

# Provision of Smoking Cessation Interventions During Pregnancy

Guidelines	Level of Evidence	References
Smoking cessation interventions should be offered in routine antenatal care to all pregnant women who smoke or who have recently quit.	I	3,5,20
At every antenatal visit midwives and doctors should <i>ask</i> women about their smoking behaviour using a multiple-choice question, and document their response on the antenatal record.	II III	8,21 22
At every antenatal visit midwives and doctors should <i>advise</i> women about the risks to their own and the baby's health ie the risk of having a baby with low birth weight, prematurity or growth restriction. The benefits of quitting at any stage in pregnancy should be emphasised.	I IV	3,5,20 6
Midwives and doctors should assess all women identified as smokers or as 'recently quit' for their willingness to quit or to stay quit and document this information on the antenatal record.	II III	8,21 22
Midwives and doctors should <i>assist</i> women to quit or remain quit by means of an approach based on a cognitive-behavioural model of intervention. Written material should be provided on the effects of smoking on both mother and baby, on the role of the partner in helping to reduce the health risks to the baby, on ways to quit and stay quit, and where to find extra support. Midwives and doctors should assist women to develop a commitment to quit, to set a 'quit date' and adopt appropriate strategies to quit or stay quit.	I II	3,7,20 8
Where women experience difficulty in quitting, they should arrange for additional support in-house and/or via a referral to an outside agency. Partners should be provided with information and support to assist women to quit and stay quit.	III	10,11
Every woman assessed as a smoker or recent quitter should be followed up at least once prior to 20 weeks and preferably at each antenatal visit. If she has quit or attempted to quit, she should be given support and encouragement. If she has not attempted to quit, the process of advising, assessing and assisting should be offered again.	II III	8 10
Good Practice Notes		
Women should not be asked a dichotomous question such as 'Do you smoke? Yes/No'.		
They should be asked a multi-choice question such as 'Which of the following statements best describes your cigarette smoking? I smoke daily now, about the same as before finding out I was pregnant/ I smoke daily now, but I've cut down since I found out I has pregnant/ I smoke every once in a while/ I quit smoking since finding out I was pregnant/ I wasn't smoking around the time I found out I was pregnant and I don't currently smoke.'		

## Aim

The aim of these guidelines is to assist midwives and doctors to reduce the risk of poor health outcomes for babies caused by exposure to maternal smoking. A secondary aim is to reduce the long-term health risks for mothers associated with tobacco use.

## Evidence

Approximately 33 per cent of Australian women are smokers when they become pregnant. A quarter of Australian women who smoke quit spontaneously before their first antenatal visit. However, one in four will relapse during pregnancy. An estimated 58,000 of Australian babies born per year are exposed to the effects of smoking in utero<sup>1</sup>. Smoking rates are particularly high among teenagers and indigenous Australians at around 50 per cent to 60 per cent<sup>2-4</sup>. Evidence indicates a serious risk associated with maternal smoking for the fetus, including low birth weight (LBW), perinatal morbidity and mortality. Nicotine, carbon monoxide (CO) and other toxic chemicals readily cross the placenta during pregnancy. CO reduces the oxygen supply to the fetus and nicotine raises fetal blood pressure and affects breathing movements. Fetal growth is thought to be restricted by impaired placentation leading to impaired fetoplacental oxygenation and subsequent growth restriction (IUGR) and low birth weight (LBW). Pooled estimates of relative risk show that the risk of LBW is doubled for babies of mothers who smoke (RR=2.04). Prematurity is a third more likely (RR=1.34) and IUGR more than double (RR=2.28). The risk of Sudden Infant Death Syndrome is almost three times higher (RR=2.76), and maternal smoking is associated with around 10 per cent of still births (RR=1.33) and spontaneous abortions (RR=1.36)<sup>3,5</sup>.

High level evidence strongly supports the effectiveness of smoking cessation interventions in reducing smoking rates in pregnant women, reducing preterm birth and LBW. Between 1975 and 1998, a total of 44 randomised control trials were conducted on smoking cessation interventions during pregnancy. These trials involved over 17,000 women, and included a cluster-randomised trial of a further 3,000 women. A Cochrane Review concludes that multifaceted interventions based on a cognitive-behavioural model result in a reduction in smoking rates, in LBW and in preterm birth<sup>3</sup>. A cognitive-behavioural approach focuses on restructuring the person's beliefs about their smoking and ability to quit, while emphasising the development and implementation of appropriate coping strategies. In the US review of the evidence has led to recommendations that routine and extended smoking cessation interventions should be implemented during pregnancy<sup>6</sup>. Interventions during pregnancy can double quitting rates and prevent relapse among spontaneous quitters<sup>3</sup>. While

abstinence throughout pregnancy will produce the greatest benefits to the fetus, quitting at any point can yield benefits. Even cutting down can be beneficial for heavy smokers<sup>5,6</sup>.

Level I II and IV evidence suggest interventions should be based on a model with multiple contacts, multiple formats supporting written materials and follow-up contacts<sup>6-8</sup>. The US Public Health Service recommend a five-step strategy of ASK, ADVISE, ASSESS, ASSIST and ASK AGAIN at each antenatal visit<sup>6</sup>. The cycle should be repeated throughout pregnancy, due to high relapse rates in quitters, inaccurate reporting by women of smoking status and the impact of changed circumstances on women's motivation. Level III and IV evidence suggests women who may not have appeared to need or to want an intervention in early pregnancy may become receptive later in pregnancy<sup>1,6,9</sup>. Level III evidence suggests interventions should include components tailored to women with partners who smoke<sup>10,11</sup>.

Despite strong evidence of effectiveness and cost-benefit<sup>12-15</sup>, few Australian hospitals adopt a systematic approach to identifying pregnant women who smoke or who have recently quit, nor do they routinely deliver smoking cessation interventions<sup>16</sup>. Barriers to the adoption of routine identification and intervention include lack of recognition of the important clinical and financial benefits; time pressure and competing demands on medical staff; lack of confidence, experience and training in the delivery of interventions; and lack of guidelines or protocols to support staff<sup>17-19</sup>. Data strongly indicate that effective interventions require coordinated interventions involving individual, organisational and systemic change<sup>6</sup>.

Insufficient evidence currently exists to assess fully the relative risks and benefits of nicotine replacement therapy (NRT) or other pharmacotherapies for the fetus<sup>6</sup>.

## Methods of Search and Appraisal

Two strategies were used to search and appraise the literature on screening for smoking status and delivery of smoking cessation interventions among pregnant women.

### I. Search on Defined Questions (December 2000)

A project team from the Centre for Behavioural Research in Cancer and Anti Cancer Council of Victoria searched PubMed (1980-2001), and Cochrane Library databases (-2001) to answer the following questions:

1. Do smoking cessation interventions for pregnant women reduce their smoking rates?

2. Do smoking cessation interventions decrease perinatal morbidity and mortality?
3. Are smoking cessation interventions cost-effective?
4. What are the characteristics of smoking cessation interventions that are most effective in reducing smoking among pregnant women?
5. Does the provision of information and support to the pregnant woman's partner assist her to quit smoking and prevent relapse?
6. What is the potential risk to the pregnant woman and the baby of nicotine replacement and other pharmacotherapies, and are these outweighed by the potential benefits?
7. What is the optimum method of identifying pregnant women who smoke or who have recently quit in order to provide them with a smoking cessation intervention?

The search was conducted on English language material only. Search terms included pregnancy, tobacco, smoking, nicotine, cessation, quit, intervention, relapse, birth weight, morbidity, mortality, nicotine replacement therapy, pharmacotherapy, bupropion. Article citations were searched to identify additional references.

Over 180 citations were retrieved and 30 key citations identified. The findings of the literature appraisal were consistent with the US recommendations from the United States Department of Health and Human Services Clinical Practice Guidelines on Treating Tobacco Use and Dependence (2000).

## II. Communication with Experts to Identify Evidence and Practice Wisdom.

### References

1. Panjari M, Bell RJ, Astbury J, Bishop SM, Dalais F, Rice G E. Women who spontaneously quit smoking in early pregnancy. *ANZJOG*. 1997;37(3):271- Level II
2. Edwards E, McIntosh P. Understanding the problem smoking and pregnancy in indigenous communities. *Australian Medical Association Smoking and pregnancy - A national consensus conference*. Canberra 1999. Level IV
3. Lumley J, Oliver S, Waters E. Interventions for promoting smoking cessation during pregnancy (Cochrane Review). *The Cochrane Library*, Issue 4 2000. Oxford: Update Software. Level I
4. Wiemann C M, Berenson A B, San Miguel VV. Tobacco, alcohol and illicit drug use among pregnant women: Age and racial/ethnic differences. *Journal of Reproductive Medicine* 1994;39:769-776. Level IV

5. English D, Holman CD J, Milne Winter MG, Hulse GK, Coddle JP, Bower CI, Corti B, de Klerk N, Knuiman MW, Kurinczuk JJ, Lewin GF, Ryan GA. *The quantification of drug caused morbidity and mortality in Australia 1995: Part 2*. Commonwealth Department of Human Services and Health. Canberra 1995. Level I

6. United States Department of Health and Human Services. *Clinical Practice Guidelines: Treating Tobacco Use and Dependence*. Public Health Service 2000. Level IV

7. Melvin CL, Dolan-Mullen P, Windsor RA, Whiteside HP Jr, Goldenberg RL. Recommended cessation counselling for pregnant women who smoke: A review of the evidence. *Tobacco Control* 2000;9 (Suppl III):iii80-4. Level I

8. Mullen P D, Carbonari J P, Tabak ER, Glenday MC. Improving disclosure of smoking by pregnant women. *American Journal of Obstetrics and Gynecology* 1991;165:409-13. Level II

9. Walsh R A, Redman S, Adamson L. The accuracy of self-report of smoking status in pregnant women. *Addictive Behaviours* 1996;21(5):675-9. Level III-2

10. Nafstad P, Botten G, Hagen J. Partner's smoking: a major determinant for changes in women's smoking behaviour during and after pregnancy. *Public Health* 1996;110(6):379-85. Level III-2

11. Wakefield M, Jones W. Effects of a smoking cessation program for pregnant women and their partners attending a public hospital antenatal clinic. *Australian and New Zealand Journal of Public Health*. 1998;22(3) [Supplement]:313-20. Level III-3

12. Hueston W J, Mainous A G, Farrell JB. A cost-benefit analysis of smoking cessation programs during the first trimester of pregnancy for the prevention of low birthweight. *Journal Family Practice* 1994;39(4):353-7. Level IV

13. Marks JS, Koplan JP, Hogue CJ, Dalmat ME. A cost-benefit/cost effectiveness analysis of smoking cessation for pregnant women. *American Journal of Preventative Medicine* 1990;6(5):282-9. Level IV

14. Shipp M, Croughan-Minihane M S, Washington A E. Estimation of the breakeven point for smoking cessation programs in pregnancy. *American Journal of Public Health* 1992;82(3): 383-90. Level IV

15. Windsor RA, Warner KE, Cutter G R. A cost-effectiveness analysis of self-help smoking cessation methods for pregnant women. *Public Health Report* 1988;103(1):83-8. Level II

16. Walsh RA, Redman S. Smoking cessation in pregnancy: do effective programmes exist? *Health Promotion Int* 1993;8(2). Level IV

17. Klerman LV, Spivey C, Raykovitch KT. Smoking reduction activities in a federal program to reduce infant mortality among high risk women. *Tobacco Control* 2000;9(Supplement III):iii51-iii55. Level IV
18. Velasquez MM, Hecht J, Quinn VP, Emmons K, DiClemente CC, Dolan-Mullen P. Application of motivational interviewing to prenatal smoking cessation: training and implementation issues. *Tobacco Control*. 2000;9(Supplement III):iii 36-iii40. Level IV
19. Walsh R A, Melmeth A, Byrne J M, Brinsmead M W, Redman S. A smoking cessation program at a public antenatal clinic. *American Journal of Public Health* 1997;87:1201-4. Level II
20. Dolan-Mullen P, Ramirez G, Groff JY. A meta-analysis of randomized trials of prenatal smoking cessation interventions. *American Journal of Obstetrics* 1994;171(5). Level I
21. Clark K A, Dawson S, Martin S L. The effect of implementing a more comprehensive screening for substance use among pregnant women in North Carolina. *Maternal and Child Health Journal* 1999;3(3):161-6. Level II
22. Kharrazi M, Epstein D, Hopkins B, Kreutzer R, Doebbert G, Hiatt R, Swan S, Eskenazi B, Pirkle JL, Bernert JT. Evaluation of four maternal smoking questions. *Public Health Reports* 1999;114(1):60-70. Level III-2

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