Factors Associated with Smoking Cessation Counseling During Prenatal Care Among Missouri Women, 2009

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Smoking Among Women of Childbearing Age

Source: Behavioral Risk Factor Surveillance System (BRFSS), 2009 (obtained from March of Dimes Peristats)
Smoking Among Pregnant Women


What Contributes to the High Smoking Rate in Missouri?

- **Funding for Tobacco Control Programs**
  - Missouri spends 12% of CDC recommended amount
- **Smokefree Air**
  - Local restrictions but no statewide policy
- **Cessation**
  - Coverage
  - Quit Line (Spending $9.49/smoker less than recommended)
- **Cigarette Tax**
Source: Columbia Tribune, January 31, 2011
Smoking Cessation

- Cessation programs for pregnant women
- Improved outcomes
- $1 on smoking cessation counseling for pregnant women could save $3 in neonatal intensive care costs
Providing Smoking Cessation Interventions

- Barriers for Providers
- Study of OB/GYNs in Alabama*
  - 93% asked about smoking
  - 90% advised women to quit
  - 28% assisted patients with cessation
  - 24% followed up with patients
- Missouri PRAMS Survey: 90% of women who smoked before pregnancy were told about the harms smoking could have on the baby.

Objective

- To identify maternal characteristics associated with receipt of smoking cessation interventions during prenatal care among women who smoked in the three months before pregnancy.
Methods

- Missouri Pregnancy Risk Assessment Monitoring System (PRAMS)
  - Population-based survey of maternal experiences and behaviors around the time of pregnancy
  - Sample from birth certificates
  - Up to 3 surveys mailed to each mother
  - Telephone follow-up for non-respondents
PRAMS Sample

- Sample included 2,077 women in 2009 with a recent live birth
- 1,373 respondents
  - Weighted response rate = 67%
- Phase VI questionnaire began in 2009 and included questions about smoking cessation interventions.
Smoking Cessation Interventions

- Limited to women who smoked in the 3 months before pregnancy and had prenatal care
  - Unweighted n=465, Weighted n=26,152
- Assumption: Women who had quit smoking before prenatal care should have received intervention to prevent relapse
- “During any of your prenatal care visits, did a doctor, nurse, or other health care worker—”
  - 11 Yes/No items
General Interventions

- Spend time with you discussing how to quit smoking
- Suggest you set a specific date to stop smoking
- Suggest you attend a class or program to stop smoking
- Provide you with booklets, videos, or other materials to help you quit smoking on your own
- Ask if a family member or friend would support your decision to quit
Referral/Pharmaceutical Interventions

- **Referral**
  - Refer you to counseling for help with quitting
  - Refer you to a national or state quit line

- **Pharmaceutical**
  - Recommend using nicotine gum
  - Recommend using a nicotine patch
  - Prescribe a nicotine nasal spray or inhaler
  - Prescribe a pill like Zyban® (also known was Wellbutrin® or Bupropion®) or Chantix® (also known as Varenicline) to help you quit
Factors Considered

- Age
- Race
- Marital Status
- Education
- Residential Location
- Prenatal Care (PNC) Location
- PNC Payer
- PNC Adequacy
- Pregnancy History
- Pregnancy Intention
- Health Problem Before Pregnancy
- Health Problem During Pregnancy
- Prepregnancy BMI
- Smoking Amount 3 Months Before Pregnancy
- Smoking Amount Last 3 Months of Pregnancy
Statistical Analysis

- Logistic regression to estimate adjusted odds ratios (aOR) and 95% Confidence Intervals (CIs) for receipt of any intervention
- Polychotomous logistic regression for type of intervention
  - General Interventions vs. None
  - Referral/Pharmaceutical vs. None
- SUDAAN to account for complex sampling design
All 2009 PRAMS Respondents Compared to Women in the Analysis

Socio-Demographic Characteristics of All 2009 PRAMS Respondents Compared to Only Women Who Smoked Before Pregnancy and Had Prenatal Care

- All Respondents
- Smoked Before Pregnancy and Had PNC

![Bar chart showing socio-demographic characteristics of PRAMS respondents compared to women who smoked before pregnancy and had prenatal care.](chart-image-url)
Interventions

- Discuss How to Quit: 49.4%
- Set a Specific Date: 31.4%
- Attend a Class: 20.0%
- Booklets/Videos: 37.6%
- Family/Friend Support: 25.8%
- Refer to Counseling: 8.8%
- Refer to Quit Line: 6.9%
- Recommend Gum: 13.1%
- Recommend Patch: 9.5%
- Prescribe Spray/Inhaler: 2.9%
- Prescribe Pill: 4.8%
Receipt of At Least 1 Intervention

- **59.1%** received \( \geq 1 \) intervention

Adjusted Odds Ratio (aOR) of Receiving \( \geq 1 \) Smoking Intervention

<table>
<thead>
<tr>
<th></th>
<th>aOR (95% CI)</th>
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<tbody>
<tr>
<td><strong>Prenatal Care Payer</strong></td>
<td></td>
</tr>
<tr>
<td>Non-Medicaid</td>
<td>Ref</td>
</tr>
<tr>
<td>Medicaid</td>
<td>2.21 (1.27-3.84)</td>
</tr>
<tr>
<td><strong>Prenatal Care Location</strong></td>
<td></td>
</tr>
<tr>
<td>Private Doctor’s Office or HMO Clinic</td>
<td>Ref</td>
</tr>
<tr>
<td>Hospital Clinic, Health Dept, Other</td>
<td>1.38 (0.83-2.29)</td>
</tr>
<tr>
<td><strong>Smoking 3 Months Before Pregnancy</strong></td>
<td></td>
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<tr>
<td>( \leq 10 )</td>
<td>Ref</td>
</tr>
<tr>
<td>( &gt;10 )</td>
<td>1.63 (0.90-2.98)</td>
</tr>
<tr>
<td><strong>Smoking During Last 3 Months of Pregnancy</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Ref</td>
</tr>
<tr>
<td>( \leq 10 )</td>
<td>3.42 (1.95-6.02)</td>
</tr>
<tr>
<td>( &gt;10 )</td>
<td>2.76 (1.08-7.02)</td>
</tr>
</tbody>
</table>
Prevalence of Interventions

- Discuss how to quit
- Set specific date
- Attend a class
- Booklets/videos
- Family/friend support
- Refer to counseling
- Refer to quit line
- Recommend gum
- Recommend patch
- Prescribe spray/inhaler
- Prescribe pill

None=40.9%
General=38.6%
Referral/Pharmaceutical=20.6%
## Intervention Types

### Adjusted Odds Ratios (aOR) Comparing Receipt of General and Referral/Pharmaceutical Interventions to None

<table>
<thead>
<tr>
<th></th>
<th>General Interventions aOR (95% CI)</th>
<th>Referral/Pharmaceutical Interventions aOR (95% CI)</th>
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<td>1.69 (0.94-3.03)</td>
<td>6.26 (2.34-16.71)</td>
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<td><strong>Prenatal Care Location</strong></td>
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<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Hospital Clinic, Health Dept, Other</td>
<td>1.10 (0.62-1.93)</td>
<td>2.09 (1.06-4.08)</td>
</tr>
<tr>
<td><strong>Smoking 3 Mo. Before Pregnancy</strong></td>
<td></td>
<td></td>
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<tr>
<td>≤10</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>&gt;10</td>
<td>2.0 (1.06-3.75)</td>
<td>1.01 (0.46-2.23)</td>
</tr>
<tr>
<td><strong>Smoking During Last 3 Mo. of Pregnancy</strong></td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>≤10</td>
<td>2.66 (1.44-4.90)</td>
<td>6.24 (2.90-13.46)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>1.62 (0.58-4.52)</td>
<td>8.75 (2.79-27.47)</td>
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</tbody>
</table>
Summary

- 59.1% received some intervention
- Interventions are reaching high-risk groups
  - Heavy prepregnancy smokers
  - Women still smoking in the last 3 months of pregnancy
  - Women with Medicaid coverage for PNC
Limitations

- Survey (non-response, recall, reporting)
- Sample size
- Spontaneous quitting
Public Health Implications

- Smoking during pregnancy is still a major issue in Missouri, even among those being reached by cessation intervention efforts.
- Changes to Medicaid are expected to enhance availability, quality, and intensity of smoking cessation interventions.
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Thank you!

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