CONCLUSIONS

Recommended cessation counseling for pregnant women who smoke: a review of the evidence

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Abstract

Objective—To review the evidence base underlying recommended cessation counseling for pregnant women who smoke, as it applies to the steps identified in the Agency for Healthcare Research and Quality’s publication, *Tobacco use and dependence: a clinical practice guideline*.

Data sources—Secondary analysis of literature reviews and meta-analyses.

Data synthesis—A brief cessation counseling session of 5–15 minutes, when delivered by a trained provider with the provision of pregnancy specific, self-help materials, significantly increases rates of cessation among pregnant smokers. This low intensity intervention achieves a modest but clinically significant effect on cessation rates, with an average risk ratio of 1.7 (95% confidence interval 1.3 to 2.2). There are five components of the recommended method—“ask, advise, assess, assist, and arrange”.

Conclusions—We recommend these evidence based procedures be adopted by all prenatal care providers. The use of this evidence based intervention is feasible in most office or clinic settings offering prenatal care and can be implemented without inhibiting other important aspects of prenatal care or disrupting patient flow. If implemented widely, this approach has the potential to achieve an important reduction in a number of adverse maternal, infant, and pregnancy outcomes and to reduce associated, excess health care costs.

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Data sources

To develop consensus on a best practice intervention for pregnant smokers, we reviewed the evidence related to cessation counseling during pregnancy in the published literature and Research’s (AHCPR) clinical practice guideline, *Smoking cessation*, and its recent update, *Tobacco use and dependence: a clinical practice guideline*, by the Agency for Healthcare Research and Quality (AHRQ, formerly AHCPR). A panel of experts also considered this literature and its implications for a best practice intervention at the 1998 consensus workshop on smoking cessation in pregnancy, sponsored by the Robert Wood Johnson Foundation’s Smoke-Free Families Program, the Health Resources and Services Administration, and the Centers for Disease Control and Prevention. Participants included representatives from the American Cancer Society, the National Cancer Institute, the National Heart, Lung, and Blood Institute, the Association of Maternal and Child Health Programs, the Oklahoma Health Care Authority, the Partnership for Prevention, and the Addressing Tobacco in Managed Care initiative. The panel considered three questions: (1) is pregnancy an appropriate time for smoking cessation efforts?; (2) are interventions effective?; and (3) how can smoking cessation interventions be introduced into health systems?

The panel concluded that pregnancy is an appropriate time to achieve smoking cessation and that successful interventions produce clear, short term, and cost effective benefits. They also concluded that a brief cessation counseling session can improve cessation rates as compared to simple advice to quit, and that more intensive counseling has not been documented to increase cessation rates among pregnant smokers. Furthermore, they found that almost all benefits of brief counseling occur in light to moderate smokers.

Data synthesis

Based on these reviews of the evidence, we recommend a simple approach that has been shown to increase cessation in prenatal populations as compared to usual advice to stop smoking. A brief cessation counseling session of 5–15 minutes, when delivered by a trained provider with the provision of pregnancy specific, self-help materials,
significant increases rates of cessation among pregnant smokers. A previous meta-analysis has found that this low intensity intervention achieves a modest but clinically significant effect on cessation rates, with an average risk ratio across the 16 studies (weighted by the precision of each study’s risk ratio) of 1.7, and a 95% confidence interval (95% CI) of 1.3 to 2.2. The average risk ratio of 1.7 suggests a 70% improvement in cessation, and the confidence interval suggests that the outcome (cessation) is at least 30% higher in the treated versus the untreated (control/comparison) groups (Table 1). It appears that this intervention is at least as effective with ethnic minority women, notably African American women, as with white, non-Hispanic women. It is less effective, however, with more addicted smokers, and it is not clear what additional interventions might be effective with these smokers.

**Steps for cessation counselling during pregnancy**

We use the “ask, advise, assess, assist, and arrange” steps as the basis for recommended counselling for pregnant women. The “4 As” (ask, advise, assist, and arrange) were developed by Glynn and Manley and recommended by the National Cancer Institute for counselling smokers in clinical practice. The AHCPR also adopted these steps in its original smoking guideline. In the revised guideline, a fifth step is also recommended. Placed between the “advise” and “assist” steps is the “assess” step in which the willingness of smokers to make a quit attempt is assessed. We suggest a minimum time to perform each counselling step.

The AHRQ smoking guideline panel update used studies of general populations to assess the impact of total contact time for this type of cessation intervention, using six time categories, ranging from zero to > 300 minutes. The guideline panel concluded that there was a dose response effect up through the category 31–90 minutes, but that lengthier contact time did not improve rates of cessation. Yet, because of the relatively brief total contact time evaluated in the trials with pregnant women assessed by the guideline panel and the participants in the consensus conference, we recommend total contact time of 5–15 minutes plus self help materials. A similar idea is expressed in the updated AHRQ guideline recommendation as “interventions that exceed minimal advice”—defined as < 3 minutes. 10

Many pregnant women are reluctant to disclose their smoking status at their first prenatal visit. Deception rates as high as 23% among Medicaid insured and 14% among privately insured pregnant women have been biochemically confirmed. Non-disclosure can be reduced using the multiple choice question shown above in either written or oral formats. Tests of similar questions in both written and oral formats have improved disclosure as compared with the yes/no question typically used, “Do you smoke?” The biochemical methods to validate smoking status are becoming more widely available and affordable—for example, cotinine dipsticks for urine—the acceptability of such testing is "not known. Therefore, at present, we do not recommend biochemical testing as part of routine screening of all pregnant women for smoking. Anonymous testing for a period of

### Table 1 Settings, interventions, smoking cessation and risk ratios (95% confidence intervals) for 16 trials

<table>
<thead>
<tr>
<th>Trial</th>
<th>Setting</th>
<th>Intervention</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexton, Hebel 1984</td>
<td>Private + university clinics (US)</td>
<td>One or more personal visits, monthly phone contact with master's level educator + biweekly mailed materials</td>
<td>389</td>
<td>31.9</td>
<td>392</td>
</tr>
<tr>
<td>Winsor et al 1985</td>
<td>Public clinics (US)</td>
<td>10 minute session with bachelor's level counsellor + materials + manual</td>
<td>102</td>
<td>13.7</td>
<td>104</td>
</tr>
<tr>
<td>Ersho et al 1991</td>
<td>HMO (US)</td>
<td>Brief counselling by health educator + 8 booklets mailed weekly</td>
<td>126</td>
<td>26.2</td>
<td>116</td>
</tr>
<tr>
<td>Walsh et al 1991</td>
<td>Urban hospital clinic (US)</td>
<td>Personal letter from chief of prenatal clinic + pamphlet</td>
<td>70</td>
<td>12.8</td>
<td>69</td>
</tr>
<tr>
<td>Hjalmarson et al 1991</td>
<td>Public clinics (Sweden)</td>
<td>Self help manual distributed by obstetrician</td>
<td>444</td>
<td>12.6</td>
<td>209</td>
</tr>
<tr>
<td>Price et al 1991</td>
<td>University hospital clinic (US)</td>
<td>Videotape + pamphlet + brief counselling by health educator + booklet + counselling</td>
<td>123</td>
<td>4.9</td>
<td>70</td>
</tr>
<tr>
<td>O'Connor et al 1992</td>
<td>Group practice (Canada)</td>
<td>20 minute counselling by public health nurse + manual + phone contact</td>
<td>90</td>
<td>13.3</td>
<td>84</td>
</tr>
<tr>
<td>Peterson et al 1992</td>
<td>HMO (US)</td>
<td>Mailed manual + audiotape</td>
<td>43</td>
<td>16.3</td>
<td>47</td>
</tr>
<tr>
<td>Windsor et al 1993</td>
<td>Public clinics (US)</td>
<td>15 minute counselling by educator + manual + clinic reinforcement + mailed letter + &quot;buddy&quot; support methods + quarterly newsletter</td>
<td>400</td>
<td>14.2</td>
<td>414</td>
</tr>
<tr>
<td>Secker-Walker et al 1994</td>
<td>University clinic (US)</td>
<td>Counselling by trained counsellors at 1st 3 visits and at 36 weeks + booklet</td>
<td>136</td>
<td>10.3</td>
<td>176</td>
</tr>
<tr>
<td>Kendrick et al 1995</td>
<td>Public clinics (US)</td>
<td>1–5 minute counselling at multiple visits</td>
<td>233</td>
<td>8.2</td>
<td>284</td>
</tr>
<tr>
<td>Kendrick et al 1995</td>
<td>Public clinics + WIC sites (US)</td>
<td>Brief counselling + material</td>
<td>307</td>
<td>7.2</td>
<td>546</td>
</tr>
<tr>
<td>Hartmann et al 1996</td>
<td>University clinic (US)</td>
<td>6 minute counselling in prenatal visits; 1–2 minute counselling at WIC sites</td>
<td>348</td>
<td>3.7</td>
<td>347</td>
</tr>
<tr>
<td>Walsh et al 1997</td>
<td>Public clinic (Australia)</td>
<td>Brief advice by doctor + 14 minute videotape + 10 minute counselling by midwife + manual</td>
<td>127</td>
<td>9.0</td>
<td>125</td>
</tr>
</tbody>
</table>

Summary risk ratio (random effects model) = 1.7 (1.3 to 2.2)
The revised AHRQ guideline recommends that clinicians assess a patient’s willingness to make a quit attempt before proceeding to the “assist” and “arrange” steps. Specifically, each pregnant smoker should be asked if she is willing to make a quit attempt within the next 30 days. One approach to this assessment is: “Quitting smoking is one of the most important things you can do for your health and your baby’s health. If we can give you some help, are you willing to give it a try?” If she is willing to make a quit attempt at this time, the provider should move to step 4. For patients who are unwilling to attempt cessation, quitting advice, assessment and assistance can be offered in future visits in much the same way they are with smokers who are ready to quit. Most pregnancy tailored self help materials contain special messages to build motivation and confidence in support of a cessation attempt.

The benefits of “cutting down” are difficult to measure or verify, so women who ask if cutting down is helpful should be reinforced for taking this step, but reminded that quitting entirely brings the best results for their own and their baby’s health.
Analysis of the interventions tested with pregnant women (table 1) indicate the effectiveness of providing pregnancy specific patient education materials. Studies with general samples of smokers also suggest that teaching problem solving methods and skills—arranging social support from family, friends and co-workers, and receiving support from the clinician are helpful, whereas contingency contracting, relaxation/breathing, cigarette fading, and exercise/fitness content are not.

The following specific strategies are recommended as part of providing assistance to pregnant women who smoke:

**Provide pregnancy specific, self help smoking cessation materials**—An early study showed that pregnancy related messages significantly increased the likelihood of cessation. The cessation rate of the group receiving the brief counselling with a pregnancy tailored manual was twice that of the group receiving the brief counselling with a general cessation manual. Since then, all of the tested interventions have used pregnancy specific information (table 1). Materials should be relevant to pregnancy and prenatal care as described above. Numerous self help quitting guides tailored for pregnancy have been tested and found effective with pregnant smokers of varied demographic groups (for example, ethnicity, income, education).

Information on pregnancy materials may be found in the prenatal smoking cessation combined health information database on the web at [http://chid.nih.gov](http://chid.nih.gov).

**Problem solving**—Problem solving includes recognition of danger situations, relapse prevention, coping and stress management, and basic information about addiction and the time course of withdrawal.

**Social support in the smoker’s environment**—The counsellor should prompt support seeking and help the patient develop support solicitation skills as approaches to gaining outside support (for example, from family, friends, and co-workers) for her decision to make a quit attempt.

**Social support as part of treatment**—Social support from the counsellor means that the counsellor is encouraging, communicates caring and concern, and encourages the patient to talk about the process of quitting.

Addiction in the general population of smokers is addressed in the guideline by strong recommendations for the use of pharmacotherapies (for example, buproprion and nicotine replacement therapy). Nicotine replacement therapy as an adjunct to counselling has been shown to increase cessation rates. More recently, buproprion, in conjunction with nicotine replacement plus counselling, has also shown a strong positive effect in a sample of non-depressed smokers.

To date, no study has evaluated the efficacy and safety of these therapies during pregnancy. Thus, the evidence, at this point, is not conclusive about the ratio of potential harm to benefit for use during pregnancy and supports the need to consider pharmacotherapies only after psychosocial intervention has failed.

More research is needed on this topic before specific recommendations can be made about the use of pharmacotherapies during pregnancy. Optimally, smokers can be treated with these pharmacotherapies before conception.

Research findings indicate that the type of behavioural counselling assistance described above may not be sufficient for pregnant women who are heavy smokers. While the research is not clear on the best intensive treatment for pregnant, heavy smokers, referral to the types of counselling recommended as more effective in the AHRQ Guideline should be considered.

**Step 5: ARRANGE—1 minute +**

- Periodically assess smoking status and, if she is a continuing smoker, encourage cessation.

While quitting early in pregnancy is best, smoking cessation brings benefits throughout the pregnancy for the mother, fetus, and infant. Smoking status should be monitored throughout pregnancy providing opportunities to congratulate and support success, reinforce steps taken towards quitting, and advise those still considering a cessation attempt.

**Conclusions**

In summary, data from randomised clinical trials and from the meta-analyses used to update the AHCPR clinical practice guideline on smoking cessation show that a 5–15 minute cessation counselling intervention delivered by a trained provider, in conjunction with the provision of pregnancy specific self help materials, can achieve a significant increase in cessation during pregnancy. Thus, we recommend these evidence based procedures be adopted by all prenatal care providers.

We believe that the use of this intervention is feasible in most office or clinic settings without inhibiting other important aspects of prenatal care or disrupting patient flow. If implemented widely, this approach has the potential to achieve an important reduction in a number of adverse maternal, infant, and pregnancy outcomes and to reduce associated, excess health care costs.

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