



Promoting smoking cessation among pregnant women: routine antenatal care guidelines

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Abstract

Objective

To develop guidelines for smoking cessation intervention in antenatal care.

Design

An evidence-based method involving consultation and a systematic search and critical appraisal of the literature.

Results

The evidence from the appraisal indicates that smoking cessation interventions reduce smoking rates, decrease perinatal morbidity and mortality, and are cost-effective. The evidence also shows that interventions that are intensive or have multiple formats are most effective and pregnant smokers are more readily identified with a multiple-choice answer format rather than a yes/no format. The evidence on nicotine replacement therapy was insufficient for inclusion in the guidelines. The guidelines recommend identification of smoking and provision of advice and assistance. Implementation of guidelines has begun, with the development of manuals, training, resources and performance indicators.

Conclusion

With commitment and support of service providers and government, much progress can be made in developing a systematic approach to reducing maternal smoking.

Introduction

It is well established that maternal smoking can result in serious health consequences and this is of great concern, since approximately a quarter of women continue to smoke through pregnancy (Siahpush 2002). Nicotine, carbon monoxide (CO) and other toxic chemicals readily cross the placenta during pregnancy. CO reduces the oxygen supply to the foetus and nicotine raises foetal blood pressure and affects breathing movements (Napier 1996). Growth of the foetus is thought to be restricted by impaired placentation leading to impaired fetoplacental oxygenation and subsequent intrauterine growth retardation (IUGR) and low birth weight (LBW). Low birth weight is an important risk factor for neonatal health problems, including foetal death (stillbirth) and for complications in infancy (Floyd et al. 1993).

Pooled estimates of relative risk (English et al. 1995) show that, for babies of mothers who smoke:

- the risk of LBW doubles (RR=2.04)
- prematurity is a third more likely (RR=1.34)
- the risk of IUGR more than doubles (RR=2.28)
- the risk of Sudden Infant Death Syndrome is almost three times higher (RR=2.76)
- the risk of stillbirth increases by about one-third (RR=1.33)
- the risk of spontaneous abortion increases by about one-third (RR=1.36).

Smoking during pregnancy is also associated with problems in infancy and childhood (Napier 1996, OEHHA 1997, NHMRC 1997). Smoking cessation early in pregnancy results in the same foetal growth and perinatal morbidity rates as babies born to non-smokers.

Smoking cessation interventions for pregnant women can effectively reduce the rate of maternal smoking and consequently prevent perinatal morbidity (Lumley, Oliver & Waters 2002; Ahlsten, Cnattingius & Lindmark 1993; Dolan-Mullen, Ramirez & Groff 1994; Walsh & Redman 1993). A recent review of the evidence found that the chance of continued smoking during pregnancy was halved for women who had smoking cessation intervention and concluded that 'smoking cessation and relapse prevention needs to be as routine a part of antenatal care as the measurement of blood pressure' (Lumley, Oliver & Waters 2002 p. 10). However, identifying smokers and providing advice is not a routine part of antenatal care in Australia (Dickinson et al. 1989; Walsh & Redman 1993; Walsh et al. 1997). The literature shows that smoking cessation intervention is not routinely provided to pregnant women because

health professionals do not believe that they have the time or skills, nor do they see it as a part of their role (Cooke, Mattick & Barclay 1996). Guidelines can address this by raising awareness of the importance of smoking cessation, legitimising the provision of smoking cessation intervention as part of their role and providing guidance as to how it might be done.

If smoking cessation guidelines for antenatal care are adopted and disseminated broadly, the potential for preventing tobacco-caused perinatal morbidity and mortality could be substantial. The need to identify and assist pregnant smokers as part of routine care has been identified by the Australian National Tobacco Strategy (CDHAC 1999) and a national consensus conference on smoking and pregnancy (AMA 1999). This paper describes the development of smoking cessation guidelines for antenatal care in Victoria.

Method

Guidelines for the provision of smoking cessation interventions during pregnancy were developed as part of the *Three Centres Consensus Guidelines on Antenatal Care* that was published in October 2001 (Mercy Hospital et al. 2001). The idea for the development of these guidelines was initiated by senior staff in three of Victoria's largest maternity hospitals. In 1999, these hospitals received funding from the Department of Human Services and formed a Steering Group which consisted of directors of the women's health and maternity services programs from each of the three hospitals. Guidelines were developed for eight key areas, one of which was smoking, and were peer reviewed by a multidisciplinary reference group from each hospital, comprising obstetricians, nurse unit managers, general practice liaison and allied health staff. A consumer consultation was also conducted with patients from each hospital.

The Cancer Council Victoria and Quit Victoria offered to assist with the development of the guidelines for smoking cessation. Each guideline was developed using an evidence-based method which involved four steps. First, search questions were developed that could be used to scrutinise the literature: the questions were defined on the basis of a review of key issues and debates on the topic. Second, the literature was systematically searched using these questions. Third, the relevant literature was reviewed: the findings for each question were appraised and conclusions drawn. The fourth step was to integrate the findings from the review with clinical expertise: this was done through consultation with experts in the field.

Results

For each of the search questions, key references were selected and classified according to National Health and Medical Research Council levels of evidence (NHMRC 1999). The findings were reviewed in terms of their meaning and quality of the evidence. Below is a summary of the appraisal findings for each question.

1. Do smoking cessation interventions for pregnant women increase cessation?

The literature shows a significant reduction in the odds of continued smoking in late pregnancy in intervention groups – the odds of continued smoking were reduced by half (OR=0.53, 95% CI 0.47–0.60). This finding is based on a meta-analysis conducted by Lumley, Oliver & Walters (2002) for the Cochrane Collaboration.

2. Do smoking cessation interventions decrease perinatal morbidity and mortality?

Smoking cessation in pregnancy results in a reduction in low birth weight (OR=0.80, 95% CI 0.67–0.95), reduction in preterm birth (OR=0.83, 95% CI 0.69–0.99) and increase in mean birth weight of 29 gms (95% CI 9–49). No effect was found for very low birth weight (<1500 gms) or perinatal mortality. These findings are also from the Cochrane Review.

3. Are smoking cessation interventions cost-effective?

The evidence indicates that smoking cessation programs are cost-effective, but there have been few economic evaluations of smoking cessation interventions in the Australian context. Most of the evidence is based on economic evaluations conducted in the US.

4. What are the characteristics of smoking cessation interventions that are most effective in reducing smoking among pregnant women?

Evidence indicates that the most effective smoking cessation interventions are intensive with multiple formats such as brief counselling and self-help written materials and multiple contacts including follow-up. Effectiveness is increased by offering pregnancy-specific materials. Group sessions for pregnant women are ineffective. This evidence is based on meta-analyses of randomised controlled trials (Dolan-Mullen et al. 1994). Including partners of pregnant smokers in the intervention also increases the chances of successful smoking cessation. Developers of the US Clinical Practice Guideline for Treating Tobacco Use and Dependence concluded from their meta-analysis and extensive consultation that every smoker should be offered brief clinical

interventions. Their guidelines for brief intervention adopts a five-step approach which includes: asking about smoking status, advising patient to stop smoking, assessing the patient's willingness to quit, assisting the patient to quit and arranging follow up – preferably soon after the quit date (TUDCPGP 2000).

5. What is the potential risk to the pregnant woman and the baby of nicotine replacement therapy and other pharmacotherapies and are these outweighed by the potential benefits?

The evidence proved insufficient at this time to develop guidelines on nicotine replacement therapy for pregnant smokers. A number of studies conducted in the US indicate that judicious use of nicotine replacement therapy may reduce harm to infants of heavy smokers, but these studies had a number of limitations and their generalisability seems low. The US Clinical Practice Guideline recommends, on the basis of panel consensus, that nicotine replacement therapy be considered when the woman is otherwise unable to quit.

6. 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?

Identification of smoking status is an essential prerequisite to the offer of assistance. The accuracy of detection of smokers can be substantially increased by asking questions with a multiple choice format rather than a yes/no format. That is, a question such as 'Which of the following statements best describes your cigarette smoking?' and a choice of answers – '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 was 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' – is preferable to 'Do you smoke?' with response options 'Yes/No'.

Implementation

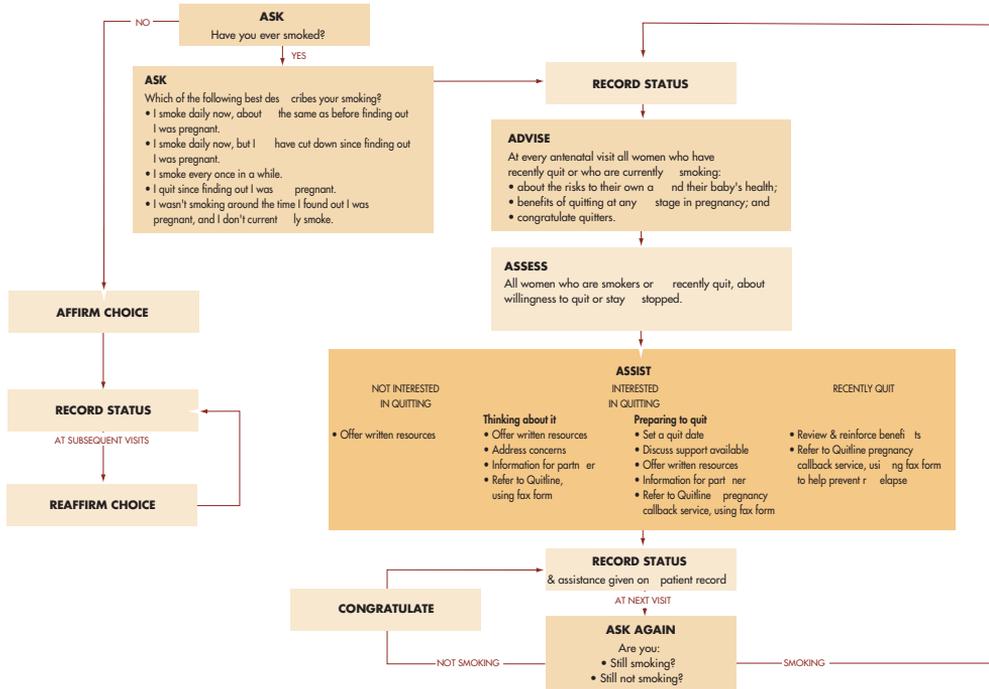
The guidelines are brief, but capture the essence of what the evidence indicates is likely to reduce morbidity and mortality caused by maternal smoking. The overarching guideline is to offer smoking interventions to all women who smoke or have recently quit and it is suggested that this be done by following a five-step model. These steps are to:

1. First, ask all women about their smoking. It is recommended that a multiple choice format be used.

2. Second, advise all women who smoke or have recently quit about the health risks to their babies and themselves of smoking and to quit. Need to explain that low birth weight means a sick baby.
3. Third, assess the woman's willingness to quit. Must be their decision and not a result of pressure from family/friends/hospital.
4. According to their willingness, provide assistance. The guidelines suggest that take-home material is given:
 - tailored for pregnant smokers
 - and a quit date is set, support to stay quit is put in place, and information for the partner is made available. The assistance may be given by a health professional or the woman may be referred to a dedicated smoking cessation advisor.
5. The final step is to follow up by again asking about smoking and giving appropriate support and encouragement. This is best done soon after the quit date.

For the guidelines to be of any value, they have to be used as part of routine care and staff need to be trained and their practice monitored. The three hospitals that produced the guidelines (Mercy Hospital et al. 2001) have begun to develop manuals, training and systems for monitoring use of guidelines. Quit Victoria has assisted by offering a training course and creating a flow chart for easy reference (see next page). To inform the development of the training, Quit Victoria conducted focus group discussions with doctors and midwives about the guidelines and indicators on smoking cessation in antenatal care. There was general agreement about the value of the intervention, but some concerns about consistency in implementation and documenting smoking cessation interventions. The focus groups also raised issues about who should provide assistance and their need for more information.

SMOKING CESSATION INTERVENTION FOR PREGNANT WOMEN



At the same time as the guidelines were being written in 2000, the Department of Human Services contracted the Royal Women’s Hospital, Melbourne, to develop a set of performance indicators for measuring maternity care for the state’s public sector acute hospital-based maternity services (QCCB 2001). Nine indicators were identified by the Performance Indicators Project and included an indicator of the delivery of smoking cessation interventions. The indicator was based on a search and appraisal of the literature, and a statewide consultation with consumers and providers.

Consumers selected the smoking indicator in consultations, whereas providers did not support the inclusion of this indicator because of perceived difficulty in data collection. The project team, nevertheless, endorsed the inclusion of the smoking cessation performance indicator on the basis of its public health importance and an acknowledgment that there is considerably more room for improvement in this area. The indicator is measured by ‘the proportion of women offered appropriate interventions in relation to smoking’. The smoking

indicator is currently being pilot tested at six hospitals and involves the establishment of new data recording systems, protocols and assessment tools.

Discussion

From the experience of developing a systematic approach to smoking cessation interventions for pregnant women in Victoria, it can be seen that much progress can be made with the commitment and support of service providers, government and tobacco control experts. The work of writing the guidelines and performance indicators was driven by the hospitals and involved comprehensive consultation. Consultation is essential to the acceptance and adoption of the guidelines. Government provided valuable leadership in initiating the projects and bringing together a number of hospitals to work together. The Cancer Council Victoria and Quit Victoria provided specialised expertise to the project teams. Without this assistance the smoking cessation guidelines and performance indicator would probably not have been developed.

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