Smoking in Pregnancy

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IS BAD FOR YOUR BABY.

The End.
Smoking in pregnancy

• Nicotine is not the main problem,

• BUT....

• It CAN be part of the solution
Smoking and reproductive outcomes

- Infertility $\uparrow$ 25%
- Miscarriage $\uparrow$ 25%
- Ectopic pregnancy $\uparrow$ 90%
- Cleft lip $\uparrow$ 35%
- Abruptio & placenta praevia $\uparrow$ 60%
- Preterm birth $\uparrow$ 70%
- SGA $\uparrow$ 100-200%
- Stillbirth $\uparrow$ 100%
- Preeclampsia $\downarrow$ 30%
Smoking and pregnancy complications

• Effects are dose dependent
• Risks are reversed by stopping smoking
• Smoking is THE single most avoidable risk factor for pregnancy complications
• Smoking cessation is probably THE most important intervention in antenatal care in NZ
Distribution of umbilical RI at 20wks: smokers vs non-smokers

0.73(0.06) vs 0.75(0.06)  p<0.0001
NZ Smoking in Pregnancy Data

**MMPO 2004-7, n=61,000 births**

<table>
<thead>
<tr>
<th></th>
<th>Smokes at booking (14-16w)</th>
<th>Smokes 4-6wks postpartum</th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>15.7%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Maori</td>
<td>45.3%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Pacific</td>
<td>16.4%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Asian</td>
<td>1.7%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Age &lt;20</td>
<td>43%</td>
<td>26%</td>
</tr>
</tbody>
</table>

*Smoke free outcomes MOH 2008*
### Pregnancy Outcomes - SPTB

<table>
<thead>
<tr>
<th></th>
<th>Non smoker</th>
<th>Ceased by 15 weeks</th>
<th>P-value#</th>
<th>Current smoker</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPTB</td>
<td>88 (4.4%)</td>
<td>10 (3.8%)</td>
<td>0.66</td>
<td>25 (10%)</td>
<td>0.006</td>
</tr>
<tr>
<td>Gestation at birth</td>
<td>39.5 (2.3)</td>
<td>39.7 (2.4)</td>
<td>0.80</td>
<td>38.6 (3.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PPROM</td>
<td>33 (1.7%)</td>
<td>3 (1.2%)</td>
<td>0.47</td>
<td>9 (3.6%)</td>
<td>0.07</td>
</tr>
</tbody>
</table>

# non smoker vs ceased smoker

*current smoker vs ceased smoker
### Pregnancy Outcomes - SGA

<table>
<thead>
<tr>
<th></th>
<th>Non smoker</th>
<th>Ceased by 15 weeks</th>
<th>(P)-value#</th>
<th>Current smoker</th>
<th>(P)-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGA</td>
<td>195 (9.8%)</td>
<td>27 (10.3%)</td>
<td>0.80</td>
<td>42 (16.7%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Birthweight</td>
<td>3409 (592)</td>
<td>3479 (560)</td>
<td>0.09</td>
<td>3139 (751)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Customised Centile</td>
<td>48.9 (28.7)</td>
<td>49.3 (28.5)</td>
<td>0.88</td>
<td>41.3 (29.7)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

# non smoker vs ceased smoker

*current smoker vs ceased smoker
Women who cease smoking by 15 weeks have rates of SPTB and SGA the same as non-smokers.

Also no difference in:
- Birthweight
- Gestation at delivery
- Rate of uncomplicated pregnancy
• This suggests the adverse effects of smoking on SPTB and SGA may be preventable if smoking is ceased early in pregnancy
• These data have considerable public health implications
• Maternity care providers should strive to assist pregnant smokers to become smoke-free early in pregnancy, by 15 weeks’
Conclusions

Current smokers vs Ceased Smokers

- Continued smokers had a 3x ↑ risk of SPTB
- Continued smokers also had > rates of SGA babies than ceased smokers

27 March 2009

Spontaneous preterm birth and small for gestational age infants in women who stop smoking early in pregnancy: prospective cohort study

Lesley M E McCowan, associate professor of obstetrics and gynaecology,1 Gustaaf A Dekker, professor of obstetrics and gynaecology,6 Eliza Chan, research fellow,1 Alistair Stewart, statistician,2 Lucy C Chappell, senior lecturer in matenal and fetal medicine,4 Misty Hunter, medical student,1 Rona Moss-Morris, professor of health psychology,6 Robyn A North, professor in obstetric medicine. On behalf of the SCOPE consortium
Smoking and risks for the offspring

- SUDI
- Deaths from childhood respiratory illnesses
- Respiratory infections & asthma
- Glue ear
- Reduced height
- Obesity
- Hypertension

Maternal smoking in pregnancy: a lifelong legacy for the offspring – as children and adults
‘Natural history’ of smoking behaviour in pregnancy

• About 25-33% of women who smoke stop smoking completely in pregnancy (with no intervention)
• Of those who continue to smoke, about half reduce the amount they smoke whilst pregnant
• Factors associated with quitting
  – Education level, financial security, stable relationship
  – First pregnancy
  – Morning sickness
  – Early bookers
  – Non-smoking partner
Smoking cessation in pregnancy in NZ

- Survey of GPs and midwives published in 2007 by Auckland Tobacco Control research centre, University of Auckland
- GPs significantly more likely than midwives to
  - ask about smoking at the first antenatal visit (92% vs 82%)
  - advise women who smoke to stop completely (71% vs 11%)
  - report that they usually discuss smoking with a pregnant woman who is known to smoke at every visit (69% vs 47%)
  - refer pregnant women to Quitline
  - recommend evidence-based smoking cessation methods
- No difference in likelihood of recommending NRT (about 50% in both groups)
NRT Treatment in pregnancy

4 trials, 1131 women
- ↓ smoking with NRT : RR 0.94 (0.89, 1.0)
- Only 2 trials reported pregnancy outcome
  - NRT group 200-300g heavier at birth
  - one trialNicotine gum ↓ preterm birth
- More high quality studies needed
- Large UK RCT of NRT in pregnancy-(SNAP) is planned

Lumley et al Cochrane Review 2007,
Oncken, RCT nicotine gum: O+G 2008;112;859-67
Nicotine Replacement Therapy in Pregnancy

• One cigarette delivers about 1mg nicotine
• Patches
  – A 21 mg patch worn for 16 h/day still only delivers half the nicotine of 30 cigs/d
• Theoretical concern about effect of nicotine on uterine arteries
• Advise
  – Stop smoking without NRT if possible
  – If need NRT try gum/lozenges
  – DO use patches if unable to quit without them
  – **NRT is safer than continuing to smoke**