general group of discharged hospital patients (Schoefield et al, 1999).

3.1.1.6 Emerging issues/methods

- Combining tailored materials with NRT may be a promising field for future research (Lancaster and Stead, 2000a).
- Individualised computerised interventions, reactive telephone hotlines/helplines, the relative efficacy of different types of self-help interventions and the efficacy of specific self-help interventions as adjuvant therapy to proven methods (individual counselling, group counselling, proactive telephoning and pharmacotherapy) are recommended by Fiore et al (2000) for further research.

3.1.1.7 Examples of recent Australian initiatives in self-help interventions

The VicHealth Centre for Tobacco Control is involved in a number of research projects that are in line with the evidence and emerging issues pertaining to self-help materials. Research areas include dissemination of more tailored mailed information; effectiveness of call-back counselling in conjunction with offering of self-help materials; and tailored internet interventions for cessation. (Appendix 3, Table 1).

Investigation of the need for and development of culturally appropriate cessation resources for Australian Aboriginal and Torres Strait Islander people is being addressed by current projects nationally and in the Northern Territory, Queensland and Western Australia. These include a joint project of the National Heart Foundation and the Menzies School of Public Health in the Northern Territory, a large scale Aboriginal and Torres Strait Islander tobacco control program conducted by Queensland Health; and formative qualitative research pertaining to Aboriginal and Torres Strait Islander smoking currently being undertaken nationally by the National Aboriginal Community

Controlled Health Organisation (NACCHO) and in Western Australia by the Say No to Smokes project (see Appendix 3, Table 2).

The Quitline operations in various states and territories were examined as part of a review undertaken in 2000 (Carroll, 2000) and specific recommendations for best practice Quitline services can be found in that report.

3.1.1.8 Implications for Australian practice

A brief leaflet is sufficient to support pharmacotherapy or smoking cessation advice from a health professional.

This review shows that health care professionals need not provide any more self-help material than a brief leaflet to support advice or pharmacotherapy provided to patients to support smoking cessation efforts. However, health care clinic waiting rooms provide an opportunity for mass distribution of self-help materials.

Printed self-help materials are a desirable support to mass reach strategies to encourage smoking cessation.

This review shows that the effectiveness of self-help materials alone is small. But as noted in the 2000 US Surgeon General Report on Reducing Tobacco Use (USDHHS, 2000), self-help materials can be distributed at low cost to a very large number of smokers, so even relatively small cessation success has the potential to translate into a large number of successful quitters.

The provision and dissemination of self-help cessation materials has been a cornerstone of Australian Quit campaigns and programs. There continues to be strong demand for such resources from health professional groups and from smokers themselves especially via quit-lines.

The challenge for tobacco programs and agencies in Australian states and territories is to meet the consumer demand for self-help materials with effective resources, complimented where possible by other strategies to increase the success of quit attempts.

Self-help materials should be tailored to the needs and cessation stages of individual smokers and selected population groups (pregnant women, Aboriginal and Torres Strait Islander).

This review of evidence confirms the merits of tailoring self-help materials to the needs and cessation stages of individual smokers to increase effectiveness. This is already done in a number of cessation materials available in Australia, and should continue.

While the evidence for tailoring the content of self-help materials to specific population groups is mixed, there is strong recognition and demand in Australia for culturally appropriate health resources and programs for Aboriginal and Torres Strait Islander people. This pertains to both the content and language in materials, as well as the images and graphics used. The current Aboriginal and Torres Strait Islander tobacco projects and research identified in Appendix 3, Table 2 are promising examples of efforts to tailor cessation resources in culturally appropriate ways.

Well-promoted quit-lines should be further developed to support self-help cessation attempts.

All states and territories provide some form of quit-line service at present (Carroll, 2000) and the implementation of telephone call-back/follow up options such as occurs in Victoria and South Australia has considerable potential to enhance the effectiveness of both the self-help materials distributed and the efficacy of the telephone quit services themselves. An important component of the success of quit-lines is the maintenance of regular, high profile media campaigns that promote the quit-line service (Platt et al, 1997; Owen, 2000; Wakefield & Miller, 1999; Wakefield and Borland, 2000).

The effectiveness of computer-based self-help cessation aides needs further investigation.

Traditional self-help materials have primarily been in a printed format but the potential effectiveness of tailored computer based interventions warrants further attention given the high penetration

of computers and the internet in Australian homes. Computer based interventions have the potential to be more stimulating, interactive and personally tailored than a printed resource. However, the review found insufficient published controlled studies to allow evidence-based recommendations about their efficacy and use.

3.1.2 Minimal clinical intervention

3.1.2.1 Background

Minimal clinical intervention, or brief advice by health professionals could have a great influence on Australian smoking cessation levels, but has been underused. Almost twenty per cent (18.9%) of Australian general medical practitioner patient encounters are with daily smokers, and five per cent with occasional smokers (Britt et al, 2000). Australian doctors identify two thirds of their patients who smoke but advise only half of these (34%) to quit (Wiggers and Sanson-Fisher, 1997; Young and Ward, 2001). Rates of detection and cessation advice have not changed in over ten years (Dickinson et al, 1989; Wiggers and Sanson-Fisher, 1997; Young and Ward, 2001) and evidence-based clinical practice guidelines are under-utilised (Young and Ward, 2001).

Dentists and community pharmacists also have high potential to provide advice on smoking cessation. Over half of Australian adults (58%) visit a dentist in 12 months and 2.4 per cent visit a pharmacist at least once a fortnight (AIHW, 2000). Nurses in community, clinical and hospital settings usually have frequent, more extended contact with clients, therefore are well placed to provide cessation advice. Specialists such as obstetricians, midwives, oncologists, cardiologists and physiotherapists could utilise 'teachable moments' offered by higher risk of disorders or complications due to smoking.

It has been recognised that health professionals are generally under-utilised (USDHHS, 2000, p102) and can be better trained to offer brief interventions (Mattick et al, 1994; Young and Ward, 1998). The US (Fiore et al, 2000, UK (West et al, 2000), Scottish (ASH Scotland & HEBS, 2000) and New Zealand (National Health Committee, 1999) smoking cessation guidelines for health professionals recommend that all clinicians strongly advise their patients to quit smoking. Some professions such as doctors (American Medical Association, 1994), dentists (Watt and Robinson, 1999) and psychiatrists (American Psychiatric Association, 1996) have developed profession-specific guidelines for brief intervention for smoking cessation.

3.1.2.2 Description of the method

Minimal clinical intervention consists of brief cessation advice from health care providers delivered opportunistically during routine consultations to smokers whether or not they are seeking help with stopping smoking. Brief opportunistic advice typically involves asking patients about their current smoking, advising them to stop, offering assistance either by providing further advice, a referral to a specialist service, or recommendation of or a prescription for pharmacotherapy, and arranging follow up where appropriate. This approach has been described as the 4A's approach (Fiore et al, 1996) and is included in the UK (West et al, 2000) and Scottish (ASH Scotland & HEBS, 2000) guidelines. The US Guidelines have added an additional A (Assess) to create a 5As approach (Appendix 4). Brief advice should be repeated at each visit as part of minimal clinical intervention. The duration of each session of minimal intervention is usually three to five minutes, and certainly less than ten minutes.

3.1.2.3 Sources of evidence

3.1.2.3.1 Major evidence reviews

The most substantial review and meta-analysis of trials in this area was undertaken to inform the development of the US Government guidelines, *Treating Tobacco Use and Dependence* published in June 2000 (Fiore et al, 2000). This review addresses each of the steps in the 5As approach to brief intervention counselling (Appendix 4) and includes trials published between 1 January 1975 and 1 January 1999.

A number of meta-analyses by the Cochrane Collaboration related to smoking cessation interventions by different types of health workers, types of intervention and training in cessation counselling are also relevant. These include:

- Physician advice for smoking cessation, updated to October 1998 (Silagy, 2000).
- Individual behavioural counselling for smoking cessation updated to February 1999 (Lancaster and Stead, 2000b);
- Nursing interventions for smoking cessation updated to May 1999 (Rice and Stead, 2000);
- Training health professionals in smoking cessation updated to May 2000 (Lancaster et al, 2000b).

The reviews of evidence to update the UK Health Education Authority smoking cessation guidelines for health professionals (West et al, 2000) and the 1999 New Zealand Guidelines for Smoking Cessation (National Health Committee, 1999) include meta analyses from the 1998 UK guidelines (Raw et al, 1998), Cochrane Collaboration reviews (above), the 1996 US Guidelines (Fiore et al, 1996) (now updated as above) and additional papers published up to 2000 and April 1999 respectively.

The systematic review of evidence undertaken by the US Task Force on Community Preventive Services (Hopkins et al, 2001) to develop recommendations regarding community level interventions to reduce tobacco use, includes a major section on health system and provider interventions. The review included studies published up to May 2000.

The Surgeon General's Reports on Reducing Tobacco Use (USDHHS, 2000,) and Women and Smoking (USDHHS, 2001) include significant qualitative review and discussion of the efficacy of minimal clinical intervention in smoking cessation.

3.1.2.3.2 Recent evidence not included in reviews

Four controlled trials (Canga et al, 2000; Grandes et al, 2000; Sippel et al, 1999 and Zwac et al, 2000) consider the efficacy of clinic systems and implementation of 4As/5As approaches in reducing long term quit rates in general medical practice. One study considered the effectiveness of brief intervention by nurses with parents of sick children in a paediatric setting.

3.1.2.4 Synthesis of evidence

Evidence is presented to address each of the steps in the 5As approach to brief intervention for smoking cessation.

3.1.2.4.1 Step 1. Asking about tobacco use

Implementing clinic systems designed to increase the assessment and documentation of tobacco use almost doubles the rate at which clinicians intervene with their patients who smoke and results in higher rates of smoking cessation (Strength of evidence B).

- Estimated intervention rate by clinicians without a screening system to identify smoking status was 38.5% compared to 65.6% with a screening system (95% CI 58.3, 72.6), OR 3.1 (95% CI 2.2, 4.2) (Meta-analysis of 9 studies, Fiore et al, 2000).

- A recently published intervention using smoking status stamps in a hospital walk-in clinic (Ahluwalia et al, 1999) produced screening results similar to Fiore et al (2000). However, the stamp did not substantially improve the low rate at which doctors offered patients specific advice on how to quit or setting a quit date.
- Expanding patient vital signs to include assessment of tobacco use increased patient reports of doctors assessing and counselling them about smoking cessation (Fiore et al 1995, Robinson et al 1995).
- A review of office system interventions supporting primary care based health behaviour change counselling, including smoking cessation (Dickey, 1999), found that two principle components were needed: tools and teamwork. Tools were used to assist in assessment (questionnaires, risk appraisals), prompting (chart stickers, checklists, flow charts, reminder letters) and education (manuals and handbooks). Teamwork involved coordination and delegation of tasks between staff. Effectiveness of types of tools and teamwork methods varied according to practice, provider and patient characteristics, but overall led to additive changes in counselling and patient behaviour change rates.
- Rates of smoking cessation at five months or more were 3.1 per cent without a screening system and 6.4 per cent with a screening system (95% CI 1.3, 11.6) OR 2.0 (95% CI 0.8, 4.8), although the comparison was based on small numbers and the difference not statistically significant. (Meta-analysis of three studies, Fiore et al, 2000) (Table 4).

3.1.2.4.2 Steps 2 and 4: Advising and assisting

The influence of advice and assistance on abstinence rates varies with the type and number of health professionals, their level of training in smoking cessation methods, type of counselling, session length and number of sessions. The evidence related to these influences is summarised in Table 4 and discussed in more detail in this section and section 3.1.3.3 related to more intensive clinical intervention.

3.1.2.4.2.1 Type of health professional

All health professionals can be effective in providing smoking cessation advice (Strength of evidence A).

- Non-pharmacological smoking cessation interventions of various intensities delivered by any single type of health care provider, such as a doctor, nurse, psychologist, dentist or smoking counsellor or by multiple clinicians, increase abstinence rates relative to no clinician or self-help interventions (10.2% for no clinician, 15.8% for a non-doctor clinician and 19.9% for a doctor. OR 1.0, 1.7 and 2.2 respectively) (Table 4) (Meta-analysis of 29 studies, Fiore et al, 2000).
- There were too few controlled trials involving clinicians other than doctors, or nurses, to examine separately their effectiveness in brief intervention alone, however the US, UK and Scottish smoking cessation guidelines considered the evidence strong enough and the issue important enough to recommend routine provision of brief cessation advice by all health professionals.

Brief cessation advice to smokers from doctors delivered opportunistically during routine consultations has a modest effect size but substantial potential public health impact (Strength of evidence A).

- Brief cessation advice delivered by a doctor achieved an abstinence rate at five months or more of 10.2% (95% CI 8.5, 12.0) compared to 7.9% without advice (OR 1.3 (95% CI 1.1, 1.6). (Meta-analysis of seven studies, Fiore et al, 2000). The modal length of clinical intervention was three minutes or less, the maximum about five minutes.

- Sippel et al (1999) reported similar abstinence rates (11% at nine months) for doctors using the 1996 version of the US clinical guidelines (Fiore et al, 1996). Use of nicotine replacement therapy as well as brief intervention substantially increased quit rates (OR 6.7, 95% CI 2.3, 19.6).
- Brief advice versus no advice (or usual care) from a doctor produced a small but significant increase in the odds of quitting at six months or more (OR 1.69, 95% CI 1.45, 1.98) (Meta-analysis of 16 trials, Silagy, 2000). This equates to an absolute difference in the cessation rate of about 2.5%, similar to the effect size of 2.3% reported in the Fiore et al (2000) meta-analysis.

Brief cessation advice delivered to smokers by nurses has a modest effect on the odds of quitting compared to no advice (Strength of evidence B).

- Brief advice versus no advice from a nurse produced a small but significant increase in the odds of quitting at six months or more (OR 1.67 (95% CI 1.14, 2.45) (Meta-analysis of 5 trials, Rice and Stead (2000).
- There was no difference after 12 months in smoking rates of fathers when nurses provided standardised health advice, purpose designed booklet and a telephone reminder one week later to mothers of sick children in a general paediatric ward in hospitals in Hong Kong (Lan and Chan, 2000). More mothers had asked husbands to smoke less (57% vs 49%, p=0.03) and always asked the father not to smoke near the child (51% vs 45%, p=0.05).

3.1.2.4.2.2 Training of health professionals in brief intervention methods

Training of health care professionals in brief intervention methods increases their performance of smoking cessation intervention steps with their patients (Strength of evidence B).

- A Cochrane review of eight randomised controlled trials with doctors and one each with dentists and pharmacists found that those who received training were 1.5 to 2.5 times more likely than untrained controls to perform tasks of smoking cessation such as counselling patients about smoking, initiating other interventions such as setting quit dates, suggesting follow-up appointment and offering self help material or nicotine gum (Lancaster et al, 2000b).
- Patients report that doctors trained to perform more intensive interventions are more helpful than doctors without training (Ockene et al, 1991; USDHHS, 2000).

Training of health care professionals in brief intervention methods does not appear to significantly increase smoking cessation rates in their patients (Strength of evidence B).

- Only two of eight randomised controlled trials with an untrained control group and reviewed by Lancaster et al (2000b) showed a significant effect of training of health professionals on quit rates at least six months after the intervention. The varied duration and nature of training between studies may explain the equivocal results.

3.1.2.4.2.3 Type of advice and support

A major benefit of brief opportunistic cessation advice is to motivate a quit attempt and to provide support or referral to aid quit attempts (Strength of evidence C).

- Approximately 40 per cent of smokers make some form of attempt to quit in response to advice from a general medical practitioner (Russell et al, 1979; Kreuter et al 2000). General practitioner advice alone appears to trigger a quit attempt, rather than increase the chances of success of quit attempts (Russell et al 1979; Kreuter et al 2000).
- Unwilling patients may benefit from motivational intervention built around the 5R's: relevance, risk, rewards, roadblocks and repetition (Fiore et al, 2000, p31-33).
- Motivational interventions are most likely to be successful when the clinician is empathetic, promotes patient choice, avoids arguments and supports the patient's self efficacy (Colby et al, 1998; Miller & Rolnick, 1991; Prochaska & Goldstein, 1991).

- A randomised controlled trial in general practice of motivational consulting versus brief advice found that motivational consulting produced more activity aimed at quitting (delaying first morning cigarette, smoke free days, quit attempts) than brief advice, especially amongst those 'not thinking of giving up in the next six months', but sustained quit rates were low for both interventions (Butler et al; 1999).

3.1.2.4.3 Step 3: Assessment (An additional step in the USDHHS Clinical Practice Guidelines (Fiore et al, 2000))

Assessment of readiness to quit is a necessary first step in planning treatment. However assessment of individual and environmental attributes is not essential for effective intervention but may provide information for tailoring treatment (Strength of evidence B)

- Variables consistently associated with higher abstinence rates are high motivation, readiness to quit, moderate to high self-efficacy and supportive social networks (Fiore et al, 2000).
- Variables consistently associated with lower abstinence rates are high tobacco dependence, more years smoking, co-habiting with a smoker, history of high psychiatric co-morbidity and high stress levels (Fiore et al, 2000).
- There is little consistent evidence that a smoker's status on such attributes is useful for treatment matching, other than higher dose NRT for high nicotine dependence (Silagy, 2000).
- There is also insufficient evidence, other than in self-help approaches (Dijkstra et al, 1998a; Velicer et al, 1999a) that tailored counselling interventions (including those related to stages of change) consistently produce longer term quit rates than non-tailored interventions of equal intensity. Fiore et al (2000) recommended more research into the long-term effectiveness of motivational and stage-based counselling interventions.

3.1.2.4.4 Step 5: Arranging follow-up

Assessment within the first week after quitting is desirable to support quit attempts (Strength of evidence C)

- Risk of relapse is highest in the first week after a quit attempt (Kenford et al, 1994, Hughes, 1994).
- Self-report of no smoking during hospitalisation (four days or more) is a strong predictor of cessation in hospital-based interventions (Sciamanna et al, 2000, Garvey et al, 1992; Stevens et al, 1993).
- Scheduling follow-up visits or making follow-up phone calls improves cessation rate (USDHHS, 2000, p103).

Relapse prevention therapy reduces relapse rate (Strength of evidence C)

- Effective relapse prevention includes reinforcement of a person's decision to quit, congratulations on their success at quitting, encouragement to remain abstinent and identification of strategies to cope with future threats (Carroll, 1996).

Support of relapsed smokers to make another quit attempt is effective (Strength of evidence C).

- Smokers try to quit once every three to four years (Hughes, 1999).
- Previous antismoking advice by a doctor has been reported as a strong barrier to sustained quitting after 6-12 months (OR 0.19, 95% CI 0.07, 0.52) for healthy smokers but not those with shortness of breath (OR 0.63, 95% CI 0.39, 9.2) (Senore et al, 1998). This result could reflect the resistance of some smokers to cessation until they have a smoking-related medical problem.

3.1.2.5 Subgroups

Gender

- Because a higher proportion of women than men visit their doctor or dentist regularly, women smokers are more likely to receive brief cessation advice than men. (USDHHS, 2001 p. 555).
- Australian women have higher rates of health care visits than men. (11.5% of women and 8.4% of men visited an allied or other health professional per fortnight (AIHW, 2000, p. 291); of GP encounters in 1999-2000, 57 per cent were with females and 43 per cent with males, with higher proportions in reproductive years and elderly).
- Women who try to stop smoking use more cessation strategies than men. However, there is no consistent evidence of gender difference in effectiveness of brief intervention counselling (USDHHS, 2001 p. 555).
- The 2000 US Public Health Service Clinical Practice Guidelines (Fiore et al, 2000) recommend that tobacco use be treated as a vital sign with no gender-specific treatment guidelines, other than for pregnant women.

Youth

- The stage of change model of smoking cessation is relatively unresearched with youth (Henningfield et al, 2000)
- Relapse is much higher for adolescents than adults (Sussman et al, 1999; Henningfield et al, 2000). Attention to social supports and co-morbidity such as depression may be required (Henningfield et al, 2000)

Elderly

- Smokers over the age of 65 can both quit smoking and benefit from abstinence (Lightwood and Glantz, 1997).
- For patients aged fifty years or more US doctors are more likely to advise sicker patients to quit. This includes self assessed fair or poor health, those hospitalised in the last twelve months and those with cardiovascular, cerebrovascular or respiratory disease (Ossip-Klein et al, 2000)

Dependency

- In general it is those who smoke less than 10 cigarettes per day who stop in response to brief advice from their doctor unless some additional assistance or medication is used (Silagy, 2000)

Pregnancy

- Minimal intervention or usual care (recommendation to stop smoking, supplemented by self help material or referral to a stop-smoking program) achieves estimated abstinence rates of 6.6 per cent in pregnant women (Meta-analysis of seven studies, Fiore et al., 2000).

High risk groups

- Spine health care providers achieved quit rates of 19.5 per cent with occasional mentioning and 35.6 per cent with chart identification, follow-up, written handout and high practitioner priority. An incentive was no surgery without quitting. The median time to quitting was four visits in four months (Castellvi et al, 2000).

Table 4: Details and results of meta-analyses related to clinician advice, undertaken to inform the development of the US Government guidelines, Treating Tobacco Use and Dependence (Fiore et al, 2000)

	Studies	Study groups	Estimated odds ratio (95% CI)	Effect size % (95% CI)	Estimated abstinence rate (95% CI)
Ask					
<i>Screening system versus none</i>	3	3	2.0 (0.8, 4.8)	3.3 (-1.8, 8.5)	6.4 (1.3, 11.6)
<i>Physician advice to quit versus none</i>	7	10	1.3 (1.1, 1.6)	2.3 (0.6, 4.1)	10.2 (8.5, 12.0)
Advise and assist					
<i>Type of clinician</i>					
No clinician	29	16	1.0		10.2
Non physician clinician versus none (various intensities)	29	39	1.7 (1.3, 2.1)	5.6 (2.6, 8.6)	15.8 (12.8, 18.8)
Physician versus none (various intensities)	29	11	2.2 (1.5, 3.2)	9.7(3.5, 16.0)	19.9 (13.7, 26.2)
<i>Number of clinicians</i>					
No clinician	37	30	1.0		10.8
One clinician type		50	1.8 (1.5, 2.2)	7.5 (4.6, 10.3)	18.3 (15.4, 21.1)
Two clinician types		16	2.5 (1.9, 3.4)	12.8 (7.6,17.9)	23.6 (18.4, 28.7)
Three or more clinician types		7	2.4 (2.1, 2.9)	12.2 (9.2,15.1)	23.0 (20.0, 25.9)
<i>Number of sessions</i>					
0-1 sessions	45	43	1.0		12.4
2-3 sessions		17	1.4 (1.1, 1.7)	3.9 (1.3, 6.6)	16.3 (13.7, 19.0)
4-8 sessions		23	1.9 (1.6, 2.2)	8.5 (5.7, 11.2)	20.9 (18.1, 23.6)
>8 sessions		51	2.3 (2.1, 3.0)	12.3 (8.6,16.0)	24.7 (21.0, 28.4)
<i>Session length</i>					
No contact	43	30	1.0		10.9
Minimal (3 minutes)		19	1.3 (1.01-1.6)	2.5 (0.9-5.2)	13.4 (10.9-16.1)
Low intensity (3-10 minutes)		16	1.6 (1.2, 2.0)	5.1 (1.9, 8.3)	16.0 (12.8, 19.2)
High intensity (>10 minutes)		55	2.3 (2.0, 2.7)	11.2 (8.5,13.8)	22.1 (19.4, 24.7)
<i>Total contact time</i>					
No contact	35	16	1.0		11.0
1-3 minutes		12	1.4 (1.1, 1.8)	3.4 (0.3, 6.5)	14.4 (11.3, 17.5)
4-30 minutes		20	1.9 (1.5, 2.3)	7.8 (4.6,11.0)	18.8 (15.6, 22.0)
31-90 minutes		16	3.0 (2.3, 3.8)	15.5 (11.5,20.4)	26.5 (21.5, 31.4)
91-300 minutes		16	3.2 (2.3, 4.6)	17.4(10.3,24.5)	28.4 (21.3, 35.5)
>300 minutes		15	2.8 (2.0, 3.9)	14.5(8.2,20.7)	25.5 (19.2, 31.7)
<i>Format of counselling</i>					
No format	58	20	1.0		10.8
Proactive telephone counselling		26	1.2 (1.1, 1.4)	2.3 (0.6, 4.0)	13.1 (11.4, 14.8)
Group counselling		52	1.3 (1.1, 1.6)	3.1 (0.8, 5.3)	13.9 (11.6, 16.1)
Individual counselling		67	1.7 (1.4, 2.0)	6.0 (3.9, 8.3)	16.8 (14.7, 19.1)

3.1.2.6 Recent and current Australian initiatives

A number of interventions and/or research studies underway in Australia use the US or UK clinical guidelines as their basis (Appendix 3). These include applications of the 4 or 5A's model to hospital, general practice and dental settings as well as use of minimal/brief intervention by individual health professional groups or for particular target groups.

There is also recognition of movement in Australia towards greater integration and coordination of health care across the health system. Two South Australian research interventions for hospital patients provide links to community based primary health services as a key component to try to redress relapse. A joint proposed research project by the Pharmacy Guild, Pharmaceutical Society

of Australia and Australian Medical Association seeks to provide more coordinated advice and support for smokers from general medical practitioners and pharmacists in relation to quitting and use of NRT (Appendix 3, Table 1).

3.1.2.7 Implications for practice in Australia

Clinic or institutional systems should be established for identification of smokers.

Ideally, clinic or institutional systems should be established for identification of smokers to prompt health care providers to routinely provide brief cessation advice. A systematic approach to ascertaining and documenting tobacco use of patients is the first step in changing clinical culture and practice patterns to ensure that every patient who smokes is offered treatment. The evidence for the effect of provider reminder systems for identifying smokers on cessation attempts is strong, and this is a relatively simple intervention that can be incorporated into the routine practice of most health services and practices in Australia. Peak health professional bodies may work with their profession to develop standard systems for identification of smokers. Individual health care providers, practices or health services may also adapt existing systems to accommodate smoker identification and provision of brief cessation advice.

All health care providers should routinely provide brief cessation advice.

The international evidence pertaining to effectiveness and potential of brief cessation advice provided by health professionals is equally applicable in the Australian context. The brief intervention strategy components (ie the 4 or 5A's) recommended by the US and UK guidelines are readily transferable for use by health care providers in a wide range of settings in Australia.

Barriers to the provision of smoking cessation advice by all health professionals should be identified and addressed.

The rate of provision of brief cessation advice by Australian health care providers varies between professional groups but is generally low (Young and Ward, 2001; Clover et al 1999). One conclusion of the Cochrane review of the efficacy of brief advice provided by doctors was that brief advice is effective, but the challenge is to identify and address barriers to its implementation (Silagy, 2000).

Whilst barriers to provision of cessation advice are beyond the scope of this review, it is clear from the evidence that some of the barriers perceived to exist by health professionals are relatively unfounded. 'Lack of time' for example is often cited as a barrier to provision of advice, yet the evidence confirms that clients can effectively be encouraged, advised and supported to quit within as little as 3-5 minutes of a health professional's time. Lack of perceived skills or training is another cited barrier, but existing evidence is mixed regarding the added benefit of intensive cessation skills training. Lack of immediate relevance is another barrier for health care providers who do not perceive a direct link between smoking and the reason for presentation of their client/patient. However, smoking has such a diversity of health effects that most health professionals will see clients who have some smoking related health problem or complication that is relevant to their consultation. Examples include presentation to dentists for periodontal disease, oral cancer or aesthetic improvements; presentation to physiotherapists for fitness, respiratory or circulation related conditions; and routine consultations with child health nurses concerning general health, growth and development of children, including provision of a smoke free environment.

Profession-specific brief intervention guidelines for health care providers should be developed and promoted.

Clinical practice guidelines have been demonstrated to be an effective means of changing the process of health care and improving health outcomes (Grimshaw and Russell, 1993). Smoking cessation clinical practice guidelines such as the 1996 US Smoking Cessation Clinical Practice Guideline

(Fiore et al, 1996) have been widely distributed and have inspired system changes in diverse health care settings (Fiore et al, 2000). They have also stimulated development of tobacco dependence treatment programs by government agencies and health professional organisations. Development and dissemination of profession-specific brief intervention guidelines to health care providers through their respective peak bodies may be a way to increase the profile of smoking cessation as a relevant issue and to address perceived barriers to implementation.

3.1.3 Intensive clinical intervention

3.1.3.1 Overview

Brief advice from a health care provider is recognised as an important motivator for a quit attempt (Kreuter et al, 2000; USDHHS, 2000). However, the 4 or 5As approaches to minimal intervention stress the importance of assisting clients to make a cessation attempt. This may include more intensive behavioural therapy and/or pharmacotherapy. Knowledge of the efficacy and effectiveness of different behavioural support methods with different groups is important for clinicians providing advice and referral as part of minimal clinical intervention.

3.1.3.2 Description of the method

A range of more intensive behavioural methods has been used in clinical settings to support patient attempts at smoking cessation. These include:

- Individual counselling such as:
 - Intensive intervention by a usual carer eg doctor, nurse
 - Counselling by a smoking cessation specialist
 - Proactive telephone counselling
- Supportive group sessions
 - Specialist smoking cessation clinics
 - Behaviour modification therapy
- Aversion therapy

Each of these is described in more detail in the relevant sections following.

3.1.3.3 Characteristics of effective clinical interventions for sustained smoking cessation

The Fiore et al (2000) review involved a series of meta-analyses across a broad range of counselling and behavioural intervention methods to identify the most important characteristics of interventions. These results are presented first (and summarised in Table 4), followed by a more detailed analysis of specific types of interventions.

3.1.3.3.1 Session length

There is a strong dose response relationship between the session length of health professional-smoker contact and abstinence rates (Strength of evidence A).

- Abstinence rate at five months or more increased from 10.9% with no contact to 13.4%, 16.0% and 22.1% with increasing session length (OR 1.3, 1.6 and 2.3 respectively). (Table 4) (Meta-analysis¹ of 35 studies of all health professionals, Fiore et al, 2000).

¹ In this meta-analysis, the reference group received no person to person contact. Minimal counselling was defined as three minutes or less, low intensity counselling as three to ten minutes and higher intensity as greater than 10 minutes. Interventions could involve multiple sessions, with intensity defined by the longest session.

3.1.3.3.2 *Number of sessions*

There is a strong dose response relationship between the number of sessions and abstinence rates (Strength of evidence A).

- Abstinence rates increased from 12.4% with 0-1 sessions to 16.3%, 20.9% and 24.9% respectively for number of sessions categorised as 0-1, 2-3, 4-8 and greater than 8. Odds ratios were 1.4, 1.9 and 2.3. (Meta-analysis of 45 studies, Fiore et al, 2000) (Table 4).

3.1.3.3.3 *Total contact time*

There is a strong dose response relationship between total contact time up to 90 minutes and abstinence rates (Strength of evidence A).

- Abstinence rate increased from 11.0% with no contact to 14.4%, 18.8% and 26.5% for up to 31-90 minutes total contact (OR 1.4, 1.9, 3.0) (Table 4). Total contact time was the total time accumulated over all sessions. For the purposes of the meta-analysis, it was categorised as no contact, 1-3 minutes, 4-30 minutes, 31-90 minutes, 91-300 minutes and greater than 300 minutes.
- Rates stabilised at 28.4% and 25.5% for the longer contact times (OR 3.2, 2.8) (Meta-analysis of 35 studies, Fiore et al, 2000). (Table 4).

3.1.3.3.4 *Number of types of health professionals*

Treatments delivered by more than one type of health professional increases abstinence rates (Strength of evidence C).

- Estimated abstinence rates were 10.8% for no clinician compared to 18.3% for one type of health professional, 23.6% for two types and 23.0% for three or more types of health professional. Corresponding odds ratios were 1.0, 1.8, 2.5 and 2.4 (Table 4) (Meta-analysis of 37 studies, Fiore et al, 2000).

3.1.3.3.5 *Format of counselling*

Individual counselling, group and proactive telephone counselling, are effective methods of increasing long-term quit rates (Strength of evidence A)

- Meta-analysis showed increased abstinence rates for individual counselling (OR 1.7 95% CI 1.4, 2.0), group counselling (OR 1.3 95% CI 1.1, 1.6) and proactive telephone counselling (OR 1.2 95% CI 1.1, 1.4) relative to no intervention (Fiore et al, 2000) (Table 4).

3.1.3.3.6 *Types of counselling and behavioural therapies*

Providing problem-solving skills training and social support as part of treatment, and helping smokers obtain social support outside of treatment are all effective methods of increasing long-term quit rates (Strength of evidence B)².

- Three types of counselling result in higher abstinence rates compared to no counselling or behaviour therapy (Table 5):
 - Providing problem solving skills training (OR 1.5 (1.3, 1.8), effect size 5.0% (2.8, 7.3) (Meta-analysis 104 study groups, Fiore et al, 2000);
 - Providing social support as part of treatment (OR 1.3 (1.1, 1.6) effect size 3.2% (1.1, 4.3) (Meta-analysis 50 study groups, Fiore et al, 2000); and

² Strength of evidence is rated as B because analysis does not control for simultaneous use of other interventions (effects similar with and without pharmacological methods); correlation with other treatment characteristics such as session length, number of sessions; and no control for placebo effects (Fiore et al, 2000, p. 66).

Helping smokers obtain social support outside of treatment (OR 1.5 (1.1, 2.1) effect size 5% (0.6, 9.4) ((Meta-analysis 19 study groups, Fiore et al, 2000).

Many behavioural approaches to smoking cessation are not effective in increasing cessation rates when compared to no intervention (Strength of evidence B)

- Odds ratios and abstinence rates derived from meta-analysis of studies of interventions such as relaxation/breathing, contingency contracting, weight/diet therapy, cigarette fading and negative affect were not significantly different from those for no counselling or behaviour therapy (Fiore et al, 2000) (Table 5).

The role of physical activity in supporting smoking cessation needs further study (strength of evidence C).

- Exercise was included as part of weight control in the Fiore et al (2000) meta-analysis which showed no effect (OR 1.0, 95% CI 0.8, 1.3).
- A recent randomised controlled trial (Marcus et al, 1999) found that vigorous exercise as an adjunct to multi-session cognitive behavioural intervention therapy, boosts quit rate of women (OR 2.36 (0.97, 5.70), effect size 6.5%). This trial was the only one of eight included in a Cochrane review examining exercise as an adjunct to a cessation program (Usher et al, 2000) that was considered large enough to draw reliable conclusions.
- A Cochrane review examining exercise as an adjunct to a cessation program (Usher et al, 2000) found that the sample size of most trials was too small and the interventions in different trials varied in intensity and timing of the smoking cessation and exercise programs. The review concluded that there was a need for larger trials meeting various intervention and study conditions.

3.1.3.4 Subgroups

Gender

- Women are somewhat more likely than men to use intensive smoking cessation programs, particularly groups and gradual approaches (USDHHS, 2001 p. 555). Men are more successful with contingency contracting and abrupt cessation.

Pregnancy

- More intensive behavioural interventions are more effective in achieving smoking cessation by pregnant women than minimal (<3 minutes) interventions. Provision of behavioural cessation interventions longer than three minutes tripled abstinence rates in pregnant women compared to minimal intervention (OR 2.8, 95% CI 2.2, 3.7, effect size 10.2%, 95% CI 6.5, 13.9) (Meta-analysis of 7 trials, with eight study groups, Fiore et al, 2000).
- Low intensity interventions (5 to 15 minutes) delivered by a trained provider with provision of pregnancy specific self-help materials, improved cessation rates by 70 per cent compared to usual care (OR 1.7, 95% CI 1.3, 2.2) (Meta-analysis of 16 trials, Melvin et al, 2000; Mullen, 1999).
- Behavioural interventions are less effective in more addicted pregnant smokers (Melvin et al, 2000).

Setting

- Specific smoking cessation interventions with hospital inpatients are more effective in achieving cessation for at least five months than usual hospital care (OR 1.3 (95% CI 1.04, 1.6, effect size 4.1% (95% CI 19.5, 27.1) (Meta-analysis of four studies, six study groups) (Fiore et al, 1996).

Table 5: Details and results of meta-analyses related to effectiveness of various types of counselling and behaviour therapy, undertaken to inform the development of the US Government guidelines, Treating Tobacco Use and Dependence (Fiore et al, 2000)

	N of study group	Estimated odds ratio (95% CI)	Effect size % (95% CI)	Estimated abstinence rate (95% CI)
No counselling or behaviour therapy	35	1.0		11.2
<i>Ineffective long-term</i>				
Relaxation/breathing	31	1.0 (0.7, 1.3)	0.4 (-3.3, 2.6)	10.8 (7.9, 13.8)
Contingency contracting	22	1.0 (0.7, 1.4)	0 (-3.4, 3.4)	11.2 (7.8, 14.6)
Weight/diet	19	1.0 (0.8, 1.3)	0 (-2.7, 2.8)	11.2 (8.5, 14.0)
Cigarette fading	25	1.1 (0.8, 1.5)	0.6 (-2.8, 3.6)	11.8 (8.4, 15.4)
Negative affect	8	1.2 (0.8, 1.9)	2.4 (-2.5, 7.3)	13.6 (8.7, 18.5)
<i>Effective long term</i>				
Intra treatment social support	50	1.3 (1.1, 1.6)	3.4 (1.1, 4.3)	14.4 (2.3, 16.5)
Extra treatment/social support	19	1.5 (1.1, 2.1)	5.0 (0.6, 9.4)	16.2 (11.8, 20.6)
General problem solving	104	1.5 (1.3, 1.8)	5.0 (2.8, 7.3)	16.2 (14.0, 18.5)
Other aversive smoking	19	1.7 (1.0, 2.8)	6.5 (0, 13.3)	17.7 (11.2, 24.9)
Rapid smoking	19	2.0 (1.1, 3.5)	8.7 (0, 17.8)	19.9 (11.2, 29.0)

3.1.4 Individual behavioural counselling

3.1.4.1 Background

Although brief advice from health care providers concerning smoking cessation is effective, meta-analyses by Fiore et al (2000), summarised in the previous section show that increased smoking cessation rates are achieved with longer and more frequent session times, involvement of more than one clinician type and inclusion of telephone counselling. In this section, the evidence related to individual behavioural counselling is reviewed in the context of

- More intensive intervention by usual carers eg doctors, nurses
- Counselling by a smoking cessation specialist
- Proactive telephone counselling

3.1.4.2 Description of the method

3.1.4.2.1 Intensive intervention by a usual carer eg doctor, nurse

Intensive interventions by health care providers are usually defined as those that take more than ten minutes per session (Fiore et al, 2000; Lancaster and Steadb, 2000; Rice and Stead, 2000). The distinction between minimal and more intensive intervention becomes somewhat blurred when the clinician provides continuing support of short duration per session. For the purposes of this review, the latter is defined as more intensive intervention. Situations in which more than one clinician within a health care setting, such as a doctor and clinic nurse or a dentist and dental hygienist, is involved in the intervention are also included in this category.

3.1.4.2.2 Counselling by a smoking cessation specialist

Smoking cessation specialists include those trained in behaviour change techniques related to smoking, such as psychologists, health educators and psychiatrists. This group was the focus of the Cochrane review on individual counselling for smoking cessation (Lancaster and Stead, 2000b).

Individual counselling was limited to counselling provided by specialist counsellors and not by health care providers during usual care. Counselling was also required to be of at least 10 minutes duration. The counselling interventions typically included the following components;

- Review of the participant’s smoking history and motivation to quit;
- Help in identification of high-risk situations and smoking cues; and
- Generation of problem-solving strategies to deal with high risk situations.

Counsellors may also have provided non-specific support and encouragement and as well as written materials, video or audiotapes.

3.1.4.2.3 Proactive telephone counselling

In proactive telephone counselling, smokers receive calls from counsellors according to a prearranged schedule. The primary use of proactive telephone counselling is in follow-up and relapse prevention after the provision of an initial face-to-face brief or intensive counselling session.

Reactive telephone counselling, where smokers call a help-line seeking help and advice, was addressed in this review as part of self-help interventions.

3.1.4.3 Sources of evidence

3.1.4.3.1 Major evidence reviews

Significant recent reviews that have conducted meta-analysis of randomised controlled trials of more intensive individual behavioural counselling to quit attempts include:

- A number of meta-analyses by the Cochrane Collaboration related to smoking cessation interventions by different health worker types, types of intervention and training in cessation counselling are also relevant. These include:
 - Physician advice for smoking cessation, updated to October 1998 (Silagy, 2000);
 - Nursing interventions for smoking cessation updated to May 1999 (Rice and Stead, 2000);
 - Training health professionals in smoking cessation updated to May 2000 (Lancaster et al, 2000b);
 - Individual behavioural counselling for smoking cessation updated to February 1999 (Lancaster and Stead, 2000b);
 - Group behaviour therapy programs for smoking cessation updated to May 1998 (Stead and Lancaster, 2000); and
 - Aversion smoking for smoking cessation updated to September 1997 (Hajek and Stead, 2000)
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, Treating Tobacco Use and Dependence published in June 2000 (Fiore et al, 2000);
- A meta-analytic review of telephone counselling by Lichtenstein et al, 1996.
- The Surgeon General’s report on Women and Smoking (USDHHS, 2001 p555) includes significant qualitative review and discussion of the gender differences in efficacy of intensive clinical intervention in smoking cessation.
- The Surgeon General’s report on Smoking Cessation (USDHHS, 2000,) includes qualitative analysis and discussion of components of individual counselling including problem solving (p106), cue exposure (p108) and motivational rewards (p110).

3.1.4.3.2 *Recent evidence not included in reviews*

The major focus of recent research is on cost-effective follow-up counselling, particularly by telephone (Canga et al, 2000; Borland et al, 2001; Johnson et al 1999; Johnson et al 2000; Zhu et al, 2000); Dornelas et al, 2000; Smith et al, 2000). Other trials addressed provision of smoking cessation advice by nurses in a pre-natal (Ershoff et al 1999), paediatric (Lan and Chan, 2000), general medical practice (Steptoe et al, 1999) or diabetic clinic setting (Canga et al, 2000). Humair et al (2000) reported a randomised controlled trial in progress in Geneva to assess the effectiveness of physican training in the use of stages of change assessment and motivational counselling on quit rates at one year.

3.1.4.4 **Synthesis of evidence**

3.1.4.4.1 *More intensive intervention by usual carers eg doctors, nurses*

3.1.4.4.1.1 **Doctors**

There is a small advantage of intensive cessation advice over minimal advice provided to smokers by their doctor (Strength of evidence A).

- Direct comparison of intensive versus minimal advice showed a small advantage of intensive advice (OR 1.44, 95% CI 1.23, 1.68) (Meta-analysis of 13 trials, Silagy, 2000). Indirect comparison showed no difference in effect (Silagy, 2000).
- Brief advice from health professionals (taking around three minutes) decreased the proportion of people smoking by around two per cent per year. Increasing the intensity of advice (time spent giving advice and the duration of follow up) decreased the proportion of smokers by around three to five per cent per year (Review of British National Health Service, NHSCR, 1998).
- The marginal benefit of intensive compared to minimal advice in smokers unselected for smoking related disease translates into 30 smokers who would need to be treated to produce one extra quitter in six to twelve months (Review of British National Health Service, NHSCR, 1998).

Follow-up visits with their doctor significantly increases cessation rate of smokers at six months or more compared to no follow-up (Strength of evidence A).

- The odds ratio for cessation when follow-up was provided was 2.54 (95% CI 2.03, 3.19) compared to 1.66 (95% CI 1.41, 1.95) when it was not (Silagy, 2000).
- Direct comparison of the addition of further doctor follow-up to a minimal intervention showed a small increase in the odds of quitting (OR 1.60, 95% CI 1.10, 2.33).

3.1.4.4.1.2 **Nurses**

Nurse interventions classified as higher intensity based on the length of initial contact, content of intervention and number of follow-ups, may not be more effective than minimal intervention in achieving successful quitting (Strength of evidence B).

- Indirect comparison of the pooled odds ratio for ten high intensity intervention trials (OR 1.39, 95% CI 1.19, 1.64) compared to the odds ratio for five low intensity trials (OR 1.67, 95% CI 1.14, 2.45) shows no significant difference (Rice and Stead, 2000). However, there was significant heterogeneity in the results of the high intensity interventions.
- Trials of direct comparisons between high and low intensity nurse interventions are needed.

Providing additional physiological feedback in the form of spirometry and demonstrated carbon monoxide level as an adjunct to nursing intervention does not appear to have an effect (Strength of evidence B).

- The pooled odds ratio for two trials was 0.79 (95% CI 0.44, 1.44) (Rice and Stead, 2000).

Repeated telephone support by a nurse after an initial intervention with a doctor or nurse appears to increase long-term cessation rate (Strength of evidence B).

- Repeated telephone support (Miller, 1997) increased the cessation rate, although the lower confidence interval was only one, (OR 1.40, 95% CI 1.00-1.96).
- Continuous smoking abstinence six months postpartum was significantly increased by in-hospital counselling by a nurse and eight telephone follow-up calls for three months (OR 1.63, 95% CI 0.96, 2.78, effect size 11%) (Randomised controlled trial with 254 women, Johnson et al, 2000). However there was no difference in smoking abstinence between control and intervention groups at 12 months (Ratner et al, 2000).

3.1.4.4.2 Subgroups

High risk groups

Doctors

- The effect of intensive counselling compared to minimal counselling by a doctor was greater amongst trials with patients with, or at high risk of, smoking related disease (Silagy, 2000).
- General medical practitioners appear to be more willing to give advice to stop to smokers with smoking related diseases (Coleman et al, 2000). This is despite evidence that smokers with smoking related diseases do not respond better to such advice than others (Senore et al 1998).
- There is some evidence that smokers are happier to receive advice to stop when GPs link the advice to their reason for visiting the surgery, even if the reason for the visit is not smoking related (Butler et al 1998).

Nurses

- Intensive counselling by a nurse (40 minute nurse visit, setting a quit date, follow-up phone calls, letters, visits) of diabetic patients at primary care centres and hospitals in Spain increased quit rates at six months compared to a usual care control group (17% vs 2.3%). (Effect size 14.7% (95% CI 8.2, 21.3%)) (Canga et al 2000).
- The pooled effect of three trials that included a smoking cessation intervention from a nurse as part of cardiac rehabilitation more than doubled the odds of stopping smoking (OR 2.14, 95% CI 1.39, 3.31) (Rice and Stead, 2000). Amongst non-cardiac hospitalised smokers the odds ratio for cessation was 1.20 (95% CI 0.92, 1.56).
- A study comparing the effect of the same interventions in motivated smokers with different types of illness showed a greater increase in 12-month quit rates in cardiovascular patients (from 24% to 31%) compared to other types of patients (from 18.5% to 21%) (Miller 1997).

Setting

Nurses

Smoking intervention in seven trials with non-hospitalised adults gave an estimated 50 per cent increase in the odds of success (OR 1.58, 95% CI 1.20, 2.10). Even with exclusion of two trials using a combination of nursing intervention and advice from a physician, there was still a significant effect (OR 1.49, 95% CI 1.03, 2.15).

Trials involving health check (screening) cardiovascular programs in general practice (family medicine) found low participation (25% Sanders et al, 1989) and small (about one per cent when all influences considered) (Sanders et al, 1989; Family Heart Study, 1994) or no effect (ICRF OXCHECK, 1995) on 12 month sustained smoking cessation rates.

3.1.4.4.3 *Counselling by a smoking cessation specialist*

Individual counselling is more effective in achieving sustained smoking cessation than brief advice, usual care or provision of self help materials (Strength of evidence A).

- Participation in individual therapy sessions delivered by a counsellor other than usual carer doubles increases cessation rates at six months by 50 to 75 per cent compared to minimal intervention ((OR 1.55, 95% CI 1.27, 1.90) (Meta-analysis of 10 trials, Lancaster and Stead, 2000b) or no intervention (OR 1.7 95% CI 1.4, 2.0) (Meta-analysis of 58 studies, 67 groups, Fiore et al, 2000)).

There is limited evidence that intensive counselling, including relapse prevention is more effective than brief counselling (of more than 10 minutes duration) (Strength of evidence B).

- OR 1.17 (95% CI 0.59, 2.34) (Meta-analysis of 2 trials, Lancaster and Stead, 2000b).

There was insufficient evidence of a difference in effect between individual counselling and group therapy (Strength of evidence B).

- OR 1.33 (95% CI 0.83, 2.13) (Analysis of 1 trial, Lancaster and Stead, 2000b).

3.1.4.4.4 *Telephone counselling*

Proactive telephone counselling is effective in increasing cessation rates when used as a sole intervention modality or when augmenting programs initiated in hospital settings (Strength of evidence A).

Proactive telephone counselling compared to a control condition significantly increases quit rates at six months or more (OR 1.20, 95% CI 1.06, 1.37) (Meta-analysis of 13 trials, Lichtenstein et al, 1996).

Repeated telephone support for up to 12 weeks is more effective than a single telephone counselling session. (Strength of evidence A).

- Repeated telephone support provided by a nurse after an initial counselling session with a doctor or nurse increased the cessation rate, although the lower confidence interval was only one, (OR 1.40, 95% CI 1.00-1.96) (Miller, 1997).
- Multiple telephone counselling sessions (average 4.2) with NRT users were more effective than a single session in prompting quit attempts (84.4% vs 77.1%) and maintaining cessation for 12 months (25.5% vs 16.1%) (Zhu et al, 2000).
- Callback counselling (average 2.8 calls) after an initial call to a quitline service increased self-reported point prevalence quit-rate at six months compared to usual care (22% vs 16%) Period prevalence rates for cessation for at least three months at six months follow-up were 16% vs 8% and nine months at the 12 month follow-up (11% vs 6%) (Borland et al, 2001).

3.1.4.4.5 *Subgroups*

Pregnancy

- Continuous smoking abstinence six months postpartum was significantly increased by in-hospital counselling by a nurse and eight telephone follow-up calls for three months (OR 1.63, 95% CI 0.96, 2.78, effect size 11%) (randomised controlled trial with 254 women, Johnson et al, 2000). However there was no difference in smoking abstinence between control and intervention groups at 12 months (Ratner et al, 2000).

3.1.4.5 **Recent or current Australian initiatives**

There are varying interpretations of the distinction between brief and more intensive intervention. Many of the current Australian smoking cessation research and intervention projects in individual behavioural counselling (Appendix 3) are oriented towards the briefer end of the spectrum. But there

are some that include the use of more intensive strategies by usual care providers, such as motivational interview techniques. These include the SA randomised control trial of a smoking cessation intervention for people with cancer diagnosis and the Queensland GP project (Appendix 3).

Several current trials and interventions compliment brief clinical interventions with referral to community sources of adjunct support, counselling or follow-up. Referral options range from referral to general medical practitioners by hospital based interventions (see hospitals column in Appendix 3, Table 1), referral to telephone counselling (eg the trial of general medical practitioner referral to telephone counselling and follow up in SA), or referral to cessation clinics or courses where appropriate.

3.1.4.6 Implications for Australian practice

Health services and health professionals should explore viable methods for incorporating more intensive interventions and follow-up into routine practice for smoking cessation.

Compared to minimal intervention, small gains in cessation rate can be achieved with more intensive behavioural interventions (more than ten minutes) provided by doctors and follow-up provided by doctors or nurses. However, the time demands on doctors and other health professionals in the Australian health system often preclude longer interventions or follow-up in usual clinical practice.

Telephone counselling, including services offered through quitlines, should be further developed as a support to clinical intervention.

A viable option for Australian practice may be to complement brief intervention advice with follow-up counselling or support via methods such as telephone counselling. While the evidence base for proactive telephone counselling is still growing, there is sufficient evidence to suggest that it is a beneficial method for enhancing the success of quit attempts. There is also a cost advantage to the health system overall, as the cost to provide comparable advice and follow-up of using trained telephone counsellors is much less than the cost per minute of consultation time for general medical practitioners or other clinical health professionals. States and territories vary in the extent to which they are set up to provide telephone counselling and follow-up, and links between these telephone services and health professionals are sporadic. Research projects such as the South Australian intervention that combines general medical practitioner advice with referral to the Quitline can help to inform the development of adjunct telephone counselling for brief interventions in other parts of Australia, and with other health professional groups.

Counselling options, including those provided as a Pharmaceutical Benefits Scheme (PBS) requirement to Zyban users should be consistent with the evidence for best practice.

With the PBS schedule listing requirement for Zyban to be used within a comprehensive treatment program as a short-term adjunctive therapy, there is now an impetus and potential demand for counselling options. In Victoria this has resulted in Quit services providing counselling to Zyban users, whilst Tasmania reports increased referral to cessation clinics. Given the unprecedented demand for Zyban prescriptions since its inclusion on the Pharmaceutical Benefits Scheme in February 2001, it is timely for smoking and health programs, providers of cessation services and general medical practitioners to ensure that the counselling options provided to Zyban users and to smokers generally are in keeping with the evidence for best practice.

3.1.5 Supportive Group Sessions

3.1.5.1 Background

Group therapy offers individuals the opportunity to learn behavioural techniques for smoking cessation, and to provide each other with mutual support. Over 100 group therapies for smoking cessation have been described in the literature (Hajek, 1996). Groups may be led by professional facilitators, clinical psychologists, health educators, nurses, doctors, or successful peers. They may be conducted in different settings and may vary in intensity, number and duration of sessions as well as total duration.

3.1.5.2 Description of the method

Suggested components of a best practice group cessation clinic program include:

- Setting a specific quit date;
- Learning to interrupt the conditioned responses that support smoking by self-monitoring;
- Making plans for coping with temptations to smoke following cessation; and
- Providing follow-up contact and social support for quitting and continued abstinence (Fisher et al, 1993).

Other optional components are:

- Contingency contracting-setting rewards or punishments related to achievement of targets
- Instructions for effective use of NRT.

3.1.5.3 Sources of evidence

3.1.5.3.1 Major evidence reviews

Significant recent reviews that have addressed group interventions include:

- Meta-analysis by the Cochrane Collaboration of research on group behaviour therapy programs for smoking cessation (Stead and Lancaster, 2000) updated to May 1998.
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, Treating Tobacco Use and Dependence published in June 2000 (Fiore et al, 2000).

3.1.5.3.2 Recent evidence not included in reviews

No new trials were identified.

3.1.5.4 Synthesis of evidence

Group behaviour therapy is more effective in achieving sustained smoking cessation than self-help and other less intensive interventions (Strength of evidence A).

- Participation in group therapy doubles cessation rates at six months compared to self-help activities (OR 2.10, 95% CI 1.64, 2.70)(Meta-analysis of 13 trials, Stead and Lancaster, 2000).
- Participation in group therapy almost doubles cessation rates at six months compared to no intervention or minimal contact (OR 1.91, 95% CI 1.20, 3.04) (Meta-analysis of 13 trials, Stead and Lancaster, 2000).

There is not enough evidence to determine any difference in the effectiveness of group and individual therapy in achieving sustained smoking cessation (Strength of evidence B).

- The odds ratio for comparison of group and individual therapy was 0.83 (95% CI 0.54, 1.26) (Meta-analysis of 2 trials, Stead and Lancaster, 2000). The trend towards greater efficacy of individual therapy was not statistically significant.

The addition of group therapy to other forms of treatment such as advice from a health professional and NRT produces little extra benefits (Strength of evidence B).

- The pooled odds ratio of five studies was 0.96 (95% CI 0.69, 1.35), but there was significant variation in results between studies (Stead and Lancaster, 2000).

There is variation in client acceptability of group therapy (Strength of evidence A).

- Attendance rates of smokers invited to participate in group cessation programs reviewed by Stead and Lancaster (2000) varied from eight to 88 per cent. The experimental nature of the trials may have influenced participation rate although participation was no better in trials that allowed self-selection of self-help or group therapy.

There are insufficient studies of similar components of group therapy to confidently identify effective and ineffective components of group programs.

3.1.5.5 Subgroups

Gender

- Women are more likely than men to participate in cessation approaches that provide social support such as buddy systems and group therapy (USDHHS, 2001 p555)

Youth

- Attracting and retaining adolescents in group smoking cessation interventions is a major limitation to their effectiveness (Henningfield et al, 2000)

3.1.5.6 Recent or current Australian initiatives

No current trials were identified in the area of group therapy or methods. However evaluated cessation courses (and training in the conduct of these) are in place in a number of States and Territories. These have been developed for general populations of smokers as well as for specific target groups such as prisoners and people with mental illness (see Appendix 3, Table 2). Evaluation usually includes process measures as well as cessation outcomes at either 3 and/or 12 months.

3.1.5.7 Implications for Australian practice

Group therapy can be an effective cessation method that should be available for those who are willing to participate.

There is sufficient evidence for the relative effectiveness of group therapy or courses for increasing and sustaining cessation success to warrant such options being available for smokers willing to participate in this kind of treatment. However, the general trend across Australia is one of declining demand and interest in cessation course participation. This highlights the need to balance in practice, assessments of the evidence with issues of demand and relative resource allocation (groups being more expensive than self-help and some other intervention types).

Practitioners in some Australian states have experimented with variations in course content and duration as a means of engaging specific population groups or a greater number of participants. Group therapy is an accepted and widely practiced technique in mental health care and work undertaken in Victoria to adapt cessation courses for this population group appears promising (Appendix 3, Table 2).

Best practice, participation rates and effectiveness of group therapy should be monitored and courses modified as required.

Where group therapy methods or courses for cessation are offered by health agencies and/or health professionals, it is important that process (eg participation rates) and cessation outcome measures (ideally for 3, 6, and 12 month time points) are routinely evaluated to enable the cost effectiveness of such interventions to be assessed against other evidence based interventions to which resources could be directed.

A report prepared for Quit coordinators on Quitline operations and quit smoking programs in Australia (Carroll, 2000) includes some detailed recommendations for best practice for smoking cessation courses.

3.1.6 Aversion therapy

3.1.6.1 Background

Aversion methods have been used in attempts to modify a range of behavioural disorders. These methods are based on findings originating in animal 'classical conditioning' experiments showing that adding an unpleasant (aversive) stimulus to an attractive behaviour reduces the attractiveness and may extinguish the behaviour (Hajek and Stead, 2000).

Most of the research on aversive interventions was conducted over twenty years ago and the methodology is poor compared to current smoking cessation research (Hajek and Stead, 2000). Aversion therapy is now infrequently used.

3.1.6.2 Description of the method

Aversion therapy pairs the pleasurable stimulus of smoking a cigarette with an unpleasant stimulus, with the aim of extinguishing the urge to smoke.

The most frequently examined procedure has been rapid smoking. 'Rapid smoking' usually consists of asking subjects to take a puff every six to 10 seconds for three minutes, or until they consume three cigarettes or feel unable to continue. This is repeated two or three times, and subjects are asked to concentrate on the unpleasant sensations it causes. Explanation and supportive counselling is usually provided with application of the rapid smoking technique.

Other aversive techniques include rapid puffing (smoke not inhaled), smoke holding, excessive smoking, paced smoking, self-paced smoking, focused smoking, covert sensitisation, symbolic aversion, electric shocks administered by therapist or subject, and behavioural treatments with bitter pills. Each of these methods is described in more detail by Hajek and Stead (2000).

3.1.6.3 Sources of evidence

3.1.6.3.1 Major evidence reviews

Significant recent reviews that have addressed smoking aversion therapy include:

- Meta-analysis by the Cochrane Collaboration of research on aversive smoking therapy updated to 1 September 1997 (Hajek and Stead, 2000);
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, *Treating Tobacco Use and Dependence* published in June 2000 (Fiore et al, 2000).

3.1.6.3.2 Recent evidence not included in reviews

No relevant trials have been reported since the completion of the major published reviews.

3.1.6.4 Synthesis of evidence

There is no evidence of benefit from aversion methods other than rapid smoking techniques (Strength of evidence A).

- The meta-analyses of both³ the Cochrane and US Clinical Guidelines reviews found that various aversion treatments, other than rapid smoking, did not significantly improve the odds of smoking cessation after five months or more compared to no aversion treatment:
Cochrane meta-analysis of 10 trials, OR 1.19, (95% CI 0.77,1.83) (Hajek and Stead, 2000);
US Guideline meta-analysis of 19 treatment groups, OR 1.7, (95% CI 1.04, 2.8) (Fiore et al, 2000).
- Various aversion treatments, other than rapid smoking, did not significantly improve the smoking abstinence rates after five months or more compared to no aversion treatment (17.7% vs 11.2%, effect size 6.5%, 95% CI 0, 13.7%) (Fiore et al, 2000).
- There was a borderline dose-response to the level of aversive stimulation (OR 1.66, 95% CI 1.00, 2.78) (Cochrane meta-analysis of 24 trials, Hajek and Stead, 2000)

There is some evidence of benefit of ‘rapid smoking’ smoking aversion therapy (Strength of evidence B).

- The meta-analyses of both the Cochrane and US Clinical Guidelines reviews found that rapid smoking aversion treatments significantly improved the odds of smoking cessation after five months or more compared to no aversion treatment. (Cochrane meta-analysis of 10 trials, OR 2.08 (95% CI 1.39,3.12) (Hajek and Stead, 2000). (US Guideline meta-analysis of 19 treatment groups, OR 2.07, (95% CI 1.04, 2.8) (Fiore et al, 2000)
- Rapid smoking significantly improved the smoking abstinence rates (19.9%, 95% CI 11.2, 29.0) after five months or more compared to no aversion treatment (11.2%). Effect size was 8.7% (95% CI 0, 17.0%)(Meta-analysis of 19 treatment groups, Fiore et al, 2000).
- The US Clinical Practice Guidelines recommend that aversion interventions be used with smokers who desire such treatment or have been unsuccessful with other treatments, and would not be placed at greater health risk (Fiore et al, 2000).
- The body of literature on rapid smoking aversion therapy is of poor methodological quality, partly due to its age. The therapy has sufficient indications of promise to warrant evaluation using modern rigorous methodology (Hajek and Stead, 2000).

3.1.6.5 Combination of aversion therapy with other therapies

Aversion therapy is usually undertaken with other therapies but there are insufficient analyses of any combination to assess the efficacy (Fiore et al, 2000).

3.1.6.6 Recent or current Australian initiatives

No recent or current Australian initiatives in this area were identified.

3.1.6.7 Implications for Australian practice

Aversion therapy techniques are outdated and not recommended in Australian practice.

The only aversion method for cessation for which there is some evidence of effectiveness is rapid smoking and this technique is rarely used now in Australia or elsewhere.

³ Although on face value there appears to be a difference in the odds ratios between reviews, neither is significantly different from 1.0. The apparent difference may be due to inclusion of different types of smoking aversion therapy and the different minimum length of follow-up (six months versus five months).

In the absence of more recent trials applying the methodological approaches used to assess the efficacy of currently available cessation methods, it is difficult to assess whether rapid smoking yields any relative benefit over NRT or other cessation interventions. While the US Clinical Guidelines (Fiore et al, 2000) suggest that rapid smoking may be used by some smokers to whom the method appeals, and whose other quit attempts have been unsuccessful, it is not the kind of therapy that can or should have widespread promotion or population uptake.

There have been concerns expressed about the medical risks of rapid smoking for people with some health conditions (USDHHS, 2000, chapter 4), and in the absence of more recent research pertaining to these risks, rapid smoking is not recommended as a technique that be tried without the advice or support of a relevant health professional. Trial evidence for the efficacy of rapid smoking also acknowledges that the technique is usually supported by some form of counselling or behavioural therapy, further substantiating the need for it to not be presented as a ‘try it yourself’ strategy for cessation.

3.2 Pharmacological aids

3.2.1 Overview

Tobacco dependence meets accepted criteria for a drug dependence disorder. In most users, tobacco produces tolerance, a well-characterised withdrawal syndrome, and an inability to control future use (USDHHS, 1988). Thus tobacco dependence warrants medical treatment just as do other dependence disorders and other chronic diseases.

Although many smokers succeed in quitting on their own, this is usually after several attempts. Over 90 per cent of unaided quit attempts are not successful (USDHHS, 2000; Fiore et al, 1990). Use of appropriate pharmacotherapies could double or triple cessation rates. The US Guidelines development panel concluded that in the majority of cases it was inappropriate to reserve pharmacotherapy until patients have tried to quit on their own (Fiore et al, 2000).

3.2.1.1 Types of pharmacotherapy

A variety of pharmacological interventions for treating tobacco product dependence have been evaluated in recent years. These include:

- Nicotine replacement therapies such as widely used gum and patches and less common aerosol inhalers, nasal sprays and lozenges (not all available in Australia);
- Anxiolytic medications which might reduce the anxiety symptoms associated with withdrawal;
- Some classes of anti-depressants, including bupropion (Zyban), now available for use in Australia as well as the US and UK; and
- A variety of other pharmaceutical therapies such as clonidine, nortriptyline, mecamylamine, naltrexone and silver acetate.

Each of these categories of pharmacotherapy and evidence concerning their efficacy are considered in more detail below.

3.2.2 Nicotine replacement therapy

3.2.2.1 Background

The aim of nicotine replacement therapy (NRT) is to replace some of the nicotine from cigarettes without the harmful constituents contained in tobacco smoke. NRT reduces withdrawal symptoms

associated with smoking cessation and makes it easier to avoid smoking by replacing some, but not all, of the nicotine obtained from smoking (Gourlay and McNeill, 1990).

Nicotine replacement therapy (NRT) is considered a cornerstone of smoking cessation in the US, (Fiore et al, 2000) and the UK (West et al, 2000). The US Food and Drug Administration (FDA) has approved nicotine gum, nicotine inhaler, nicotine nasal spray and nicotine patches as first line medications (mono-therapy only) in tobacco dependence treatment.

In Australia, nicotine gum, patches and inhalers are available from a pharmacist without prescription. Nicotine sprays are not available.

3.2.2.2 Description of the cessation method

There are several different forms of nicotine replacement therapy; chewing gum (2mg and 4mg doses), trans-dermal patches (16 hour and 24 hour in varying doses), nasal spray, inhalers and sublingual tablets and lozenges. Nicotine chewing gum and trans-dermal patches are the most frequently used and researched forms of nicotine therapy.

Nicotine chewing gum contains a nicotine resin complex that is absorbed directly through the buccal mucosa, resulting in plasma concentrations which are approximately half that produced by smoking a cigarette (Russell et al, 1976). It is available either as a 2 mg or 4 mg preparation, and in many countries, including Australia, is sold without a prescription from a medical practitioner.

Trans-dermal patches are available in several different sizes, and deliver between 7 mg and 22 mg of nicotine over a 24-hour period, resulting in plasma levels similar to the trough levels seen in heavy smokers (Fiore et al, 1992).

The observation that nicotine patches and gum do not provide 100% nicotine replacement (Dale et al, 1995; Hurt et al, 1994) has led to interest in increasing the efficacy of nicotine replacement by raising patch doses (Jorenby et al, 1995), or by combining different forms of NRT, for example, patches and gum (Kornitzer et al, 1995; Puska et al, 1995) or nasal spray with patches (Blondal et al, 1999). In addition, there is growing interest in comparing NRT to newer pharmacotherapies, particularly the antidepressant bupropion.

3.2.2.3 Sources of evidence

3.2.2.3.1 Major evidence reviews

Significant recent reviews that have addressed nicotine replacement therapies include:

- Meta-analysis by the Cochrane Collaboration of research on NRT for smoking cessation published up to April 2000 (Silagy et al, 2000);
- Review and meta-analysis of NRT trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, *Treating Tobacco Use and Dependence* published in June 2000 (Fiore et al, 2000);
- Review of evidence to update the UK Health Education Authority smoking cessation guidelines for health professionals (West et al, 2000), including meta analyses from the 1998 UK guidelines (Raw et al, 1998), Cochrane Collaboration review (above), the 1996 US Guidelines (Fiore et al, 1996) (now updated as above) and additional papers published up to 2000;
- A Review of Literature into Smoking Cessation Services and Nicotine Replacement Therapies (Silagy et al, 1996); an Australian review funded by the Commonwealth Department of Health and Family Services under the auspices of the Health Australia, Tobacco Harm Minimisation program, 1995. Cochrane methods were used to conduct the review. Recommendations reflect the Australian situation;

- The Surgeon General's Report on Reducing Tobacco Use (USDHHS, 2000, p113) includes significant qualitative review and discussion of the efficacy of various forms of NRT in smoking cessation.

3.2.2.3.2 *Recent evidence not included in reviews*

Six relevant trials have been reported since the completion of the major published reviews. All but one relate to nicotine patches, either supplied free (Jolicoeur et al, 2000) or over-the-counter with minimal intervention (Shiffman et al, 2000b), telephone support (Solomon et al, 2000), cognitive-behavioural group therapy (Richmond & Kehoe, 2000) or nicotine inhaler (Bohadana et al, 2000). The sixth study was a randomised, double-blind, placebo-controlled trial in a specialist clinic setting of a nicotine sublingual tablet in smoking cessation (Wallstrom et al, 2000).

3.2.2.4 **Synthesis of evidence**

3.2.2.4.1 *Forms of NRT*

Nicotine gum, nicotine trans-dermal patch, nicotine nasal spray and nicotine inhaler all increase quit rates at five to 12 months approximately two-fold compared with placebo and regardless of the setting (Strength of evidence A).

- Meta-analyses of 65 studies by Silagy et al (2000) comparing the cessation rates at 12 months of various forms of nicotine replacement therapy with placebo or no treatment found an overall odds ratio of 1.71 (95% CI 1.60, 1.82) for all forms and an overall effect size of 7%.
- In the Silagy et al (2000) meta-analysis, odds ratios for the four types of NRT ranged from 1.63 to 2.27 and effect sizes 5 to 12 per cent. (Table 6).
- Meta-analysis of 47 studies by Fiore et al (2000) comparing various forms of nicotine replacement therapy with placebo or no treatment found odds ratios ranging from 1.5 to 2.7 and effect sizes from 7 to 17% (Table 6).

There is little difference overall in the effectiveness of different types of NRT in achieving cessation at five to 12 months (Strength of evidence A).

- Although the effect sizes in the meta-analyses for the products compared to placebo are slightly different (Table 6), these differences are not statistically significant within studies (Silagy et al, 2000; Fiore et al, 2000).
- One study that directly compared four of the six products found no difference in abstinence rates or withdrawal discomfort, although compliance was lower for inhaler and nasal spray (Hajek et al, 1999).
- Patient needs, tolerance, previous experience and cost considerations are the main influences on choice of which type of NRT to use. (Stapleton et al, 1998; Kunze, 2000; West et al, 2000).

Table 6: Results of meta-analysis comparing quit rates at 5 to 12 months for different types of Nicotine Replacement Therapy

Measure	Type of nicotine replacement therapy					
	All NRT	Gum (2mg)	Patches	Nasal spray	Inhaler	Sublingual tablets
OR (95% CI)						
Silagy et al, 2000 ^a	1.71 (1.60,1.82)	1.63 (1.49,1.79)	1.73 (1.56,1.93)	2.27 (1.61,3.20)	2.08 (1.43,3.04)	1.73 (1.07,2.80)
Fiore et al, 2000 ^b		1.5 (1.3,1.8)	1.9 (1.7, 2.2)	2.7 (1.8, 4.1)	2.5 (1.7, 3.6)	
Effect size^c						
Silagy et al, 2000	7%	5-8%	5-6%	12%	8%	8%
Fiore et al, 2000		7%	8%	17%	12%	
Abstinence rate						
Silagy et al, 2000	17%	18%	14%	24%	17%	20%
Fiore et al, 2000		24%	18%	31%	23%	

Notes on Table 6

^aSilagy et al, 2000

The primary analysis compared to placebo or no treatment includes 88 studies. In this group there were 48 trials of nicotine gum, 30 of trans-dermal nicotine patch, four of intranasal nicotine spray, four of inhaled nicotine and two of an oral tablet.

^bFiore et al, 2000

The primary analysis compared to placebo includes 47 studies. In this group there were 13 trials of nicotine gum, 27 of trans-dermal nicotine patch, three of intranasal nicotine spray and four of inhaled nicotine.

^cEffect size: Difference in abstinence rate at five months or more between intervention and control/placebo in the studies reported.

3.2.2.4.2 Dose of NRT

There is a benefit of higher dose patches and gum in heavier and more dependent smokers (Strength of evidence A).

- Highly dependent smokers (20 or more cigarettes per day) benefit more from 4 mg than 2 mg gum. (Meta-analysis of 3 trials, OR 2.67, 95% CI 1.69 ,4.22) (Silagy et al, 2000).
- Medium to heavy smokers (more than 10 cigarettes per day) benefit more from higher dose than lower dose patches (Daughton et al, 1999; West et al, 2000b)
- There may be a small benefit of higher dose patches across the range of 15 to 42 mg in 16 hour or 24 hour patches. (Meta-analysis of 6 trials, OR 1.21 (95% CI 1.03, 1.42)) (Silagy et al, 2000).
- There was no evidence of an effect of gum dose size in low dependency (less than 15 cigarettes per day) or unselected smokers (Hughes et al, 1990; Kornitzer, 1987)

3.2.2.4.3 Duration of NRT

Wearing a patch only during waking hours (16 hours/day) is as effective as wearing it for 24 hours/day (Strength of evidence A).

- Indirect comparisons in the meta-analysis (Silagy et al, 2000) found no difference in clinical effectiveness of 16 hour versus 24 hour patches, although there was significant heterogeneity in the results of the eight trials which used 16 hour patches.
- There was no difference in cessation rate at six months of wearing the patch for 24 hours compared to whilst awake (16 hours), although the statistical power of the study was low. (OR 0.62, 95% CI 0.26, 1.47) (Daughton et al, 1999).

- Eight weeks of patch therapy was as effective as longer courses and there was no evidence that tapered therapy was better than abrupt withdrawal (Fiore et al, 1994; Silagy et al, 2000). A high proportion (35% to 56%) continued to smoke whilst using the replacement therapy (Silagy et al, 1996).

3.2.2.4.4 *Combinations of nicotine replacement therapies*

Combinations of different forms of NRT are more effective than one form alone (Strength of evidence B).

- Use of two different forms of nicotine therapy (patches and gum (Kornitzer et al, 1995; Puska, 1995) or nasal spray and patches (Blondal et al, 1999) almost doubled the cessation rate at 12 months compared to patch alone or nasal spray alone (OR 1.9, 95% CI 1.3, 2.6, effect size 11.2%, 95% CI 4.3, 18.0) (meta-analysis of three studies, Fiore et al, 2000).
- Abstinence rates at six and 12 months were higher for combination of nicotine patches and inhaler than placebo patches and inhaler (25% vs 22.5% at six months, 19.5% vs 14% at 12 months) (Bohadana et al, 2000)
- The Cochrane Collaboration review recommended more research into the effects of use of combinations of different forms of NRT (Silagy et al, 2000).
- The 2000 evidence review update for the UK Health Education Authority smoking cessation guidelines for health professionals (West et al, 2000) concluded that combining the nicotine patch with other forms of NRT may be more effective than the patch alone and appears to be safe (Stapleton, 1999).
- The 2000 review of evidence for the US Government guidelines, Treating Tobacco Use and Dependence (Fiore et al, 2000) concluded that because there is relatively little safety data on the conjoint use of NRTs, and because combination NRT could increase the risk of nicotine overdose, patients should only be encouraged to use such combined treatments if they are unable to quit using a single type.
- The recommended approach (Fiore et al, 2000) to combined nicotine replacement therapies was to involve passive dosing (eg nicotine patch) that produces relatively steady levels of drug in the body, with a second type that permits *ad libitum* dosing to allow the user to adjust dosing on an acute basis (eg spray, gum). (Stapleton, 1999).

3.2.2.4.5 *Combination of nicotine replacement with other therapies*

Nicotine replacement therapy is effective on its own but there are added benefits of combination with behavioural intervention (Strength of evidence A).

- Adding NRT to any psychological (behavioural) intervention provides a net beneficial effect (OR 1.69 95% CI 1.0,2.7). Similarly, adding a behavioural intervention to NRT also provides a net beneficial effect (OR 1.78, 95% CI 1.0, 3.1) (Baillie et al, 1994).
- The effectiveness of NRT appears to be largely independent of the intensity of additional support provided to the smoker (Silagy et al, 2000). Since all the trials of NRT reported so far have included at least some form of brief advice to the smoker, this represents the minimum that should be offered in order to ensure its effectiveness.
- Placebo controlled trials of NRT in a simulated over-the-counter (OTC) setting have yielded similar effect sizes to studies involving NRT with more intensive behavioural support (Hays et al, 1999; Davidson et al, 1998). A field study (not a randomised controlled trial) in the US found similar success rates for OTC NRT and NRT prescribed by a doctor (Shiffman et al, 1997).

The combination of bupropion and nicotine patch is more effective than nicotine patch alone (Strength of evidence B).

- One of the first major randomised trials comparing the efficacy of bupropion and nicotine (Jorenby et al, 1999) found that the combination of bupropion and nicotine patch was significantly more effective than nicotine patch alone (cessation rate at twelve months combined 35.5% vs 16.4%). The difference in efficacy of bupropion and nicotine patch (35.5%) compared to bupropion alone (30.3%) was not statistically significant. Bupropion appears to be significantly more effective than nicotine patch or placebo (cessation rate at 12 months bupropion 30.3%, nicotine patch 16.4%, placebo 15.6%).

3.2.2.4.6 Side effects

- For nicotine gum, most side effects are relatively mild and transient, including mouth soreness, hiccups, indigestion, jaw ache and unpleasant taste. In less than two per cent of users, more severe side effects are irritability, lightheadedness, headache, excessive salivation and anorexia (USDHHS, 2000).
- For nicotine patches, minor skin irritation at the patch site is reported by up to half of patch users and insomnia by up to a quarter of users. Comparatively rear side effects include headache, dizziness, fatigue, gastrointestinal distress, sweating, limb pain and palpitations (USDHHS, 2000).
- Nasal spray causes nose, throat or eye irritation in most users. More serious side effects in up to a quarter of users include nausea, headache, dizziness and cold hands and feet (USDHHS, 2000).
- Nicotine inhalers cause throat irritation and coughing in up to 50 per cent of users. Less common side-effects include nausea, bad taste in the mouth, dizziness, gastrointestinal disturbances and oral burning sensation (UDDHHS, 2000).

3.2.2.4.7 Contra-indications

- Although there has been concern about the safety of NRT in smokers with cardiac disease (TNWG 1994), empirical studies have shown the nicotine patch is safe in patients with stable cardiac disease (Rennad et al, 1998; Tzivoni et al, 1998; Joseph et al 1996).
- Several studies have documented the lack of an association between the nicotine patch and acute cardiovascular events (Gourlay and Benowitz, 1997; Joseph et al, 1996; Mahmarian et al, 1997) even in patients who continued to smoke intermittently while on the nicotine patch (Working Group, 1994). The US clinical guidelines (Fiore et al, 2000) recommend use of NRT with caution in those within two weeks post-myocardial infarction, those with serious arrhythmias and those with worsening angina.

3.2.2.5 Subgroups

Dependency

- Although most research on NRT has been conducted with people who smoke at least 15 cigarettes a day, the patch and 2mg gum appear effective with lighter smokers (Fiore et al, 2000).
- The UK guidelines recommend NRT or bupropion for people who smoke 10 cigarettes or more (West et al, 2000). The US and Scottish guidelines recommend that all smokers be offered appropriate pharmacotherapy, with NRT or bupropion as a first choice unless contraindicated (Fiore et al, 2000).

Gender

- There is variable evidence that compared to men, women are more dependent on nicotine, metabolise nicotine differently and experience more withdrawal symptoms with NRT (USDHHS, 2001 p557).

- The majority (11) of 14 trials reviewed by Silagy et al (2000) noted no significant difference between genders in efficacy of NRT. When a significant difference was observed, in two trials more men were able to quit than women, and in one trial women were more successful in quitting smoking.
- Meta-analysis of the results of three randomised, placebo-controlled trials of the nicotine patch (Wetter et al, 1999) found that women were significantly less likely than men to quit smoking for six months or more (12% vs 25%, OR 2.4, $p=0.00003$). This effect was consistent across study sites and treatment conditions and unexplained by a wide variety of potential mediators.

Youth

- There is currently insufficient research on the effectiveness of use of NRT in smokers under the age of 18 (West et al, 2000).
- One uncontrolled trial with 13 to 17 year olds of 22mg nicotine patches, weekly group sessions and individual counselling over eight weeks (Smith et al, 1996) achieved a quit rate at six months of 4.5 per cent, no different from the estimated average quit rate of five per cent for this age group (Henningfield et al, 2000).
- A review by Patten (2000) found no published reports of evaluation of use of nicotine gum, inhaler or spray in adolescents.

Pregnancy

- The US (Fiore et al, 2000), UK (West et al, 2000) and Scottish (ASH and HEBS, 2000) guidelines cautiously recommend NRT when a pregnant woman is otherwise unable to quit and when the likelihood of quitting, with its potential benefits, outweighs the risk of NRT use or continued smoking.
- A small non-random trial of nicotine patch use by pregnant women beyond 24 weeks found no adverse effect on fetal status (Ogburn et al, 1999).

Setting

- The pooled odds of not smoking for six to 12 months amongst all NRT users was not significantly different for volunteer smokers recruited from the community, those attending specialised clinics, those offered NRT in primary care or those obtaining NRT over-the-counter (Silagy et al, 2000).
- Meta-analysis (Fiore et al, 2000) of three studies showed almost doubling of long term abstinence rate when over-the-counter (OTC) nicotine patches were used compared to placebo (OR1.8, 95% CI 1.2, 2.8. Long term abstinence rate was 11.8 (95% CI 7.5, 16.0) compared to 6.7 for placebo. The only additional therapy was a self-help manual, instruction in the package or written directions for using the patch.
- A single recent trial reported low abstinence rates with OTC patch use (Leischow et al, 1999).

High risk groups

- Evidence on the effectiveness of NRT among smokers with manifest smoking related diseases is mixed (Campbell et al, 1996; Lewis et al, 1998).

3.2.2.6 Emerging issues/methods

- Effectiveness of newer forms of NRT (nicotine nasal spray and nicotine inhalers);
- Efficacy of combinations of nicotine replacement therapies;
- Efficacy of combinations of nicotine replacement therapies with bupropion;
- Promotion of over-the-counter NRT;
- Safety with pregnant and lactating women;

- Safety and appropriateness for adolescents who smoke; and
- Alternative Nicotine Delivery systems (ANDS) that can act as substitutes for cigarettes.

3.2.2.7 Recent or current Australian initiatives

There are two current research projects in Australia that focus specifically on the efficacy of NRT with particular target groups. The Women and Children's Hospital in South Australia is conducting a randomised trial of NRT replacement with pregnant women. A pilot preceded the trial, and the current study has an intervention group of 300 pregnant women who smoke 10 or more cigarettes per day. In the Northern Territory, the Menzies School of Health Research and the National Heart Foundation (NT) are undertaking a pilot study to examine the effectiveness of the NRT patch with Aboriginal and Torres Strait Islander smokers. As well as examining cessation outcomes among Aboriginal and Torres Strait Islander participants, the study is also considering implementation issues and what resources or strategies may need to be developed to support the effective use of NRT by Aboriginal and Torres Strait Islander people. Several other research studies are being conducted in hospital settings that include NRT as part of the cessation support offered to participating patients. These include research projects underway at the Royal Adelaide Hospital and Royal Hobart Hospital, and a trial recently completed at John Hunter Hospital in NSW (see Appendix 3, Table 2).

3.2.2.8 Implications for Australian practice

All forms of NRT currently available in Australia should be promoted as effective cessation methods, and there is added efficacy when combined with behavioural intervention.

NRT is currently available in three product forms in Australia; nicotine gum (2mg and 4mg strength); nicotine patch (7mg, 14mg and 21mg strength) and a nicotine inhaler. All of these NRT product forms are available without prescription from pharmacists. This provides smokers with an opportunity to receive advice from pharmacists at the point of purchase.

Barriers to access should be reviewed and addressed.

The UK recently elected to make NRT available through a wider range of retail outlets and settings (ie not restricted to pharmacies). Health groups in New Zealand have also proposed that NRT be more widely available through non-pharmacy sources and there has been some debate as to whether Australia should consider this also. Proponents of wider distribution outlets for NRT argue that it should be as readily available as cigarettes themselves and more accessible to smokers wanting to quit. The counter argument is that the opportunity for pharmacists to provide adjunct cessation advice and advice on treatment compliance, is removed.

There is no subsidisation of the cost of NRT for consumers in Australia. A smoker using the patch for 10 weeks (an average course) will incur a cost of approximately \$350. This is comparable for many smokers to the cost of purchasing cigarettes over the same period. In other countries such as the UK, nicotine is available at a reduced rate under the National Health Service scheme. In New Zealand, smokers who agree to undertake pharmacological treatment in combination with cessation counselling are eligible to purchase NRT at a subsidised rate.

There is a need for consumer research to ascertain whether the cost of NRT in Australia is a barrier to its use. From a review of a number of overseas studies, there is evidence to suggest that reducing out-of-pocket costs for NRT increases both use of NRT therapies and cessation outcomes (Hopkins et al 2001). The issue of price sensitivity pertaining to cessation products has been highlighted by the unanticipated demand for Zyban (bupropion) since its listing on 1 February, 2001 on the Pharmaceutical Benefits Scheme (which has brought the cost of a single course down to approximately \$22 and less than \$4 on concession).

Given the demand for Zyban and the price discrepancies that exist between NRT and Zyban in

Australia at present, doctors need to be skilled in assisting patients to identify the pharmacological cessation product most suited to their needs. Cost discrepancies may affect decisions or patient demands regarding NRT treatment versus Zyban.

The potential synergies of combined use of NRT and buprion is a current area of research the results of which will have implications for future cessation intervention guidelines.

As more research becomes available on the efficacy of NRT and Zyban when used in combination, guidelines to doctors regarding recommendation of NRT and Zyban will need to be updated.

The use of NRT by specific population groups (ie pregnant women, adolescents, Indigenous people) is an undeveloped but important area for research.

The published literature suggests that the advised use of NRT by pregnant smokers is a more accepted practice in some countries than in Australia (Scalara and Koren, 1998). Pregnant women in Australia are not prohibited from using NRT, but it is classified as a category B2 product and it is recommended that medical advice be sought before use. The current SA trial looking at the use of NRT by pregnant women has important implications for future recommended practice in this area.

The current NT trial of NRT in Australian Aboriginal and Torres Strait Islander populations is also an important area of research, and one on which international research can offer little guidance. It is encouraging that this trial looks at efficacy issues as well as effectiveness of the NRT per se, as issues such as support, culture and barriers to use are integral to efforts to determining what will help to reduce the continuing high smoking rates among Aboriginal and Torres Strait Islander Australians.

3.2.3 Anti-depressants

3.2.3.1 Background

Anecdotal reports of spontaneous smoking cessation by patients prescribed anti-depressants such as bupropion for depression, as well as recognition of links between smoking maintenance and negative affect and clinical depression have stimulated clinical investigations of the use of anti-depressants as aides to smoking cessation.

3.2.3.2 Description of the method

3.2.3.2.1 Bupropion SR

Bupropion SR (Sustained Release) is a non-nicotine aid to smoking originally developed and marketed as an anti-depressant. It is sold as Zyban in Australia. Its presumed mechanism of action is mediated through its capacity to block the re-uptake of dopamine and norepinephrine centrally. When used for smoking cessation bupropion is initiated one to two weeks before the target quit date and is generally continued for three months. Bupropion can be used in combination with nicotine replacement therapy.

Bupropion is contra-indicated in people with a seizure disorder, a current or prior diagnosis of anorexia nervosa or bulimia, use of a monoamine oxidase (MAO) inhibitor within the previous 14 days or using other medications that contain bupropion.

3.2.3.2.2 Nortriptyline

Nortriptyline is a tricyclic antidepressant that blocks uptake of norepinephrine and serotonin. Its primary indication is for the treatment of depressive symptoms. Sedation, dry mouth and lightheadedness are common side effects affecting at least half of users (Fiore et al, 2000). Extreme caution is advised if used in patients with cardiovascular disease due to risk of arrhythmias, changes

in contractility and blood flow. When used for smoking cessation treatment is initiated two to four weeks before the quit date and continued for around 12 weeks. (USDHHS, 2000).

3.2.3.2.3 *Fluoxetine*

Fluoxetine is a potent and selective inhibitor of neuronal serotonin reuptake. It is sold as Prozac and its primary use is as an anti-depressant. It is particularly useful in treatment of depression in diabetes, stroke, HIV-AIDS and elderly patients (Cheer and Goa, 2001). Benefits have also been reported when used to treat bulimia and migraine (Stokes and Holtz, 1997). Fluoxetine reduces food intake and increases resting energy expenditure, resulting in moderate body weight loss during use (Cheer and Goa, 2001) and reduction of weight gain in smoking cessation (Spring et al, 1995). Compared with the tricyclic antidepressants fluoxetine has a more favourable tolerability profile and has milder effects in overdose or sudden withdrawal (Stokes and Holtz, 1997). When used for smoking cessation, treatment is initiated two weeks before the target quit date and is generally continued for at least three months.

3.2.3.3 Sources of evidence

3.2.3.3.1 *Major evidence reviews*

Significant recent reviews that have addressed antidepressants include:

- Meta-analysis by the Cochrane Collaboration of research on anxiolytics and antidepressants for smoking cessation updated to 20 May 1999 (Hughes et al, 2000);
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, Treating Tobacco Use and Dependence published in June 2000 (Fiore et al, 2000);
- The Surgeon General's Report on Reducing Tobacco Use (USDHHS, 2000, p121) includes significant qualitative review and discussion of the efficacy of several anti-depressants in smoking cessation.

3.2.3.3.2 *Recent evidence not included in reviews*

Recent evidence relates to the effectiveness of bupropion with patients with smoking related illness (Tashkin et al, 2001), fluoxetine alone (Hitsman et al, 1999) and in combination with NRT (Blondal et al, 1999b). Follow-up in one of the fluoxetine studies was only for three months (Hitsman et al, 1999). Further review of nortriptyline is also provided by Hughes et al (2000).

3.2.3.3.3 *Bupropion SR*

Bupropion SR is an efficacious smoking cessation treatment (Strength of evidence A)

- Use of bupropion SR approximately doubles cessation rate compared to placebo (30.5%, (95% CI 23.2, 37.8) versus 17.3% (Meta-analysis of two large trials, Fiore et al, 2000).
- The odds ratio for sustained abstinence at 12 months using bupropion compared to placebo was estimated at 2.73 (95% CI 1.90, 3.94) (Four randomised, controlled trials, Hughes et al, 2000) and at five months or more 2.1 (95% CI 1.5, 3.0) (Meta-analysis of two large trials, Fiore et al, 2000).
- A randomised controlled trial of bupropion with patients with chronic obstructive pulmonary disease achieved sustained cessation at six months of 16% compared to 9% with a placebo (Tashkin et al, 2001).
- The efficacy of bupropion is evident both in smokers with and without a history of depression (Hayford et al, 1999).

- Bupropion appears to decrease nicotine withdrawal symptoms and post-cessation weight gain whilst being used (Hurt et al, 1997).
- The risk of seizures with slow release bupropion at doses of 300mg/day or less is 1/1000, which is no more than that of other anti-depressants (Hughes et al, 2000).
- Other possible side effects are nausea and vomiting (Goldstein, 1998) and depression (Patten et al, 1999).

The combination of bupropion and nicotine patch is more effective than nicotine patch alone (Strength of evidence B).

- In a randomised, controlled trial (Jorenby et al, 1999), the combination of bupropion and nicotine patch was significantly more effective than nicotine patch alone (cessation rate at twelve months combined 35.5% vs 16.4%). The difference in efficacy of bupropion and nicotine patch (35.5%) compared to bupropion alone (30.3%) was not statistically significant.

3.2.3.3.4 Other anti-depressants

3.2.3.3.5 Nortriptyline

Nortriptyline is an efficacious smoking cessation treatment. It may be used under a doctor's supervision as a second line agent to treat tobacco dependence (Strength of evidence B)

- Use of nortriptyline is estimated to triple smoking abstinence rates at five months or more compared to placebo cessation rate 30.1% (95% CI 18.1, 41.6) versus 11.7% (Meta-analysis of three studies, Fiore et al, 2000)
- The odds ratio for sustained abstinence at five months or more using nortriptyline compared to placebo was estimated at 3.2 (95% CI 1.8, 5.7) (Meta-analysis of three studies, Fiore et al, 2000) and 2.83 (95% CI 1.59, 5.03) (Meta-analysis of two studies, Hughes et al, 2000)
- A past history of depression did not appear to effect efficacy of nortriptyline (Hughes et al, 2000).

3.2.3.3.6 Fluoxetine

Fluoxetine may aid smoking cessation in depressed smokers (Strength of evidence B).

- Use of fluoxetine significantly increased abstinence rate from 20% in the placebo to 30% in two treatment groups at six months follow-up in a multi-centre trial (Niaura et al, 1997).
- Fluoxetine used in conjunction with a nicotine inhaler by smoking cessation clinic clients did not significantly increase abstinence rates at six (29% versus 32%) and 12 months (21% versus 23%) (Blondal et al, 1999b). However, fluoxetine significantly increased abstinence rates of depressed smokers.
- Fluoxetine, compared to placebo, increased the likelihood of abstinence at one and three months amongst smokers with minor depression but not those with little or no depression (Hitsman et al, 1999). Fluoxetine was used in conjunction with cognitive-behavioural therapy.

3.2.3.4 Subgroups

Dependency

- Evidence of effectiveness of bupropion is limited to smokers of 15 or more cigarettes per day and attending frequent behavioural support counselling sessions (Hurt et al, 1997; Jorenby et al, 1999; Tashkin et al, 2001).

Gender

- No studies reporting gender effects of bupropion have been reported (USDHHS, 2001 p557).

Youth

- No studies have been reported of use of bupropion to assist smoking cessation by adolescents (Henningfield et al, 2000).

High risk groups

- A randomised controlled trial of bupropion with patients with chronic obstructive pulmonary disease achieved sustained cessation at six months of 16% compared to 9% with a placebo (Tashkin et al, 2001).

3.2.3.5 Recent and current Australian initiatives

Current Australian smoking cessation research was identified in relation to bupropion but not other anti-depressants. A multi-centre, randomised, parallel group, double-blind, placebo-controlled study is underway in Victoria as part of an international trial to evaluate the efficacy and tolerability of Zyban in smoking cessation. The Victorian study is being conducted with a sample of general population smokers and with a sample of patients with established cardiovascular disease.

3.2.3.6 Implications for Australian practice

There has been an unprecedented demand for Zyban in Australia since its listing on February 1 2001 on the Pharmaceutical Benefits Schedule (PBS). The availability and demand for Zyban has a number of implications for Australian practice.

Use of Zyban for smoking cessation should be accompanied by behavioural counselling shown to be effective in this review.

Doctors prescribing Zyban must obtain Health Insurance Commission approval, and it is to be prescribed for use within a comprehensive treatment program. As discussed in Section 3.1.4.6, the requirement that the drug be used within a comprehensive treatment program means that evidence based counselling and follow-up options need to be available in the community to meet the needs of all prescribed Zyban users. It is critical that there be mechanisms to ensure that appropriate and adequate counselling or treatment programs are available and evaluated across Australia, as the strength of evidence for bupropion's efficacy is based on trials in which behavioural counselling and support was an integral component.

Until further evidence is available, interim guidelines for health professionals for recommending alternative or combined use of NRT and bupropion (Zyban) should be developed.

On current evidence, the comparative effectiveness of Zyban versus NRT is not established, and neither the UK and US guidelines have formulated clear recommendations for the use of one versus the other.

There is also limited evidence to support recommendations regarding the combined use of NRT and Zyban, but there is increasing interest in the potential synergies of using the two treatment forms simultaneously. This is an important area for current and future research, the outcome of which needs to inform future guidelines for Australian cessation practice.

While Zyban and NRT have been cost subsidised in some countries, the marked cost discrepancies between the two alternative treatment methods that now exist in Australia is likely to have implications for the comparative use of the two treatment forms.

Australian clinicians currently have discretion to recommend combined NRT/Zyban treatment but MIMS Australia advises that the prescribing information for the particular NRT type be checked and that the possibility of blood pressure elevation be noted and monitored. The fact that smokers can be prescribed Zyban and then self elect to purchase NRT over the counter without necessarily disclosing Zyban usage is a potential issue of concern.

There have been recent public concerns about the safety of Zyban use and this is an issue that health professionals need to be prepared to respond to. While media attention has inflamed some of this concern, Zyban does have a greater number of contraindications and potentially adverse reactions compared to NRT, and so its suitability for all smokers is more limited based on current evidence.

More comparative studies are needed to make recommendations concerning use of different types of anti-depressant drugs in smoking cessation.

Although bupropion, fluorexetine and nortriptyline have been shown to be effective in assisting sustained smoking cessation, comparative trials have not been conducted.

3.2.4 Other pharmacological aids

3.2.4.1 Background

Whilst NRT and antidepressant drugs are most commonly used to assist smoking cessation, a range of other drugs has been tested for potential use.

3.2.4.2 Description of methods

3.2.4.2.1 Clonidine

Clonidine is a centrally acting adrenergic agonist that dampens sympathetic nervous system activity. The main rationale for use is to reduce tobacco withdrawal symptoms, especially craving. It is used primarily as an antihypertensive medication. It may be administered transdermally or orally. Smokers using clonidine are started on the drug several days before quitting and maintained on a fixed daily dose for several weeks.

The usefulness of clonidine is limited by appreciable sedation and postural hypotension (Gourlay et al, 2000). Local skin irritation is common with transdermal clonidine. Adverse effects if ceased abruptly include nervousness, agitation, headache and tremor, accompanied by a rapid rise in blood pressure and elevated catecholamine levels.

3.2.4.2.2 Mecamylamine

Mecamylamine is a nicotine antagonist. The rationale for use is its potential to block the rewarding effect of nicotine, therefore reducing smoking.

3.2.4.2.3 Naltrexone

Naltrexone is a long acting opioid antagonist. In humans, smoking one or two cigarettes significantly increases plasma endorphin levels, leading to the theory that endogenous endorphins may reinforce smoking behaviour (Wong et al, 1999).

3.2.4.2.4 Anxiolytics

Anxiolytics increase production of dopamine, serotonin and norepinephrine, low levels of which are associated with urge to smoke and the anxiety that occurs with nicotine withdrawal (Hughes et al, 2000).

3.2.4.2.5 Silver acetate

Silver acetate produces an unpleasant taste when combined with cigarettes, acts as an aversive therapy. It is sold in the form of gum, lozenge and spray.

3.2.4.3 Sources of evidence

3.2.4.3.1 Major evidence reviews

Significant recent reviews that have addressed pharmacological approaches other than NRT and antidepressants include:

- Meta-analysis by the Cochrane Collaboration of research on
Mecamylamine (a nicotine antagonist) for smoking cessation (Lancaster and Stead, 2000c) updated to 17 February 1998
Clonidine for smoking cessation (Gourlay et al, 2000) updated to November 1998
Lobeline for smoking cessation (Stead and Hughes, 2000) updated to May 1997
Anxiolytics and antidepressants for smoking cessation (Hughes et al, 2000) updated to May 1999; and
Silver acetate for smoking cessation (Lancaster and Stead, 2000d) updated to May 1997.
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, *Treating Tobacco Use and Dependence* published in June 2000 (Fiore et al, 2000);

3.2.4.3.2 Recent evidence not included in reviews

Two randomised controlled trials of naltrexone, either alone (Covey et al, 1999) or in combination with nicotine replacement therapy (Wong et al, 1999) have been reported since the completion of the major published reviews.

3.2.4.4 Synthesis of evidence

3.2.4.4.1 Clonidine

Clonidine is an efficacious smoking cessation treatment. It may be used under a doctor's supervision as a second line agent to treat tobacco dependence (Strength of evidence A).

- Use of clonidine as an aid to smoking cessation doubles smoking abstinence rates at five months or more compared to placebo (OR 2.1, 95% CI 1.4, 3.2, effect size 11.7% (95% CI 3.8, 19.7) (Meta-analysis of five studies with eight intervention groups, Fiore et al, 2000).
- Adverse reaction to abrupt cessation may occur.

3.2.4.4.2 Mecamylamine

There is insufficient evidence to draw conclusions about the effectiveness of mecamylamine as an aid to smoking cessation (Strength of evidence C).

- Of two studies reviewed by Fiore et al. (2000), with one exception, comparisons of mecamylamine alone or combined with nicotine patches showed no significantly better effect than a placebo (Rose et al, 1994; Rose et al, 1998). Small sample sizes limited the power to show a statistically significant difference.
- When used in short term trials, mecamylamine was shown to block smoking cues (Hutchinson et al, 1999).

3.2.4.4.3 Naltrexone

There is little evidence that naltrexone aids sustained smoking cessation (Strength of evidence B).

- In a double-blind randomised placebo controlled trial of 68 heavy smokers (> 20 per day) cessation rate at 6 months was 27% (intervention) versus 16% (control), OR 1.9 (not statistically significant) (Covey et al, 1999).

- In the same trial (Covey et al, 1999), Naltrexone was more useful for female smokers and those with a history of major depression.
- In a randomised, partly blind trial of 100 smokers with naltrexone, placebo and added NRT groups followed for 6 months, there was no significant effect with or without NRT compared to placebo (Wong et al 1999).

3.2.4.4.4 *Anxiolytics*

There is little evidence that anxiolytics aid sustained smoking cessation (Strength of evidence C).

- A systematic Cochrane review of single or in one case two randomised controlled trials of five different medications in the anxiolytic class found no effect on smoking cessation at six months compared to placebo (Hughes et al, 2000). The medications considered were diazepam, meprobamate, metoprolol, oxprenolol and buspirone.
- The review of evidence to support the US Guidelines considered four trials and found no beneficial effects compared to placebo. The medications considered were diazepam, propranolol and buspirone. No meta-analysis was performed and no conclusions drawn.

3.2.4.4.5 *Silver acetate*

Silver acetate has no beneficial effects in smoking cessation (Strength of evidence B).

- Two randomised clinical trials (Hymowitz and Eckholdt, 1996; Jensen et al, 1991) reviewed by Fiore et al. (2000) and Lancaster and Stead (2000) showed no beneficial effects compared to placebo (OR 1.05 (95% CI 0.63, 1.73) (Lancaster and Stead, 2000d).
- The lack of effect may relate to poor compliance with the treatment whose effectiveness relies on creation of an unpleasant experience.

3.2.4.5 **Subgroups**

Gender

- Gender differences have not been studied for most cessation pharmacotherapies other than NRT.

3.2.4.6 **Recent or current Australian initiatives**

No current or recent Australian initiatives in this area were identified.

3.2.4.7 **Implications for Australian practice**

There is sufficient evidence to recommend clonidine as an effective pharmacotherapy for smoking cessation to be used under medical supervision when appropriate.

Sufficient controlled trials support the effectiveness of clonidine. However, there are risks of side effects associated with its anti-hypertensive effects and rapid cessation. Dosing regimes for smoking cessation are also not well established. The US guidelines (Fiore et al, 2000) recommend and provide specific advice for using clonidine as a second line pharmacotherapy for smoking cessation when NRT and bupropion are contra-indicated or when the smoker is unable to quit using them.

There are insufficient controlled trials to make recommendations concerning the use of mecamylamine, anxiolytics, naltrexone and silver acetate for smoking cessation. However, indications from existing evidence is that they are no more effective than placebo treatments.

The evidence related to these pharmacotherapies is limited by a small number of trials (one or two per type) and the small size of some trials. Only one of two trials with naltrexone showed a benefit greater than with a placebo but the sample size was too small for statistical significance. Given the

efficacy of NRT and some antidepressants, it is unlikely that further research with these pharmacotherapies will establish them as viable alternatives.

3.2.5 Comparison of pharmacotherapies

3.2.5.1 Background

The effectiveness of a number of pharmacotherapies has been demonstrated. This presents a challenge for health professionals and smokers as to which one or combination to recommend or choose. Indirect comparison of odds ratios from different studies is not advisable due to possible differences in the base population. There is a growing body of research directly comparing the cessation performance of different pharmacotherapies. Most of the comparisons are with or between forms of NRT.

3.2.5.2 Synthesis of evidence

There are insufficient studies directly comparing pharmacotherapies to make definitive recommendations about best choice of pharmacotherapies with the following exceptions:

- **Highly dependant smokers who use nicotine gum should use 4 mg not 2 mg doses (Kornitzer et al, 1987; Herrera et al, 1995) (Strength of evidence A).**
- **Smokers with a history of depression may be more successful at cessation using bupropion SR or nortriptyline (Hall et al, 1998; Hayford et al, 1999) (Strength of evidence A).**
- **Smokers concerned about weight gain may be more successful at delaying (but not preventing weight gain) using bupropion SR or NRT, particularly nicotine gum (Hurt et al, 1997; USDHHS, 2000, p116) (Strength of evidence B).**
- **Patient preferences and expectations regarding outcome are important in guiding choice of pharmacotherapies (Hughes et al, 1999b) (Strength of evidence C).**

Table 7: Details and results of meta-analyses related to effectiveness of various types of pharmacotherapy, undertaken to inform the development of the US Government guidelines, Treating Tobacco Use and Dependence (Fiore et al, 2000)

Pharmacotherapy n = number of studies	No. study groups	Estimated odds ratio (95% CI)	Effect size % (95% CI)	Estimated abstinence rate (95% CI)
Nicotine gum 2 mg (n=13)	18	1.5 (1.3, 1.8)	6.6 (3.5, 9.6)	23.7 (20.6, 26.7)
Nicotine inhaler (n=4)	4	2.5 (1.7, 3.6)	12.3 (5.9, 19.7)	22.8 (16.4, 29.2)
Nicotine nasal spray (n=3)	3	2.7 (1.8, 4.1)	16.6 (7.9, 25.3)	30.5 (21.8, 39.2)
Nicotine patch (n=27)	32	1.9 (1.7, 2.2)	7.7 (6.0, 9.5)	17.7 (16.0, 19.5)
Bupropion SR (n=2)	4	2.1 (1.5, 3.0)	13.2 (5.9, 20.5)	30.5 (23.2, 37.8)
Nortriptyline (n=2)	3	3.2 (1.8, 5.7)	18.4 (6.4, 29.9)	30.1 (18.1, 41.6)
Clonidine (n=5)	8	2.1 (1.4, 3.2)	11.7 (3.8, 19.7)	25.6 (17.7, 33.6)

3.2.5.3 Emerging issues/methods

Comparison of nicotine replacement therapy and bupropion and combination therapy (Hughes et al, 1999).

3.2.5.4 Recent or current Australian initiatives

No current or recent Australian initiatives in this area were identified.

3.2.5.5 Implications for Australian practice

Until further evidence is available, interim guidelines for health professionals for recommending different types of pharmacotherapy for smoking cessation should be developed.

Health professionals providing advice about smoking cessation interventions need to be aware of current evidence related to efficacy and safety of different pharmacotherapies for different groups of smokers.

3.3 Other interventions

3.3.1 Acupuncture

3.3.1.1 Background

Acupuncture is promoted for a range of health related issues and problems, including smoking cessation. The most commonly cited rationale for use of acupuncture in smoking cessation is that it relieves the discomfort of nicotine withdrawal (USDHHS, 2000, chapter 4). However, there is no clear hypothesis for its mechanism of action (White et al, 1999).

3.3.1.2 Description of the method

Acupuncture is any treatment involving needle puncture of areas of the body, including points on the ear, face and body. Needles usually remain in position for the duration of a treatment session (often lasting 15 – 20 minutes). Electrical stimulation may be applied to the needles. Also, indwelling needles or seeds may be inserted, usually in ear points, and held in position with surgical tape for several days. Patients are instructed to press the indwelling needles when they become aware of withdrawal symptoms.

3.3.1.3 Sources of evidence

3.3.1.3.1 Major evidence reviews

Significant recent reviews that have conducted meta-analysis of trials related to acupuncture include:

- Meta-analysis by the Cochrane Collaboration of research on acupuncture for smoking cessation published up to June 1999 (White et al, 1999, White et al, 2000);
- Review and meta-analysis of trials published between 1 January 1975 and 1 January 1999 and which are the basis for US Government guidelines, Treating Tobacco Use and Dependence published in June 2000 (Fiore et al, 2000).

3.3.1.3.2 Recent evidence not included in reviews

No relevant trials have been reported since the completion of the major published reviews.

3.3.1.4 Synthesis of evidence

There is no evidence of a specific effect of acupuncture in smoking cessation other than as a placebo effect (Strength of evidence A).

- There was no difference in cessation rates between ‘active’ acupuncture and ‘inactive’ or sham acupuncture procedures (Table 7) (Two meta-analyses Fiore et al, 2000, White et al, 1999).
- The placebo effect of acupuncture is an 8.3 per cent abstinence rate at five months or more (Table 7) (Fiore et al, 2000). The effects may be produced by positive expectations of the procedure.

There is insufficient information to draw conclusions about the effectiveness of acupuncture in combination with other therapies or in subgroups of the population.

Table 8: Details and results of meta-analyses related to ‘active’ acupuncture (intervention) and ‘inactive’ or sham acupuncture (placebo)

	No. studies	No. groups	Estimated odds ratio (95% CI)	Effect size % (95% CI)	Estimated abstinence rate (95% CI)
Fiore et al, 2000					
<i>After 5 months or more</i>	5				
Placebo		7	1.0		8.3
Intervention		8	1.1 (0.7, 1.6)	0.6 (-2.8, 4.0)	8.9 (5.5, 12.3)
			OR (95% CI) comparing intervention and different control conditions		
			Sham	No intervention	Other interventions ^a
White et al, 2000					
<i>End of treatment</i>			1.20 (0.98, 1.48)	5.88 (2.66,13.01)	0.80 (0.62, 1.02) ^b
			(10 studies)	(3 studies)	1.05 (0.82, 1.35)
					(4 studies, 7 groups)
<i>After 6 months</i>			1.29 (0.82,2.01)	0.99 (0.30,3.24)	1.11 (0.63, 1.94)
					(1 study, 2 groups)
<i>After 12 months</i>			1.03 (0.73,1.46)	2.44 (1.15,5.20)	0.76 (0.54, 1.08)
			(2 studies)	(1 study)	0.87 (0.61, 1.24)
					(3 studies,5 groups)

^a Behaviour therapy, nicotine gum, waiting list.

^b Least favourable data top line, most favourable bottom line.

3.3.1.5 Recent or current Australian initiatives

No current or recent Australian initiatives in this area were identified.

3.3.1.6 Implications for Australian practice

Acupuncture should not be actively recommended as a cessation method as there is no evidence for effectiveness other than that indicated by a placebo effect.

Although acupuncture is promoted and available in Australia as a method to assist smoking cessation, on current evidence, there is no demonstrated efficacy for acupuncture as an aid to smoking cessation or for the alleviation of withdrawal symptoms. Therefore, its use should not be recommended, and information on cessation options distributed by health agencies needs to reflect the view of evidence-based reviews with regard to acupuncture. It is acknowledged however, that there can be an equivalent to placebo effect, and that some individuals will continue to report and advocate that acupuncture has aided their cessation attempt.

3.3.2 Hypnotherapy

3.3.2.1 Background

Hypnotherapy has been recognised as a therapeutic tool by professional medical groups in a number of countries for many years, and can be powerful for changing patterns of behaviour when used as an adjunct to other therapies, such as cognitive behavioural therapy (Kirsch & Lynn 1995). It is proposed to act as an aid to smoking cessation by influencing underlying impulses to weaken the desire to smoke, strengthen the will to stop and/or increase concentration and increase ability to focus on a treatment program (Spiegel 1993).

3.3.2.2 Description of the method

Many different hypnotherapy techniques have been employed but the most frequently used approaches are variants of the 'one session, three point' method developed by Spiegel (Spiegel 1964). This method attempts to modify patients' perceptions of smoking by using the potential of hypnotherapy to induce deep concentration. During the session the smoker is instructed that a) smoking is a poison, b) the body is entitled to protection from smoke, and c) there are advantages to life as a non-smoker. This approach also includes training in self-hypnosis that may be as important as hypnosis by a therapist (Katz 1980). Self-hypnosis can be used at will by the patient.

3.3.2.3 Sources of evidence

3.3.2.3.1 Major evidence reviews

A Cochrane Collaboration review current to February 1998 is the only major published systematic review of randomised controlled trials of hypnotherapy in smoking cessation (Abbott et al, 2000). The review did not attempt meta-analysis due to significant heterogeneity between the methods and results of the individual studies and conflicting results for the effectiveness of hypnotherapy compared to no treatment or to advice.

A review by Green and Lynn (2000) of 59 studies of hypnosis and smoking cessation was not confined to randomised controlled trials but reached similar conclusions to the Cochrane review (Abbott et al, 2000).

3.3.2.3.2 Recent evidence not included in reviews

No relevant trials that met inclusion criteria have been reported since the completion of the Cochrane review (Abbott et al 2000).

3.3.2.4 Synthesis of evidence

There is insufficient evidence to recommend hypnotherapy as a specific treatment for smoking cessation. (Strength of evidence C).

- Most of the studies in the scientific literature are either case reports or poor quality uncontrolled trials that show a great variability in quit rates (4-88%) six months after treatment (Abbott et al, 2000, Green and Lynn, 2000).
- Nine randomised controlled trials compare hypnotherapy with 14 different control interventions, but the many different hypnotherapy regimens used and the variation in number and frequency of treatments prohibit meta-analysis (Abbott et al, 2000).
- Since hypnotherapy is regularly suggested as a possible aid to smoking cessation there is a need for large, well-designed trials to establish its efficacy (Abbott et al, 2000).

3.3.2.5 Combination with other therapies

- Although hypnotherapy is used in several trials in combination with other interventions (counselling, behaviour therapy, aversion therapy, self-help materials), results are variable and there are too few studies of adequate design to draw conclusions (Abbott et al, 2000) about efficacy.
- In many cases, it is impossible to rule out cognitive/behavioural and educational interventions as a source of positive treatment gains associated with hypnotic treatments (Green and Lynn, 2000).

3.3.2.6 Current or recent Australian initiatives

No current or recent research on hypnotherapy was identified by this review.

3.3.2.7 Implications for Australian practice

There is insufficient evidence to support recommendation of hypnosis as a treatment for smoking cessation.

Variability in hypnotherapy regimes and methodological shortcomings in the research on hypnosis hinder assessments of efficacy. However, two large reviews both concluded that there is insufficient evidence to justify recommendation of hypnosis as an aid to smoking cessation.

Information made available to smokers in Australia on quitting methods and products should be consistent with the findings of systematic reviews of evidence on the efficacy of cessation methods such as hypnotherapy.

Hypnotherapy has great appeal to some people, and may have a perceived or actual effect on smoking cessation in some instances. However, it should not be used in preference to other methods with proven efficacy. Although there are individual studies that show efficacy of hypnotherapy, information made available to smokers in Australia on quitting methods and products (such as fact sheets) needs to be consistent with the findings of systematic reviews.

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4 Best practice implications for health professionals and health services

4.1 Overview

The review of evidence in Part 2 identified key issues that have practice implications for health professionals and health services. These include: using tobacco-user identification systems in all clinics; treating every smoker with an evidence-based cessation intervention; and providing support and follow-up.

In Part 3 evidence and issues specific to various health care providers are presented. Implications for best practice are highlighted.

4.2 Health professionals

4.2.1 Doctors

4.2.1.1 Issues

- Almost 20 per cent of Australian general medical practitioner patient encounters are with daily smokers, and five per cent are with occasional smokers (Britt et al, 2000).
- Australian doctors identify two thirds of their patients who smoke but advise only half of these to quit (Young and Ward, 2001; Wiggers and Sanson-Fisher, 1997). Rates of detection and cessation advice have not changed in ten years (Dickinson et al, 1989; Wiggers and Sanson-Fisher, 1997).
- Brief cessation advice to smokers from doctors delivered opportunistically during routine consultations increases abstinence rate at six months by 30 per cent.
- There is a small advantage of more intensive advice from a doctor that translates into one extra quitter at six to twelve months for every 30 smokers treated.
- The only strategy that has been convincingly shown to enhance the effectiveness of advice from a doctor is provision of nicotine replacement therapy. Nicotine replacement doubles the odds of quitting and is effective regardless of the amount of advice provided.
- As well as its direct effect, advice from a doctor to quit smoking has a priming effect on patient responses to other smoking cessation interventions (Kreuter et al, 2000).
- Doctors generally do not accept that they should give opportunistic advice at every opportunity (McEwan and West 2001). Lack of time, difficulties in raising the issue uninvited and concerns that uninvited advice to stop smoking may damage their relationship with the patient appear to be major barriers (McEwan and West 2001; Coleman et al, 2000).

- A systematic approach to ascertaining and documenting tobacco use of patients is the first step in changing clinical culture and practice patterns to ensure that every patient who smokes is offered treatment. The evidence for the effect of provider reminder systems for identifying smokers on cessation attempts is strong, and this is a relatively simple intervention that can be incorporated into the routine practice of most health services and practices in Australia.

4.2.1.2 Recent or current Australian initiatives

There are a number of recent or current Australian studies focusing on general practitioners and/or the general practice setting. These are summarised in the general medical practitioner settings column of Appendix 3, Table 1.

4.2.1.3 Implications for Australian practice

As a minimum, the 5A's approach to brief intervention should be implemented in all medical practice contexts.

International evidence pertaining to the potential for and effectiveness of cessation advice provided by doctors is equally applicable to the Australian context.

The brief intervention strategy components recommended by the US and UK guidelines are also readily transferable. The emphasis given to NRT as an element of doctor advised cessation in international guidelines has some limitations in Australia due to different levels of access, pricing and subsidisation of NRT. This needs to be borne in mind when extrapolating the findings of international reviews or evaluations to an Australian context.

Doctors should have ready access to training and practice guidelines for supporting smokers' attempts at smoking cessation.

The popularity and demonstrated relative effectiveness of pharmacological cessation aids such as NRT and Zyban has increased consumer expectations of medical practitioners in providing support for smoking cessation. There is some wariness by Australian doctors with regard to prescribing or use of NRT without consideration of the degree of addiction for the patient in question. This has implication for the need to train and support Australian doctors in assessing patient addiction and suitability for NRT. The current PBS authority requirement for Zyban to be prescribed as part of a comprehensive treatment program has implications for general medical practitioners who may perceive that they lack the confidence or skills to provide appropriate cessation advice or support to meet this demand.

This review of evidence is timely for the development of Australian guidelines for smoking cessation support. A pragmatic way to address training needs is to link more intensive smoking cessation training for general medical practitioners to the CME points system (as has been trialled in several recent Australian initiatives).

While general medical practitioners are the Australian health professional group with the most access to smokers, and their cessation advice is well regarded, the present reality is that general medical practitioners are being increasingly called upon to undertake a range of primary or secondary prevention interventions, and smoking is but one of these.

Recommendations and strategies for involvement of doctors in provision of smoking cessation interventions need to consider barriers to involvement.

Assessment of barriers to provision of cessation advice was outside the scope of this review, but barriers obvious from the literature relevant to this review (such as lack of time) are very pertinent to the evidence for the effectiveness of brief intervention. Pragmatic efforts to increase the efficacy of general medical practitioner interventions need to focus on strategies that do not place more intensive demands on general medical practitioner time. The SA pilot linking general medical practitioner referral to Quitline counselling and follow-up is a creative example of this.

The recent Primary Care initiatives instigated by the Commonwealth government have some positive implications for general medical practitioners and smoking cessation. The MBS rebate items introduced for annual health assessments for older Australians (>75 years) and ATSI Australians (>55 years) provides an opportunity for general medical practitioners to identify health issues related to patient smoking, and advise cessation accordingly. The rebate for multidisciplinary care planning can be utilised for smoking cessation, although less readily than for other preventable health issues for which there are greater referral and care options. With obesity for example, the care plan can include referrals to dietitians, walking programs, fitness facilities, physiotherapy etc. There are far fewer referral options relevant to smoking, and the perceived absence of cessation referral options by general medical practitioners may mean that smoking does not feature significantly in care plans developed. While not detracting from the important role that general medical practitioners can play as the source of cessation advice and support, ways to capitalise on Australian trends towards more coordinated and consumer oriented primary care, should be explored for smoking cessation.

4.2.2 Nurses

4.2.2.1 Issues

- Nurses are the largest group in the health workforce. Because they regularly talk to patients and clients, they are well placed to screen for lifestyle risk factors and to provide primary intervention.
- Most Australian nurses (60%) have a positive attitude towards helping patients to quit but only patients who want to quit (Nagle et al, 1999).
- As many as two thirds of nurses in general wards (Feeney et al, 1997) and specialist clinics (Sarna et al, 2000) assess smoking status, but only a third assess readiness to quit (Sarna et al, 2000) and few provide cessation counselling or other interventions (Sarna et al, 2000).
- Knowledge of Australian nurses about the health effects of smoking is high (Nagle et al, 1999) but knowledge of effective strategies to aid quitting and referral options is poor (Nagle et al, 1999). In one study, less than a quarter felt competent to discuss cessation with patients and identified skills training as desirable (Nagle et al, 1999).
- The majority (85%) of nurses in a Queensland study (Feeney et al, 1997) indicated willingness to participate in training.

Nurses have been shown to be more likely than physicians to apply aspects of their smoking cessation intervention training. Nurses were more likely to provide counselling including asking about interest in quitting, providing support literature and making follow-up appointments about smoking (Zahnd et al, 1990).

- Hospital policies and nurse education providers need to strongly support the provision of smoking cessation by providing nurses with time, access and incentives for cessation training. (Nagle et al, 1999).
- Variable smoking rates (15.5% to 39%) have been reported amongst Australian hospital nurses (Nagle et al 1999; Jones, 1998; Feeney et al, 1997). The current rate in the general Australian population is about 22% (AIHW, 2000).
- Personal smoking cessation is viewed as a professional responsibility of nurses (Rowe and MacLeod Clark, 1999; Padula, 1992).

4.2.2.2 Recent or current Australian initiatives

Several of the hospital based research trials or interventions underway in Australia focus on nurses as the providers of brief cessation advice (see for example hospital initiatives in Western Australia and Tasmania in Table 1, Appendix 3). Other hospital interventions include nurses among a broader

range of health professionals targeted within the hospital system. Nurses have also been included in interventions targeting pregnant women and adolescents (via the school setting) as described in Table 2, Appendix 3.

4.2.2.3 Implications for Australian practice

As a minimum, the 5A's approach to smoking cessation intervention should be implemented in all nursing contexts.

There is sound evidence for the effectiveness of nurses in the provision of brief and more intensive smoking cessation interventions. While the evidence mostly pertains to nurses working in clinical settings, Australian states and territories also have an infrastructure of community, child health, anti-natal and school based nurses that can play a role in the provision of smoking cessation advice and support. Nurses in both clinical and community settings often have more extended periods of client contact or opportunities for follow-up than do medical specialists and doctors, and can take advantage of this in speaking to clients/patients about smoking cessation. The 5A's approach to brief intervention is readily transferable to and should be implemented in all nursing contexts. Nurses also provide a valuable role in providing follow-up support in more intensive interventions.

Nurses who smoke should receive cessation support within the workplace.

Whilst it is outside of the scope of this review, smoking by nurses has potential implications for the willingness of some nurses to provide cessation advice, and their efficacy as non-smoking role-models. Hospitals and other settings that seek to utilise nurses in the delivery of smoking cessation interventions need to be cognisant of these issues, and ideally, provide adequate encouragement and workplace support for staff to quit smoking themselves.

4.2.3 Pharmacists

4.2.3.1 Issues

- Of all health professionals, community pharmacists are the most readily accessible to the community. At least two per cent of Australian adults visit a pharmacist at least once a fortnight (AIHW, 2000). Pharmacists may reach smokers who do not access other primary care services.
- Pharmacological aides such as various forms of nicotine replacement therapy (NRT) and bupropion (Zyban) are important components of a cessation program. Since all NRT and Zyban in Australia must be obtained via a pharmacist, there is both onus and opportunity for pharmacists to be active in providing cessation advice and support to their clients.
- The Pharmaceutical Society of Australia's (PSA) national policy on tobacco and other smoking products (endorsed 1998) states that pharmacists should be actively involved in smoking cessation programs, and as identified in Appendix 3, both the PSA and Pharmacy Guild of Australia seem supportive of initiatives to increase the role of pharmacists in relation to smoking cessation.
- Randomised trials in the UK (Sinclair et al, 1998; McElnay et al, 2000; West et al, 2000) and an uncontrolled, non-randomised trial in Australia (Carroll et al, 2000) have shown that a structured package of behavioural support and NRT provided by pharmacists can be effective in aiding smoking cessation.
- Further analysis of one UK trial to evaluate the effectiveness of training of pharmacy personnel in techniques based on the 'stages of change' model found an effect size of 4.6 per cent on nine month continuous abstinence rates (Sinclair et al, 1999). The trial also showed that the effects of training on efficacy of cessation counselling and confidence in providing it were retained for two years post training. Greater knowledge was retained for three years after training. (Sinclair et al, 1999b).

4.2.3.2 Recent or current Australian initiatives

There are a number of national smoking cessation initiatives pertaining to pharmacists auspiced by the Pharmaceutical Society of Australia (PSA) and/or the Pharmacy Guild of Australia (PGA). While smoking cessation research trials are often restricted to individual settings or health professional groups, there is a growing movement in Australia to obtain greater integration and coordination of health care across the health system. A promising example of this is the joint proposed research project by the PGA, PSA and AMA that seeks to provide more coordinated advice and support for smokers from general medical practitioners and pharmacists in relation to quitting and use of NRT.

4.2.3.3 Implications for Australian practice

Pharmacists should be actively involved in smoking cessation programs. As a minimum, they should implement the 5A's approach to smoking cessation intervention.

As well as the opportunities afforded by the frequency of pharmacy visits by Australians each year, pharmacological cessation products (such as NRT) are only available in Australia through pharmacists. Pharmacists have a clear invitation to raise the issue of smoking cessation with customers purchasing NRT products or filling Zyban prescriptions, as well as with customers purchasing other medications for which smoking is problematic. This includes women who are making purchases indicative of pregnancy or pregnancy planning. Pharmacists also have considerable contact with parents whose children suffer health problems associated with or exacerbated by smoking, and the issue of cessation by parents can be raised in this regard.

Pharmacists should develop and demonstrate effective pharmacy-based programs for smoking cessation.

In other countries such as the UK, pharmacological cessation products are no longer sold only through pharmacists. Calls may come for Australia to follow suit, so there is an onus on pharmacists in Australia to demonstrate that they do 'add value' by dispensing cessation advice, encouragement and follow-up.

4.2.4 Dentists

4.2.4.1 Issues

- Smoking is linked to increased rates of periodontal disease, missing teeth (Albandar et al, 2000) and oral cancer (Johnson and Warnakulasuriya, 1993). Smoking also causes considerable social disadvantage due to discolouration of teeth, halitosis, tooth calculus formation and oral thrush infection (Christen, 1992).
- It is estimated that Australian dentists see approximately 1 million smokers per year (Clover et al, 1999). If all of these smokers were advised to quit by their dentist or other dental staff, and if conservatively, only 5% did quit, the result would still be 50 000 more non-smokers each year (Clover et al, 1999).
- Twelve per cent of Victorian dentists smoked in 1993 (Mullins, 1994) and four per cent in 1995.

Nearly all (86%) of Victorian dentists surveyed in 1995 said they 'did something' in relation to counselling patients who smoked; 31 per cent advised smoking cessation, 27 per cent discussed the risks of smoking, 10 per cent provided literature and 4 per cent gave advice on how to stop smoking (Quit Victoria, 1995).

4.2.4.2 Recent and current Australian initiatives

In South Australia, a brief smoking cessation intervention for dental settings is being developed in conjunction with the dental profession, and incorporating options for referral of clients to the quitline. A pilot project in Victoria is developing a smoking cessation training package for dentists. The package includes consideration of barriers to and facilitators of delivery of smoking cessation advice in dental settings.

4.2.4.3 Implications for Australian Practice

As a minimum, dentists should implement the 5A's approach to providing brief smoking cessation advice to their clients.

Australian dentists have a key role to play in tobacco cessation because of the visible oral effects of smoking that can be seen in many smoking patients, the breadth of their contact with the general population, and the opportunities that consultation and treatment occasions provide to interact with and advise patients.

The 5A's model of brief smoking cessation advice appears equally applicable to a dental context. The current brief intervention research with dentists under way in South Australia and Victoria should provide useful insights into ways in which the Australian dental profession can be encouraged and supported to play a greater role in smoking cessation.

4.2.5 Smoking cessation specialists

4.2.5.1 Issues

- Although brief cessation advice may motivate a quit attempt, many smokers, particularly heavy smokers, will need more intensive support.
- The review of evidence shows that intensive therapy (more and longer sessions) increases cessation rates. Counselling that provides training in problem-solving and helps smokers obtain social support also increases the success rate.
- Individual and group therapies by smoking cessation specialists are equally effective in achieving cessation.
- Smoking cessation specialists are trained in behaviour change techniques related to smoking. They may come from a range of disciplines including psychologists, psychiatrists, nurses, social workers and health educators.

4.2.5.2 Recent and current Australian initiatives

There are no current trials pertaining to cessation clinics in Australia, but comprehensive evaluation of cessation clinic outcomes has occurred in some states, with the Victorian evaluations of various versions of Fresh Start programs being the main example included in Appendix 3, Table 1. The recent report on Australia quitlines and cessation courses compiled by Carroll (Carroll, 2000) provides a thorough overview of the range of course and clinic options available in all states and territories.

4.2.5.3 Implications for Australian practice

Smoking cessation specialists should implement programs that are consistent with the evidence related to characteristics of effective interventions.

The efficacy of some cessation strategies, forms of advice and support over others, provides important pointers for the content and structure of programs offered by cessation specialists and courses. The Carroll review (Carroll, 2000) of Australian quit smoking programs provides some detailed

discussion and recommendations pertaining to the design and implementation of best practice cessation programs and course in an Australian context.

Smoking cessation specialists should be proactive in supporting other health professionals and health services to deliver effective cessation interventions.

As well as providing cessation support to smokers, smoking cessation specialists are a valuable resource to train and support other health professionals in delivering effective cessation interventions. This includes implementing routine screening of smokers and providing brief cessation advice.

4.2.6 Other health professionals

4.2.6.1 Issues

- The evidence review shows that many professions can deliver effective smoking cessation interventions. Aside from professions considered above, there is evidence of effective intervention by psychologists, social workers and medical specialists (Fiore et al, 2000).
- There is increased success when a variety of health professionals co-operate in giving advice, support and follow-up (Fiore et al, 2000).
- Specialists such as obstetricians, midwives, oncologists, cardiologists and physiotherapists could utilise ‘teachable moments’ offered by higher risk of disorders or complications due to smoking.
- An international and Australian trend is to respond to a range of health issues within the more integrated framework of chronic disease prevention and management. Smoking is not seen as a health issue in isolation, but incorporated into related chronic disease programs, interventions and clinical care. This has implications for a number of specialist fields of medicine, as well as for allied health service providers.
- With increasing emphasis in Australia on integrated primary health care, and the advent of initiatives such as the Medicare multi-disciplinary care planning, there is greater potential and onus to extend a smoking cessation role to other health professional groups.
- Involvement of a range of health professionals in smoking cessation activities in rural settings is crucial given the lack of access to specific smoking cessation services (Dunn, 1998).
- Research has shown that clinical practice guidelines can be an effective means of changing the process of health care and improving health outcomes (Grimshaw and Russell, 1993). There is some evidence that the use of guidelines for smoking cessation can significantly increase quit rates (Grimshaw et al, 1995; Worrall et al, 1997).
- The 2000 US Public Health Service Clinical Practice Guidelines (Fiore et al, 2000) recommend that tobacco use be treated as a vital sign that is routinely recorded in medical records and addressed at each visit.
- A systematic approach to ascertaining and documenting tobacco use of patients is the first step in changing clinical culture and practice patterns to ensure every patient who smokes is offered treatment.

4.2.6.2 Recent and current Australian initiatives

The current or recent Australian initiatives identified relate primarily to general medical practitioners, nurses, dentists or pharmacists rather than to other specific health professional groups. However, a number of hospital-based interventions target all health professionals working within that healthcare setting and this extends to medical specialists and allied health professionals. In NSW a research study is underway examining the evidence for, role of, and barriers to, smoking interventions by paediatricians.

4.2.6.3 Implications for Australian practice

Identifying smokers, intervening and offering advice on smoking cessation should be a core activity of all health professionals with direct patient contact.

While the review of evidence found there to be inadequate randomised control trials to draw conclusions about the efficacy of smoking cessation interventions by health professionals other than doctors, nurses, dentists, and pharmacists, this should not be interpreted to mean that there is not a role to be played by other health professional groups. Research studies have been undertaken to examine the effectiveness of smoking cessation interventions delivered by a range of other health professional groups, including paediatricians, obstetricians and midwives and various medical specialists, but there have either been methodological limitations or an inadequate number of studies to enable conclusions about the efficacy of these health professional groups. Both the US and UK guidelines infer, however, that the core components of advice (the 4 or 5 A's) are applicable to, and should be applied in all clinical settings. Interventions such as provider reminders to identify smokers and prompt cessation discussion or advice can be readily applied across the health care continuum.

4.3 Health services

4.3.1 Hospitals

4.3.1.1 Issues

- Hospitals are an ideal setting for smoking cessation interventions because of the more frequent and extended opportunities for patient contact, the teachable moments presented by smoking-related health problems and the risk of surgical complications from smoking for some patients and the smoke free policies of most hospitals.
- The meta-analysis shows that specific smoking cessation interventions with hospital inpatients are more effective in achieving sustained cessation than usual hospital care (OR 1.3, 95% CI 1.04, 1.6) (effect size 4.1%, 95% CI 0.3%, 5.9%) (Meta-analysis of four trials, Fiore et al, 2000).
- Older and circulatory/respiratory patients are most likely to stop in hospital and heavier smokers were significantly more likely to quit than lighter smokers (26% vs 10%) (Glasgow et al, 1991).
- In a recent US study, smoking cessation of hospitalised smokers was shown to be independent of length of counselling and knowledge of hospital smoking policy, but associated with stage of change, not smoking in hospital, hospital stay longer than four days, no initial withdrawal symptoms and a belief that their illness is associated with smoking (Sciamanna et al, 2000).
- The smoke free environment of hospitals requires temporary smoking cessation and may provide an opportunity to attempt sustained cessation. Patients who do not smoke in hospital are more likely to attempt to quit (Glasgow et al, 1991) and achieve sustained cessation (Sciamanna et al, 2000) However, hospitals often provide designated areas for smoking; these areas are designed for visitors and employees but are often used by patients, thus hindering antismoking effort (Sciamanna et al, 2000).
- A survey of inpatients in a Brisbane hospital found that 19 per cent (n=569) smoked and of these over half (57%) considered quitting whilst in hospital but only five per cent asked for assistance (Feeney et al, 1997).

4.3.1.2 Recent or current Australian initiatives

Hospital-based projects related to smoking cessation are being implemented in most Australian states (Table 1A, Appendix 3). These are summarised in the Hospital Settings column of Appendix 3, Table 1. Some of these interventions target specific health professionals or patient groups within the hospital setting, while others seek to influence cessation policy and practice across an entire hospital. The emphasis in nearly all of these projects is on brief intervention, and on inclusion of brief intervention protocols into routine hospital practice.

There are varying degrees of advice and intervention tailoring within the current Australian research projects, with increasing inclusion of NRT as a treatment component for patients for whom this is determined appropriate. A number of interventions specifically include the development of referral or follow-up links in the community upon patient discharge to try to reduce cessation relapse (see for example hospital projects underway in South Australia and Western Australia).

4.3.1.3 Implications for Australian practice

All hospitalised smokers should be provided with effective smoking cessation treatments.

Australian hospitals are a prime setting for smoking cessation interventions for reasons identified above and based on the evidence confirming the efficacy of inpatient cessation interventions over 'usual care'.

There is considerable interest in Australia at present in hospitals as a setting for smoking cessation intervention. The pilot project of smoke free environments in the Central Sydney Area Health Service (Appendix 3) is an example of the potential for intervention. It is important that the intervention methods and findings of current trials or projects be disseminated widely to avoid duplication of effort and to inform the development of best practice interventions for other hospitals.

Hospital systems should be implemented to routinely identify and treat smokers.

Hospital-based interventions can readily use the 5A's approach and incorporate these into routine practice at all stages along the admission to discharge continuum of care. When hospital admission is planned for elective surgery, pre-surgery assessment interviews should be used to assess smoking status and give appropriate advice on cessation. Hospital staff have the potential to enhance follow-up and relapse prevention through discharge and care plans and referral of patients to general medical practitioners and other community based cessation support links. General medical practitioners may be particularly amenable to this given that Medicare rebating exists for discharge care plans developed in conjunction with general medical practitioners and for multi-disciplinary care planning by general medical practitioners that includes other treatment or support options.

Hospitals should become completely smoke-free.

While all hospitals in Australia would have some form of smoke-free policy, exempted smoking areas for staff and or patients are still common. Given that not smoking during hospitalisation has been shown to be a strong predictor of cessation (Sciamanna et al, 2000), hospitals should be encouraged to work towards total smoke-free policies.

Hospital staff as well as patients who are smokers should be provided with cessation assistance.

Total smoking bans need to be adequately complimented by cessation assistance and support options for affected patients and staff. Assisting staff to quit enhances the likelihood and credibility of their cessation advice to patients.

4.3.2 Community-based health services

4.3.2.1 Issues

- For the purposes of this review, community-based health services refer to health services provided to individuals in a community setting. This excludes mass reach interventions such as media campaigns but includes services provided for individuals or groups by state, regional or area health services, non-government organisations, professional groups and private clinics.
- Community-based interventions have a central role to play in supporting smoking cessation activity in the health system.
- Liaison between different clinics, services and professions is needed in the same way as for management of other health issues.
- Trials such as the US county-based Breathe Easy smoking cessation intervention show that community cessation resources such as individual telephone support, smoking cessation classes and support groups were needed to sustain brief intervention smoking cessation activities of health professionals (Secker-Walker et al, 2000).

4.3.2.2 Recent or current Australian initiatives

Several projects are underway in Australia that aims to link hospital-based smoking cessation interventions with community-based support services (see Appendix 3, Table 1). South Australia is also progressing research and interventions that link initial GP and/or dentist advice with referral to telephone counselling supports offered through the state's Quitline service.

4.3.2.3 Implications for Australian practice

Community based cessation interventions should be implemented to complement and reinforce advice from specific health professionals.

Given the time constraints for specific health professionals that can limit the intensiveness of cessation advice, or preclude provision of follow-up, there is a need for community-based referral, support or follow up options to support cessation efforts and reduce relapse. Telephone counselling and groups/courses are identified as effective in this review. Specific implications for implementing these interventions are discussed in the relevant sections of this report.

Smoking cessation should be incorporated into programs and interventions that target other diseases or health problems for which smoking is a contributory factor.

Community-based tobacco cessation interventions do not need to be confined to smoking specific strategies, as there is considerable scope to encourage and address cessation within the context of other risk factor or disease prevention/management interventions. Relevant areas include chronic disease prevention and/or management programs, and interventions or programs relating to cardiovascular disease, cancer prevention, diabetes, respiratory illnesses (adult and children) and anti-natal care.

The advice and content of community-based cessation interventions needs to be consistent with the evidence for best practice as well as the evaluated effectiveness of existing cessation options in the community.

The 5A's model is applicable in community based settings and interventions also. It is acknowledged however, that the bulk of controlled trial evidence is specific to particular health professional groups or health service settings, and many relevant best practice issues for more community based interventions or supports are not adequately covered by scientific evidence. Some of the research/interventions in progress in Australia provide practical insights into the role of referral, support and

program options in community settings. In addition, the Carroll report (Carroll, 2000) provides specific discussion and recommendations pertaining to community based telephone counselling and programs/courses that are informed by a review of such services across Australia. Key elements for best practice identified in this report for both telephone counselling and quit smoking programs include access for the public, content of information, resources, counselling or programs, training of counsellors or facilitators, catering for specific population groups and the need for process and impact evaluation.

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5 Best practice implications for special groups

5.1 Overview

Parts two and three of this review relate mainly to the general population. Most of the meta-analyses in those sections exclude pregnant and lactating women and either exclude or do not specifically identify other high risk groups.

The purpose of this part of the review is to highlight issues and to present evidence specific to certain groups in the population who may be at higher risk of adverse effects of smoking or who may require different approaches to smoking cessation. Implications for best practice for these groups and how it varies from approaches to the general population are discussed.

5.2 Pregnant and lactating women

5.2.1.1 Issues

- Cigarette smoking by pregnant women causes adverse fetal outcomes including stillbirth, spontaneous abortion, reduced fetal growth, premature birth, low birth weight, placental abruption, sudden infant death, cleft palate, cleft lip, and childhood cancers (Fiore et al, 2000).
- Maternal smoking increases the risk of poor health outcomes in infants and children including sudden infant death syndrome, respiratory infections, asthma, and middle ear disease (Fiore et al, 2000), therefore sustained abstinence in the postpartum period is even more important than in the general population.
- Although abstinence early in pregnancy will produce the greatest benefits to the mother and fetus, smoking cessation at any point during the pregnancy will be beneficial to the mother and fetus.
- Pregnancy is a time when many women are motivated to improve health behaviours, including smoking cessation (Hellerstedt et al, 1998) and they have regular contact with health professionals.
- Around 30 per cent of Australian women are smokers when they become pregnant (Wakefield and Jones, 1998) and 23 per cent smoke during pregnancy (Walsh et al, 1997; Panjari et al, 1999).
- Up to a quarter of women who smoke before pregnancy quit before their first antenatal visit but a quarter of these relapse to smoking during the pregnancy (Lumley et al, 2000). Relapse in the post-partum period is high (McBride and Pirie, 1990; Ko and Schulken, 1998; Johnson et al, 2000), although the rate is comparable with quitters in the general population.
- High levels (between 30 and 50 per cent) of deception concerning smoking cessation, have been reported for pregnant women (Walsh et al, 1996; Windsor et al, 1998), probably because of the social undesirability of smoking during pregnancy. This has implications for methods of ascertainment of smoking status of pregnant women.

- Compared to usual care, participation in smoking cessation programs during pregnancy improves birth outcome including rate of low birth weight (OR 0.80, 95% CI 0.67, 0.95), rate of pre-term birth (OR 0.83, 95% CI 0.69, 0.99) and mean birth weight (average increase 28g (95% CI 9,49) (Meta-analysis of 10 trials, Lumley et al, 2000).
- Smoking cessation programs of various types are effective at achieving smoking cessation in pregnant women. Exposure to any smoking cessation intervention halved the proportion of pregnant women who continued to smoke during the pregnancy (OR 0.53, 95% CI 0.47, 0.60, effect size 6.4%)(Meta-analysis of 34 trials, Lumley et al, 2000).
- Postpartum relapse may be reduced by smoking cessation interventions in the postpartum period. Meta-analysis of five trials (Lumley et al, 2000) showed that interventions to prevent smoking relapse postpartum prevented 25 per cent of relapse for various periods less than six months (OR 0.74, 95% CI 0.53, 1.04).
- Validated cessation in late pregnancy varied from four to 20 per cent in low income groups and from 16 to 26 per cent in studies with higher income groups (Meta-review of 16 trials, Mullen, 1999). Direct comparisons between socioeconomic groups using the same cessation methods are not available.

5.2.1.2 Recent or current Australian initiatives

The Anti-Cancer Council of Victoria is working with the Royal Women's, Monash and Mercy hospitals to develop and trial smoking cessation guidelines for anti-natal care. They are also piloting an adaptation of the quit call back service for pregnant women, with links to the Royal Women's Hospital antenatal clinic, as well as working with local area health services maternal and child health clinics to improve identification and support to quit of women who smoke.

The Women's and Children's Hospital in South Australia is conducting a randomised trial of NRT replacement with pregnant women. A pilot with a sample of 40 pregnant women preceded the trial, and the current study has an intervention group of 300 pregnant women who smoke 10-15 cigarettes per day. Cessation will be biochemically confirmed 3 months postpartum. The trial will be completed by 2002.

5.2.1.3 Implications for Australian practice

Effective smoking cessation interventions should be offered to pregnant smokers at the first antenatal visit and throughout pregnancy and post-partum.

There is sufficient evidence to recommend that smoking cessation and relapse interventions be implemented in all maternity care centres as a routine part of antenatal care and extended into the postpartum period.

Extended psychosocial interventions that exceed minimal advice to quit should be made available for pregnant women.

Minimal intervention will achieve some reduction in smoking rates but more intensive interventions are more effective. Group sessions are poorly attended and probably not worthwhile continuing (Lumley et al, 2000). The evidence supports implementation of the 5A's approach (Fiore et al, 2000) with pregnant women. Melvin et al, (2000) describe specific applications in pregnancy. Provision of pregnancy-specific, self-help smoking cessation materials, problem solving related to high risk situations, social support in the smoker's environment and social support as part of the treatment are recommended (Melvin et al, 2000). Although evidence is sparse for pregnancy, referral for more intensive behavioural support as discussed in Part 2 of this review may be more effective for heavily addicted pregnant smokers (Melville et al, 2000; Mullen, 1999). To reduce postpartum relapse, postpartum interventions should begin after delivery and continue with postnatal and child health visits. Telephone follow-up is an acceptable and effective way to assist cessation and prevent or delay relapse (Johnson et al, 2000; Trotter and Letcher, 2000; Ratner et al, 2000).

Pharmacotherapy should be considered when a pregnant woman is otherwise unable to quit and when the likelihood and benefits of quitting outweigh the risks of pharmacotherapy and continuation of smoking.

The safety of use in pregnancy of effective pharmacotherapies such as NRT and bupropion is still debated. The ratio of potential benefit to harm is not conclusive therefore most recommendations are to consider pharmacotherapy only after psychosocial intervention has failed (Melvin, 2000; Fiore et al, 2000). Pregnant women in Australia are not prohibited from using NRT, but it is classified as a category B2 product and it is recommended that medical advice be sought before use. The current South Australian trial of the use of NRT by pregnant women has important implications for future recommended practice in this area.

Simply asking may not be sufficient to determine smoking status given the high levels of deception caused by the social desirability of smoking cessation during pregnancy. Multiple choice questionnaires (Melvin et al, 2000) or measurement of serum, urine or saliva cotinine are more reliable means of determining smoking status. The acceptability of biochemical testing is unknown, therefore cotinine measurement is not recommended as part of routine antenatal screening (Melvin et al, 2000).

Pregnant women who stop smoking during pregnancy should not be regarded as if they have quit permanently. Pregnancy is a strong motivation to quit for the duration of the pregnancy but some women have no intention of maintaining cessation after pregnancy and lactation. Others who quit during pregnancy and want to remain abstinent are just as vulnerable to relapse as other women. Emphasis on the health risks to the baby and other children in the family may help to maintain the motivation experienced in pregnancy. Clinicians should ascertain postpartum cessation intentions and advise, assist and arrange follow-up as appropriate.

5.2.1.4 Emerging issues/methods/research

- Safety and efficacy of NRT and other pharmacotherapies for pregnant women;
- Harm reduction (smoking less rather than cessation) (Windsor et al, 1999); and
- Relapse prevention.

5.3 Adolescents

5.3.1.1 Issues

- In a 1996 Australian survey, approximately 8% of 12 year old boys and 7% of 12 year old girls had smoked in the last week, with prevalence increasing to 28% of boys and 34% of girls in the 17 year old age bracket (Hill et al, 1999).
- Adolescence is the primary time when cigarette smoking is initiated and transition from experimentation to dependence occurs. The younger people are when they begin to smoke, the more likely nicotine addiction is to be established and the more likely they are to be current smokers as adults (USDHHS, 1994; Henningfield et al, 2000).
- Health problems due to cigarette smoking during childhood and adolescence include cough and phlegm production, increased number and severity of respiratory illnesses, decreased physical activity, unfavourable lipid profile, and potential retardation in the rate of lung growth and level of maximum lung function (USDHHS, 1994). These increase risk of health problems in adulthood such as chronic obstructive pulmonary disease and cardiovascular disease.

- By age 18, approximately two thirds of US cigarette smokers regret having started smoking, one half have already made a quit attempt and nearly 40 per cent have some interest in obtaining treatment for their dependence (Patten, 2000; Henningfield et al, 2000). As for adults, nicotine dependence and withdrawal symptoms have been detected among adolescent smokers (Rojas et al, 1998).
- The traditional emphasis in the area of adolescent smoking has been on prevention of initiation of smoking (USDHHS, 1994). The World Health Organization (WHO) maintains that while prevention of youth smoking is critical, the high rates of adolescent smoking around the world provide strong argument for effective youth oriented smoking cessation programs (WHO, 1998). The Surgeon General's 1994 review of prevention measures (USDHHS, 1994) noted that 'in the absence of intervention, adolescent smokers will become adult smokers' yet there has since been little attention to smoking cessation treatments for adolescents. There is little evidence of effective youth-targeted smoking cessation interventions and substantial gaps in knowledge about the efficacy in this age group of treatments shown to be effective with adults (Henningfield et al, 2000).
- The naturally occurring quit rate is estimated as three per cent amongst younger adolescents and eight per cent amongst older adolescents (Henningfield et al, 2000; Sussman et al, 1999). Review of 17 adolescent smoking cessation trials (of variable methodological quality) found an average quit rate at six months of 13 per cent (Henningfield et al, 2000; Sussman et al, 1999). Effect size of intervention with adolescents is therefore estimated at five to ten per cent.
- Recruitment and retention of adolescents in formal cessation programs are difficult and are a major determinant of the outcome of interventions targeting young people (Henningfield et al, 2000; Sussman et al, 1999).
- Development of effective smoking cessation interventions for adolescents is hampered by limited data on nicotine metabolism in young people and behavioural determinants of success in cessation, as well as lack of theoretical models to guide intervention development (Henningfield et al, 2000).

5.3.1.2 Recent or current Australian initiatives

As is the case overseas, there has not been a strong focus in Australia on youth smoking cessation per se. Initiatives in Australia have primarily taken a prevention emphasis or have used mass media and other education strategies to dissuade young people from smoking as well as strategies to reduce their exposure to influences to smoke. There is increasing recognition however of the need to acknowledge and respond to the reality of smoking addiction among adolescents in Australia. Relevant current initiatives (Appendix 3, Table 2) include the intervention trial in WA schools that incorporates cessation components, resources from which have already been adapted for use by school nurses in schools across the state. The school nurses project in Queensland also considers the role of these health professionals in smoking cessation for youth. Quit Victoria is in the process of developing guidelines for responding to Quitline calls received from young people and is to trial a Quitline group session for students wanting to quit.

5.3.1.3 Implications for Australian practice

More attention to adolescent smoking cessation issues is warranted, particularly the evaluation of effectiveness of intervention methods.

More attention to adolescent cessation issues is warranted given the high prevalence of smoking among young people in Australia, and the fact that many intend but struggle to quit.

While prevention of youth smoking is the ideal, the reality is that due to the addictiveness of tobacco, many of the young people experimenting with smoking in Australia go on to become regular adult smokers.

The psychosocial reasons for youth smoking are complex, as are their reasons for not heeding parental or health professional advice. While health professionals can play a role in advising and encouraging young people to quit, this needs to be done sensitively and appropriately.

Cessation initiatives for youth need to be well-grounded in formative research, given that there are few models of effective interventions in this area to date. While Fiore et al (2000) note that counselling and behavioural interventions shown to be effective with adults may be adapted to be suitable for young people, superficial adaptation of adult cessation strategies should be avoided without evidence of efficacy with young people. The need for sound developmental and intervention research and evaluation in this area is critical if efforts to assist young people to quit are to succeed.

There is limited evidence to date regarding the use of NRT or other pharmacological aids for smoking cessation by young people. Fiore et al (2000) acknowledge however that such treatments may be appropriate once the degree of patient addiction has been established, and this is an area yet to be explored in Australian research or intervention practice.

Computer and internet technology as a potential vehicle for targeted cessation initiatives for youth. Initiatives such as the national youth smoking website (OxyGen) provide an excellent medium for dissemination of cessation programs and resources, because of the ability of young people to access such information independently and select what is most appropriate to their needs. Internet or computer based cessation initiatives need to be presented in ways that are innovative and appealing to young people to avoid alienating them with inappropriate messages.

Health professionals should screen and provide cessation advice to parents who smoke.

Whilst the effects of smoking on other people are beyond the scope of this review, there is rationale and some evidence to support health professional cessation advice to parents and family members of young people, particularly where children or young people have health problems that are caused or exacerbated by cigarette smoke. The fact that children are more likely to take up smoking if their parents or siblings smoke is well documented (USDHHS, 1994) and this adds further weight to advising and supporting family members to quit.

5.3.1.4 Emerging issues/methods/research

Clinical trials of different forms of NRT and in conjunction with behavioural interventions tailored to the needs of adolescents (Patten, 2000).

Computer and internet based behavioural interventions for adolescents (Pallonen et al, 1998).

5.4 Aboriginal and Torres Strait Islander people

5.4.1.1 Issues

- Australian Aboriginal and Torres Strait Islander adults are at almost twice as likely to smoke as non-Aboriginal and Torres Strait Islander adults (ABS, 1995). Comparative rates are even higher than this in some communities (Roche and Ober, 1997). Prevalence of smoking varies with age but overall is about 55 per cent for males and 30 per cent for females (ABS, 1995). These figures exclude Aboriginal and Torres Strait Islander people living in very remote areas.
- Aboriginal and Torres Strait Islander people experience higher mortality from a number of smoking-related diseases compared to the general Australian population (AIHW, 2000, p211). These conditions include cardiovascular disease, a number of cancers and respiratory

disease. Aboriginal people who smoke face up to 13 times the risk of cardiovascular disease compared to non-smokers and mortality rates from smoking-related respiratory disease are six times higher for Aboriginal and Torres Strait Islander men and eight times higher for Aboriginal and Torres Strait Islander women than in the non-Aboriginal population. Overall, tobacco related diseases contribute to 13 per cent of all Aboriginal and Torres Strait Islander deaths (ABS, 1995).

- The average age at which Aboriginal and Torres Strait Islander people start smoking is 15 years, a younger age than the general population. More than two thirds (36%) tried their first cigarette before the age of fourteen. At 20 years, 95 per cent of Aboriginal and Torres Strait Islander smokers are smoking regularly (Unwin et al, 1994).
- Various smoking cessation methods have been shown to be effective across different racial and ethnic minorities (Fiore et al, 2000, p. 97). However, most of this research is with minorities in the US and may not be transferable to an indigenous Australian population.
- Although there is little empirical evidence, the US review of tobacco cessation methodologies suggested that culturally appropriate examples, models, language and counselling approaches may increase acceptance of tobacco dependence treatments in different ethnic and racial groups (Fiore et al, 2000, p. 97).
- There is evidence from a small survey (Andrews et al, 1996a) that the prevalence of smoking amongst Aboriginal health workers (63%) is similar to that of the wider Aboriginal and Torres Strait Islander population. Almost all (86%) of the health workers surveyed said they would like to quit smoking and all had made at least one quit attempt. The majority (79%) had tried to quit cold turkey and 18% using nicotine patches. All were interested in a specialist staff program to help them quit. Most (82%) were also interested in training to help others quit.
- A Working Group convened from the May 1995 Tobacco Control Summit in Sydney noted that Aboriginal and Torres Strait Islander tobacco smoking had been neglected and under researched by health and tobacco control agencies in Australia and made a number of recommendations for action (Andrews et al, 1996).

5.4.1.2 Recent Australian initiatives

There is a significant amount of current program and research interest in Aboriginal and Torres Strait Islander smoking around Australia (see Appendix 3, Table 2, Aboriginal and Torres Strait Islander column for a summary of current and recent initiatives). These include a Northern Territory pilot of NRT in Aboriginal and Torres Strait Islander communities, two Queensland aboriginal cessation trials, Victoria's cessation training of health workers, brief intervention training for those working with aboriginal youth in NSW, resource development and evaluation in the Northern Territory, and formative qualitative research by NACCHO in WA and across Australia. All of these initiatives have a strong emphasis on formative research, Aboriginal and Torres Strait Islander input to strategy and resource development, and where applicable, evaluation.

5.4.1.3 Implications for Australian practice

Smoking cessation methods identified as effective in this review should be provided for aboriginal people.

The encouraging trends in smoking prevalence, cessation, and reduced passive smoking exposure that have been witnessed in Australia in the last two decades, have not been mirrored in Aboriginal and Torres Strait Islander populations. While the review of cessation intervention evidence suggests that cessation methods developed and used in the general population may be effective with ethnic minority groups, there is little evidence specific to Aboriginal and Torres Strait Islander

Australians, nor to the mitigating influences of cultural, social, psychological and literacy issues that are a formidable barrier to improving the health and health behaviours of Aboriginal and Torres Strait Islander people in Australia. Nonetheless, Aboriginal and Torres Strait Islander people, by virtue of their poor health status, have a significant amount of contact with the Australian health system each year, and these contacts with a range of health professionals can be used to provide cessation advice and support.

Effective smoking cessation methods should be modified or tailored to meet the needs of aboriginal people.

As indicated in this review, culturally appropriate examples, models, language and counselling approaches may increase acceptance of tobacco dependence treatments. Referral to Aboriginal and Torres Strait Islander programs and/or aboriginal health workers, Aboriginal and Torres Strait Islander liaison officers or other health professionals trained to work with Indigenous people is important to complement ‘mainstream’ cessation advice. In turn, Aboriginal and Torres Strait Islander health workers need appropriate cessation training and resources.

Specific barriers to smoking cessation treatment or treatment success for Aboriginal and Torres Strait Islander people need to be addressed.

All health professionals need to be cognisant of the complex social and psychological context in which Aboriginal and Torres Strait Islander smoking behaviour is embedded, and the many other life concerns and priorities against which it is comparatively viewed. Qualitative research suggests that linking smoking to other health issues that are of higher concern among Aboriginal and Torres Strait Islander people (such as diabetes) and emphasising the effects on family and children of passive smoking are some possible strategies for increasing the salience of smoking cessation for Aboriginal and Torres Strait Islander people.

The current research and pilot interventions pertaining to Aboriginal and Torres Strait Islander smoking underway in Australia are likely to more usefully inform best practice cessation methods for this population group than any review of research trial evidence. The Commonwealth Department of Health and Ageing has also recently commissioned a separate review of barriers to smoking cessation among high risk population groups, and Aboriginal and Torres Strait Islander people are one of the priority groups identified for this review.

5.4.1.4 Emerging issues/methods/research

Harm reduction (reducing but not eliminating exposure to tobacco smoking).

5.5 People with smoking related diseases

5.5.1.1 Issues

- Diabetics who smoke increase their risk of cardiovascular disease, peripheral vascular disease, progression of neuropathy, retinopathy and nephropathy (Ruggiero et al, 1999).
- Second heart attacks are more common amongst cardiac patients if they continue to smoke (Lightwood and Glantz, 1997).
- Smoking cessation after myocardial infarction is associated with a 50 per cent reduction in mortality from further myocardial infarction (OR 0.54, 95% CI 0.4, 0.62) (meta-analysis of 12 cohort studies, Wilson et al, 2000).
- Successfully treated lung, head and neck cancer patients who continue to smoke are at increased risk of a second cancer (Gritz, 1991; Browman et al, 1993; Kawahara et al; 1998).

- A number of studies have shown an association between increased success at smoking cessation and smoking-related diagnosis or symptoms (Sciamanna et al, 2000, Dornelas et al, 2000; Johnston and Streeton, 1999; Clark et al, 1999; Ockene et al, 1992; Miller et al, 1997; Glasgow et al, 1991; Risser and Belcher, 1990; Duncan et al, 1992; Curry et al, 1990).

5.5.1.2 Recent or current Australian initiatives

There are two current trials that focus on brief cessation intervention for patients with specific smoking-related diseases or conditions affected by smoking. These include a South Australian randomised controlled trial of an intervention with people with a cancer diagnosis, and a component of the Zyban trial in Victoria that has specifically recruited participants with established cardiovascular disease (see Appendix 3, Table 1). The NSW project looking at the evidence and practices of paediatricians in relation to passive smoking exposure of clients is also relevant. The causal and exacerbatory effect of smoking on a range of respiratory problems in children is well documented, and parental smoking is often a contributory factor.

5.5.1.3 Implications for Australian practice

Smoking cessation programs should be part of the management of people with smoking-related illnesses.

The positive effects of cessation on symptoms and outcomes of cardiovascular disease, respiratory conditions, diabetes and some cancers is sufficiently established to justify implementation of smoking cessation intervention as part of usual practice.

Information about the link between smoking and specific symptoms and illnesses should be provided and reinforced at every opportunity.

The review of evidence suggests that knowing about the role of smoking in current illness is a strong motivation to quit and is associated with increased quit rates for people with smoking related symptoms or illness. The time of diagnosis of a smoking-related illness or a critical incident related to the condition may provide a new opportunity to motivate the person to consider quitting smoking.

5.6 People with mental illness

5.6.1.1 Issues

- Estimates of smoking prevalence amongst patients who have mental health problems range from 50 to 80 per cent (Hughes, 1993; Polgar et al, 1996).
- At least 30 per cent of people seeking smoking cessation treatment may have a history of depression (Anda et al, 1990).
- Depressed persons are less likely to quit smoking successfully than people without a history of depression (Anda et al, 1990; Glassman et al, 1990).
- Nicotine may have pharmacological advantages in controlling some neurological and neuropsychiatric disorders such as schizophrenia and sufferers may be self-medicating by smoking. Cessation may lead to worsening of the disorder (Polgar et al, 1996).
- Although some depressed people may suffer an increase in symptoms after quitting (Covey, 1999), many do not (Smith et al, 1999). The period of vulnerability to a new depressive episode appears to vary from a few weeks to several months after cessation (Covey et al, 1998).

- Many cessation methods used for the general public are effective for people with mental illness but there is currently insufficient evidence to determine whether smokers with psychiatric illness benefit more from tailored cessation treatments than from standard treatments (Fiore et al, 2000; Polgar et al, 1996).
- Bupropion SR is a particularly effective pharmacotherapy for depressed people trying to quit smoking. Nortriptyline is also effective but has a higher risk of side effects (Fiore et al, 2000; Hughes et al, 2000). Fluoxetine also appears to be effective but further trials are needed (Blondal et al, 1999a, Hitsman et al, 1999).
- Stopping smoking may affect the pharmacokinetics of some psychiatric medications (Hughes, 1993).

5.6.1.2 Recent or current Australian initiatives

There are a number of recent or current Australian initiatives that specifically target smoking cessation among people with mental illness. These include the smoking cessation and schizophrenia project trialled in Victoria; the pilot intervention in WA with people with psychiatric disorders; a range of course adaptation, training and guideline initiatives by Quit Victoria to improve cessation options and services for people with mental illness; and the NSW project to reduce smoking in mental health units (Appendix 3, Table 2).

5.6.1.3 Implications for Australian practice

Smokers with psychiatric disorders should be provided with effective smoking cessation treatments that address their specific needs.

The high rates of smoking prevalence among people with mental illness, the psycho-social complexities of smoking addiction, the potential for poly-drug use and co-morbidity issues, and the specialist health professional and treatment services with which they have contact all justify the need for cessation interventions that specifically cater for people with mental illness. Also smokers with psychiatric disorders, and particularly those on psychiatric medications need close monitoring during smoking cessation attempts.

Research and evaluated interventions already undertaken in Australia provide some helpful directions for both specifically tailored programs for people with mental illness, as well as identifying the need to skill mainstream health professionals and quit services and mental health specialists to respond appropriately to the issue of smoking cessation among the mentally ill.

RESCINDED

6 Limitations

- The conclusions of the review are largely based on the meta-analysis of randomised controlled trials. Meta-analysis provides a statistical means of combining the results of two or more trials to provide a single estimate of the magnitude of effect of a category of intervention.
- Its main limitation is loss of detail concerning aspects of intervention. Depending on the number of studies available for consideration, it may not be possible to consider separately aspects such as populations studied (eg light versus heavy smokers) and different applications of a method (eg manuals versus brief pamphlets). Some genuine effects may not be identified and particular attention may need to be paid to individual studies to decide how to deliver an intervention in a specific situation.
- The main outcome measure for smoking cessation in this review was continuous abstinence from smoking for at least five months. When data were not available for five or six months, data for longer periods of cessation were used (mainly 12 months). This should be considered if comparing the effectiveness of different methods.
- Comparison of the effectiveness of different methods should consider possible differences in the underlying study populations. Meta-analysis including larger numbers of studies will help to reduce the effects of population differences.
- Due to possible variations in response in different study settings, comparisons between methods should be based on difference between intervention and placebo groups reported as size of effect or odds ratios, not on absolute cessation rates.

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7 Conclusions

1. Tobacco dependence is a chronic condition that usually requires repeated intervention.
2. Effective interventions exist that can produce long-term cessation at up to double the rate achieved by smokers without treatment.
3. Because of the potential health benefits and availability of effective interventions every smoker should be offered evidence-based intervention.
4. The identification of smoking status and the provision of brief advice independently increase cessation rates compared to no intervention and should be routine as part of each contact with health services.
5. Interventions involving individual, group or proactive telephone counselling are more effective than no intervention.
6. There is a strong dose response between the intensity (number and length of sessions) of tobacco cessation counselling and its effectiveness.
7. The types of counselling that are most effective are problem-solving skills training, providing social support as part of treatment, and helping smokers obtain social support outside of treatment.
8. A number of pharmacotherapies are effective and safe.
9. Because pharmacotherapies enhance the quit rates of most other cessation methods every smoker should be offered appropriate pharmacotherapy to support cessation attempts, unless contra-indicated.
10. Special considerations are needed in selecting cessation interventions for pregnant women, youth, people with mental illness and Aboriginal and Torres Strait Islander people.
11. More intervention research is needed to evaluate the effectiveness of cessation methods with specific target groups.

RESCINDED

References

- Abbot NC, Stead LF, White AR, Barnes J, Ernst E. (2000). Hypnotherapy for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- ABS (1999). National Health Survey: Aboriginal and Torres Strait Islander results, Australia, 1995. ABS Cat. No. 2039.0. Australian Bureau of Statistics: Canberra.
- Ahluwalia J, Gibson C, Kenney R, Wallace D, Resnicow K. (1999). Smoking status as a vital sign. *Journal of General Internal Medicine*. 14(7): 402-408.
- AIHW (2000). Australia's Health 2000. AIHW Cat. No.19. Australian Institute of Health and Welfare, Canberra.
- Albander JM, Streckfus CF, Adersanya MR, Winn DM (2000) Cigar, pipe and cigarette smoking as risk factors for periodontal disease and tooth loss. *Journal of Periodontics*, 71(12):1874-1881.
- Anda RF, Williamson DF, Escobedo LG, Mast EE, Giovino GA, Remington PL. (1990). Depression and the dynamics of smoking. A national perspective. *Journal of the American Medical Association* 264(12): 1541-1545.
- Andrews B, Oates F, Naden P. (1996a). Aboriginal health worker smoking; results of a Western NSW survey. *Aboriginal and Islander Health Worker Journal* 20(5):19-22.
- Andrews B, Briggs V, Walley C, Greenland R, Purcell K, Swanson M, Wood L, Walker N. (1996b) Aboriginal smoking: Recommendations to 'Health Australia' from the 1995 Tobacco Control Summit Working Group. *Aboriginal and Islander Health Worker Journal* 20(5):23-25.
- ASH Scotland and Health Education Board for Scotland (2000). Smoking cessation guidelines for Scotland. <http://www.hebs.scot.nhs.uk/publics/pdf/SmokeGuidelines.pdf>
- Baillie AJ, Mattick RP, Hall W, Webster P (1994) Meta-analytic review of the efficacy of smoking cessation interventions. *Drug and Alcohol Review*, 13:157-170.
- Blondal T, Gudmundsson LJ, Olafsdottir I, Gustavsson G, Westin A. (1999a). Nicotine nasal spray with nicotine patch for smoking cessation: randomised trial with six year follow up. *British Medical Journal* 318(7179): 285-288.
- Blondal T, Gudmundsson LJ, Tomasson K, Jonsdottir D, Hilmarsdottir H, Kristjansson F, Nilsson F, Bjornsdottir US. (1999b). The effects of fluoxetine combined with nicotine inhalers in smoking cessation – A randomised trial. *Addiction* 94(7): 1007-1015.
- Bohadana AB, Nilsson F, Rasmussen T, Martinet Y (2000). Nicotine inhaler and nicotine patch as a combination therapy for smoking cessation: a randomised, double-blind, placebo-controlled trial. *Archives of Internal Medicine* 160(20): 3128-3134.
- Borland, R, Segan, C, Livingston, P and Owen, N, The effectiveness of callback counselling for smoking cessation: a randomised trial. *Addiction*, 2001. 96: p. 881-889.
- Britt H, Miller GC, Charles J, Knox S, Sayer GP, Valenti L, Henderson J, Kelly Z.(2000). General practice activity in Australia 1999-2000. AIHW Cat. No.GEP5. Canberra: Australian Institute of Health and Welfare (General Practice Series No. 5).
- Butler CC, Rollnick S, Cohen D, Bachmann M, Russell I, Stott N. (1999). Motivational consulting versus brief advice for smokers in general practice: A randomised trial. *British Journal of General Practice* 49(445): 611-616.
- Campbell IA. (2000). Smoking cessation. *Thorax* 55 Suppl 1(3): S28-31.

- Canga N, De Irala J, Vara E, Duaso MJ, Ferrer A, Martinez-Gonzalez MA. (2000). Intervention study for smoking cessation in diabetic patients: A randomised controlled trial in both clinical and primary care settings. *Diabetes Care* 23(10): 1455-1460.
- Carmody TP. (1992). Preventing relapse in the treatment of nicotine addiction: current issues and future directions. *Journal of Psychoactive Drugs* 24(2): 131-158.
- Carroll KM (1996) Relapse prevention as a psychosocial treatment: A review of controlled clinical trials. *Experimental and Clinical Psychopharmacology* 4(1): 46-54.
- Carroll B. (2000). Quitline operations and quit smoking programs in Australia and recommendations for best practice. A report for the Quit Coordinators Group.
- Carroll P, Fois R, Sarson D, Flynn J. (2000). A community pharmacy-based smoking cessation program using transdermal nicotine replacement therapy – actions and outcomes. *Australian Pharmacist* 19(1): 51-55.
- Castellvi A, Gowski A, Chrin AM. (2000). Effect of the spine practitioner on patient smoking status. *Spine* 25(17): 2229-2233.
- Centers for Disease Control and Prevention. (2000). Strategies for reducing exposure to environmental cigarette smoke, increasing tobacco-use cessation, and reducing initiation in communities and health care systems. A report on recommendations of the Task Force on Community Preventive Services. *MMWR* 49 (No. RR-12)
- Chan S and Lan TH (2000) Helping smokers quit through wife's advice: a randomised controlled trial of the nurse's intervention. *Proceedings of 11th World Conference on Smoking or Health*, August 2000.
- Cheer SM, Goa KL. (2001). Fluoxetine: a review of its therapeutic potential in the treatment of depression associated with physical illness. *Drugs* 61(1): 81-110.
- Christen, AG (1992) The impact of tobacco use on oral and dental diseases and conditions. *American Journal of Medicine* 93:25-31S.
- Clover K, Hazell T, Stanbridge V, Sanson-Fisher R. (1999). Dentists' attitudes and practice regarding smoking. *Australian Dental Journal* 44(1): 46-50.
- Cohen S, Lichenstein E, Prochaska J et al. (1989). Debunking myths about self-quitting: evidence from 10 prospective studies of persons who attempt to quit smoking by themselves. *American Psychologist* 44: 1355-1365.
- Colby SM, Monti PM, Barnett MP, Rohsenow DJ, Weissman K, Spirito A, Woolard RH, Lewander WJ. (1998). Brief motivational interviewing in a hospital setting for adolescent smoking: a preliminary study. *Journal of Consulting and Clinical Psychology* 66(3): 574-578.
- Coleman T, Murphy E, Cheater F. (2000). Factors influencing discussion of smoking between general practitioners and patients who smoke; a qualitative study. *British Journal of General Practice* 50;207-210.
- Collins D, Lapsley H. (1996). The social costs of drug abuse in Australia in 1988 and 1992. *National Drug Strategy Monograph Series No 30*. Commonwealth Department of Human Services and Health: Canberra.
- Cornuz J, Humair JP, Seematter L et al (2000) A randomised controlled trial of resident training in smoking cessation. *Proceedings of 11th World Conference on Smoking or Health*, August 2000.
- Covey LS, Glassman AH and Stetner F. (1998). Cigarette smoking and major depression. *Journal of Addictive Diseases* 17(1):35-46.
- Covey LS. (1999). Tobacco cessation among patients with depression. *Primary Care; Clinics in Office Practice* 26(3): 691-706.

- Covey LS, Glassman AH, Stetner F. (1999). Naltrexone effects on short-term and long-term smoking cessation. *Journal of Addictive Diseases* 18(1): 31-40.
- Dale LC, Hurt RD, Offord KP, Lawson GM, Croghan IT, Schroeder DR. (1995). High-dose nicotine patch therapy – percentage of replacement and smoking cessation. *Journal of the American Medical Association* 274: 1353-8.
- Daughton DM, Fortmann SP, Glover ED, Hatsukami DK, Heatley SA, Lichtenstein E, Repsher L, Millatmal T, Killen JD, Nowak RT, Ullrich F, Patil KD, Rennard SI. (1999). The smoking cessation efficacy of varying doses of nicotine patch delivery systems 4 to 5 years post-quit day. *Preventive Medicine* 28(2): 113-118.
- Davidson M, Epstein M, Burt R, Schaefer C, Whitworth G, McDonald A. (1998). Efficacy and safety of an over-the-counter transdermal nicotine patch as an aid for smoking cessation. *Archives of Family Medicine* 7(6): 569-574.
- Dickey LL, Gemson DH, Carney P. (1999). Office system interventions supporting primary care-based health behavior change counseling. *American Journal of Preventive Medicine* 17(4): 299-308.
- Dickinson J, Wiggers J, Leeder S, Sanson-Fisher RW. (1989). General practitioners' detection of patients' smoking status. *Medical Journal of Australia* 150: 420-426.
- Dijkstra A, De Vries H, Roijackers J, Van Breukelen G. (1998a). Tailoring information to enhance quitting in smokers with low motivation to quit: Three basic efficacy questions. *Health Psychology* 17(6): 513-519.
- Dijkstra A, De Vries H, Roijackers J. (1998b). Long-term effectiveness of computer-generated feedback in smoking cessation. *Health Education Research* 13(2): 207-214.
- Dijkstra A, De Vries H, Roijackers J. (1999). Targeting smokers with low readiness to change with tailored and nontailored self-help materials. *Preventive Medicine* 28(2): 203-211.
- Doll, R et al. (1994). Mortality in relation to smoking. 40 years observations on male British doctors. *British Medical Journal* 309: 901-911.
- Dornelas EA, Sampson RA, Gray JF, Waters D, Thompson PD. (2000). A randomised controlled trial of smoking cessation counseling after myocardial infarction. *Preventive Medicine* 30(4): 261-268.
- English, D et al. (1995). The quantification of drug caused morbidity and mortality in Australia. Commonwealth Department of Health and Human Services: Canberra.
- Ershoff DH, Quinn VP, Boyd NR, Stern J, Gregory M, Wirtschafter D. (1999). The Kaiser Permanente prenatal smoking-cessation trial: When more isn't better, what is enough? *American Journal of Preventive Medicine* 17(3): 161-168.
- Etter JF, Perneger TV, Ronchi A (1997). Distributions of smokers by stage: international comparison and association with smoking prevalence. *Preventive Medicine* 26:580-585.
- Family Heart Study Group (1994) Randomised controlled trial evaluating cardiovascular screening and intervention in general practice: principal results of British family heart study. *British Medical Journal*, 308:313-20.
- Feeney GF, Kelly A, Griffin DK, Young RM. (1997). Smoking interventions within the hospital setting: a study of demand for smoking interventions and perceived efficacy of nurses in delivery of services. *Health Promotion Journal of Australia* 7(1): 52-56.
- Fiore M, Novotny T, Pierce J. et al. (1990). Methods used to quit smoking in the United States: do cessation programs help? *Journal of the American Medical Association* 271: 1940-7.

- Fiore MC, Jorenby DE, Baker TB, Kenford SL. (1992). Tobacco dependence and the nicotine patch. Clinical guidelines for effective use. *Journal of the American Medical Association* 268:2687-94.
- Fiore MC, Smith SS, Jorenby DE, Baker TB. (1994). The effectiveness of the nicotine patch for smoking cessation: a meta-analysis. *Journal of the American Medical Association* 271:1940-1947.
- Fiore MC, Jorenby AE, Schensky AE, Smith SS, Bauer RR, Baker TB. (1995). Smoking status as the new vital sign: Impact on assessment and intervention with patients who smoke. *Mayo Clinic Proceedings* 70 (3): 209-13.
- Fiore MC, Bailey WC, Cohen SJ, Dorfman SF, et al. (1996) Smoking cessation clinical practice guideline No. 18. Agency for Health Care Policy and Research, US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research.
- Fiore MC, Bailey WC, Cohen SJ, Dorfman SF, et al. (2000). Treating Tobacco use and dependence: clinical practice guideline. Rockville (MD): US Department of Health and Human Services, Public Health Service.
- Fisher EB, Lichtenstein E, Haire-Joshu D, Morgan GD, Rehberg HR. (1993). Methods, successes and failures of smoking cessation programs. *Annual Review of Medicine* 44: 481-513.
- Garvey AJ et al. (1992). Predictors of smoking relapse among self-quitters: a report from the normative age study. *Addictive Behavior* 17(4): 367-77 (Erratum published in *Addictive Behavior* 17(5): 513, 1992).
- Glasgow RE, Lando H, Hollis J, McRae SG, La Chance PA (1993) A stop-smoking telephone help line nobody called. *American Journal of Public Health*, 83(2): 252-253.
- Glasgow RE, Stevens VJ, Vogt TM, Mullooly JP, Lichtenstein E. (1991). Changes in smoking associated with hospitalisation: Quit rates, predictive variables and intervention implications. *American Journal of Health Promotion* 6:24
- Glassman AH, Helzer JE, Covey LS, Cottler LB, Stetner F, Tipp JE, et al. (1990). Smoking, smoking cessation, and major depression. *Journal of the American Medical Association* 264 (12): 1546-1549.
- Glaxo Wellcome (2000) Zyban Product Monograph.
- Glynn TJ, Boyd GM, Gruman JC. (1990). Essential elements of self-help/minimal intervention strategies for smoking cessation. *Health Education Quarterly* 17(3): 329-345.
- Goldstein MG. (1998). Bupropion sustained release and smoking cessation. *Journal of Clinical Psychiatry* 59(Suppl 4(4)): 66-72.
- Gourlay SG and McNeill JJ (1990) Antismoking products. *Medical Journal of Australia*, 153:699-707
- Gourlay S, Benowitz N. (1997). Arteriovenous differences in plasma concentration of nicotine and catecholamines and related cardiovascular effects after smoking, nicotine nasal spray, and intravenous nicotine. *Clinical Pharmacology and Therapeutics* 62: 453-63.
- Gourlay SG, Stead LF, Benowitz NL. (2000). Clonidine for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Grandes G, Cortada JM, Arrazola A (2000). An evidence-based programme for smoking cessation: Effectiveness in routine general practice. *British Journal of General Practice* 50(459): 803-807.
- Green JP, Lynn SJ. (2000). Hypnosis and suggestion-based approaches to smoking cessation: An examination of the evidence. *International Journal of Clinical and Experimental Hypnosis* 48(2): 195-224.

- Grimshaw J, Freemantle N, Wallace S, et al. (1995). Developing and implementing clinical practice guidelines. *Quality Health Care* 4: 55-64.
- Hajek P, West R, Foulds J, Nilsson F, Burrows S, Meadow A. (1999). Randomised comparative trial of nicotine polacrilex, a transdermal patch, nasal spray, and an inhaler. *Archives of Internal Medicine* 159(17): 2033-2038.
- Hajek P, Stead LF. (2000). Aversive smoking for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Hall SM, Reus VI, Munoz RF, Sees KL, Humfleet G, Hartz DT, Frederick S, Triffleman E. (1998). Nortriptyline and cognitive-behavioral therapy in the treatment of cigarette smoking. *Archives of General Psychiatry* 55(8): 683-690.
- Hayford KE, Patten CA, Rummans TA, Schroeder DR, Offord KP, Croghan IT, Glover ED, Sachs DP, Hurt RD. (1999). Efficacy of bupropion for smoking cessation in smokers with a former history of major depression or alcoholism. *British Journal of Psychiatry* 174(9): 173-178.
- Hays JT, Croghan IT, Schroeder DR, Offord KP, Hurt RD, Wolter TD, Nides MA, Davidson M. (1999). Over-the-counter nicotine patch therapy for smoking cessation: Results from randomised, double-blind, placebo-controlled, and open label trials. *American Journal of Public Health* 89(11): 1701-1707.
- Hellerstedt WL, Pirie PL, Lando HA et al. (1998). Differences in pre-conceptual and prenatal behaviours in women with intended and unintended pregnancies. *American Journal of Public Health* 88(4): 663-666.
- Henningfield JE, Michaelides T, Sussman, S. (2000). Developing treatment for tobacco addicted youth-issues and challenges. *Journal of Child and Adolescent Substance Abuse* 9(4): 5-26.
- Herrera N, Franco R, Herrera L, Partidas A, Rolando R, Fagerstrom KO. (1995). Nicotine gum, 2 and 4 mg, for nicotine dependence. A double-blind placebo-controlled trial within a behavior modification support program. *Chest* 108: 447-451.
- Hill D, White V, Letcher T. (1999). Tobacco use among Australian secondary students in 1996. *Australian and New Zealand Journal of Public Health* 23(3): 252-259.
- Hirdes J, Maxwell M. (1994). Smoking cessation and quality of life outcomes among older adults in the Cambell survey on well-being. *Canadian Journal of Public Health* 85: 99-102.
- Hitsman B, Pingitore R, Spring B, Mahabeshwarkar A, Mizes JS, Segraves KA, Kristeller JL, Xu W. (1999). Antidepressant pharmacotherapy helps some cigarette smokers more than others. *Journal of Consulting and Clinical Psychology* 67(4): 547-554.
- Holm KJ, Spencer CM (2000). Bupropion: a review of its use in the management of smoking cessation. *Drugs* 59(4): 1007-1024.
- Hopkins D, Briss P, Ricard C et al. (2001). Reviews of evidence regarding interventions to reduce tobacco use and exposure to environmental tobacco smoke. *American Journal of Preventive Medicine* 20(S2): 16-66.
- Hughes JR, Gust SW, Keenan RM, Fenwick JW. (1990). Effect of dose on nicotine's reinforcing, withdrawal-suppression and self-reported effects. *Journal of Pharmacology and Experimental Therapeutics* 252: 1175-1183.
- Hughes JR (1993) Pharmacotherapy for smoking cessation: unvalidated assumptions, anomalies, and suggestions for future research. *Journal of Consulting and Clinical Psychology* 61(5): 751-760.
- Hughes JR. (1994). Nicotine withdrawal, dependence and abuse. In *DSM-IV Sourcebook*. Vol 1. Ed Widiger T, Frances A, Pincus H. et al. Washington DC. American Psychiatric Association. 109-116.

- Hughes JR. (1999). Smoking cessation. *New England Journal of Medicine* 341(8): 610-611.
- Hughes JR, Lesmes GR, Hatsukami DK, Richmond RL, Lichtenstein E, Jorenby DE. et al. (1999a). Are higher doses of nicotine replacement more effective for smoking cessation? *Nicotine and Tobacco Research* 1(2): 169-174.
- Hughes J, Goldstein M, Hurt R, Shiffman S. (1999b). Recent advances in the pharmacotherapy of smoking. *Journal of the American Medical Association* 281: 72-75.
- Hughes JR, Stead LF, Lancaster T. (2000). Anxiolytics and antidepressants for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Huibers MJH, Chavannes NH, Wagena EJ, Van Schayck CP. (2000). Antidepressants for smoking cessation: A promising new approach? *European Respiratory Journal* 16(3): 379-380.
- Hurt RD, Dale LC, Fredrickson PA, et al. (1994). Nicotine patch therapy for smoking cessation combined with physician advice and nurse follow-up: One-year outcome and percentage of nicotine replacement. *Journal of the American Medical Association* 271: 95-600.
- Hurt RD, Sachs DP, Glover ED, Offord KP, Johnston JA, Dale LC, Khayrallah MA, Schroeder DR, Glover PN, Sullivan CR, Croghan IT, Sullivan PM. (1997). A comparison of sustained-release bupropion and placebo for smoking cessation. *New England Journal of Medicine* 337(17): 1195-1202.
- Hutchison KE, Monti PM, Robsenow DJ, Swift RM, Colby SM, Guys M, Niaura RS, Sirota AD. (1999). Effects of naltrexone with nicotine replacement on smoking cue reactivity: Preliminary results. *Psychopharmacology* 142(2): 139-143.
- Hymowitz N, Eckholdt H. (1996). Effects of a 2.5-mg silver acetate lozenge on initial and long-term smoking cessation. *Preventive Medicine* 25: 537-546.
- Imperial Cancer Research Fund OXCHECK Study Group (1995) Effectiveness of health checks conducted by nurses in primary care: final results of the OXCHECK study. *British Medical Journal*, 310(6987):1099-104.
- Jensen EJ, Schmidt E, Pedersen B, Dahl R. (1991). The effect of nicotine, silver acetate, and placebo chewing gum on the cessation of smoking. The influence of smoking type and nicotine dependence. *International Journal of Addiction* 26:1223-1231.
- Johnson N and Warnakulasuriya K, (1993) Epidemiology and etiology of oral cancer in the United Kingdom. *Community Dental Health* 10: Supplement 1:13-29.
- Johnson JL, Budz B, Mackay M, Miller C. (1999). Evaluation of a nurse-delivered smoking cessation intervention for hospitalised patients with cardiac disease. *Heart and Lung: Journal of Acute and Critical Care* 28(1): 55-64.
- Johnson JL, Ratner PA, Bottorff JL, Hall W, Dahinten S. (2000). Preventing smoking relapse in postpartum women. *Nursing Research* 49(1).
- Jolicoeur DG, Ahluwalia JS, Richter KP, Mosier M, Harris KJ, Gibson C, Moranetz CA. (2000). The use of nicotine patches with minimal intervention. *Preventive Medicine* 30(6): 504-512.
- Jones TE, Crocker H, Ruffin RE. (1998). Smoking habits and cessation program in an Australian teaching hospital. *Australian New Zealand Journal of Medicine* 28(4): 446-452.
- Jorenby DE, Smith SS, Fiore MC, Hurt RD, Offord KP, Croghan IT, Hays JT, Lewis SF, Baker TB. (1995). Varying nicotine patch dose and type of smoking cessation counseling. *Journal of the American Medical Association* 274(17): 1347-1352.
- Jorenby DE, Leischow SJ, Nides MA, Rennard SI, Johnston JA, Hughes AR, Smith SS, Muramoto ML, Daughton DM, Doan K, Fiore MC and Baker TB. (1999). A controlled trial of sustained-release bupropion, a nicotine patch, or both for smoking cessation. *New England Journal of Medicine* 340(9): 685-691.

- Joseph AM, Norman SM, Ferry LH, Prochazka AV, Westman EC, Steele BG et al. (1996). The safety of transdermal nicotine as an aid to smoking cessation inpatients with cardiac disease. *New England Journal of Medicine* 335:1792-1798.
- Katz NW. (1980). Hypnosis and the addictions: a critical review. *Addictive Behaviors* 5: 41-47.
- Kenford SL, Fiore MC, Jorenby DE, Smith SS, Wetter D, Baker TB. (1994). Predicting smoking cessation. Who will quit with and without the nicotine patch. *Journal of the American Medical Association* 271: 589-594.
- Kirsch L, Lynn SJ. (1995). The altered state of hypnosis: Changes in the theoretical landscape. *American Psychologist* 50: 846-858.
- Ko M, Schulken ED. (1998). Factors related to smoking cessation and relapse among pregnant smokers. *American Journal Health Behaviour* 22(2): 83-89.
- Korhonen T, Su S, Korhonen H, Uutela A, Puska P. (1997). Evaluation of a national Quit and Win contest: Determinants for successful quitting. *Preventive Medicine* 26(4): 556-564.
- Kornitzer M, Kittel F, Dramaix M, Boudoux P. (1987). A double-blind study of 2mg vs 4mg nicotine gum in an industrialised setting. *Psychosomatic Research* 3: 171-176.
- Kornitzer M, Boutsen M, Dramaix M, Thijs J, Gustavsson G. (1995). Combined use of nicotine patch and gum in smoking cessation: a placebo-controlled clinical trial. *Preventive Medicine* 24: 41-47.
- Kreuter MW, Chheda SG, Bull FC. (2000). How does physician advice influence patient behavior? Evidence for a priming effect. *Archives of Family Medicine* 9(5): 426-433.
- Lancaster T, Stead L, Silagy C, Sowden A. (2000a). Effectiveness of interventions to help people stop smoking: Findings from the Cochrane Library. *British Medical Journal* 321(7257): 355-358.
- Lancaster T, Silagy C, Fowler G. (2000b). Training health professionals in smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Lancaster T, Stead LF. (2000a). Self-help interventions for smoking cessation. (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Lancaster T, Stead LF. (2000b). Individual behavioural counselling for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Lancaster T, Stead LF. (2000c). Mecamylamine for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Lancaster T, Stead LF. (2000d). Silver acetate for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Leischow SJ, Muramoto ML, Cook GN, Merikle EP, Castellini SM, Otte PS. (1999). OTC nicotine patch: effectiveness alone and with brief physician intervention. *American Journal of Health Behavior* 23(1): 61-69.
- Lewis SF, Piasecki TM, Fiore MC, Anderson JE, Baker TB. (1998). Transdermal nicotine replacement for hospitalised patients: A randomised clinical trial. *Preventive Medicine* 27(2): 296-303.
- Lightwood JM, Glantz SA. (1997). Short-term economic and health benefits of smoking cessation: myocardial infarction and stroke. *Circulation* 96(4): 1089-1086.
- Lumley J, Oliver S, Waters E. (2000). Interventions for promoting smoking cessation during pregnancy (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Mahmarijan JJ, Moye LA, Nasser GA et al (1997) Nicotine patch therapy in smoking cessation reduces the extent of exercise induced myocardial ischemia. *Journal of American College of Cardiology*, 30(1): 125-130

- Marcus BH, Albrecht AE, King TK, Parisis AF, Pinto BM, Roberts M, Niaura RS, Abrams DB. (1999). The efficacy of exercise as an aid for smoking cessation in women: a randomised controlled trial. *Archives of Internal Medicine* 159(11): 1229-1234.
- Mattick RP, Baillie A. (eds) (1992). An outline for approaches to smoking cessation: quality assurance project. *National Campaign Against Drug Abuse Monograph Series No 19*. Commonwealth of Australia, Australian Government Publishing Service: Canberra.
- Mattick R, Baillie A, Digusto E, Gourlay S, Richmond R, Stanton H. (1994). A summary of recommendations for smoking cessation interventions: the quality assurance in the treatment of drug dependence project. *Drug and Alcohol Review* 13(2): 171-177.
- McBride CM, Curry SJ, Lando HA, Pirie PL, Grothaus LC, Nelson JC (1999). Prevention of relapse in women who quit smoking during pregnancy. *American Journal of Public Health* 89(5): 706-711.
- McBride CM and Pirie PL (1990) Postpartum smoking relapse. *Addictive Behaviour*, 15(2):165-168
- McElnay JC, Maguire TA, Drummond A and Hughes CM. (2000). Smoking cessation: The contribution of community pharmacy. *Disease Management and Health Outcomes* 8(3): 147-158.
- McEwen A, West R. (2001). Smoking cessation activities by General Practitioners and practice nurses. *Tobacco Control* 10: 27-32.
- Melvin CL, Dolan-Mullen P, Windsor RA, et al.(2000). Recommended cessation counselling for pregnant women who smoke; a review of the evidence. *Tobacco Control* 9(Suppl 3): iii80-iii84.
- Miller WR, Rollnick S. (1991). *Motivational interviewing: preparing people to change addictive behaviours*. New York: Guildford.
- Miller NH, Smith PM, DeBusk RF, Sobel DS, Taylor CB (1997) Smoking cessation in hospitalised patients – Results of a randomised trial. *Archives Internal Medicine*, 157:409-15.
- Mullen PD. (1999). Maternal smoking during pregnancy and evidence-based intervention to promote cessation. *Primary Care* 26(3): 577-589.
- Mullins R (1994) Attitudes and smoking habits of dentists in Victoria: 16 years on. *Australian Dental Journal*, 39(3): 326.
- Nagle A, Schofield M and Redman S (1999). Australian nurses' smoking behaviour, knowledge and attitude towards providing smoking cessation care to their patients. *Health Promotion International* 14(2): 133-144.
- National Advisory Committee on Health and Disability (1999). *Guidelines for Smoking Cessation. Literature Review and Background Information*. National Health Committee. New Zealand Ministry of Health: Wellington.
- National Health Medical Research Council (2000a). *How to Review the Evidence: Systematic Identification and Review of Scientific Literature*. NHMRC. Commonwealth of Australia: Canberra.
- National Health Medical Research Council (2000b). *How to Assess the Evidence: Assessment and Application of Scientific Evidence*. NHMRC. Commonwealth of Australia: Canberra.
- Niaura R, Goldstein M, Spring B, Keuthen N, Kristeller J, DePue J et al. (1997). Fluoxetine for smoking cessation: A multicenter randomised double blind dose response study. In: *Society for Behavioral Medicine Annual Meeting*; April 18; San Francisco.
- Ockene JK, Kristeller J, Goldberg R, Amick TL, Pekow PS, Hosmer D, et al. (1991). Increasing the efficacy of physician-delivered smoking interventions: a randomised clinical trial. *Journal of General Internal Medicine* 6: 1-8.

- Ogburn PL Jr., Hurt RD, Croghan IT, Schroeder DR, Ramin KD, Offord KP, Moyer TP. (1999). Nicotine patch use in pregnant smokers: Nicotine and cotinine levels and fetal effects. *American Journal of Obstetrics and Gynecology* 181(3): 736-743.
- Ossip-Klein DJ, McIntosh S, Utman C, Burton K, Spada J, Guido J. (2000). Smokers ages 50+: Who gets physician advice to quit? *Preventive Medicine* 31(4):364-369.
- Owen L (2000). Impact of a telephone helpline for smokers who called during a mass media campaign. *Tobacco Control* 9: 148-154.
- Owen N, Roberts L, Wakefield M. (1995). The South Australian Quit Advisory Service: characteristics of callers and cessation outcomes. *Health Promotion Journal of Australia* 5(3): 49-50.
- Padula C. (1992). Nurses and smoking: review and implications. *Journal of Professional Nursing* 8(2): 120-132.
- Pallonen UE, Velicer WF, Prochaska JO et al (1998) Computer-based cessation interventions in adolescents; description, feasibility and six month follow-up findings. *Substance Use and Misuse* 33: 1-31.
- Panjari M, Bell R, Bishop S, Astbury J, Rice G and Doery J. (1999). A randomised controlled trial of a smoking cessation intervention during pregnancy. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 39(3): 312-317.
- Patten CA. (2000). A critical evaluation of nicotine replacement therapy for teenage smokers. *Journal of Child and Adolescent Substance Abuse* 9(4): 51-75.
- Platt S, Tanahill A, Watson J, Fraser E. (1997). Effectiveness of anti-smoking telephone helpline: follow-up survey. *British Medical Journal* 314:1371-1375.
- Prochaska JO, DiClemente CC. (1983). Stages and processes of self-change of smoking toward an integrative model of change. *Journal of Consulting and Clinical Psychology* 51: 390-395.
- Prochaska JO, Goldstein MG. (1991). Process of smoking cessation. Implications for clinicians. *Clinical Chest Medicine* 12(4): 727-735.
- Puska P, Korhonen HJ, Vartiainen E, Urjanheimo EL, Gustavsson G, Westin A. (1995). Combined use of nicotine patch and gum compared with gum alone in smoking cessation: a clinical trial in North Karelia. *Tobacco Control* 4: 231-235.
- Ratner PA, Johnson JL, Bottorff JL, Dahinten S, Hall W. (2000). Twelve-month follow-up of a smoking relapse prevention intervention for postpartum women. *Addictive Behaviors* 25(1): 81-92.
- Raw M, McNeill A, West, R. (1998). Smoking cessation guidelines for health professionals. A guide to effective smoking cessation interventions for the health care system. *Thorax* 1998;53 (Suppl 5, Pt 1): S1-19.
- Rice VH, Stead LF. (2000). Nursing interventions for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Richmond R and Kehoe L (2000) 7 year results of the nicotine transdermal patch and behavioural treatment. *Proceedings of 11th World Conference on Smoking or Health*, August 2000.
- Ridolfo B, Stevenson C. (2001). The quantification of drug-caused morbidity and mortality in Australia, 1998 edition. Commonwealth Department of Human Services and Health: Canberra.
- Rissel C, Salmon A, Hughes AM. (2000). Evaluation of a (pilot) stage-tailored brief smoking cessation intervention among hospital patients presenting to a hospital pre-admission clinic. *Australian Health Review* 23(3): 83-93.
- Robinson MD, Laurent SL, Little JM. (1995). Including smoking status as a new vital sign: it works! *Journal of Family Practice* 40(6): 556-561.

- Rojas NL, Killen JD, Haydel KF, Robinson TN. (1998). Nicotine dependence among adolescent smokers. *Archives of Pediatric Medicine* 152: 151-156.
- Roche AM, Ober C. (1997). Rethinking smoking among Aboriginal Australians: The harm minimisation-abstinence conundrum. *Health Promotion Journal of Australia* 7(2):128-133.
- Rose JE, Behm, FM, Westman EC, et al, (1994). Mecamylamine combined with nicotine skin patch facilitates smoking cessation beyond nicotine patch alone. *Clinical Pharmacology and Therapeutics* 56: 86-99.
- Rose JE, Behm FM, Westman EC. (1998). Nicotine-mecamylamine treatment for smoking cessation: The role of pre-cessation therapy. *Experimental and Clinical Psychopharmacology* 6(3): 331-343.
- Rowe K and MacLeod Clark JM. (1999). Evaluating the effectiveness of a smoking cessation intervention designed for nurses. *International Journal of Nursing Studies* 36(4): 301-311.
- Ruggiero L, Rossi JS, Prochaska JO, Glasgow RE, De Groot M, Dryfoos JM, Reed GR, Orleans CT, Prokhorov AV, Kelly K. (1999). Smoking and diabetes: Readiness for change and provider advice. *Addictive Behaviors* 24(4): 573-578.
- Russell MA, Wilson C, Taylor C, Baker CD. (1979). Effect of general practitioners' advice against smoking. *British Medical Journal* 2: 231-235.
- Sanders D, Fowler G, Mant D, Fuller A, Jones L, Marzillier J. (1989). Randomised controlled trial of anti-smoking advice by nurses in general practice. *Journal of the Royal College of General Practice* 39: 273-276.
- Sarna LP, Brown JK, Lillington L, Rose M, Wewers ME, Brecht ML. (2000). Tobacco interventions by oncology nurses in clinical practice: Report from a national survey. *Cancer* 89(4): 881-889.
- Sciamanna CN, Stillman FA, Hoch JS, Butler JH, Gass KG, Ford DE. (2000). Opportunities for improving inpatient smoking cessation programs: A community hospital experience. *Preventive Medicine* 30(6): 496-503.
- Secker-Walker RH, Dana GS, Solomon LJ, Flynn BS, Geller BM. (2000). The role of health professionals in a community-based program to help women quit smoking. *Preventive Medicine* 30(2): 126-137.
- Senore C, Battista RN, Shapiro SH, Segnan N, Ponti A, Rosso S, Aimar D. (1998). Predictors of smoking cessation following physicians counseling. *Preventive Medicine* 27 (3): 412-421.
- Shiffman S, Gitchell J, Pinney JM, et al. (1997). Public health benefit of over-the-counter nicotine medications. *Tobacco Control* 6: 306-310.
- Shiffman S, Johnston JA, Khayrallah M, Elash CA, Gwaltney CJ, Paty JA, Gnys M, Evoniuk G, De Veagh-Geiss J. (2000a). The effect of bupropion on nicotine craving and withdrawal. *Psychopharmacology* 148(1): 33-40.
- Shiffman S, Paty JA, Rohay JM, Di Marino ME, Gitchell, J. (2000b). The efficacy of computer-tailored smoking cessation material as a supplement to nicotine polacrilex gum therapy. *Archives of Internal Medicine* 160(11): 1675-1681.
- Shiffman S, Dresler C, Gorsline J, Di Marino ME (2000c) The efficacy of nicotine patch in an over-the-counter environment: Results from a randomised, double-blind, placebo-controlled trial. p122, *Proceedings of 11th World Conference on Smoking or Health*, August 2000.
- Short L (1995) Oral health care in Australia. A public health perspective. *Australian Journal of Public Health* 1:5-6.
- Silagy C. (2000). Physician advice for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.

- Silagy C, Mant D, Fowler G, Lancaster, T. (2000). Nicotine replacement therapy for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Sinclair H, Bond C, Lennox A, Silcock J, Winfield A, Donnan P. (1998). Training pharmacists and pharmacy assistants in the stage-of-change model of smoking cessation: a randomised controlled trial in Scotland. *Tobacco Control* 7(3): 253-261.
- Sinclair HK, Silcock J, Bond CM, Lennox AS, Winfield AJ (1999a). The cost-effectiveness of intensive pharmaceutical intervention in assisting people to stop smoking. *International Journal of Pharmacy Practice* 7(2): 107-112.
- Sinclair HK, Bond CM, Lennox AS. (1999b). The long term learning effect of stages of change for smoking cessation. A three year followup of community pharmacy staff knowledge and attitudes. *International Journal of Pharmacy Practice* 7(1): 1-11.
- Sippel JM, Osborne ML, Bjornson W, Goldberg B, Buist AS. (1999). Smoking cessation in primary care clinics. *Journal of General Internal Medicine* 14(11): 670-676.
- Smith TA, House RF, Croghan IT et al. (1996). Nicotine patch therapy in adolescent smokers. *Pediatrics* 98: 659-667.
- Smith C, Pristach C, Cartagena M. (1999). Obligatory cessation of smoking by psychiatric inpatients. *Psychiatric Services* 50(1):91-94.
- Smith P, Cameron R, Payne B et al. (2000). Randomised controlled trial of a telephone smoking cessation program: effect of three versus seven calls. *11th World Conference on Smoking or Health*, August 2000.
- Solomon LJ, Scharoun GM, Flynn BS, Secker-Walker RH, Sepinwall D. (2000). Free nicotine patches plus proactive telephone peer support to help low- income women stop smoking. *Preventive Medicine* 31(1): 68-74.
- Sowden A, Arblaster L (2000). Community interventions for preventing smoking in young people (Cochrane Review). In: The Cochrane Library, Issue 3, 2000. Oxford: Update Software
- Spiegel H. (1964). A single treatment method to stop smoking using ancillary self-hypnosis. *International Journal of Clinical and Experimental Hypnotherapy* 12: 230-238.
- Spiegel D, Frischholz EJ, Fleiss JL, Spiegel H. (1993). Predictors of smoking abstinence following a single-session restructuring intervention with self-hypnosis. *American Journal of Psychiatry* 150: 1090-1097.
- Spring B, Wurtman J, Wurtman R et al. (1995). Efficacies of dexfenfluramine and fluoxetine in preventing weight gain in smoking cessation. *American Journal of Clinical Nutrition* 62(6):1181-1187.
- Stapleton JA (1999) Commentary: Progress on nicotine replacement therapy for smokers (comment). *British Medical Journal*, 318(7179):289
- Stapleton JA, Sutherland G, Russell MAH. (1998). How much does relapse after one year erode effectiveness of smoking cessation treatments? Long term follow up of randomised trial of nicotine nasal spray. *British Medical Journal* 316(7134): 830-831.
- Stapleton JA, Lowin A, Russell MAH. (1999). Prescription of transdermal nicotine patches for smoking cessation in general practice: Evaluation of cost-effectiveness. *Lancet* 354(9174): 210-215.
- Stead LF, Hughes JR. (2000). Lobeline for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Stead LF, Lancaster T. (2000). Group behaviour therapy programmes for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.

- Step toe A, Doherty S, Rink E, Kerry S, Kendrick T, Hilton S. (1999). Behavioural counselling in general practice for the promotion of healthy behaviour among adults at increased risk of coronary heart disease: Randomised trial. *British Medical Journal* 319(7215): 943-947.
- Stevens VJ, Glasgow RE, Hollis JF, Lichtenstein E, Vogt TM. (1993). A smoking-cessation intervention for hospital patients. *Medical Care* 31: 65-72.
- Stokes PE, Holtz A. (1997). Fluoxetine tenth anniversary update: the progress continues. *Clinical Therapeutics* 19(5): 1135-250.
- Stolerman IP and Jarvis MJ (1995) The scientific case that nicotine is addictive. *Psychopharmacology*, 117:2-10
- Sun S, Korhonen T, Uutela A, Korhonen H, Puska P, Jun Y, Chonghua Y, Zeyu G, Yonghao W, Wenqing X. (2000). International Quit and Win 1996: comparative evaluation study in China and Finland. *Tobacco Control* 9: 303-309.
- Sussman S, Lichtman K, Ritt A, Pallonen UE. (1999). Effects of thirty-four adolescent tobacco use cessation and prevention trials on regular users of tobacco products. *Substance Use and Misuse* 34(11): 1469-1503.
- Trotter L, Letcher T. (2000). Pilot study of a smoking cessation telephone counseling program for pregnant women. Chapter 12 In *Quit Evaluation Studies Number 10*. Anti-Cancer Council of Victoria: Carlton, Victoria.
- Unwin E, Thomson N, Gracey M. (1994). The impact of tobacco smoking and alcohol consumption on Aboriginal mortality and hospitalisation in Western Australia: 1983-1991. Occasional paper No. 60. Epidemiology and Health Statistics Section, and Aboriginal Health Policy and Programs Branch, Health Department of Western Australia: Perth.
- US Centers for Disease Control 1997 Cigarette smoking among adults-United States, 1995. *MMWR*, 46:1217-1220
- US Department of Health and Human Services. (1988). The health consequences of smoking: nicotine addiction. A report of the Surgeon General. US Department of Health and Human Services. Public Health Services, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health. Atlanta, Georgia.
- US Department of Health and Human Services. (1994). Preventing tobacco use amongst young people. A report of the Surgeon General. US Department of Health and Human Services, National Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health. Atlanta, Georgia.
- US Department of Health and Human Services. (1998). Tobacco use amongst US racial/ethnic minority groups-African american, American Indians and Alaska natives, Asian americans and Pacific islanders, and Hispanics. A Report of the Surgeon General. US Department of Health and Human Services, Center for Disease Control, National Centre for Chronic Disease Prevention and Health promotion, Office of Smoking and Health. Atlanta, Georgia.
- US Department of Health and Human Services. (2000). Reducing Tobacco Use: A report of the Surgeon General. US Department of Health and Human Services, Centers for Disease Control and Prevention, Office on Smoking and Health. Atlanta, Georgia.
- US Department of Health and Human Services. 2001 Women and Smoking. A Report of the Surgeon General. US Department of Health and Human Services, Centers for Disease Control and Prevention, Office on Smoking and Health. Atlanta, Georgia.
- Usher MH, West R, Taylor AH, McEwen A. (2000). Exercise interventions for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software.

- Velicer WF, Norman GJ, Fava JL and Prochaska JO. (1999a). Testing 40 predictions from the transtheoretical model. *Addictive Behaviors* 24(4): 455-469.
- Velicer WF, Prochaska JO, Fava JL, Laforge RG, Rossi JS. (1999). Interactive versus non-interactive interventions and dose response relationships for stage-matched smoking cessation programs in a managed care setting. *Health Psychology* 18(1): 21-28.
- Wagner, EF (ed) (2000). *Nicotine Addiction Among Adolescents*. The Haworth Press, Inc.
- Wakefield M, Jones W. (1998). Effects of smoking cessation program for pregnant women and their partners attending a public hospital anti-natal clinic. *Australian and New Zealand Journal of Public Health* 22(3 suppl): 313-320.
- Wakefield M, Miller C. (1999). Evaluation of the National Quitline Service. Chapter 3 In Hassard, K (ed). *Australia's National Tobacco Campaign. Evaluation Report Volume One*, Commonwealth Department of Health and Aged Care: Canberra.
- Wakefield M and Borland R (2000) Saved by the bell: the role of telephone helpline services in the context of mass-media antismoking campaigns. Editorial. *Tobacco Control* 9:117-119
- Wallstrom M, Nilsson F, Hirsch JM. (2000). A randomized, double-blind, placebo-controlled clinical evaluation of a nicotine sublingual tablet in smoking cessation. *Addiction* 95(Suppl. 2): 1161-1171.
- Walsh RA, Redman S, Adamson L. (1996). The accuracy of self-reports of smoking status in pregnant women. *Addictive Behaviour* 21(5): 675-679.
- Walsh RA, Redman S, Brinsmead MW, Fryer JL. (1997). Predictors of smoking in pregnancy and attitudes and knowledge of risks of pregnant smokers. *Drug and Alcohol Review* 16(1): 41-67.
- West R, McNeill A, Raw M. (2000). Smoking cessation guidelines for health professionals: an update. *Thorax* 55(12): 987-999.
- West R, Hajek P, Foulds J, Nilsson F, May S, Meadows A. (2000b). A comparison of the abuse liability and dependence potential of nicotine patch, gum, spray and inhaler. *Psychopharmacology* 149(3): 198-202.
- Wetter DW, Fiore MC, Young TB, McClure JB, De Moor CA, Baker TB. (1999). Gender differences in response to nicotine replacement therapy: Objective and subjective indexes of tobacco withdrawal. *Experimental and Clinical Psychopharmacology* 7(2): 135-144.
- White A, Resch KL, Ernst E. (1999). A meta-analysis of acupuncture techniques for smoking cessation. *Tobacco Control* 8(4): 393-397.
- White AR, Rampes H, Ernst E. (2000). Acupuncture for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 3. Oxford: Update Software.
- WHO (1998). Beyond prevention: helping teens to stop smoking. <http://www.who.int/ntday/ntday98>
- Wiggers JH, Sanson-Fisher RW. (1997). Practitioner provision of preventive care in general medical consultations: association with patient educational and occupational status. *Social Science and Medicine* 44: 137-146.
- Wilhelm K (1998) The relevance of smoking and nicotine to clinical psychiatry. *Australasian Psychiatry*, 6(3):130-132
- Windsor RA, Boyd NR, Orleans CT. (1998). A meta-evaluation of smoking cessation intervention research among pregnant women: Improving the science and art. *Health Education Research* 13(3): 419-38.
- Windsor RA, Chang QL, Boyd NR, Hartman KE. (1999). The use of significant reduction rates to evaluate health education methods for pregnant smokers: A new harm reduction behavioural indicator. *Health Education and Behaviour* 26(5): 648-662.

- Winstanley M, Woodward S, Walker N. (1995). Tobacco in Australia: facts and issues (second edition). Victorian Smoking and Health Program: Melbourne.
- Wong GY, Wolter TD, Croghan GA, Croghan IT, Offord KP, Hurt RD. (1999). A randomised trial of naltrexone for smoking cessation. *Addiction* 94(8): 1227-1237.
- Worrall G, Chaulk P, Freake D. (1997). The effects of clinical practice guidelines on patient outcomes in primary care: a systematic review. *Canadian Medical Association Journal* 156: 1705-1712.
- Young JM, Ward JE. (1998). Improving smoking cessation advice in Australian general practice: what do GPs suggest is needed? *Australian and New Zealand Journal of Public Health* 22(7): 777-780.
- Young JM, Ward JE. (2001). Implimenting guideline for smoking cessation advice in Australian General Practice: opinions, current practices, readiness to change and perceived barriers. *Family Practice* 18(1) 14-20.
- Zhu SH, Melcer T, Sun J, Rosbrook B, Pierce JP. (2000a). Smoking cessation with and without assistance: A population-based analysis. *American Journal of Preventive Medicine* 18(4): 305-311.
- Zhu SH, Tedeschi G, Anderson CM, Rosbrook B, Byrd M, Johnson CE and Gutierrez-Terrell E. (2000b). Telephone counseling as adjuvant treatment for nicotine replacement therapy in a 'real-world' setting. *Preventive Medicine* 31(4): 357-363.
- Zhu SH, Anderson CM, Johnson CE, Tedeschi G, Roeseler A. (2000c). A centralised telephone service for smoking cessation: the California experience. *Tobacco Control* 9(suppl 2): 1148-1145.
- Zwac N, Richmond R and Mendelsohn C (2000) Integrating smoking cessation in family practice. *Proceedings of 11th World Conference on Smoking or Health*, August 2000.

Appendices

Appendix 1

Research questions

1. What brief intervention smoking cessation methodologies are available?
2. Have they been tested for effectiveness?
3. What measures of effectiveness have been used?
4. What is the minimum level of effectiveness acceptable for recommending an intervention?
5. What is the effectiveness of the following smoking cessation methods?
 - nicotine replacement therapies,
 - other pharmacological aids
 - multidrug
 - Zyban
 - behavioural interventions (individual or group)
 - telephone counselling
 - quit lines
 - advice from health worker
 - support groups
 - self help (including internet)
 - online support
 - chat rooms
 - behaviour modification therapy
 - aversion therapy
 - incentives ie quit & win
 - hypnotherapy
 - acupuncture
 - homeopathy
6. Has the effectiveness of smoking cessation methods been tested with different target groups and does it vary between them? Specifically:
 - general population
 - pregnant women
 - children and adolescents
 - Aboriginal and Torres Strait Islander people
 - high risk (diagnosed CVD, diabetes)
 - Culturally and linguistically diverse (CALD)
 - Mentally ill.

7. Has the effectiveness of smoking cessation methods been tested with different health care providers and settings and does it vary between them?

Specifically:

- General medical practitioners
- Specialist doctors
- Nurses
- Dentists
- Pharmacists
- Psychologists
- Physiotherapists
- Private practice
- Hospitals
- Community health centers
- Schools clinics
- Worksite clinics.

8. What is best practice in smoking cessation for the specified range of target groups and health care settings?

9. What are emerging brief intervention smoking methodologies?

10. What are implications for implementation?

RESCINDED

Appendix 2

Check list for review of individual studies

Item	Summary	Score	Accept Reject
REPORT			
Author			
Title			
Publication			
Date			
Reference source			
INTERVENTION			
Cessation method			
Target group			
Setting			
Delivery method			
Duration/reach/quality of intervention			
EVALUATION			
Study design			
Study quality(eg randomised/controlled/ blind/followup)			
Sample type and size			
Outcome measures			
Size of effect			
Significance/power			
Length of follow up			
Adverse effects			
Generalisability biases/limitations			
Overview/comments			

RESCINDED

Appendix 3

Table 1 Current and recent Australian research – health settings

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
South Australia Dept General Practice Flinders University and Quit SA working with a coalition of other key GP and NGO groups. Dr John Litt (Dept of General Practice:Chief Investigator), Tania Shelby James (Dept of General Practice), David Edwards (Quit SA) DEDWARDS@cancersa.org.au	Development of best practice strategies for GP's to support patients to quit. Research design with strong practitioner input to ensure relevance. Factors that facilitate and hinder the delivery of smoking cessation interventions in general practice will be considered to enhance project sustainability. A training package for GP's will be developed and piloted as part of the project. The project is about to be trialed in 4 (2 urban and 2 rural) Divisions of General Practice in South Australia.		
South Australia Quit SA Lyndy Abram (GP project) David Edwards (Dentist project) DEDWARDS@cancersa.org.au	Developing a pilot intervention that uses referral by a GP or other health worker and follow-up to 3-month quitline counselling. Intervention will be piloted in 2001, then may be expanded to a randomised control trial.		Initiative underway to develop brief smoking cessation interventions for dental settings. An advisory group has been established and the 4A's for brief intervention promoted to dentists in SA. Brief intervention skills training will be offered as the project develops, and quit resources and referral cards to the Quitline promoted for use by dentists.
South Australia Flinders Medical Centre Repatriation General Hospital, Noarlunga Health Service, Quit SA and the Southern Division of General Practice. Ray Smith (Flinders Medical Centre)/David Edwards DEDWARDS@cancersa.org.au		Development of effective interventions for hospital patients with linkage to community based primary health care services. The project has a regional focus and will implement and evaluate the cessation program developed. Discharge follow up and support are key components of the program to try to address cessation relapse. The project has been designed as a research intervention, but is not being conducted as a randomised control trial. The project is in the development phase currently.	

¹ Contact names and details are correct at time of Review completion. Only one contact phone number/email provided per project.

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
South Australia Women's and Children's Hospital Libby Hotham/Elinor Atkinson		Pregnant women and NRT replacement pilot and grant. See Table 1 b), pregnancy for summary.	
South Australia Royal Adelaide Hospital Melanie Wakefield/Ian Oliver/ Ellie Rosenfield Erosenfe@mail.rah.sa.gov.au		NHMRC funded randomised control trial of a smoking cessation intervention for people with a cancer diagnosis, based at the Cancer Centre of the Royal Adelaide Hospital. Trial commenced 1999 and will conclude 2001. The project will assess efficacy of the cessation intervention as well as the acceptability of the intervention to people with cancer. Control group patients receive "usual care" advice to quit smoking, while intervention group receive advice and phone calls (based on motivational interview techniques) and NRT where appropriate.	
South Australia Health Promotion Unit, Royal Adelaide Hospital Rick Stapledon(Senior Medical Officer Thoracic Medicine)/ Helen Nikolas hnikolas@mail.rah.sa.gov.au		A three phase smoking cessation project for inpatients at the Royal Adelaide Hospital. Phase 1 (completed) consisted of a literature review of evidence and best practice and the development of a smoking cessation protocol for piloting. Phase 2 involves the pilot of the protocol in three units within the hospital. The project targets doctors, nurses and allied health professionals and includes staff training. Intervention components include patient screening, provision of quit advice and information, offering of NRT, and referral to community based sources of assistance. These community links are seen as an integral component of the project and will include GP's and the Quit SA Quitline. The third phase of the project will involve broader implementation of the protocol across the hospital, pending pilot outcomes.	

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
Tasmania Royal Hobart Hospital Sylvia Cowles sylvia.cowles@dchs.tas.gov.au		<p>The Royal Hobart Hospital is currently conducting a research project of a nurse initiated smoking cessation intervention. The project consists of a kit for nurses to advise patients and to record statistical data, and a patient pack, based on an educational video on NRT produced for the purpose. This video will be available to patients on the Hospital network. Evaluation will assess both nurse practices and cessation outcomes in patients (3 and 12 month follow up).</p> <p>The Hospital has recently completed its part (as one of three Australian trial sites) in an international Nicorette Gum trial funded by Pharmacia.</p> <p>The Alcohol and Drug Service, Southern Region anticipate trialing a community smoking cessation intervention based on the material developed for the research project (above) in specific smoking cessation clinics.</p> <p>A Smoking Cessation Clinic operates at the Royal Hobart Hospital twice a week. This Clinic offers counselling for smoking cessation and appropriate pharmacotherapies, including nicotine replacement therapy and Zyban. In-patients are seen on the ward for smoking cessation and followed up at the Clinic. Referrals are also accepted from GP's, specialists and VMO's. The Substance Abuse Clinic at the Royal Hobart Hospital offers the opportunity for referral of patients requiring specialist psychiatric and drug and alcohol intervention.</p>	

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
Western Australia Lower Great Southern Public Health Service Murray Gomm/Paula Egeland Murray.Gomm@health.wa.gov.au		Pilot project using hospital nurses and based on US cessation guidelines. The project combines alcohol and tobacco brief intervention. A baseline survey of nursing staff examined confidence and barriers to assisting patients to quit. 53% of nurses in the survey considered this to be part of their current role, with 52% currently advising patients to quit on a routine basis. Publication of results is in progress. The intervention component of the project has included provision of staff training and guidelines information, promotion of quit resources and referral options to patients, and client follow up after hospital discharge. Post-intervention evaluation is being conducted in 2001. Evaluation focuses on changes in staff practice regarding smoking cessation rather than cessation outcomes of smokers themselves.	
Western Australia Health Department WA David Yates david.yates@health.wa.gov.au	The WA State brief intervention project has developed a training package for nurses that addresses a range of brief intervention principles and skills that can be applied to smoking and/or other drug use. Training is conducted throughout the state. A brief intervention resource specific to alcohol and tobacco is also made available.		

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
<p>New South Wales Needs Assessment and Health Outcomes Unit, Central Sydney Area Health Service</p> <p>Jeanette Ward/ Jane Young (GP's) jyoung@nah.rpa.cs.nsw.gov.au</p> <p>Glenys Rikard-Bell/Elizabeth Waters/Jeanette Ward (paediatric) grick@nah.rpa.cs.nsw.gov.au</p>	<p>Smoking cessation advice in general practice – training program for GP's that ties into CME points. The training program is based on US cessation guidelines and includes 6 component training modules. A randomised control trial to evaluate the effectiveness of the module has been conducted and the publication of results is forthcoming. Results recently published from randomised survey of NSW GP's of opinions, current practices and perceived barriers to the use of smoking cessation guidelines and provision of cessation advice in general practice (Young and Ward, 2001).</p>		<p>A research project looking at the evidence, role and barriers to paediatric interventions to reduce client exposure to passive smoking has been funded by the Commonwealth Department of Health and Aged Care and the Royal Australasian College of Physicians. A systematic review of the literature is in progress to look at the evidence for and effectiveness of paediatric counselling on passive smoking. While the project focus is on passive smoking and children, advice on parental smoking cessation is one of the intervention types documented in the literature. Following the literature review, a questionnaire will be randomly administered to a sample of Australian paediatricians to identify current practices and barriers. The literature review and survey will inform subsequent development of a randomised control trial.</p>
<p>New South Wales Health Promotion Unit, Central Sydney Area Health Service Chris Rissel CRISS@hpu.rpa.cs.nsw.gov.au</p>	<p>Study undertaken to determine the prevalence of smoking, attitudes of patients towards not smoking while in hospital, and the feasibility and effectiveness of a brief smoking cessation intervention in a pre-admission clinic context. Over 230 smokers received a brief smoking cessation intervention, while a control group (n=114) received only a free Quit Kit. The age-standardised smoking prevalence was 19%; a further 3% of patients were recent quitters. The study found that brief smoking cessation advice tailored to stage-of-change by a health worker in a hospital pre-admission clinic significantly increased the quit rates for females. Results have been published (Rissel, Salmon, Hughes, 2000).</p>		<p>Central Sydney Area Health Service policy includes the provision of brief intervention cessation training for all clinical staff. To date, several hundred clinical staff have been trained, and process and qualitative evaluation conducted with nurses and managers. Follow up evaluation of patients who smoke is also underway. (Mitchell, Rissel, Kiel, 2000).</p>

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
<p>New South Wales Hunter Centre for Health Advancement and the Faculty of Medicine and Health Sciences, University of Newcastle Ph 02 4924 6499</p>		<p>Tobacco and Alcohol Best Practice Guidelines: dissemination to Hunter Hospitals. Brief intervention guidelines for tobacco and alcohol were developed and disseminated to hospitals in the Hunter region. Evaluation methods included follow up and feedback from nursing staff, audit of medical records to assess utilisation of guidelines, and recall of cessation advice by a sample of patients. Data on smoking status at time of patient follow-up was collected (but the sample was small).</p>	
<p>New South Wales Surgical Audit Unit, John Hunter Hospital, Faculty of Medicine and Health Sciences, Hunter Centre for Health Advancement John Wiggers/Allan Spigelman johnw@wallsend.newcastle.edu.au</p>			<p>Developed and introduced a computer based smoking cessation system for encouraging pre-operative surgical patients to stop smoking. Patients completed the program prior to pre-admission clinical appointment. Evaluation included assessment of patient perceived relevance of the program, smoking cessation intentions and attempts, and cessation follow up at 9 months. It is planned to extend the implementation and follow up provided by the program, and an application for NHMRC funding for this has been submitted.</p>

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
<p>New South Wales National Heart Foundation, University of Newcastle, University of New England Amanda Nagal/Michael Hensley/ Margot Schofield naglea@hunterlink.net.au</p>		<p>NHMRC funded randomised controlled trial to examine efficacy of a brief nurse provided nicotine management intervention for hospitalised smokers (conducted at John Hunter hospital). A sample of 711 smokers participated in the intervention group, and 711 in the control group (which received usual care). Intervention sessions varied depending on whether the patient had quit smoking immediately prior to hospital admission, or was still smoking upon hospital admission. Intervention components included assessment of smoking history, health affects, withdrawal assessment and review, NRT assessment, provision of coping strategies and referral where applicable. Smoking cessation abstinence was assessed at 3 and 12 months post discharge. There was no significant difference in abstinence rates between the intervention and control groups. Possible explanations for results include strength of addiction of patients in study, and a possible Hawthorn effect on the control group. New South Wales</p>	
<p>NSW Health Department Tobacco & Health Unit Keren Kiel KKIEL@doh.health.nsw.gov.au</p>		<p>NSW Health is currently working with a broad-based Advisory Group of Health Service clinicians and other key NGO tobacco control stakeholders to develop a Guideline for Managing Tobacco Use and Dependence for Inpatients of NSW Health Facilities. This will support NSW Health facilities to effectively implement smoke-free campuses under the NSW Smoke Free Workplace Policy. Evaluation will focus on organisation processes supporting routine assessment, documentation and treatment of nicotine dependent patients.</p>	

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
New South Wales Smoking Research Unit, Department of Psychological Medicine, University of Sydney St Vincent's Clinic, Sydney Renee Bittoun Ph. 02 95155841		Smoking cessation clinics offered through St Vincent's Hospital, Sydney, with follow up of client cessation. Smoking Research Unit research interests include cessation and cessation issues for smokers for whom more intensive intervention is required.	
Victoria (Quit) Anti-cancer Council Victoria (ACCV) Lisa Trotter/Meg Montague		See Table 2 for description of three antenatal projects that address smoking cessation in pregnancy.	
Victoria (Quit) ACCV Pat Kee Pat.Kee@accv.org.au			<i>Fresh Start</i> smoking cessation courses – a wide range of health professionals have been trained to facilitate these. Some use in one to one counselling as well as with groups. Process and 12 months follow up evaluation of course participants conducted. A Short Course (two sessions integrated with telephone callbacks) has been developed, trialed by <i>Fresh Start</i> facilitators and evaluation is in progress. Training programs have been developed for Quitline counsellors and also for Quit course facilitators. These have been evaluated. Special adaptations of the training course for cardiac rehabilitation coordinators, drug and alcohol workers, face-to-face counsellors including SIDS counsellors have been developed and evaluated. Development of training for Diabetes Educators is currently being organised.

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
Victoria (Quit) ACCV Marcelle Natoli/ Suzie Stillman Suzie.Stillman@accv.org.au			ACCV has received a grant from DHS to develop and pilot a smoking cessation training package for dentists. The project has two stages: Phase one (completed) involved literature search, surveys and focus groups with dentists to identify barriers and facilitating factors regarding delivering smoking cessation interventions in dental settings. Phase two (complete June 2001) uses this information to develop and trial the training (in progress) and there will be three-month follow up with dentists. The training will then be broadened to include other dental health professionals. Includes a background brief for dentists and a written resource for patients.
Victoria VicHealth Centre for Tobacco Control Ron Borland Ron.Borland@accv.org.au			Involved in a number of trials related to efficacy of call back/follow up for quitters and use of cognitive and behavioural coping strategies: <ol style="list-style-type: none"> 1) call back follow up to smokers contacting the quitline. Effect of call back on success of quit attempts has been evaluated. A paper is in press in Addiction (Borland et al, 2001) 2) Conducted trial looking at the effectiveness of the 1993 Prochaska/Velicer expert system. No clear evidence that it works for smokers who have already made a decision to quit – methodology differed from the earlier work of Prochaska in that the sample was drawn from those interested in quitting as opposed to general community sample of smokers. 3) Conducting a cessation trial with 1100 smokers recruited through the quitline. The intervention consists of a new tailored cessation intervention mailed to participants following telephone assessments. Assessments re-occur regularly depending on the stage of change of the participant. Early data suggests that the program has considerable promise. A part of the single use version of this program is available on the National Tobacco Campaign website. 4) Have submitted proposal to NHMRC to conduct a study of predictors of relapse and measures to reduce relapse. 2 intervention groups proposed - first quitters to get standard quitline call backs, while the second group will get more intensive relapse prevention follow up. 5) About to commence a trial looking at internet based recruitment and follow up of quitters. Advice and follow up to be tailored to the individual depending on the smoking history and quit plan they have indicated. 6) Two projects with Cathy Segan that have looked at how smokers plan, initiate and maintain quit attempts, using the Transtheoretical model as a framework. Sample of smokers intending to quit recruited through Quitline. Publication of results in progress.

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
Victoria Monash Medical Centre, Monash University Chris Silargy Fiona Savio/Ninette Kelly Ph. 03 9594 7500	A multi-centre, randomised, parallel group, double-blind, placebo-controlled study (1 year) to evaluate efficacy and tolerability of bupropion hydrochloride (zyban) in smoking cessation is currently underway in Victoria. This is part of an international Zyban trial funded by Glaxo Wellcome. The study is being conducted with two groups – a sample of patients from the general population, and a sample with established cardiovascular disease. The treatment phase for participating smokers is 7 weeks, with monthly and 12 month follow up re cessation success.		
Queensland Cancer Fund Kylie Bates Bates@qldcancer.com.au	General Practitioner Smoking Cessation Consultations Project developed and conducted in conjunction with a Qld Division of General practice. An initial survey of GP's (249) and patients (1509) provided baseline data on GP practices and confidence regarding smoking cessation, and information on quit attempts made by patients in response to GP advice. The survey and in-depth GP interviews informed the development of the intervention. Post intervention evaluation (5 and 10 month follow up) includes measures of GP changes in effectiveness and confidence in managing smoking cessation, and quit attempts by smoking patients seen by GP's participating in the study (38% pre-intervention, 60% at 10 month follow up). The program is focused on teaching motivational interview skills and ties to CME points. GP's are used to train other GP's. The Cancer Fund is looking at expanding the program across the state.		

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
National Pharmacy Guild of Australia (PGA), Pharmaceutical Society of Australia (PSA), Australian Medical Association (AMA) Wendy Phillips (PGA) Bill Kelly (PSA) Dr Carmel Martin (AMA) khinwin.may@guild.org.au			A proposal has recently been developed for a coordinated national joint medicine/pharmacy smoking cessation program involving pharmacists and doctors. This proposed program would involve a 'shared care card' based on clear inter-professional linkages and common training. It is aimed at assisting and providing personalised managed care to people who wish to give up smoking. Evaluation will assess the effectiveness of the shared care card and the shared care program. The project would initially be conducted as a pilot over an 18 month period.
National Pharmaceutical Society of Australia (PSA) Helen Kay http://www.psa.org.au/ practiceprograms/index.cfm			Smoking cessation is one of several specialty practice packages designed to help equip pharmacists and their staff with the resources and skills to encourage and support smoking cessation among clients. The package comprises distance learning modules for pharmacists and pharmacy assistants, and smoking information and resources. The PSA's Specialty Practice program has an accreditation process for participating pharmacists.
National Pharmacy guild of Australia,Pharmaceutical Society of Australia, Pharmacia Australia Wendy Phillips (PGA) Bill Kelly (PSA) Leanne Wells (Pharmacia) kwinwin.may@guild.org.au			Activities underway to conduct research to test the effectiveness of professional involvement of pharmacists in the provision of NRT and also to research services and resources required by pharmacists in order to deliver to improve consumers' adherence to treatment. The project will result in a set of guidelines and procedures to be followed by pharmacists and pharmacy staff in promoting smoking cessation particularly with relation to the sale and effective, sustained use of NRT products.

State/Territory Organisation(s) Contact ¹	Health Professional setting or intervention type		
	GP settings	Hospital settings	Other
National Report for Quit Coordinators group (prepared by Bev Carroll)			Report prepared in August 2000 on 'Quitline operations and quit smoking programs in Australia and recommendations for best practice'. Includes review of quitline operations and programs in all states and territories and best practice issues.

NB: while effort was made to identify relevant research/interventions current in Australia, this was an adjunct to the major focus of the Review, and there may be some projects and trials that have been inadvertently omitted.

RESCINDED

Table 2 Current and recent Australian research/interventions – specific population groups

State/territory Organisation(s) Contact ²	Special Population Group				
	Aboriginal & Torres Strait Islander	Pregnant women	Adolescents	People with mental illness	Other population groups
Commonwealth Department of Health and Aged Care (CDHAC)	<p>Contract with National Aboriginal Community Controlled Health Organisations to:</p> <ul style="list-style-type: none"> Analyse key issues in tobacco control identified by Aboriginal communities and those who work with Aboriginal communities. Appraise programs identified as having some efficacy and best practice features in Aboriginal settings. 				
South Australia Women's and Children's Hospital, SA Libby Hotham/ Elinor Atkinson atkinsone@wch.sa. gov.au		<p>Pilot conducted re NRT replacement and pregnant women (sample of 40). Received grant to progress to phase 2 with an intervention group of 300. Participation in the randomised trial is offered to pregnant women smoking 10 or more cigarettes per day. Cessation is biochemically confirmed 3 months post-partum. The full study is to be completed in 2002.</p>			
Tasmania Menzies Centre for Population Health Research Graeme Jones Ph. 0362267700					<p>Involved in osteoporosis and bone mass density studies with pre-menopausal women that have included smoking cessation as part of lifestyle behaviour feedback. Changes in smoking behaviour followed up along with dietary and physical activity changes, and changes in bones mass.</p>

² Contact name and details correct at time of Review completion. Only one contact number/email provided per project.

State/territory Organisation(s) Contact ²	Special Population Group				
	Aboriginal & Torres Strait Islander	Pregnant women	Adolescents	People with mental illness	Other population groups
Tasmania Quit Tasmania Michael Wilson mwilson@quittas. org.au	Has conducted a review of state and territory activity in relation to indigenous smoking. Final report not available at present.				
Northern Territory National Heart Foundation Chris Burns / Melissa Farrington Melissa.Farrington @heartfoundation. com.au	The Tobacco Book – a range of smoking and quit resources for indigenous communities with several components, some related to cessation and some targeted at health professionals. Funding for implementation an issue. Some evaluation has been completed by the Menzies School of Health Research. Nicotine Replacement Therapy pilot trial. NRT is provided to participants free of charge. Trial will look both at success of NRT in assisting quit attempts and the implementation and support issues related to such a program in indigenous communities. Follow up will be undertaken with participants. The project will be completed mid 2001.				

State/territory Organisation(s) Contact ²	Special Population Group				
	Aboriginal & Torres Strait Islander	Pregnant women	Adolescents	People with mental illness	Other population groups
Northern Territory Menzies School of Health Research Dr Rowena Ivers Rowena@menzies. edu.au	<p>Have conducted some research/ evaluation regarding culturally appropriate cessation resources for indigenous people. Findings to be published shortly.</p> <p>Undertaken literature review on smoking interventions for indigenous people. Final report being finalised.</p> <p>Involved in research aspect of trial underway re use of NRT patch with indigenous people (see NHF above). Evaluation will examine obstacles to cessation, success of and compliance with NRT, changes in knowledge and attitudes to smoking, adequacy of information and support for cessation.</p>				
Northern Territory Mobile Midwives/ THS		<p>NT Mobile midwife service was contracted to undertake brief intervention advice for smoking cessation. (not set up or evaluated as a research study).</p>			

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Victoria (Quit) ACCV Lisa Trotter/ Meg Montague/ Suzie Stillman/ Pat Kee Lisa.Trotter@accv. org.au		<p>3 recent projects funded by Victorian Department of Human Services (DHS):</p> <p>1. 3 Centres project involving Royal Women's, Monash and Mercy hospitals in the development of clinical guidelines across anti-natal issues. ACCV involved in the smoking cessation component.</p> <p>2. Shared Care project – developing guidelines and audit measures for shared care (shared antenatal care between Public Hospital antenatal clinic and community care providers). Smoking cessation guidelines to be included as a component of this.</p> <p>3. Review and development of guidelines for smoking cessation and pregnancy. Project has three phases: phase 1 review, phase 2 develop guidelines, phase 3- implement trial.</p> <p>ACCV is working towards establishing links and consistency across these 3 projects.</p>			

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Victoria (Quit) ACCV Lisa Trotter / Pat Kee Lisa.Trotter@accv. org.au		Piloted an adaptation of quit call back service for pregnant women, with links to Royal Women's Hospital antenatal clinic. The service was acceptable to pregnant women with a 71% participation rate and was particularly effective for spontaneous quitters: the relapse rate was only 10% at end of pregnancy. Self-reported quitting was validated biochemically.			
Victoria (Quit) ACCV Suzie Stillman/ Pat Kee Suzie.Stillman @accv.org.au			Working with Centre for Adolescent Health to develop guidelines for dealing with cessation calls from youth. Still in draft form. Will set up evaluation once in place. Trial beginning 2001-second term of a structured Quitline group session for students wanting to stop smoking; will be evaluated.	Adaptation of Quit Fresh Start course by SANE and Quit Victoria for people working with those with mental illness who wish to quit. Quit rates and reductions in cigarette consumption measured at 3 month follow up. Evaluation report currently in draft. Training for mental health workers developed and evaluated. Further project currently underway looking at smoking cessation training combined with structural issues. Involved in Smoking Cessation and Schizophrenia project which has been trialed. Evaluation in progress. As a result of the project, clinical guidelines for general practitioners have been developed. Policy, guidelines and resources developed for smokers with mental illness who call the Quitline.	Fresh Start course training adapted for prisoners and for people with disabilities. Used by a range of health professionals. Process and follow up evaluation at 12 months.

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Victoria (Quit) ACCV Marcelle Natioli		Working with local area health services contracted under local government (e.g. maternal and child health) – encouraging them to identify if mothers smoke – using passive smoking issue as focus for intervention.			
Victoria (Quit) ACCV Viki Briggs Viki.Briggs@accv.org.au	Smoking cessation training provided for aboriginal health workers, hospital liaison officers and drug and alcohol workers. Cessation aids information sessions run for health professionals and medical practitioners working within indigenous communities.				
Smoking and diabetes training for health workers in conjunction with Koorie Diabetes Services. Queensland	Queensland Health Mark West/Donald Whaleboat/ Melissa Seibold Mark.West @health.qld.gov.au Large-scale indigenous tobacco control pilot project in its third (of four) year. There are two cessation trials being conducted as part of the project: (1) development and trial of a culturally appropriate group based behaviour modification program (2) development and trial of a health practitioner brief intervention for culturally effective smoking cessation. A range of culturally appropriate smoking publications have been developed as part of the project. Formal evaluation not yet completed but there are indications of program effectiveness with indigenous people. All strategies have been developed in conjunction with indigenous people and relevant health professionals.	Project involving school nurses in the delivery of health promotion – smoking cessation is one part of this. Project is in early stages.			

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ACT Anti-Cancer Society Trisha Jones actcancer@cancer. org.au			In the process of setting up an adolescent smoking prevention and cessation project.		Keen to adapt quit programs for the unemployed but haven't developed as yet. Conducted some smoking cessation training for NESB bilingual education officers.
Western Australia Fremantle Hospital Steven Kisely stephenk@cyllene. uwa.edu.au				Pilot intervention study of the effect of brief physician advice and a health promotion package for helping individuals with psychiatric disorders to quit smoking. Attenders from the psychiatric day facility at Fremantle hospital will be allocated to either a group smoking cessation intervention, or to a control group where brief physician advice only is received. In the initial pilot, heavy smokers allocated to the group intervention smoked less than those in the control group but the sample was small and results not statistically significant. Thus the intervention is being replicated with a larger sample.	

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Western Australia Centre for Health Promotion Research, Curtin University Donna Cross/Greg Hamilton G.Hamilton@curtin. edu.au			The Smoking Cessation for Youth Project (SCYP) is a school-based smoking cessation and primary prevention randomised control trial based on harm minimisation principles. It was conducted in 1999 and 2000 and aimed to reduce regular and ever smoking among 14-15 year old students (n=4000) receiving the Health Promoting schools intervention that included classroom activities, school nurse support and whole school measures. Activities focus on building student skills to remain smoke-free, quit or reduce smoking, support others to quit and reduce exposure to ETS.		
Western Australia Smarter than Smoking Project Kelly Robertson Kelly.Robertson@ heartfoundation. com.au			Smarter than Smoking School Cessation Resource adapted from the Smoking Cessation for Youth Project (SCYP) and developed in conjunction with the Smoking and Health Program, Health Dept. WA. The resource is for school nurses and others to assist student in cutting down, or quitting tobacco smoking. The resource includes classroom activities, school nurse support and whole school measures. Activities focus on building student skills to remain smoke free, quit or reduce smoking, support others to quit and reduce exposure to ETS.		

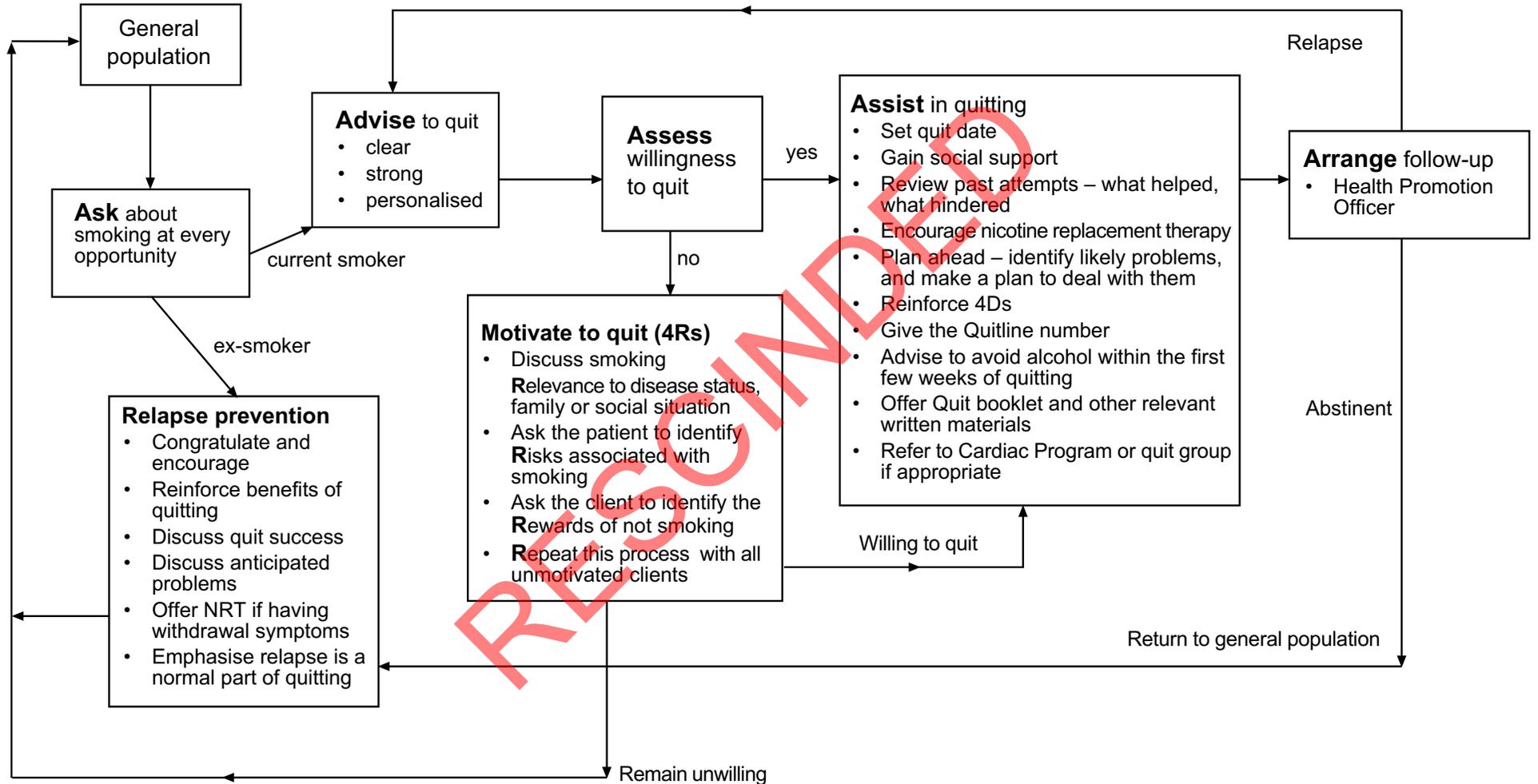
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Western Australia ACOSH/HDWA/ Cancer Foundation (Target 15) Deb Bow/Denise Sullivan dbow@cancerwa. asn.au	Say No to Smokes is a 3 year project focusing on aboriginal health workers – getting them to quit and encouraging them to motivate and support other aboriginal people to quit. Project in developmental stages, and is conducting qualitative research regarding issues related to aboriginal health worker smoking behaviour and provision of smoking cessation advice to clients. Cessation strategies developed at a later stage.				
NSW University of New South Wales Robyn Richmond r.richmond@unsw. edu.au	Funding request submitted in 2000 for project looking at reducing smoking rates among ATSI prison inmates.			NHMRC and Rotary Foundation funding received for a study: Reducing smoking among those with a mental illness.	Funding request submitted in 2000 for randomised control trial of bupropion to reduce smoking among prison inmates.
NSW South Western Sydney Area Health Service David Rich, Sheila Knowlden, Joanne Karcz Joanne.Karcz@ swsahs.nsw.gov.au				A NSW Health Promotion Development Grant obtained to implement and evaluate a project which aims to reduce smoking in Mental Health Units in line with the NSW Health Smoke Free Workplace Policy. This builds on an earlier pilot in which staff were intensively trained and supported in quitting with NRT. Patients will be offered NRT and supported in the community after discharge if they choose to quit.	

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New South Wales Various ATSI youth projects funded under Public Health Outcome Funding Agreement	<p>Central Sydney Area Health Service (AHS) (Sharon Minniecon) Focus on increasing brief intervention skills in smoking cessation among indigenous health workers.</p> <p>Southern Area Health Service (Simone Dilkara); Focus on increasing awareness of and access to appropriate cessation services.</p> <p>South Western Sydney AHS (Joanne Karcz) Provision of training programs for health workers in delivering brief cessation interventions for ATSI youth.</p> <p>South Western Sydney AHS (Vicki Jefferies) Community involvement to develop relevant education products.</p> <p>Hunter AHS (Justine Daly) Consultations to develop and implement an intervention appropriate for youth.</p> <p>Illawarra AHS and NHF (NSW) (Andy Mark) Training of aboriginal health workers to offer cessation programs in communities.</p>				
National NACCHO Kylie Lindorff kylie@naccho.org. au	<p>Commonwealth funded research project looking at issues of indigenous smoking and intervention. Qualitative research being conducted with health workers and community members in most states and territories. Research to be completed late 2004.</p>				

NB: while effort was made to identify relevant research/interventions current in Australia, this was an adjunct to the major focus of the Review, and there may be some projects and trials that have been inadvertently omitted.

Appendix 4

Outline for smoking brief interventions



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