You've come a long way, baby.

VIRGINIA SLIMS
Smoking, Pregnancy, and Infant Mortality

Tom Houston, MD
McConnell Heart Health Center
Clinical Professor, Department of Family Medicine and College of Public Health
The Ohio State University
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Smoking Prevalence Among Women

- Approximately 16.5% of women in the U.S. over the age of 18 smoke
- White 18.8%, AA 15.5%, Hispanic 8.6%, Asian 5.5%
- Approximately 1 in 5 women of reproductive age in the U.S. smokes (19.7%)
- Smoking rates peak between ages 25-44
- Women who smoke are more likely:
  - to be single, separated, or divorced
  - to have a high school education or less
  - to have low family incomes
Each year, more than 178,000 women die from illnesses related to smoking — the leading cause of premature death in this country.

CDC Office on Smoking and Health, 2002
Smoking Prevalence Among Pregnant Women

- 12.9% of pregnant women smoke, though this is likely an underestimate. **OH 18.9%** About 45% quit during pregnancy, 50% relapse after delivery **OH about 60%**
  - 28% of these smoke more than 10 cigarettes a day
- Pregnant women 30 years+ are less likely to smoke than younger women
- White, unmarried women are more likely to smoke
- Low perception of health risks
- Those with fewer than 12 years of education and low incomes are much more likely to smoke
  - Women with lower education and incomes are more likely to smoke, and more likely to use Public Health Services
  - High stress, anxiety, physical/emotional violence issues
We make Virginia Slims especially for women because they are biologically superior to men.
And then, daringly, the cigarette advertisers began to introduce women into tobacco advertising: this was a sensation.

- A shocker of the twenties

"Blow some my way"

Chesterfield
I really don't know if I should smoke...

...but my brothers and my sweetheart smoke, and it does give me a lot of pleasure. Women began to smoke, so they tell me, just about the time they began to vote, but that's hardly a reason for women smoking. I guess I just like to smoke, that's all. It so happens that I smoke CHESTERFIELD. They seem to be milder and they have a very pleasing taste.

the Cigarette that's Mild

the Cigarette that Tastes Better
AVOID that future SHADOW

“COMING EVENTS CAST THEIR SHADOW’S BEFORE”
(Thomas Campbell, 1777-1844)

When Tempted
Reach for a LUCKY

“Lucky Strike” cigarettes

“It’s toasted”
Virginia Slims are slimmer than the fat cigarettes men smoke. And rightly so.

Virginia Slims is the only slim cigarette made just for women. They’re tailored slim to fit your hands and your lips. With rich Virginia flavor women like.

You’ve come a long way, baby.
Farewell to the ugly cigarette. Smoke pretty. eve.
new CAMEL No. 9 light & luscious

SURGEON GENERAL'S WARNING. Smoking by pregnant women may result in fetal injury, premature birth, and low birth weight.
Newport Lights

Alive with pleasure!
“Keep it simple. Make them comfortable. To deal with the stress, complexity and speed, they will be looking for relief.”

Brown and Williamson, 1989
It's not just a bath.
it's our aromatherapy-meditation-
don't-bother-me-now-or-you'll-regret-it-later zone.

© Philip Morris Inc. 1999
8 mg "tar", 0.7 mg nicotine as per cigarette by FTC method.

SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.

VIRGINIA SLIMS
it's a woman thing.
Considering all I’d heard, I decided to either quit or smoke True.

I smoke True.

The low tar, low nicotine cigarette. Think about it.
### CHEMICALS IN CIGARETTE SMOKE

#### Carcinogens
- N-Heterocyclic amines (8)
  - Formaldehyde
  - Acetaldehyde
  - 2-Toluidine
  - 2-Naphthylamine
  - 4-Aminobiphenyl
  - Benz(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(j)fluoranthene
  - Benzo(k)fluoranthene
  - Benzo(a)pyrene
  - Dibenz(a,h)anthracene
  - Dibenzo(a,i)pyrene
  - Dibenzo(i,j)pyrene
  - Indeno(1,2,3-cd)pyrene
  - 5-Methylchrysene
  - Quinoline
  - Dibenz(a,h)acridine
  - Dibenz(a,j)acridine

#### Compounds
- 7H-Dibenzo(c, g)-carbazole
- N-Nitrosodimethylamine
- N-Nitrosodimethylamine
- N-Nitrosodiethylamine
- N-Nitrosopyrrolidine
- N-Nitrosodietanolamine
- N-Nitrosoarcosine
- N-Nitrosornicotine
- N'-Nitrosostobasine
- N-Nitrosomorpholine
- 4-(methylNitrosamino)-3-(pyridl)-1-butane
- Nicotine
- Alkaloids (17)

#### Carcinogenic Organic Compounds
- Hydrocarbons (45)
- Phenols (45)
- Tobacco specific nitrosamines (6)
- Plus over 450 other compounds

#### Carcinogenic Inorganic Compounds
- Hydrazine
- Arsenic
- Nickel
- Chromium
- Cadmium
- Lead
- Polonium-210

#### 1,3 Butadiene
- Isoprene
- Benzene
- Styrene
- Vinyl chloride
- DDT
- DDE
- Acrylonitrile
- Acrylamide
- 1,1-Dimethylhydrazine
- 2-Nitropropane
- Ethylene oxide
- Di(2-ethylhexyl)phthalate
- Furan
- Benzo[b]furan
Smoking Prevalence Trends (During Pregnancy)
Proportion of pregnant smokers who quit or keep smoking

- Quit before prenatal care: 23%
- Quit with usual care: 6.3%
- Quit with intervention: 3.3%
- Deny smoking, don’t quit: 18.6%
- Admit smoking, don’t quit: 46%
- No prenatal care, don’t quit: 2.7%

Kim et al *AJPH* 2009;99:893-898
How much smoking?

■ Around 50% smoke 5 cigarettes or less/day
■ 27% smoke 6-10 cpd
■ 21% 11 or more/day

2004 Pregnancy Risk Assessment and Monitoring Survey
Smoking Consequences—Reproductive Outcomes

Women smokers have greater risks of:

- Conception delay
- Primary infertility
- Secondary infertility
- Pre-term premature rupture of membranes, abruptio placentae, and placenta previa
- Pre-term delivery
- Stillbirth, neonatal deaths, and sudden infant death syndrome (SIDS)
- Congenital heart defects among infants from smoking just prior to conception, 1st trimester (new study 4/08)
Prenatal Risks Associated with Maternal Smoking

- Stillbirth
- Spontaneous Abortion
  - not associated with fetal chromosomal abnormality
- Preterm delivery + prenatal death
- Ectopic pregnancy

- Abruptio placenta, placenta previa
- Premature rupture of membranes, premature delivery
- Fetal growth retardation/small for gestational age
- 1.4 to 3 times SIDS risk
Infant morbidity/mortality

- 2.3 RR for term low birthweight delivery
- 2.7 RR for SIDS
- 1.5 RR for preterm death
- 5.3% to 7.7% of preterm deliveries
- 13-19% of term LBW deliveries
- 23-33% of SIDS
- 5-7.3% of preterm related deaths

Dietz et al AJPM June 2010
Smoking during pregnancy accounts for an estimated:

- 20 to 30% of low-birthweight babies (SGA-small for gestational age)
- 30% higher risk of premature birth—up to 14% of preterm deliveries
- 10% of all infant deaths
- 4 times the incidence of negative behavior in toddlers
- Synergy between alcohol and smoking during pregnancy—higher risk for SGA babies and preterm labor.

American Lung Association, 2000
Aliyu et al Nicotine and Tobacco Res. 2009;11(1): 36-43
Fetal risks

- Cleft lip/palate
- Congenital heart defects
- SIDS
- Clubfoot
- Respiratory disorders
- ADHD and other behavioral problems
- Childhood cancers

Prenatal secondhand smoke exposure

- Effects on infants
  - Lower birthweight
  - Smaller head circumference
  - Shorter length
  - Stillbirth

BJOG. 2011 Jun;118(7):865-71
Secondhand smoke is toxic: 4000 chemicals

> 50 Cancer-causing chemicals
- Formaldehyde
- Benzene
- Polonium
- Vinyl chloride

Toxic metals:
- Chromium
- Arsenic
- Lead
- Cadmium

Poison Gases:
- Carbon monoxide
- Hydrogen cyanide
- Butane
- Ammonia
Exposing an infant to second-hand smoke greatly increases the child’s risk of:

- asthma
- pneumonia
- bronchitis
- fluid in the middle ear
- slowed lung growth
Children and Secondhand Smoke

- **Prenatal passive smoking:** low lung volumes, childhood asthma, SIDS, contributes to low birth weight
- 150,000-200,000 respiratory infections annually in US infants and children under 18 months
- 200,000 to 1 million asthma episodes annually
- Home exposure doubles risk of ER visits, triples risk of hospitalization for respiratory conditions
ETS and Healthcare Burden in Children

- Based on estimated annual excess cases
  - Low Birth Weight – 24,500 cases
  - SIDS – 430-2000 deaths
  - Acute Otitis Media – 790,000 to 3.4 MM visits
  - OM w/ Effusion – 110K tympanostomies
  - Fire-related injuries – 10K visits, 590 hosp, 250 deaths
- Direct costs – $4.6B ($6.4B in 2006 dollars)
- Indirect costs – $8.2B ($11.4B in 2006 dollars)

Aligne, Arch Ped Adol Med 1997; 151:648-53
California ARB Report 2006
Teachable Moments Before, During and Beyond Pregnancy

- Preconception Care
  - All Gynecology and primary care visits
  - Help her quit during pregnancy
  - Never too late to quit
  - Smoke free home and car during pregnancy
  - Smoke free public places and work place
  - Avoid secondhand smoke
  - 3rd trimester begin post partum discussion
  - What are her intentions post partum?
Pregnancy: A Unique Time

- Often more open to change
- May have more support to quit while pregnant
- May not be socially acceptable to smoke if pregnant
- Excited, ambivalent, afraid
- May have more stress if unplanned pregnancy
- May have added financial burden even if planned
Post Partum Opportunities

- Prepare for post partum triggers, cues, depression
- Intervention during hospital stay
- Home visitors
- First pediatric appointment
- WIC
- Follow-up call by quit line or other counselors
- Post partum checkup
  - Smoke free home and car
Benefits of quitting

- Cessation during first trimester removes risk of low birthweight/SGA
- Even smoking reduction confers some benefit on fetal health
Treatment Issues

- Most reviews suggest few gender-specific differences
- Women may have increased negative affect and mood from nicotine withdrawal, and external cues may affect them more than men.
- Weight
  - Respond well to family support
  - Women may have increased nicotine metabolism
  - Exercise is an additional treatment aid among women, with counseling and pharmacotherapy
The 5 A’s

- **Brief Intervention: The 5 A’s**
  - **Ask** about current tobacco use
  - **Advise** them to quit
  - **Assess** willingness to make a quit attempt
  - **Assist** the person with quitting
  - **Arrange** for follow up
Counseling issues

- Stress management
- Weight gain
- Mood management
- Offer both individual and group

Relapse

- Higher prenatal Fagerstrom scores
- More concern about weight gain issues
- Depressed mood
- Partner who smokes
- Around 50% relapse rate overall
Relapse prevention

- No good RCT support for specific interventions
- Begin discussions in hospital
- Emphasize smokefree home/baby’s health
  --studies show protection from ETS often lasts only 6-12 months
- Partner support
Resources

- www.pregnets.org
- www.smokefree.gov/resources.aspx
- www.helppregnantsmokersquit.org

National Partnership to Help Pregnant Smokers Quit

- www.cdc.gov/reproductivehealth/tobaccousepregnancy/index.htm
- ACOG: American College of Obstetricians and Gynecologists
- http://www.becomeanex.org/