Preventing Smoking During Pregnancy

Practice Resource

Downloaded from www.rch.org.au/ccch
Overview

Introduction

There is now a large amount of research evidence about the importance of the early years. Many professionals are unsure about how this evidence impacts on the services they provide for families and their professional practice.

The Centre for Community Child Health has therefore developed eleven “Practice Resources.” Each Practice Resource provides professionals with:
- an introduction to the topic
- a summary of the latest research, and
- practical strategies to support their daily work with young children and their families.

These Practice Resources will help professionals consider and understand the issues and the range of researched options and strategies available to discuss with parents and carers in addressing their concerns and increasing their confidence. They will also support management to make sensible decisions about the use of resources and directions for services to address important issues for children.

The project to develop these eleven Practice Resources has been made possible through funding from the Telstra Foundation.

See Appendix 1 and 2 for more details about the Centre for Community Child Health and the Telstra Foundation respectively.

Why were Practice Resources developed?

The Practice Resources have been designed to bridge the gap between research and practice. Most professionals do not have the time to sift through and interpret the relevant research that can inform how they work with children and families, nor do they have access or opportunity to attend relevant professional development.

The aim of the Practice Resources is to broadly translate the research evidence on a number of important topics into easily understood practical information that can be readily used by a range of professionals, assisting their daily work with young children and their families.

While each resource is written for professionals working with children and families, the information will also be useful to managers of services.
What is the structure of each Practice Resource?

These resources are designed to be easy to use and inform professional practice. The structure of the Practice Resources enables access to information at different levels of detail depending on the user’s needs.

Each resource has the following structure:

- **Glossary**
  Definitions of key terms.

- **Section 1: Introduction**
  This includes definitions, how frequently problems occur, information about normal development (where relevant), effects of the problem, and whether the focus should be on promotion, prevention, or early intervention.

- **Section 2: What works?**
  This includes a simple summary of the research and outlines what works and therefore the strategies that should be implemented. Whilst this section is brief, strategies are sufficiently detailed and specific for action. To support the professional there is also:
    - **Parent information**: Pointers to existing web based parent information are provided. This information has been reviewed to ensure the messages are consistent with those in the resource.
    - **Key messages**: A single page summary is provided outlining the most important messages for professionals and managers.

- **Section 3: What the research shows**
  Annotated summary tables of the research evidence and intervention studies is included, with information provided about the level of evidence, see Appendix 4. Also included are the more detailed key research principles that are fully referenced.

- **References**
  All references used to inform the resource are listed.

To make these Practice Resources easy for professionals to access and use, references are not included within “Section 1: Introduction” and “Section 2: What Works”. In “Section 3: What the research shows” references are included in the text. A full list of the references relevant to each topic can be found separately in the References section.
What topics are covered?

Promotion
- Breastfeeding
- Literacy

Prevention
- Injury
- Overweight and obesity
- Smoking during pregnancy
- Passive smoking effects on children
- Child and adolescent smoking

Early Intervention
- Language
- Settling and sleep
- Behaviour
- Eating behaviour

How were the topics selected?

A number of criteria were used to select topics. These included:
- The importance of the issue in relation to children’s health and development
- Requests from professionals
- Expression of need from communities
- Parental needs and concerns
- Perceived gap between evidence and practice
- Ease of including in daily professional practice
- Lack of information from other sources

See Appendix 3 for more detail about the selection criteria.
Overview

How were the Practice Resources developed?

The content of the resources were drawn from the published research, expert advice, and information about innovative and promising practices. An expert committee oversaw the development of the content, and an expert in the field reviewed the content of each resource.

The format and design of the resources was focus tested and modified accordingly.

Are there limitations to these Practice Resources?

For a number of topics there were limited numbers of well researched interventions and strategies available in the literature. Therefore it is important to note the following:

- Where possible National Health and Medical Research Council principles of assessing evidence were applied to research reviewed. For some topics there was very little evidence of high quality.
- Interventions and strategies included in the resources were based on a combination of research-based principles and expert advice.
- It is highly likely that the evidence for most topics will change over the next few years; suggested strategies may require ongoing review.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive-behavioural therapy</strong></td>
<td>An arrangement in which client and professional work together to identify and understand problems by looking at the relationship between thoughts, feelings and behaviour.</td>
</tr>
<tr>
<td><strong>Environmental tobacco smoke</strong></td>
<td>Smoke from the end of a lit cigarette or breathed out by a smoker.</td>
</tr>
<tr>
<td><strong>Nicotine-replacement therapy</strong></td>
<td>Using a medication that reduces cravings for cigarettes.</td>
</tr>
<tr>
<td><strong>Passive smoking</strong></td>
<td>Breathing tobacco smoke in the environment.</td>
</tr>
<tr>
<td><strong>Stages of change advice</strong></td>
<td>Where the professional categorises a woman's attitude to quitting and tailors advice to this attitude</td>
</tr>
</tbody>
</table>

Refer to Appendix 5 for a glossary of terms related to research methodology terminology.
Section 1: Introduction

Setting the scene

Focus: Prevention

Topic inclusion: Pregnant women
Women having a pre-pregnancy consultation

Pregnancy provides a unique opportunity to minimise smoking rates and increase the health of women and children. Women’s awareness of probable outcomes of taking risks is likely to increase in pregnancy. In fact, more women cease smoking in pregnancy than any other time in life.

Prevalence of smoking in pregnancy

Smoking during pregnancy appears to be common, with recent studies indicating that between one in three and one in five pregnant women in developing countries smoke. An estimate of the smoking rate in pregnant Australian women given by the Three Centre Consensus Guidelines on Antenatal Care is 33 per cent. Smoking rates during pregnancy for Indigenous women have been reported as being as high as 72 per cent.

One quarter of Australian women stop smoking when they become pregnant, although one in four will take it up again during their pregnancy. This pattern is consistent with women in other parts of the world.

More women cease smoking in pregnancy that any other time in life.
Section 1: Introduction

Impact of smoking in pregnancy

Smoking during pregnancy has been linked to a range of negative health outcomes for children. When a pregnant woman smokes, carbon monoxide and nicotine pass into the foetal bloodstream through the placenta, causing the foetus to get less oxygen and possibly interfering with development. Nicotine also increases the heart and breathing rates of the developing foetus.

The most direct effects occur in the health of the infant before and at birth. These include:

- Low birth weight
- Premature birth
- Placental difficulties during pregnancy
- Ectopic pregnancy
- Miscarriage
- Stillbirth

There is a higher risk of SIDS (Sudden Infant Death Syndrome) in infants in the first year of life if their mothers smoked during pregnancy. Women who smoke are also less likely to initiate breastfeeding or to breastfeed for very long.

Further effects of smoking that occur indirectly (due to low birth weight and preterm births) include:

- Asthma
- Disability
- Infant mortality

Smoking can also have a range of effects on children later in life, as it is linked to:

- An increased incidence of experimentation with tobacco among children
- Childhood anxiety or depression
- Childhood externalising behaviours

It must be noted, however, that causal connections between smoking during pregnancy and psychological or social problems in children have not yet been firmly established in research studies.

Smoking can impact on society as it can lead to costly health problems. For example, in 1993 in the United States it was estimated that 135 to 167 million dollars per year was spent on pregnancy-related conditions such as ectopic pregnancy and spontaneous abortion, which are associated with smoking.
Factors found to influence smoking in pregnancy

The prevalence of smoking during pregnancy has been linked to a range of factors including:

- Age: younger women more likely to smoke
- Education: women with less education are more likely to smoke
- Low income
- Single-parent status
- Social disadvantage

Most of the women who quit smoking spontaneously upon becoming pregnant have a non-smoking partner, are supported to quit or have stronger beliefs about the dangers of smoking than do those who do not quit.

Smoking during pregnancy has been linked to a range of negative health outcomes for children.
Section 2: What works?

Introduction

Evidence suggests that there are five main possible approaches to helping pregnant women quit smoking:
1. Cognitive-behavioural approach
2. Reward program with social support
3. Feedback
4. Nicotine-replacement therapy
5. Stages-of-change advice

These have been used with women planning to become pregnant or who are in the early stages of pregnancy. In some cases they have been used late in the pregnancy and in the first few months after giving birth.

Evidence suggests that **cognitive-behavioural approaches are the most effective in prompting efforts in pregnant women to quit smoking.** The strongest evidence is from studies using very intense cognitive-behavioural strategies as opposed to low-intensity interventions, for example strategies that involve participation in multiple sessions of face-to-face counselling along with provision of written material and follow-up contact after an initial session. There is more limited but encouraging evidence for reward programs. There is also evidence that stages of change advice is **not** effective. Cognitive–behavioural and reward programs are outlined below.
Understanding approaches to preventing smoking during pregnancy

Cognitive-behavioural approach
Cognitive-behavioural approaches focus on changing beliefs about smoking and the person’s ability to quit.

Cognitive-behavioural approaches also focus on improving coping efforts:
- Smokers are taught coping techniques appropriate for themselves and their situation and are supported to implement these.
- The techniques can be cognitive or behavioural. An example of a cognitive strategy is telling yourself you can quit if you want to, while an example of a behavioural strategy is replacing smoking with other activities.

Other specific cognitive-behavioural strategies are:
- Self-reporting of daily cigarette consumption
- Delaying lighting up
- Altering ways of smoking
- Reinforcement control
- Maintenance strategies such as stress management

Learning specific strategies can involve instruction, demonstration, rehearsal, feedback, reinforcement, and out-of-class practice with homework and assignments.

The reward program with social support
At the outset, women are given verbal and written information on the importance of quitting. This is followed by monthly telephone calls to check smoking status.

Rewards are $25-$50 per month for abstaining given to the woman and her supporter contingent upon proof of smoking cessation (via saliva swab). Rewards are continued until two months after giving birth.

The social supporter is a close friend of the pregnant woman, preferably a female and a non-smoker. As someone who is already a part of the smoker’s peer group, the social supporter can offer natural peer support.
Section 2: What works?

What you can do

Asking about smoking behaviour
A common approach used to assess and assist patients who smoke is the five-step model known as the 5A’s approach. This model offers a guide for discussions with clients about their smoking behaviour and is supported by the United States Clinical Practice Guidelines. Each step is described below.

Step 1: ASK
• Ask about smoking status using the following options:
  A. I have NEVER smoked, or I have smoked fewer than 100 cigarettes in my lifetime.
  B. I stopped smoking BEFORE I found out I was pregnant, and I am not smoking now.
  C. I stopped smoking AFTER I found out I was pregnant, and I am not smoking now.
  D. I smoke some now, but I cut down on the number of cigarettes I smoke SINCE I found out I was pregnant.
  E. I smoke regularly now, about the same as BEFORE I found out I was pregnant.

Note: Asking whether or not someone smokes has NOT been found to be useful.
• Women indicating B or C should be congratulated and encouraged to continue.
• Women indicating D or E should be classified as smokers and the professional should progress through Steps 2 to 5.

Step 2: ADVISE
• Provide clear, strong advice to quit with personalised messages about the impact of smoking and quitting on both the mother and foetus. This advice should take about one minute.

Step 3: ASSESS
• Assess the woman’s willingness to attempt to quit within the next 30 days.
Section 2: What works?

Step 4: ASSIST
- Provide self-help materials that are specifically focused on pregnancy. See behavioural and cognitive strategies outlined below.
- Arrange social support in the smoker’s environment.
- Provide social support as part of the treatment. See the following link from QUIT on Helping Others to Quit: [www.quit.org.au/index2.html](http://www.quit.org.au/index2.html)
- A time frame of at least three minutes is advised for the Assist step. Suggest and encourage the use of problem-solving methods and skills to stop.

Step 5: ARRANGE
- Assess the client’s smoking status periodically and if she continues smoking continue to encourage her to stop.

What programs and/or strategies can be recommended to pregnant women to help them quit?

**A Pregnant Woman’s Guide to Quit Smoking**
Available for order from the following site: [www.sophe.org/public/pubs.html](http://www.sophe.org/public/pubs.html), this 40-page workbook contains a 10-day cognitive-behavioural approach to quitting smoking. The workbook was developed by Richard Windsor of the School of Public Health and Health Services (see “Other References” section at the end of this resource) and is part of a wider program targeting smoking cessation in pregnancy.
- The workbook is written at a Year 6 reading level.
- It helps women become clear about their reasons and motivations for quitting.
- Women are instructed to keep a smoking diary to assist in identifying their personal smoking habits.
- The approach aims to decrease gradually the intake of nicotine and the number of cigarettes smoked until cessation occurs.
- Women are encouraged to start a ‘health bank’ to reward their efforts. This involves putting aside money normally spent on cigarettes to use for rewards for resisting the urge to smoke.
Section 2: What works?

- Alternative activities to smoking and self-motivation techniques are encouraged.
- Trials that resulted in health professionals successfully employing ‘A pregnant woman’s guide to quit smoking’ to assist women in their quitting efforts also involved the following components:
  - a 15 minute one-on-one motivational counselling session based on translating strategies from the booklet
  - the use of a flip chart which demonstrated the effects of smoking on the foetus
  - direction on how to use the booklet
  - instructions for preparing two quitting contracts, one with the woman’s partner and one with a friend

Cognitive strategies

The following list contains a range of cognitive strategies for particular situations that can be suggested to women to help them think more constructively about their attempts to quit smoking and in particular about the barriers to quitting:

1. Being around smokers: Recite reasons for quitting.
2. Coping with negative feelings: Redirect thoughts (see if you can change your mood by thinking of something that made you feel good, something you accomplished or mastered, or something you enjoyed in the past).
3. Coping with urges:
   - Distract yourself (think about the baby or a pleasant activity that does not involve smoking).
   - Think your way out of the urge.
     - Remind yourself why you decided to quit smoking.
     - Tell yourself how well you’ve done so far.
     - Think about how proud you’ll feel getting through the day without a cigarette.
     - Figure out how much money you’re saving by not smoking.
4. Coping with weight gain: Recognise that weight gain is normal.
   - Recognise that weight gain is far less harmful than the consequences of smoking.
   - Recognise that you are supposed to gain weight during pregnancy, so this is a great time to quit smoking.
   - Accept the weight gain and deal with it after you have your smoking under control after delivery.
5. Coping with slips: Tell yourself that the relapse was a mistake, not a failure. Blame the situation, not yourself. Review your reasons for quitting and renew your commitment to quitting.
Section 2: What works?

Behavioural strategies

The following list contains a range of behavioural strategies that can be recommended to women wanting to break the habit of smoking:

1. Put two rubber bands around your cigarette packet so that you have to take them off to get a cigarette out. This will break your automatic smoking sequence and give you time to think before you next light up.

2. If that doesn’t stop you, hold the cigarette in the other hand, the one you wouldn’t normally hold the cigarette.

3. Keep cigarettes and ashtrays in a really inconvenient place – for example, in the letterbox or in the boot of the car.

4. In the spot where you usually have your ashtray, put something pleasant – for example, a bunch of your favourite flowers or a picture of a loved one.

5. Spend a day watching yourself smoke. Do you always smoke on the phone, in the car, or after meals? Choose one situation when you always smoke and decide that you will not smoke at that time. Think of something to do instead – eg if you smoke when on the phone, clean the phone instead or scribble on a pad; go for a short walk after meals and do not take your cigarettes. Attack your habit situations one by one.

6. Discover where you smoke the most. Choose one of the places you frequently light up – it may be on the veranda or in the lounge room – and declare this a smoke-free zone.

A range of ways health professionals can assist smokers to cut down or quit smoking has been suggested by QUIT Australia. These include:

- Giving those interested in quitting a Quit Book
- Providing information about products available to help with quitting
- Setting up a smoke-free display in their practice and ensure smoking cessation resources are available in waiting rooms
- Arranging training from QUIT Australia on using counselling to help individuals to quit.

For further information about QUIT Australia’s Health Professionals Program, see the following link: www.quit.org.au/index2.html
Information for smokers wanting to quit

As an additional form of assistance, the following sites may provide helpful information on quitting smoking—websites described:

- The Quit line (Australia)
  www.quit.org.au/index2.html

- Queensland Cancer Fund: Are you ready to quit smoking?
  www.qldcancer.com.au/Cancer_Info_and_Services/PED/Sm_Quitting.html

- Health Canada: Quitting smoking
  www.hc-sc.gc.ca/hec-sc/sesc/tobacco/quit/index.html

- National Heart, Lung, and Blood Institute (USA): Quitting smoking (includes an action plan)
  www.nhlbi.nih.gov/hbp/prevent/q_smoke/q_smoke.htm
Key Messages for Professionals

Smoking during pregnancy is common. It is estimated that approximately 18% of Australian women smoke in pregnancy. A woman’s perception of risk and personal outcomes is likely to increase in pregnancy. Indeed, more women cease smoking in pregnancy than any other time in their life.

Smoking effects during pregnancy

- **Negative health outcomes for children.** When a pregnant woman smokes, carbon monoxide and nicotine pass into the foetal bloodstream through the placenta and the foetus gets less oxygen, which can interfere with development. Smoking during pregnancy has been linked to a range of negative health outcomes for children such as low birth weight, premature birth, placental difficulties, ectopic pregnancy, miscarriage, and stillbirth.
- **Economic burden on society.** Smoking can lead to great economic burden, eg, in the United States in 1993 it was estimated that between 135 and 167 million dollars per year was spent on pregnancy-related conditions associated with smoking, eg, ectopic pregnancy and spontaneous abortion.

Research based interventions for smoking during pregnancy

Strategies can be implemented to help support women to stop smoking during pregnancy. These strategies have been linked to positive health outcomes for infants, including fewer pre-term births and increased birth weight.

The following advice is offered to professionals who want to assist pregnant women who wish to quit smoking:

- It is important to ask pregnant women (or those thinking of becoming pregnant) about their smoking behaviours. Specific questions have been designed to elicit the most accurate responses. Women need to be asked more than once during the pregnancy.
- The promotion of cognitive-behavioural strategies for quitting is strongly recommended. These are simple strategies and are likely to be easy to communicate.
- It is not recommended that professionals rely solely on the use of ‘stages-of-change advice’ (that is, “Where the professional categorises a woman’s attitude to quitting and tailors advice to this attitude”). This strategy has not been strongly supported in research.
- When it comes to pharmacological methods of quitting such as nicotine-replacement therapy and antidepressants, professionals should be aware that little is known about the success and potential side effects of these when used in pregnancy.
- It is also important to be aware that little is known about the effectiveness of just providing feedback to a woman about the effect of smoking on her developing foetus.
Key Messages for Managers

Smoking during pregnancy is common. It is estimated that approximately 18% of Australian women smoke in pregnancy. Pregnancy may provide a unique opportunity for professionals who want to minimise smoking rates and improve the health of women and children. A woman’s perception of risk and personal outcomes is likely to increase in pregnancy. Indeed, more women cease smoking in pregnancy than any other time in life.

Smoking effects during pregnancy
• **Negative health outcomes for children.** When a pregnant woman smokes, carbon monoxide and nicotine pass into the foetal bloodstream through the placenta and the foetus gets less oxygen and may not develop as well as it should. Smoking during pregnancy has been linked to a range of negative health outcomes for children such as, low birth weight, premature birth, placental difficulties, ectopic pregnancy, miscarriage, and stillbirth.
• **Economic burden on society.** Smoking can lead to great economic burden. For example, in the United States in 1993 it was estimated that between 135 and 167 million dollars per year was spent on pregnancy-related conditions associated with smoking, eg ectopic pregnancy and spontaneous abortion).

Research based interventions for smoking during pregnancy
Overall it has been found that strategies can be implemented to help support women to stop smoking during pregnancy. These strategies have been linked to positive health outcomes for infants, with fewer pre-term births and increased birth weight.

The following advice is offered to managers who wish to run programs or courses on quitting smoking during pregnancy:
• Cognitive-behavioural strategies have been strongly supported by research. These strategies are straightforward and can be communicated easily through simple information sessions or written material. There is evidence of poor attendance at group courses during pregnancy. Professionals can gain the skills to provide support using these strategies, although doing so may require additional time.
• A combined reward and social support program has been shown to be an effective strategy. This type of program involves participants being supported through their quitting attempt by a friend, while receiving rewards for continued abstinence. Early support for this type of program is very promising.
## Summary of the evidence

A review of the research reveals a number of effective strategies to support stopping smoking during pregnancy. Cognitive-behavioural programs and programs involving rewards and social supports have the strongest support.

<table>
<thead>
<tr>
<th>Intervention focus</th>
<th>Recommended intervention</th>
<th>Effectiveness*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant women</td>
<td>Cognitive-behavioural strategies – for example, self-reporting of daily cigarette consumption, delay in lighting up, and altering the way of smoking</td>
<td>★★★</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Rewards and social support – for example, providing financial incentives monthly for not smoking, and support provided by a peer</td>
<td>★★</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Feedback – giving information about the effects of smoking on the foetus (movements, breathing, and heart rate) or about levels of cotinine or carbon monoxide in the body</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Nicotine-replacement therapy – use of drugs to reduce cravings for cigarettes in the form of gum, nicotine patches, nasal spray, inhaler devices or tablets</td>
<td>?</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Stages of change advice alone – categorising a pregnant woman’s attitude to quitting into one of four groups (not even thinking about quitting, thinking about quitting, ready to quit or already has taken steps to quit) and tailoring advice accordingly</td>
<td>××</td>
</tr>
</tbody>
</table>

* See next page for key to symbols.
### Guide to recommendation of effectiveness category

<table>
<thead>
<tr>
<th>Level of evidence</th>
<th>Effectiveness</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong to good evidence</td>
<td>Beneficial</td>
<td>⭐⭐⭐</td>
</tr>
<tr>
<td></td>
<td>Not beneficial</td>
<td>✗✗✗</td>
</tr>
<tr>
<td>Fair level of evidence</td>
<td>May be beneficial</td>
<td>⭐⭐</td>
</tr>
<tr>
<td></td>
<td>May not be beneficial</td>
<td>✗✗</td>
</tr>
<tr>
<td>Requires more studies</td>
<td>May be beneficial (promising)</td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td>May not be beneficial (not likely)</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>Unknown benefits</td>
<td>?</td>
</tr>
</tbody>
</table>

Refer to Appendix 5 for a glossary of terms related to research methodology terminology.

### Key research findings

#### About smoking in pregnancy

- **Pregnancy provides a unique window of opportunity to minimise smoking rates and increase the health of women and children.**

  More women cease smoking in pregnancy than any other time in life. One quarter of Australian women stop smoking when they become pregnant.¹

- **Smoking during pregnancy is relatively common.**

  Between one in three and one in five pregnant women from developing countries smoke.² An estimate of the smoking rate in pregnant Australian women given by the Three Centre Consensus Guidelines on Antenatal Care is 33 per cent.¹ Smoking rates during pregnancy for indigenous women have been reported as being as high as 72 per cent.³
Section 3: What the research shows

- **Smoking during pregnancy has been linked to a range of negative health outcomes for children.**
  The most direct effects occur in the health of the infant before and at birth. These include\(^2\):
  - Low birth weight
  - Premature birth
  - Placental difficulties during pregnancy
  - Ectopic pregnancy
  - Miscarriage
  - Stillbirth
  - Higher risk of SIDS

Smoking can also have a range of effects on children later in life. It has been linked to\(^4\):
  - An increased incidence of experimentation with tobacco among children
  - Childhood anxiety or depression
  - Childhood externalising behaviours

- **The impact of smoking on society can lead to costly health problems.**
  For example, in 1993 in the United States it was estimated that 135 to 167 million dollars per year was spent on pregnancy-related conditions such as ectopic pregnancy and spontaneous abortion, which are associated with smoking.\(^2\)

- **Smoking during pregnancy has been linked to a range of factors.**
  The factors found to be linked to smoking during pregnancy include\(^2\):
  - Age: younger women more likely to smoke
  - Education: women with less education are more likely to smoke
  - Low income
  - Single-parent status
  - Social disadvantage
Interventions for smoking in pregnancy

Key findings
Overall it has been found that strategies can be implemented to help support women to stop smoking during pregnancy\(^2\). Strategies have been linked to positive health outcomes for infants with fewer pre-term births and increased birth weight.

- **Cognitive behavioural strategies** have the most support with a meta-analysis of 20 studies resulting in a significant effect compared to control conditions.

- A program involving both **social support and rewards** for abstinence was supported in two studies.

- While **nicotine-replacement therapy** has been strongly supported in adults generally (see Preventing Passive Smoking Effects on Children Practice Resource), there was only a *trend* toward greater abstinence in pregnancy with this method. It is not known if nicotine-replacement therapy has adverse effects on an unborn infant.

- The effectiveness of the **anti-depressant bupropion** is well-supported in research; however, it has not been trialed during pregnancy.

- The success of providing **feedback** to a mother about the effect of smoking on the foetus has not been supported empirically at this stage. However, there have only been three trials, and further research is required before this method can be labelled effective.

- **Stages-of-change advice** was not found to be effective on the basis of a meta analysis of seven studies.

- Some researchers have reported **group sessions** to be poorly attended during pregnancy, making it impossible to assess its effectiveness.
Annotated summary of smoking during pregnancy intervention studies

Because of the lack of studies of high quality to assess the effectiveness of interventions for smoking reduction during pregnancy, the following is a Cochrane review of these interventions.

**Smoking during pregnancy**

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Intervention</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Lumley, Oliver, Chamberlin and Oakley (2004) | Over 28,000 women 51 randomised controls trials 6 cluster-randomised trials | Range of interventions included:  
• information  
• advice (supplemented by – for example, peer support, feedback on effects on infant)  
• stages-of-change advice  
• attitudes of health professionals targeted  
• comprehensive program of information, nicotine-replacement therapy, facilitator and incentives  | Significant reduction in smoking in intervention groups compared with controls (6 per cent)  
Smoking cessation interventions reduced:  
• low birth weight  
• pre-term birth  
Mean birth weight increased by 33 grams  |
1. Three Centres Consensus Guidelines on Antenatal Care, Royal Women's Hospital, Southern Health and Mercy Hospital for Women, October 2001.


Other references used in developing the resource

Appendix 1

Centre for Community Child Health

The Centre for Community Child Health’s mission is to improve the health and wellbeing of all children.

At the forefront of Australian research into early childhood development and behaviour, the Centre has a particular interest in children’s mental health; obesity; language, learning and literacy; hearing; and the development of quality early childhood services.

The Centre is committed to disseminating its research findings to inform public policy, service delivery, clinical care and professional practice.

Professor Frank Oberklaid, an internationally renowned researcher, author, lecturer and consultant, leads a team of over 90 staff from a range of disciplines including paediatrics, psychology, education, early childhood, public health and communications.

Located at The Royal Children’s Hospital, Melbourne, the Centre is a key research centre of the Murdoch Childrens Research Institute and an academic centre of the University of Melbourne.

Further information about the Centre for Community Child Health can be found at www.rch.org.au/ccch
Telstra Foundation

In 2002, as part of its strong tradition of community involvement, Telstra established the Telstra Foundation, a program devoted to enriching the lives of Australian children and young people and the communities in which they live.

The Telstra Foundation supports projects that develop innovative solutions and new approaches to issues affecting children and young people aged 18 years and under, are based on sound research, and develop practical applications of new knowledge and have an emphasis on early intervention.

The Telstra Foundation has two main programs, with the Community Development Fund providing the funding for the practice resource. The Community Development Fund provides grants to charitable organisations for projects that have wide impact and intervene early to address causal factors affecting the health, well-being and life chances of Australia’s children and young people.

Further information about the Telstra Foundation can be found at:
Criteria for selecting topics

There were a number of criteria used for selecting the topic for each practice resource. These included:

- **Importance of the issue in relation to children’s health and development**
  There are a number of issues that are very prevalent and impact both on the immediate health and development of the child as well as the impact over the life course.

- **Provider need**
  Through various forums providers have requested easier access to research based information that will assist directly in their daily interactions with children and families.

- **Community need**
  Around Australia there is increasing community activity focusing on early childhood. A number of these communities have begun to articulate the desire to support families more effectively through providing services that engage in family centred practice and use research based strategies to address issues that concern parents.

- **Parent need and concern**
  National consultations have highlighted the issues that parents want more information about. In addition, Australian research has shown that there are a small number of issues that cause parents the most concern about their children.

- **Perceived gap between evidence and practice**
  There are a number of areas of practice which in general do not reflect research evidence in spite of sound evidence from that research.

- **Can be readily incorporated into routine practice**
  The primary aim of each resource is to assist professionals in their interactions with children and families. Priority was given to issues about which strategies could be relatively easily incorporated into practice.

- **No duplicating of effort**
  Consideration was given to whether issues had been addressed elsewhere in similar ways for the same audience.
Appendix 4

NHMRC Guidelines for Levels of Evidence

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-1  Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation of some other method).

III-2  Evidence obtained from comparative studies with concurrent controls 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-arm studies, or interrupted time series without a parallel control group.

IV  Evidence obtained from case series, either post-test or pre-test and post-test.
### Glossary of Terms – Research Methodology

Note: Wherever possible these definitions are taken from the *Glossary of Terms in the Cochrane Collaboration, Version 4.2.5, updated May 2005.*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case-control study</strong></td>
<td>A study that compares people with a disease or outcome of interest (cases) with people from the same population without that disease or outcome (controls), and which seeks to find associations between the outcome and exposure to particular risk factors</td>
</tr>
<tr>
<td><strong>Cochrane Review</strong></td>
<td>Systematic summaries of evidence of the effects of health care interventions, intended to help people make practical decisions. For a review to be called a Cochrane Review it must be in the Cochrane Database of Systematic Reviews or the Cochrane Review Methodology Database. These are administered by the Cochrane Collaboration, an international organisation that aims to help people make well-informed decisions about health care.</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>A participant in a randomised controlled trial who is in a group that acts as a comparator for the experimental intervention(s); alternatively, a participant in a case-control study who is in a group that does not have the disease or outcome of interest.</td>
</tr>
<tr>
<td><strong>Control trials</strong></td>
<td>Studies in which participants are assigned to an intervention or control group using specific criteria.</td>
</tr>
<tr>
<td><strong>Effectiveness</strong></td>
<td>The extent to which a specific intervention, when used under ordinary circumstances, does what it is intended to do.</td>
</tr>
<tr>
<td><strong>Evidence</strong></td>
<td>Up-to-date, accurate information about the effects of interventions.</td>
</tr>
<tr>
<td><strong>Randomised controlled trial (RCT)</strong></td>
<td>An experiment in which two or more interventions are compared by being randomly (like tossing a coin) allocated to participants.</td>
</tr>
</tbody>
</table>