What Physicians Should Know About Smoking, 2012

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Topics for Today

- What we know about tobacco use
- What we don’t know enough about
- Accelerating progress
What We Know

- Tobacco use harmful for smokers and for those exposed to second hand smoke (and also third hand smoke)
- Smoking rates declining, but too slowly
- Proven policies that reduce the use of tobacco
  -- Increased prices
  -- Clean indoor air
  -- Counter-marketing
  -- Smoking cessation strategies (counseling, drugs, quitlines, internet)
  -- Graphic package warnings (in other countries)
What We Know (2)

- Smoking disproportionately concentrated among lower social classes and those with behavioral health problems (mental illness and substance abuse disorders)
- Relative to the human cost of tobacco use, we under-invest in tobacco control
- State tobacco control resources are casualties of the recent fiscal crisis
- The tobacco industry continues to be powerful and unscrupulous
What We Don’t Know

- Why is the decline in smoking prevalence so slow?
- What does the trend toward light smoking mean for tobacco control efforts?
- How can we accelerate the de-normalization of smoking in behavioral health populations?
- How can we better motivate clinicians to help smokers quit?
What We Don’t Know (2)

- How can we get more tobacco control advocacy, especially to preserve state efforts?
- How can we increase the use of quitlines?
- Specific clinical conundrums
  -- Light smokers
  -- Youth
  -- Pregnant women
  -- Risk/benefit ratio of varenicline
What We Don’t Know (3)

- Other special populations (prison, homeless)
- The menthol issue
- Chronic use of cessation medications?
- Risk/benefit of the e-cigarette
Tobacco’s Deadly Toll

- 443,000 deaths in the U.S. each year
- 4.8 million deaths worldwide each year
- 10 million deaths estimated by year 2030
- 50,000 deaths in the U.S. due to second-hand smoke exposure
- 8.6 million disabled from tobacco in the U.S. alone
- 46.6 million smokers in U.S. (78% daily smokers)
Annual U.S. Deaths Attributable to Smoking, 2000–2004

<table>
<thead>
<tr>
<th>Disease Category</th>
<th>Deaths</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular diseases</td>
<td>128,497</td>
<td>29%</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>125,522</td>
<td>28%</td>
</tr>
<tr>
<td>Respiratory diseases</td>
<td>103,338</td>
<td>23%</td>
</tr>
<tr>
<td>Second-hand smoke</td>
<td>49,400</td>
<td>11%</td>
</tr>
<tr>
<td>Cancers other than lung</td>
<td>35,326</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>1,512</td>
<td>&lt;1%</td>
</tr>
</tbody>
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**TOTAL: 443,595 deaths annually**

Health Consequences of Smoking

- **Cancers**
  - Acute myeloid leukemia
  - Bladder and kidney
  - Cervical
  - Esophageal
  - Gastric
  - Laryngeal
  - Lung
  - Oral cavity and pharyngeal
  - Pancreatic
  - Prostate (↑ incidence and ↓ survival)

- **Pulmonary diseases**
  - Acute (e.g., pneumonia)
  - Chronic (e.g., COPD)

- **Cardiovascular diseases**
  - Abdominal aortic aneurysm
  - Coronary heart disease
  - Cerebrovascular disease
  - Peripheral arterial disease
  - Type 2 diabetes mellitus

- **Reproductive effects**
  - Reduced fertility in women
  - Poor pregnancy outcomes (e.g., low birth weight, preterm delivery)
  - Infant mortality; childhood obesity

- **Other effects:** cataract, osteoporosis, periodontitis, poor surgical outcomes, Alzheimers

U.S. Department of Health and Human Services.
QUITTING: HEALTH BENEFITS

- Circulation improves, walking becomes easier
- Lung function increases up to 30%
- Excess risk of CHD decreases to half that of a continuing smoker
- Lung cancer death rate drops to half that of a continuing smoker
- Risk of cancer of mouth, throat, esophagus, bladder, kidney, pancreas decrease

<table>
<thead>
<tr>
<th>Time Since Quit Date</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks to 3 months</td>
<td>Lung cilia regain normal function</td>
</tr>
<tr>
<td>1 year</td>
<td>Ability to clear lungs of mucus increases</td>
</tr>
<tr>
<td>5 years</td>
<td>Coughing, fatigue, shortness of breath decrease</td>
</tr>
<tr>
<td>10 years</td>
<td>Risk of stroke is reduced to that of people who have never smoked</td>
</tr>
<tr>
<td>after 15 years</td>
<td>Risk of CHD is similar to that of people who have never smoked</td>
</tr>
</tbody>
</table>
Prospective study of 34,439 male British doctors
Mortality was monitored for 50 years (1951–2001)

On average, cigarette smokers die approximately 10 years younger than do nonsmokers.

Among those who continue smoking, at least half will die due to a tobacco-related disease.

Causal Associations with Second-hand Smoke

- **Developmental**
  - Low birthweight
  - Sudden infant death syndrome (SIDS)
  - Pre-term delivery
  - Childhood depression
  - Increased lead levels

- **Respiratory**
  - Asthma induction and exacerbation
  - Eye and nasal irritation
  - Bronchitis, pneumonia, otitis media in children
  - Decreased hearing in teens

- **Carcinogenic**
  - Lung cancer
  - Nasal sinus cancer
  - Breast cancer (younger, premenopausal women)

- **Cardiovascular**
  - Heart disease mortality
  - Acute and chronic coronary heart disease morbidity
  - Altered vascular properties


There is no safe level of second-hand smoke.
Smoking Prevalence and Average Number of Cigarettes Smoked per Day per Current Smoker 1965-2010

Source: Centers for Disease Control and Prevention (1965-2010). NHIS
Number of Smokers =
New Smokers + Old Smokers - Quitters
Number of Quitters =

Number of Quit Attempts \times \% \text{ of Quitters}

Price

Clinician advice

Counter-Marketing

Counseling

Medications

Clean indoor air
Federal Tobacco Tax Per Pack of Cigarettes

- 1951—8 cents
- 1982—16 ¢
- 1991—20 ¢
- 1993—24 ¢
- 2001—34 ¢
- 2002—39 ¢
- 2009—$1.01 (state taxes range from 25¢ to $2.50)
New FDA Warning Pictures

To take effect in September 2012, pending legal challenge
WARNING: Cigarettes are addictive.
Tobacco use can rapidly lead to the development of nicotine addiction, which in turn increases the frequency of tobacco use and prevents people from quitting. Research suggests that nicotine is as addictive as heroin, cocaine, or alcohol.
WARNING: Cigarettes cause fatal lung disease.
Smoking causes lung diseases such as emphysema, bronchitis, and chronic airway obstruction. About 90 percent of all deaths from chronic obstructive lung disease are caused by smoking.
WARNING: Tobacco smoke can harm your children. Secondhand smoke can cause serious health problems in children. Children who are exposed to secondhand smoke are inhaling many of the same cancer-causing substances and poisons as smokers.
WARNING: Cigarettes cause cancer. Smoking causes approximately 90 percent of all lung cancer deaths in men and 80 percent of all lung cancer deaths in women. Smoking also causes cancers of the bladder, cervix, esophagus, kidney, larynx, lung, mouth, throat, stomach, uterus, and acute myeloid leukemia. Nearly one-third of all cancer deaths are directly linked to smoking.
WARNING: Cigarettes cause strokes and heart disease.

More than 140,000 deaths from heart disease and stroke in the United States are caused each year by smoking and secondhand smoke exposure. Compared with nonsmokers, smoking is estimated to increase the risk of coronary heart disease and stroke by 2 to 4 times.
WARNING: Smoking during pregnancy can harm your baby. Smoking during pregnancy can increase the risk of miscarriage, stillborn or premature infants, infants with low birth weight and an increased risk for sudden infant death syndrome (SIDS).
WARNING: Smoking can kill you. More than 1,200 people a day are killed by cigarettes in the United States alone, and 50 percent of all long-term smokers are killed by smoking-related diseases. Tobacco use is the cause of death for nearly one out of every five people in the United States, which adds up to about 443,000 deaths annually.
WARNING: Tobacco smoke causes fatal lung disease in nonsmokers. Nonsmokers who are exposed to secondhand smoke are inhaling many of the same cancer-causing substances and poisons as smokers. Nonsmokers who are exposed to secondhand smoke increase their risk of developing lung cancer by 20–30 percent.
WARNING: Quitting smoking now greatly reduces serious risks to your health. Quitting at any age and at any time is beneficial. It's never too late to quit, but the sooner the better. Quitting gives your body a chance to heal the damage caused by smoking.
Smoking and Mental Illness: The Heavy Burden

- 200,000 annual deaths from smoking occur among patients with CMI and/or substance abuse.
- This population consumes 44% of all cigarettes sold in the United States.
  -- higher prevalence
  -- smoke more
  -- more likely to smoke down to the butt.
- People with CMI die on average 25 years earlier than others, and smoking is a large contributor to that early mortality.
- Social isolation from smoking compounds the social stigma.
Smoking Prevalence by MH Diagnosis

2007 NHIS data
- Schizophrenia 59%
- Bipolar disorder 46%
- ADD/ADHD 37%

Current smoking:
- 1 MH 32%
- 2 MH 42%
- 3+ MH 61%

Grant et al., 2004, Lasser et al., 2000
- Major depression 45-50%
- Bipolar disorder 50-70%
- Schizophrenia 70-90%
Smoking Prevalence Among Other Special Populations

- Addiction treatment centers range from 53-91% (Guydish et al, Nicotine and Tobacco Research, June 2011, p 401)
- Prisons (81%) (Kauffman et al, NTR, June 2011, p 449)
PREVALENCE of ADULT SMOKING, by EDUCATION—U.S., 2009

- 26.4% No high school diploma
- 49.1% GED diploma
- 25.1% High school graduate
- 23.3% Some college
- 11.1% Undergraduate degree
- 5.6% Graduate degree

Colorado Highlights

- Colorado adult smoking prevalence = 17.6% (21st in U.S.)
- By contrast, #1 in obesity prevalence
- Chad Morris of U. Co Dept of Psychiatry is instructing all quitlines on how to address smokers with behavioral health problems
What We Don’t Know
Smoking Cessation Attempts
Adults 18 Years and Over

Source: National Health Interview Survey, CDC, NCHS
Heavy, Medium and Light/Nondaily Smokers in California 1990-2005

Source: California Tobacco Surveys (CTS) and University of California San Diego
Questions About Light Smokers

- Do smoking cessation medications work? Mayo Clinic treats light smokers with NRT.
- Nicotine addiction not as important. So why can’t they quit, what are the reinforcers?
- Why are they concentrated among young adults?
- Does over the counter access to nicotine replacement therapies reduce the odds of successful quits?
Myths About Smoking and Mental Illness*

- Tobacco is necessary self-medication (industry has supported this myth)
- They are not interested in quitting (same % wish to quit as general population)
- They can’t quit (quit rates same or slightly lower than general population)
- Quitting worsens recovery from the mental illness (not so; and quitting increases sobriety for alcoholics)
- It is a low priority problem (smoking is the biggest killer for those with mental illness or substance abuse issues)

* Prochaska, NEJM, July 21, 2011
Myths about Smoking and Addictions*

- Quitting conflicts with drug abuse or alcohol treatment (if you stop smoking you are more likely to remain clean and sober)
- Addicts don’t want to quit (many do)
- Addicts can’t quit (many can)
- Quitting jeopardizes recovery (on the contrary)

* Schroeder and Morris, Ann Rev Pub Health, 2010
Physicians Under-treat Smokers*

- AAMC survey of 3012 physicians representing FM, GIM, Ob-Gyn, Psych
- Only 1% were current smokers
- 84% asked about smoking
- 86% advised to quit
- 31% recommended NRT
- 17% arranged follow-up
- 7% referred to quitlines

Reasons for Not Helping Patients Quit*

1. Too busy
2. Lack of expertise
3. No financial incentive
4. Lack of available treatments and/or coverage
5. Most smokers can’t/won’t quit
6. Stigmatizing smokers
7. Respect for privacy
8. Negative message might scare away patients
9. I smoke myself

* Schroeder, JAMA 2005
The 5 A’s: Review

ASK
about tobacco USE

ADVISE
about tobacco USE

ASSESS
tobacco users to QUIT

ASSIST
readiness to make a QUIT attempt

ARRANGE
with the QUIT ATTEMPT

FOLLOW-UP care

Ask. Advise. Refer. = 5 A’s

Ask
Advise
Assess
Assist
Arrange

Ask. Every patient/client about tobacco use.

Advise. Every tobacco user to quit.

Refer. Determine willingness to quit. Provide information on quitlines.

Refer to Quitlines

ADHA Smoking Cessation Initiative (SCI)
Responses to Patient Who Smokes

- Unacceptable: “I don’t have time.”
- Acceptable
  - Refer to a quit line and/or web program
  - Establish systems in your office and hospital
  - Become a cessation expert
Caveats About Cessation Literature

- Smoking should be thought of as a chronic condition, yet drug treatment often short (12 weeks) in contrast to methadone maintenance
- Great spectrum of severity and addiction; treatment should be tailored accordingly
- Volunteers for studies likely to be more motivated to quit
- Placebo and drug groups tend to have more intensive counseling than found in real practice world
- Most drug trials exclude patients with mental illness
LONG-TERM (≥6 month) QUIT RATES for AVAILABLE CESSATION MEDICATIONS

Frequently Asked Questions

- Pregnancy: counseling alone preferable; NRT may not be effective*

- Cytisine**: from acacia plant; not approved by FDA; can get on-line as OTC supplement; may get commercial sponsor

- Varenicline in combo with other cessation drugs: no data yet, but trials in progress; off line use by many experts along with NRT

* Coleman et al NEJM March 1, 2012
** West et al. NEJM Sept 29, 2011
The Electronic Cigarette *

- Aerosolizes nicotine in propylene glycol solvent
- Cartridges contain about 20 mg nicotine
- Safety unproven, but >cigarette smoke
- Bridge use or starter product?
- Probably deliver < nicotine than promised
- Not approved by FDA
- My advice: avoid unless patient insists

* Cobb & Abrams. NEJM July 21, 2011
New Joint Commission Regulations on Tobacco Treatment*

- Assess tobacco use
- Provide or offer treatment
- Check on post-discharge use of treatment
- Ascertain post-discharge smoking status
- Tobacco use to be one of 14 measures, from which each hospital must select 4

* To take effect in 2012; Fiore, Goplerud and Schroeder: NEJM March 29, 2012
Why the Focus on Quitlines?

 They work--calling a quitline can more than double the chance of successfully quitting.
 Many clinicians say the 5 A’s are too complicated and time-consuming.
 Most clinicians unaware of quitlines; when they learn about them they are willing to refer smokers to them.
Smokers Prefer Quitlines

Source: McAfee (2002), North American Quitline Conference
Efficacy and Average Sample Size of Tobacco Cessation Studies Reviewed by the Cochrane Library†

<table>
<thead>
<tr>
<th>Type of Intervention</th>
<th>Odds Ratio (95% CI*)</th>
<th>Average Sample Size, per trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Replacement Therapy (NRT, n=98*)</td>
<td>1.74 (1.64, 1.86)</td>
<td>385</td>
</tr>
<tr>
<td>Telephone Counseling (TC, n=13*)</td>
<td>1.56 (1.38, 1.77)</td>
<td>1,100</td>
</tr>
</tbody>
</table>

*n indicates number of studies; CI. Confidence interval.
†Based on Silagy et al. (2004) and Stead et al. (2004). *The Cochrane Library*.
## Knowledge of Tobacco Cessation Programs Among California Smokers†

<table>
<thead>
<tr>
<th>METHOD</th>
<th>Unaided Recall</th>
<th>Aided Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (95% CI*)</td>
<td>% (95% CI*)</td>
</tr>
<tr>
<td>Telephone quitline</td>
<td>4.5 (1.1)</td>
<td>38.7 (2.6)</td>
</tr>
<tr>
<td>NRT</td>
<td>59.5 (2.5)</td>
<td>--</td>
</tr>
<tr>
<td>Hypnosis</td>
<td>9.8 (1.5)</td>
<td>--</td>
</tr>
<tr>
<td>SmokEnders</td>
<td>4.5 (1.1)</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>46.3 (2.9)</td>
<td>--</td>
</tr>
</tbody>
</table>

† Data from the California Tobacco Survey, 1999. For the unaided recall question, survey respondents were asked, “Can you name up to 3 programs that are helpful to people who are trying to quit smoking?” The aided recall question was asked only in reference to the quitline: “Have you ever heard of the 1-800-NO-BUTTS (or, in Spanish, 1-800-45-NO-FUME) phone number?”

* CI = confidence interval.
Quitline Calls Are Increasing

# callers to all national quitlines was 222,000 in 2005, 516,000 in 2009, 1,000,000 in 2010!

In a period when smoking prevalence was declining and states were cutting back on marketing budgets (WA just reduced its QL)

New studies show web-based cessation protocols yield better results when linked to quitlines

New FDA labels, with QL #, likely to increase call volume
Referrals by Type to the California Smokers’ Helpline, 2004-2010

![Graph showing referrals by type from 2004 to 2010. The graph is color-coded with blue for Health Care Providers and orange for Media. The number of referrals for each year is indicated on the graph.]

- **2004**: 20,857 referrals (Health Care Providers: 9,384; Media: 11,473)
- **2005**: 17,225 referrals (Health Care Providers: 10,354; Media: 6,871)
- **2006**: 15,142 referrals (Health Care Providers: 10,526; Media: 4,616)
- **2007**: 14,533 referrals (Health Care Providers: 11,491; Media: 3,042)
- **2008**: 13,298 referrals (Health Care Providers: 9,910; Media: 3,388)
- **2009**: 16,330 referrals (Health Care Providers: 12,602; Media: 3,728)
- **2010**: 14,778 referrals (Health Care Providers: 10,354; Media: 4,424)
Other Conundrums

- Youth smoking cessation
- Varenicline risk (suicide and cardiac)?
- Counseling not a monolithic black box
- Refusal to hire smokers
- FDA lower nicotine content in cigarettes?
- FDA eliminate menthol?
Tips for Your Office

- Referral forms to the CO quitline (1-800-QUITNOW)
- Carbon monoxide breathalyzer (cost about $500 plus disposal mouthpieces)
- One key question to ask: “When do you have your first cigarette of the day?”
- Approach smoking as a chronic illness
Tobacco Tipping Point?

- California 11.9% adult smoking prevalence in 2010
- National prevalence in 2010 at modern low—19.3%!
- Smokers smoke fewer cigarettes
- Northern California Kaiser Permanente at 9%
- Proliferation of smoke-free areas
- Cytisine as a new medication
Tobacco Tipping Point (2)?

- Physicians at 1% smoking prevalence
- 62 cent/pack federal tax increase 2009
- Lung cancer deaths in women starting to fall
- Increasing stigmatization of smoking
- New FDA warning photos on cigarette packs
- CDC $54 million ad campaign, 2012
- Joint Commission new regulations on smoking
- Regulation of nicotine content in cigarettes?
Power of Intervention

- ⅓ to ½ of the 46.6 million smokers will die from the habit. Of the 31.1 million who want to quit, 10.3 to 15.5 million will die from smoking.
- Increasing the 3% base line cessation rate to 10% would save 1 million additional lives.
- If cessation rates rose to 15%, 1.5 million additional lives would be saved.
- No other health intervention could make such a difference!