Nicotine Addiction in Pregnant Women

Beth A. Bailey, PhD
Associate Professor of Family Medicine
Director, Tennessee Intervention for Pregnant Smokers
East Tennessee State University
Overview of Today’s Session

✓ Pregnancy smoking: How big is the problem?
✓ Associated outcomes: Why is pregnancy smoking so bad?
✓ Co-Morbidities: What conditions are associated with pregnancy smoking and failure to quit?
✓ Intervention: What CAN be done?
✓ Intervention: What IS being done?
✓ Summary and references
How Big is the Problem?

- Rates of pregnancy smoking have been declining in the United States—decrease of 42% in the last 15 years
- Nationally, 11% of pregnant women smoke during pregnancy
- Rates are significantly higher in many regions of the country and within certain population groups
How Big is the Problem?

- The statewide rate of pregnancy smoking in Tennessee is 17%, the third highest rate in the nation
- In Northeast Tennessee, rates of pregnancy smoking range from 25-43%* - more than double the state average and as much as quadruple that of the national average
- Rates are higher among Caucasian women, those receiving government assistance, and those living in the most rural areas

* Data source—delivery chart reviews in Washington, Carter, & Sullivan Co hospitals
## How Big is the Problem?

Local Pregnancy Smoking Rates by Delivery Hospital and Year

<table>
<thead>
<tr>
<th>Hospital</th>
<th>2006</th>
<th>2007</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCMC</td>
<td>31.4%</td>
<td>33.0%</td>
<td>↑1.6%</td>
</tr>
<tr>
<td>JCSH</td>
<td>14.5%</td>
<td>17.1%</td>
<td>↑2.6%</td>
</tr>
<tr>
<td>Indian Path*</td>
<td>29.7%</td>
<td>37.5%</td>
<td>↑7.8%</td>
</tr>
<tr>
<td>Sycamore Shoals</td>
<td>42.5%</td>
<td>37.6%</td>
<td>↓4.9%</td>
</tr>
</tbody>
</table>
Why is Pregnancy Smoking So Bad?

**Effects are seen during:**
- Gestation
- Infancy
- Childhood
- Adolescence

**Smoking negatively affects:**
- Gestational Development
- Infant Morbidity and Mortality
- Physical Health
- Psychological Health
- Growth
- Attention
- Behavior
- Emotional Regulation
Pregnancy Risks Associated with a Smoke-Exposed Pregnancy

- Ectopic pregnancy
- Intrauterine growth restriction
- Placenta previa
- Placental abruption
- PROM
- Miscarriage
- Preterm delivery
Birth Outcomes Associated with a Smoke-Exposed Pregnancy

• National studies have reported links between pregnancy smoking and poor birth outcomes

• Our local findings indicate*:
  – Compared with those born to non-smokers, newborns of smokers were nearly 350gm lighter, 1 inch shorter, and were born almost 1 week earlier
  – Babies born to smokers were nearly twice as likely to be classified as low birth weight, to be born preterm, and to be admitted to the NICU

Birth Outcomes Associated with a Smoke-Exposed Pregnancy

- We have also demonstrated the relative impact of smoking in relation to birth outcomes locally*
- Compared with other modifiable health behaviors, including nutrition, adequacy of prenatal care utilization, and the use of alcohol and illicit drugs, pregnancy smoking was the strongest predictor of a low birth weight delivery

Birth Outcomes Associated with a Smoke-Exposed Pregnancy

<table>
<thead>
<tr>
<th>Predictor of Birth Weight</th>
<th>R</th>
<th>R^2Δ</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>.045</td>
<td>.002</td>
<td>.66</td>
<td>.508</td>
</tr>
<tr>
<td>Modifiable Health Behaviors</td>
<td>.342</td>
<td>.115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate prenatal care</td>
<td></td>
<td></td>
<td>1.91</td>
<td>.057</td>
</tr>
<tr>
<td>Weight gain</td>
<td></td>
<td></td>
<td>1.91</td>
<td>.057</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td></td>
<td></td>
<td>-3.99</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td>.61</td>
<td>.544</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td>1.10</td>
<td>.273</td>
<td></td>
</tr>
<tr>
<td>Hard illicit drugs</td>
<td></td>
<td>1.28</td>
<td>.202</td>
<td></td>
</tr>
</tbody>
</table>

Postnatal Risks Associated with a Smoke-Exposed Pregnancy

- SIDS
- Ear infections
- Asthma & allergies
- Respiratory infections
- Growth restriction
- Cognitive delays and deficits
- Behavioral & emotional problems
Psychiatric Outcomes Associated with Prenatal Smoke Exposure

- ADHD
- Conduct disorders (child)
- Criminal behavior (adult)
- Depressive/anxiety disorders
- Substance use/abuse/dependence
- Autism
- Associations are independent of effects of potentially confounding factors (maternal co-morbidities, family environment, SES, post-natal smoke exposure)
What Factors are Associated with Pregnancy Smoking/Failure to Quit?

- As already noted, women in Tennessee, and especially women in Northeast TN, are more likely to smoke during pregnancy than women who reside elsewhere.

- Other associated demographic factors noted specifically in this region include lower SES (including lower education, poverty, unemployment) non-minority status, and rural residence.


13
What Factors are Associated with Pregnancy Smoking/Failure to Quit?

<table>
<thead>
<tr>
<th>County Condition</th>
<th>% Smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>34.7%</td>
</tr>
<tr>
<td>Non-Rural</td>
<td>24.4%</td>
</tr>
<tr>
<td>Higher Unemployment</td>
<td>26.6%</td>
</tr>
<tr>
<td>Lower Unemployment</td>
<td>23.8%</td>
</tr>
<tr>
<td>Higher Poverty</td>
<td>28.7%</td>
</tr>
<tr>
<td>Lower Poverty</td>
<td>23.8%</td>
</tr>
<tr>
<td>Lower Income</td>
<td>28.0%</td>
</tr>
<tr>
<td>Higher Income</td>
<td>24.0%</td>
</tr>
</tbody>
</table>

What Factors are Associated with Pregnancy Smoking/Failure to Quit?

• We, and others, have also looked specifically at the background factors that predict smoking continuation during pregnancy.

• Local research has revealed that women who continue to smoke during pregnancy have lower incomes, more prior pregnancies, and less adequate prenatal care utilization than women who quit smoking during pregnancy.

What Factors are Associated with Pregnancy Smoking/Failure to Quit?

Predictors of Pregnancy Smoking Status

<table>
<thead>
<tr>
<th></th>
<th>Quit</th>
<th>Reduced</th>
<th>Same</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Income (6 pt scale)</td>
<td>2.2</td>
<td>1.7</td>
<td>1.3</td>
<td>.05</td>
</tr>
<tr>
<td>Number of pregnancies</td>
<td>1.9</td>
<td>2.1</td>
<td>2.5</td>
<td>.04</td>
</tr>
<tr>
<td>Prenatal care (% adeq)</td>
<td>87</td>
<td>60</td>
<td>60</td>
<td>.03</td>
</tr>
</tbody>
</table>

In addition to the background factors that predict pregnancy smoking and failure to quit smoking, many co-morbidities have also been identified. These are especially important to recognize as they likely play a major role in whether or not a woman is able to quit smoking or benefit from cessation interventions:

- Depression
- IPV
- High levels of stress
- Lack of social support
- Level of addiction
- Use of other substances
What Factors are Associated with Pregnancy Smoking/Failure to Quit?

• Over two dozen studies have been published that have found that women who smoke through their pregnancy are significantly more likely than those who do not to:
  – Experience depression and/or anxiety
  – Be victims of IPV
  – Report high levels of stress
  – Lack social support – generally and for smoking cessation
  – Be more highly addicted to nicotine
  – Use/abuse other substances (alcohol, illicit drugs, prescription medications)
What Factors are Associated with Pregnancy Smoking/Failure to Quit?

<table>
<thead>
<tr>
<th>Pregnancy Smoking and IPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Smoking</td>
</tr>
<tr>
<td>Any (%)</td>
</tr>
<tr>
<td>Quit or reduced (%)</td>
</tr>
<tr>
<td>½ pack/day + (%)</td>
</tr>
</tbody>
</table>

What Factors are Associated with Pregnancy Smoking/Failure to Quit?

Predictors of Pregnancy Smoking Status

<table>
<thead>
<tr>
<th></th>
<th>Quit</th>
<th>Reduced</th>
<th>Same</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of smoking (6 pt scale)</td>
<td>3</td>
<td>4.2</td>
<td>3.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Years of smoking</td>
<td>5.1</td>
<td>7.3</td>
<td>7.8</td>
<td>.03</td>
</tr>
<tr>
<td>Alcohol use at conception (% any)</td>
<td>29</td>
<td>48</td>
<td>21</td>
<td>.01</td>
</tr>
</tbody>
</table>

What Can be Done?

- Smoking is the most modifiable risk factor for poor birth outcomes
- Successful treatment of tobacco dependence can achieve:
  - 20% reduction in low-birth-weight babies
  - 17% decrease in preterm births
  - 250g average birth weight increase
  - Significant reduction in associated health & developmental complications
What Can Be Done?

- When compared to simple advice to quit, the use of brief interventions has more than doubled quit rates:

<table>
<thead>
<tr>
<th>Study</th>
<th>UC</th>
<th>BI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hegaard et al., 2003¹</td>
<td>5%</td>
<td>14%</td>
</tr>
<tr>
<td>Windsor et al., 2000²</td>
<td>8.8%</td>
<td>17.3%</td>
</tr>
</tbody>
</table>

- Brief counseling + provision of self-help materials by a trained health care provider increases cessation rates up to 70%
What Can Be Done?

- In order to be able to intervene effectively with pregnant smokers, they must first be identified.
- Most clinical settings and research efforts rely on self-report of pregnancy smoking status.
- However, many reports have suggested that significant under-reporting may occur (deception rates of 1-35%).
What Can Be Done?

- Locally, we have also found under-reporting to occur.
- In a recent examination of pregnancy smoking rates over a two-year period in Carter County, 16% of pregnancy smokers denied this behavior to their prenatal care provider.
- Women who denied smoking were those least likely to be identified as “at risk” – higher educated, private insurance, adequate PNC, first pregnancy, no illicit drug use, no STDS.

What Can Be Done?

• Increasingly, clinicians and researchers have relied on biochemical verification to identify pregnancy smokers

• Cotinine in blood, saliva, and urine has been used as a marker of smoking

• Exhaled carbon monoxide testing can also identify smokers

• Some problems inherent are distinguishing smokers from those exposed to ETS, and determining cut-offs for pregnant women
What Can Be Done?

- Assuming we can reliably identify pregnancy smokers, what is the best way to intervene?
- Nearly 100 studies have been published in the last three decades detailing the effectiveness of various smoking cessation interventions.
- In 2008 a Cochrane Review was published that summarized this body of literature and led to recommendations for future work.
What Can Be Done?

- The Cochrane review encompassed 64 trials conducted between 1975 and 2003 and involved over 20,000 pregnant women.
- The primary outcome measure of interest was smoking in late pregnancy; secondary outcomes included birth outcomes and post-partum smoking.
- Pooled data from all studies revealed a significant reduction in pregnancy smoking in intervention groups compared with controls.
What Can Be Done?

- Interventions included in the studies were:
  - Provision of information on the risks of smoking to the fetus/infant and the benefits of quitting
  - Recommendations to quit and setting a quit date
  - Feedback about the fetus
  - Feedback about harmful levels of cotinine/carbon monoxide
  - Teaching cognitive-behavioral strategies for quitting smoking
  - Advice tailored to “stages of change”
  - Provision of rewards
  - Social or peer support
  - Pharmacologic interventions
What Can Be Done?

- The absolute difference in the proportion continuing to smoke between control and intervention groups was 6%, with this level of reduction similar across studies both with and without biochemical verification.

- The “high intensity” interventions had similar quit rate differences to those of lower intensity (high intensity=many longer counseling sessions combined with other types of interventions; low intensity=a few brief counseling sessions with or without other efforts).
What Can Be Done?

- While comparisons across studies by intervention type are difficult due to differences in implementation, some themes emerged:
  - Cognitive-behavioral interventions were effective (6% group differences)
  - Trials using “stages of change” theory were not effective
  - Trials using feedback were not effective
  - Pharmacologic trials (NRT) were borderline
  - Combination of social support and reward was effective
  - Groups sessions were not effective and not accepted
What Can Be Done?

- Other findings and recommendations:
  - Pregnancy smoking cessation interventions do work – reduce smoking rates and rates of poor birth outcomes
  - Interventions need to be implemented in all maternity care settings – support for cessation and relapse prevention need to be routine
  - Full involvement of all PNC staff is needed
  - Non-smoking status should be biochemically validated
  - Efforts need to support strategies for smoking control in the whole community – reduce smoking rates in general, reduce ETS exposure
What Can Be Done?

- Other findings and recommendations:
  - Interventions need to be culturally appropriate – what works in one setting may not work in another; particular issue in setting where smoking is more acceptable
  - Interventions need to address issues beyond just smoking that may impede efforts to quit including mental health, social support, stress, practical needs, and IPV
  - Address potential relapse post-partum
What Can Be Done?

• Added note about pharmacologic intervention:
  – While behavioral interventions can be effective, many women are unable to quit smoking during pregnancy, especially heavy smokers
  – To date, pharmacologic interventions (NRT, bupropion) during pregnancy have not been shown to be any more effective than behavioral approaches
What Can Be Done?

• Added note about pharmacologic intervention:
  – In addition, there are insufficient data to routinely support their safe use in pregnancy
  – In 2005, ACOG proposed the use of nicotine gum or patches in heavy smokers during pregnancy only when nonpharmacologic treatments have failed
What Can Be Done?

- Added note about pharmacologic intervention:
  - The reasoning is that potential benefits of increased chance of smoking cessation in those who smoke ppd+ outweigh the risk of added nicotine exposure
  - However, clinical practice guidelines from DHHS, due out this year, recommend that pharmacotherapy for smoking cessation NOT be used during pregnancy
Interviews with Local Prenatal Smokers Revealed:

✓ A strong preference for individual discussions with their health care provider rather than group support sessions
✓ Knowing the dangers of pregnancy smoking, but were still unable or unwilling to quit
✓ That their providers did discuss smoking with them, but that these discussions did not go far enough in helping them to quit smoking
What Can Be Done?

- Based on what is now known about the harmful effects of pregnancy smoking, as well as the potential effectiveness of cessation interventions, the American College of Obstetricians and Gynecologists established the well-proven 5 A’s method of smoking cessation counseling as a standard component of prenatal care.

- Thus, all obstetric providers should be identifying pregnant smokers and intervening during care.
What Can Be Done?

Smoking Cessation Counseling

The 5 A's

A brief (5 to 15 minute) 5-step smoking intervention proven effective for pregnant women
The 5 A’s

1. **ASK** about tobacco use

2. **ADVISE** to quit

3. **ASSESS** willingness to make a quit attempt

4. **ASSIST** in quit attempt

5. **ARRANGE** follow-up
Which of the following statements best describes your current smoking habits?

- You have *never* smoked or have smoked fewer than 100 cigarettes in your lifetime.
- You stopped smoking *before* you found out you were pregnant and are not smoking now.
- You stopped smoking *after* you found out you were pregnant and are not smoking now.
- You smoke some now but have cut down since you found out you were pregnant.
- You smoke about the same amount now as you did before you found out you were pregnant.

**Ask — 1 Minute**

**Congratulate Patient**

**Advise**
Clear, strong, personalized advice to quit

- **Clear & Strong:** “As your health care provider, my best advice for you and your baby is for you to quit smoking and reduce your secondhand smoke exposure. I need you to know that quitting is the most important thing you can do to protect your baby and improve your own health.”

- **Personalized:** Impact of smoking on the baby, the family, and the patient’s well being
ASSESS — 1 Minute

Assess the patient’s willingness to quit within the next 30 days

ASK:
“How WILLING are you to quit smoking in the next 30 days?”

ASK:
“What would it take to make you more willing to quit, to get you to move from your score to a score 3 pts higher?”
ASSESS — 1 Minute

- If a patient responds that she would like to try to quit within the next 30 days, move on to the Assist step.

- If the patient does not want to try to quit, try to increase her motivation via education and personalizing the issue.
ADDICTION has both PHYSICAL & BEHAVIORAL components.

Both factors must be addressed for successful cessation.

**ASSIST** techniques should be chosen in accordance with patient’s willingness to quit.
ASSIST: Strategies Some Women Find Helpful

- Discuss dangers/costs of smoking and secondhand smoke
- Discuss the benefits of quitting
- Determine the ROLE that smoking plays in her life
- Discuss her motivations for quitting
- Talk about her past attempts to quit
- Identify triggers & roadblocks
Determine what she can do in situations in which she usually smokes

Discuss alternative behaviors to smoking

Plan ways to handle others smoking around her

Develop approaches to manage withdrawal symptoms

Plan ways to relieve stress and cope with difficult emotions
ASSIST: Strategies Some Women Find Helpful

- Remove all tobacco products from her environment
- Identify & arrange social support
- Determine quit date & sign contract
ARRANGE — 1+ Minute

- Follow-up to monitor progress
- Provide support and encouragement
- Invite her to talk about her successes
- Ask about concerns or difficulties
- Express a willingness to help
- Offer referrals to the Smoking Quit Lines, local Health Departments, counseling, etc
What IS being done?

• Despite ACOG guidelines that the 5 A’s be used in cessation efforts with all pregnant smokers as a routine part of prenatal care, this does not appear to be universally occurring.

• A recent state-wide survey of Ohio obstetricians revealed that many were not using the 5 A’s and addressing smoking with all patients (Jordan et al):
  • ASK: 98%
  • ADVISE: 66%
  • ASSESS: 42%
  • ASSIST: 29%
  • ARRANGE: 6%

• 38% believed addressing smoking/cessation was not a good use of time in a prenatal encounter.
What IS being done?

- Late last year, we undertook a similar survey locally*
- Surveys were distributed to the 46 OBs practicing in a 6-county area in NE TN
- 30 physicians at 9 different practices returned the surveys (65% response rate)
- The majority of the respondents were Caucasian (93%), male (57%), and had never themselves smoked (80%); none were current smokers
- Respondents had been in practice an average of 10 years, and on average saw 33 prenatal patients per week

What IS being done?

ASK

How often do you identify and document cigarette smoking status at each prenatal visit?

27% Always

Always

Usually

Sometimes

Seldom

Never
What IS being done?

ADVISE

How often do you give clear, strong advice to quit to pregnant smokers?

- Always: 63%
- Usually
- Sometimes
- Seldom
- Never
What IS being done?

ASSESS

How often do you assess whether a pregnant smoker is willing to make a quit attempt?

- Always
- Usually
- Sometimes
- Seldom
- Never

20%
What IS being done?

ASSIST

How often do you assist pregnant patients by encouraging the use of problem solving skills for smoking cessation?

- Always
- Usually
- Sometimes
- Seldom
- Never

17%
How often do you provide self-help smoking cessation materials to pregnant smokers?

- Always
- Usually
- Sometimes
- Seldom
- Never

7%
ASSIST

How often do you use counseling to help pregnant smokers quit?

- Always: 7%
- Usually: 24%
- Sometimes: 34%
- Seldom: 23%
- Never: 10%
What IS being done?

ARRANGE

How often do you schedule follow-up contact with a pregnant patient who has committed to a quit attempt?

- Always: 3%
- Usually: 3%
- Sometimes: 3%
- Seldom: 3%
- Never: 3%

Legend:
- Always
- Usually
- Sometimes
- Seldom
- Never
What IS being done?

ARRANGE

How often do you refer pregnant patients willing to make a quit attempt to outside agencies?

- Always
- Usually
- Sometimes
- Seldom
- Never

3%
What IS Being Done?

- Only 43% of respondents felt the effect of pregnancy smoking on the fetus was SEVERE.
- Only 50% felt there was SIGNIFICANT VALUE in spending time during the clinical encounter addressing smoking.
- Only 40% were VERY CONFIDENT in their ability to recommend behavior change related to smoking.
- Only 53% felt that recommending behavior change was likely to work.
What IS Being Done?

- Reasons for not using the 5 A’s regularly included lack of time, not knowing where to send patients for further treatment, and a belief that intervention would not be effective.

- Clearly, obstetric providers in NE TN, a region with exceptionally high rates of pregnancy smoking, fall well short of universal use of the 5 A’s to address pregnancy smoking with patients.

- Addressing high rates of pregnancy smoking regionally should include additional provider education and facilitation of the effective use of smoking cessation intervention in prenatal care.
What IS Being Done?

- Until recently, little had been achieved in the way of organized efforts to address pregnancy smoking in Northeast Tennessee.

- In January of 2007 Governor Bredesen’s office strengthened its efforts to improve birth outcomes in this region and funded the Tennessee Intervention for Pregnant Smokers (TIPS) program for a 4-year period.

- TIPS is a multi-faceted approach that aims to reduce pregnancy smoking rates and improve birth outcomes in 6-counties throughout NE TN.
The Scope of TIPS

The program involves:

1) Physician training in providing smoking cessation counseling as a routine part of prenatal care
2) Nurse training in providing smoking cessation counseling during prenatal care & inpatient services
3) Provision of prenatal case management services in high risk practices
4) Provision of a hospital-based case manager for admitted high-risk women and those post-partum
5) Education and training programs for nursing students
6) Community-based information and education, including cessation workshops
7) Development and provision of self-help materials
8) Program Evaluation
About TIPS: Service Provision

- Prospective population includes pregnant women in the 6-county NE TN region who are:
  - Current smokers
  - Exposed to significant secondhand smoke
  - Former smokers ≤ 2 years smoke-free

- All eligible women are:
  - Provided 5 A’s based counseling by their prenatal care provider
  - Given a TIPS self-help manual
  - Asked to participate in research interviews

- Case Managers provide:
  - Smoking cessation counseling & support
  - Motivation to increase prenatal care utilization
  - Referrals to other needed services
  - Support for increasing social support and reducing life stressors including domestic violence and depression
About TIPS: The Research

• Program Evaluation Includes:
  • Provider documentation of all 5 A’s encounters
  • Evaluation of medical records
  • Evaluation of delivery & newborn chart information
  • 1-on-1 in-depth patient interviews with a case manager
  • Feedback/Assessments from community outreach

• Findings Used To:
  • Validate provided services
  • Modify and improve services
  • Conduct cost-benefit analyses
  • Inform the development and implementation of the TIPS program on a larger scale
TIPS Self-Help Materials

- Health hazards for the baby
- Health benefits timeline
- Identify personal barriers & potential triggers
- Patient identified personal benefits to quitting
- Withdrawal symptoms: Cravings and coping skills
- Cost savings & personal rewards
- Alternative ways to cope & manage stress
SAMPLE CONTENTS: Health Benefits for Both Mother & Child

THE BABY’S HEALTH
If She Quits While Pregnant, Her Baby Will:
• Get more oxygen.
• Be protected from deadly carbon monoxide and other carcinogens.
• Have fewer health problems such as asthma, wheezing, colds, ear infections, etc.
• Be more likely to be born at a healthy size and weight.
• Cough and cry less.
• Be less likely to develop chronic lifelong disabilities.
• Have fewer doctor visits.
• Likely have fewer behavioral or attention problems later in life.
• Be less likely to die of prenatal complications & SIDS.

THE PATIENT’S HEALTH
If She Quits Smoking, She Will:
• Breathe easier & have more energy.
• Be less likely to have a miscarriage, stillbirth or spontaneous abortion.
• Decrease her chances of having a heart attack, stroke, heart disease, and lung cancer.
• Be a good role model for her child.
• Have fewer wrinkles.
• Have clothes, a car, a home, and breath that smell better.
• Save money that can be spent on other things.
• Enjoy the smell and taste of food again.
• Feel great about quitting.
## SAMPLE CONTENTS:
### Potential Cost Savings & Rewards

### THE COST OF SMOKING IN TENNESSEE
(Based on an average cost per pack = $3.90)

<table>
<thead>
<tr>
<th></th>
<th>1 Day</th>
<th>1 Week</th>
<th>1 Month</th>
<th>1 Year</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 Pack</td>
<td>$1.95</td>
<td>$13.65</td>
<td>$58.70</td>
<td>$711.75</td>
<td>$7,117.50</td>
</tr>
<tr>
<td>1 Pack</td>
<td>$3.90</td>
<td>$27.30</td>
<td>$117.39</td>
<td>$1,423.50</td>
<td>$14,235.00</td>
</tr>
<tr>
<td>1 1/2 Packs</td>
<td>$5.85</td>
<td>$40.95</td>
<td>$176.09</td>
<td>$2,135.25</td>
<td>$21,352.50</td>
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<tr>
<td>2 Packs</td>
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<td>$54.60</td>
<td>$234.78</td>
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<tr>
<td>2 1/2 Packs</td>
<td>$9.75</td>
<td>$68.25</td>
<td>$293.48</td>
<td>$3,558.75</td>
<td>$35,587.50</td>
</tr>
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</table>
SAMPLE CONTENTS:
What Kind of Smoker Are You?

Next to each statement, write the number that applies to you:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

A. I smoke in order to keep from slowing down
B. Handling a cigarette is a part of the enjoyment of smoking it
C. Smoking cigarettes is pleasant and relaxing
D. I light up when I feel angry about something
E. If I run out of cigarettes, I find it almost unbearable
F. I smoke automatically, without even being aware of it
G. I smoke to stimulate me, to perk myself up
H. Part of the enjoyment of smoking comes from the steps I take to light up
I. I find cigarettes pleasurable
J. When I feel uncomfortable or upset, I light up a cigarette
K. I am very much aware when I am not smoking
L. I light up a cigarette without realizing I still have one burning in the ashtray
M. I smoke to give myself a “lift”
N. I like watching the smoke when I exhale it
O. I want a cigarette most when I feel relaxed
P. When I feel “blue” or want to take my mind off my cares, I smoke a cigarette
Q. I get a real gnawing hunger for a cigarette when I haven’t smoked for a while
R. I’ve found a cigarette in my mouth and didn’t remember putting it there

Your Score
Enter the number you have placed for each question in the space below. Place the number for question A over line A, for question B over line B, etc.
Add across the three scores on each line to get your totals.

A + G + M = STIMULATION
E + H + N = HANDLING
C + I + O = PLEASURABLE RELAXATION
D + J + P = TENSION REDUCTION
E + K + Q = CRAVING
F + L + R = HABIT

Scores can vary from 3 to 15. Any score 11 or above indicates one of your smoking triggers; any score 7 or below may not be a definite trigger, but still pay attention to your motivations to smoke in these situations.

Your #1 Smoking Trigger is:

Pages 12-14 in the TIPS Manual
SAMPLE CONTENTS: Keeping Your Hands & Mouth Busy

- **Hands**
  - Doodle
  - Squeeze a TIPS stress ball
  - Decorate the baby’s room
  - Sew

- **Mouth**
  - Chew on a straw or toothpick
  - Chew gum/candy
  - Drink water
  - Eat fruits and veggies
SAMPLE CONTENTS:
How To Quit -Without Gaining Weight

• Plan to quit during a low stress time
• Avoid quitting over holidays or during times of celebration
• Don’t substitute food for cigarettes
• Keep a food diary
• Stay busy and physically active—read, walk, call a friend, exercise
• Drink lots of water
• Snack healthy on fruits and veggies
• Practice good nutrition and avoid high-fat and high-sugar foods!
• Remember—gaining a few pounds is not the end of the world, much less dangerous than cancer or heart disease, and is a natural part of pregnancy!
## SAMPLE CONTENTS:
### Managing Withdrawal Symptoms

<table>
<thead>
<tr>
<th>What You May Experience</th>
<th>Why You May Feel It</th>
<th>How Long It Might Last</th>
<th>Ways You Can Handle It</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling Tense, Irritable, Anxious, Mood Fluctuations</td>
<td>The hormones leaving your system</td>
<td>A Few Weeks</td>
<td>Take Deep Breaths, Avoid Too Much Processing, Avoid Over-Stimulating Activities for 1-2 Days.</td>
</tr>
<tr>
<td>Difficulty Concentrating/Poor Attention/Thinking Slows Down</td>
<td>You are not getting the stimulation from the nicotine that your brain craves</td>
<td>A Few Weeks</td>
<td>Return to Normal Routine, Try Meditations, Try a Relaxing Activity.</td>
</tr>
<tr>
<td>Fatigue Feeling Weak, No Energy</td>
<td>The chemicals leaving your system</td>
<td>A Few Weeks</td>
<td>Get Plenty of Rest, Get Plenty of Rest.</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Whiteness in the Brain from Common Sensations Disappears</td>
<td>A Few Weeks</td>
<td>Get plenty of rest, Avoid Too Much Coffee, Avoid Over-Stimulating Activities for 1-2 Days.</td>
</tr>
<tr>
<td>Decreased Appetite, Change in Appetite</td>
<td>Decreased Intake of Food</td>
<td>A Couple of Weeks</td>
<td>Eat Small Meals, Eat Small Meals.</td>
</tr>
<tr>
<td>Increased Hunger</td>
<td>More Calories from the same amount of food</td>
<td>Up To Several Weeks</td>
<td>Eat Small Meals, Exercise Regularly.</td>
</tr>
<tr>
<td>Cigarette cravings</td>
<td>You are left with another cue associated with smoking: schedule</td>
<td>As Needed</td>
<td>Try Not to chew gum, Try Not to chew gum.</td>
</tr>
</tbody>
</table>
SAMPLE CONTENTS:
Dealing With Others Smoking Around You

- Ask everyone to not smoke around you
- If they do, you can choose to leave the room
- Create “Smoke-free Zones” (home, car)
- Go to places where smoking is not allowed
- Try to surround yourself with non-smoking friends

Page 26 in the TIPS Manual
SAMPLE CONTENTS:
Preparing To Quit

REMEMBER THE 5 R’S:

REMOVE All Ashtrays and Cigarettes

REVIEW Your Quit Plan

REHEARSE Your Smoking Alternatives

RECALL Your Triggers and New Coping Skills

REWARD Yourself Regularly For ALL Of Your Successes
(Remember Your “WANTS”!)
The 5-Day Countdown To Quitting*


5 Days Before Your Quit Date:
✓ Think about your reasons for quitting.
✓ Tell your friends and family you are planning to quit.
✓ Stop buying cigarettes.

4 Days Before Your Quit Date:
✓ Pay attention to when and why you smoke.
✓ Think of other things to hold in your hand instead of a cigarette.
✓ Think of habits or routines to change.

3 Days Before Your Quit Date:
✓ Think about what you will do with the extra money when you stop buying cigarettes.
✓ Think of whom to reach out to when you need help.

2 Days Before Your Quit Date:
✓ Think of how you will reward yourself.
✓ Remember your ways to relieve stress and cope.

1 Day Before Your Quit Date:
✓ Throw away lighters and ashtrays.
✓ Throw away ALL cigarettes and matches.
✓ Clean your clothes to get rid of the cigarette smoke.

On Your Quit Day

✓ Keep very busy.
✓ Remind family and friends that this is your quit day.
✓ Stay away from alcohol.
✓ Give yourself a treat.

SAMPLE CONTENTS:
A Countdown To Your Quit Day!

Pages 38-39 in the TIPS Manual
Integrating the 5 A’s into Patient Care

**Step 1.** At **INITIAL** prenatal visit, ask **every patient** about Smoking and Smoke Exposure.

**Step 2.** Implement the 5 A’s at **EVERY** visit involving a smoke-exposed pregnancy.

**Step 3.** Provide TIPS smoking cessation manual to all smoke-exposed OB patients.
# 5A’s Documentation Form

## Patient Name: [Blank]

### Tennessee Intervention for Pregnant Smokers (TIPS) 5A’s Checklist and Report

<table>
<thead>
<tr>
<th>Date of visit: / /</th>
<th>Gestational age: weeks</th>
</tr>
</thead>
</table>

### 1. ASK

**Which of the Following Best Describes Your Current Smoking Habit(s)?**

- A. I have NEVER smoked or have smoked fewer than 100 cigarettes in my lifetime
- B. I STOPPED smoking BEFORE I found out I was pregnant and I am still smoking now
- C. I STOPPED smoking AFTER I found out I was pregnant and I am not smoking now
- D. I smoke some, but I have CUT DOWN on how much I smoke since I found out I was pregnant (amount currently smoking [Blank])
- E. I smoke regularly, about the SAME as before I found out I was pregnant (amount currently smoking [Blank])

**Select** [ ]: Make an occasion to quit, congratulate her on her success, and encourage her to stay smoke-free.

**If C, proceed above.

### 2. ADVISE

**Personalized Message To Quit (check after stating)**

**SAY:** As your health care provider, my best advice for you and your baby is for you to quit smoking. I need you to know that quitting smoking is the most important thing you can do to protect your baby and improve your own health.

### 3. ASSESS

**ASK:** How willing are you to quit smoking in the next 30 days?

<table>
<thead>
<tr>
<th>Not at All</th>
<th>Maybe</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
</table>

**ASK:** What would it take to make you more willing to quit, to get you to move from your score to a score 3 pts higher on the scale?

**Identify factors (check all that apply):**

- More Information About Better Understanding Of/Belief In The Health Risks
- Fewer Barriers
- Less Fear/ Better Understanding Of Withdrawal Effects
- Ways To Cope
- Greater Level of Support
- Other: [Specify]

### 4. ASSIST

**Will patient set a quit date?** [ ] No [ ] Yes

**Assistance Offered:**

- [ ] TIPS Patient Packet Provided/Referenced
- [ ] Health Hazards/Benefits of Quitting for Both Patient & Baby
- [ ] Cost Savings/Support Personal Finances
- [ ] Discuss With/Smoker/Withdrawal Symptoms/Strategies to Manage
- [ ] Roadblocks/Triggers
- [ ] Discuss Alternative Ways To Cope/Manage Stress
- [ ] Supportive/Peers/Organization/Resources to Help Her
- [ ] Specify:
- [ ] Provide personal and practice support
- [ ] Specify:
- [ ] Other materials/resources/assistance offered
- [ ] Specify:

### 5. ARRANGE

Inform patient you will talk more about smoking cessation at next visit

**Redo(s):** [Specify]

**HOW RECEPTIVE WAS THE PATIENT TO THE INTERVENTION ATTEMPT?**

- Not at all
- Somewhat
- Very
Prenatal Smoking Status by Gestational Age

Patient Name: ____________________

Avg #/Day During 1st Trimester = ________  Avg #/Day During 2nd Trimester = ________  Avg #/Day During 3rd Trimester = ________
Alternate ACOG Tobacco Use Questions

1) WHICH STATEMENT BEST DESCRIBES YOU NOW?
   a. You smoke regularly now – about the SAME amount as before you found out you were pregnant
   b. You smoke regularly now, but MORE THAN before you found out you were pregnant
   c. You smoke some now, but have CUT DOWN since you found out you were pregnant
   d. You stopped smoking AFTER you found out you were pregnant, and are not smoking now
      # Weeks Quit: ________
   e. You stopped smoking BEFORE you found out you were pregnant, and are not smoking now
      # Weeks/Years Quit: ________
   f. You have NEVER smoked, or smoked fewer than 100 cigarettes in your life

2) IF YOU CURRENTLY SMOKE:
   # CIGARETTES/DAY: Current ________ Pre-Pregnancy ________ # YEARS SMOKED: ________

3) WHICH OF THE FOLLOWING BEST DESCRIBES YOUR EXPOSURE TO OTHER PEOPLE SMOKING?
   a. You do not have regular contact with anyone who smokes
   b. You have regular contact (but do not live) with other people who smoke, but they DO NOT smoke when you are around
   c. You have regular contact (but do not live) with other people who smoke, and they DO often smoke when you are around
   d. You live with at least 1 smoker, but they DO NOT smoke when you are around
   e. You live with at least 1 smoker, and they DO often smoke when you are around

• Ask EVERY PATIENT the alternate set of questions

• Traditional Tobacco Use question is #14 on Form A of the ACOG
• Over 40 prenatal care providers (OBs and family physicians) have been trained in the use of the 5 A’s to address smoking during pregnancy

• Unfortunately compliance with implementation and documentation has been sporadic

• Survey findings have suggested that a nurse-implementation model may be more accepted and effective

• Efforts are underway to train nurses at the practice sites throughout the region to implement the 5 A’s

• Data collection for evaluation purposes is ongoing
TIPS Progress & Findings to Date

- Given low levels of participation among community providers, we have begun efforts to teach medical and nursing students about the dangers of pregnancy smoking and effective intervention approaches.
- So far, medical student training has been voluntary but we hope for some integration into the curriculum.
- Training of nursing students has already been incorporated into the third year curriculum, immediately prior to obstetric clinicals.
- To date, nearly 150 nursing students have been trained in implementing 5 A’s with pregnant smokers.
- Evaluation has shown this training has significantly increased knowledge of, recognition of importance of, and comfort with addressing pregnancy smoking.
TIPS Progress & Findings to Date

- Case management efforts have been well accepted.
- In the first 16 months of the project, case management services have been provided to over 800 women.
- Full time case managers see patients at two area OB practices with high rates of pregnancy smoking.
- An additional full time case manager provides on-call services for patients from other practices who qualify for the project and are interested in meeting with a case manager; this case manager also provides services to pregnant inpatients at area hospitals.
- Half of eligible women have consented to in-depth research interviews.
TIPS Progress & Findings to Date

- Initial analyses have demonstrated significant success rates
- Only 12% of women provided services continued to smoke at the same rate throughout pregnancy
- One quarter of women quit completely after working with a case manager
- The remaining two thirds of women decreased their level of smoking significantly
- Of those with significant second hand smoke exposure, one quarter eliminated it completely by the third trimester, while two thirds had significantly reduced exposure
- Of the participating women who have delivered, the sole preterm/low birth weight baby was born to a woman who continued to smoke more than a pack per day
TIPS Progress & Findings to Date

- Additional TIPS efforts have included provision of materials and services through area health departments
- Smoking cessation classes and support groups are being offered
- Information and education about the dangers of pregnancy smoking and available TIPS services have been provided as part of area prenatal classes
- TIPS website offers a wealth of information for interested professionals and patients
- The project has also provided educational, research, and service provision experience for many ETSU students
Summary

• Nationally, pregnancy smoking has been decreasing.
• In our region, pregnancy smoking rates are as much as four times the national average, with two in five pregnancies affected.
• Additionally, pregnancy smoking rates in the region have been on the increase.
Summary

- Pregnancy smoking has significant deleterious effects during gestation, at delivery, and throughout the life of those exposed prenatally.
- Many background factors are associated with pregnancy smoking and failure to quit, including SES, race, region, and rurality.
Summary

- Many other health behaviors are associated with pregnancy smoking and failure to quit including inadequate prenatal care utilization, inadequate nutrition, and use of other substances.
- Additional co-morbidities include depression, anxiety, lack of social support, and IPV.
- Clearly, many factors need to be considered when attempting to intervene.
Summary

• Pregnancy smoking interventions can increase cessation rates and improve birth outcomes
• Brief Interventions incorporated into prenatal care are especially effective
• Significant attention must be paid to identifying those who smoke, including careful attention to how women are asked and possibly using biochemical verification
Components of successful interventions include cognitive-behavioral strategies, social support and rewards.

ACOG recommends that all prenatal care involving a smoke exposed pregnancy incorporate a 5 A’s based brief intervention.

Unfortunately, this recommendation is far from universally implemented.
Summary

• The TIPS program is working on many levels to decrease pregnancy smoking and improve birth outcomes in NE TN
• Preliminary findings have showed some successes in smoking reduction and quit rates
• The program will continue to evolve in response to challenges and evaluation results
Select Resources

- American College of Obstetricians and Gynecologists (www.acog.org)
- TIPS Online (www.etsu.edu/TIPS)
- Smoke-Free Families (www.smokefreefamilies.org)
- Treating Tobacco Use and Dependence
- Agency for Healthcare Research and Quality (www.ahrq.gov)
Nicotine Addiction in Pregnant Women