Diabetes and Tobacco: A Dangerous Combination

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What’s Really Killing Us?

- Over 440,000 deaths each year in the U.S.
  - That’s 1 of every 5 deaths
- 50,000 deaths in the U.S. due to second-hand smoke exposure

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What is Diabetes? How it Can be Managed?

- A disease with high levels of blood glucose resulting from defects in insulin production
- 24 million with type 2 & 57 million with pre-diabetes
- At-risk people can prevent or delay the onset by losing 5-7% of their body weight

Diabetes can be managed by:
- Controlling BG, BP and Cholesterol
- Getting flu and pneumonia shots
- Staying at a healthy wt by eating healthy & engaging in moderate physical activity

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Smoking Prevalence Among Hispanics in U.S.

- 4.8 million (15.8%) Hispanics smoked compared to 21.3 % blacks and 22.0 % whites (2008).

- men smoked (20.7%) more than double that of women (10.7%) (2008).

- There are variations in smoking among Hispanic subgroups. Cubans had the highest rates of smoking (21.5%), followed by American-born Mexicans (20.1%), and Puerto Ricans (18.6%) (2008).
State-specific Prevalence of Smoking Among Adults, 2009

- California: 12.9%
- New York: 18.0%
- Utah: 9.8%
- Texas: 17.9%
- Illinois: 18.6%
- Indiana: 23.1%
- Kentucky: 25.6%
- Nevada: 22.0%
- Florida: 17.1%
- New York: 18.0%

Centers for Disease Control and Prevention. (2009) BRFSS

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State-specific Prevalence of Diabetes Among Adults, 2009

- California: 9.1%
- New York: 8.9%
- Utah: 6.1%
- Texas: 9.3%
- Illinois: 8.2%
- Kentucky: 11.5%
- Nevada: 7.9%
- Indiana: 9.3%
- Florida: 10.7%

Centers for Disease Control and Prevention. (2009) BRFSS
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State-specific Prevalence of Diabetes Among Hispanic Adults, 2009

- California: 10.9%
- New York: 8.9%
- Utah: 5.2%
- Texas: 9.7%
- Illinois: 8.4%
- Kentucky: 4.7%
- Nevada: 8.5%
- Indiana: 6.5%
- New York: 8.9%
- Florida: 12.1%

Centers for Disease Control and Prevention. (2009) BRFSS

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There is no safe level of exposure to tobacco smoke
Damage from tobacco smoke is immediate
Smoking longer means more damage.
Health Consequences Casually Linked to smoking

Cancers
- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- Pancreas
- Kidney and ureter
- Cervix
- Bladder

Chronic Diseases
- Stroke
- Blindness, cataracts
- Periodontitis
- Aortic aneurysm
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, asthma, and other respiratory effects
- Hip fractures
- Reproductive effects in women (including reduced fertility)

Health Consequences Casually Linked to Secondhand Smoke Exposure

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Smoking Among People With Diabetes

- Diabetes affects 24 million people in U.S., an increase of more than 3 million in 2 years. CDC, Diabetes Facts, June 2008

- CDC estimates that 20.0% of adults with diabetes smokes. CDC, Division of Diabetes Translation, July 2009

- Between 1994 and 2007, the smoking among people with diabetes showed little change (21.7% & 20.0%). CDC, Division of Diabetes Translation, July 2009

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Smoking & Diabetes
A Dangerous Combination

- 11 fold increase in risk for MI or stroke

- 3 times more likely to have kidney disease

- 3 times more likely to die of CVD
  American Diabetes Association, Smoking Webpage

- Can cause cancer of mouth, throat, lung & bladder
  American Diabetes Association, Smoking Webpage

- Raises blood sugar level, making it harder to control
  American Diabetes Association, Smoking Webpage
Smoking May Be An Independent Risk Factor for Type 2 Diabetes

JAMA meta-analysis 2007 (Relative risk or 1.44)

- 12% of diabetes attributable to smoking
- Despite lower weight in smokers, more central adiposity
- Smoking also increases inflammation, oxidative stress, and impairs endothelial function
- Nurses’ Health Study found relative risk of 1.42
- Smoking cessation should be a key facet of diabetes prevention and treatment

Willi et al JAMA 2007;298:2654-64; Ding and Hu editorial 2675-76

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Smoking appears to be associated with larger upper body fat distribution – a marker of insulin resistance, raised plasma glucose concentrations, and overt diabetes. 

Diabetes Care 1999 November; 22 (11); 1887-1898

Smoking acutely impairs insulin action and leads to insulin resistance.

J Intern Med, 1993

When the action of insulin is impaired chronically in smokers, a dose response relationship can be seen.

Diabetes Spectrum 2005; 18 (4) 202-208
Cardiovascular Disease

Coronary Heart Disease

- Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes. [2005 U.S Department of Health and Human Services CDC National Diabetes Fact Sheet]
- Cigarette smokers are 2 to 4 times more likely to develop coronary heart disease than nonsmokers. [2006 U.S. Department of Health and Human Services. CDC Smoking and Tobacco Use Fact Sheet]
- 25-30% increase in the risk of coronary heart disease from exposure to secondhand smoke for nonsmokers. [IOM report. 2009]

Stroke

- Adults with diabetes are 2 to 4 times likely to suffer strokes; once having had a stroke, they are 2 to 4 times as likely to have a recurrence. [American Diabetes Association]
- Cigarette smoking is a major cause of strokes. [2004 Surgeon General’s Report on Smoking]
Peripheral Vascular Disease

- smoking causes reduced circulation and smokers are more than 10 times as likely to develop peripheral vascular disease. 2006 U.S. Department of Health and Human Services. CDC Smoking and Tobacco Use Fact Sheet

- smoking increases the risk of peripheral vascular disease (PVD) resulting in amputations. Clinical Diabetes Vol. 24, number 3, 2006

- people with diabetes are at greater risk for severe PVD. Diabetes Care 24 (2001):1433-37

- more than 60% amputations occur in people with diabetes. 2005 U.S Department of Health and Human Services CDC National Diabetes Fact Sheet

- the rate of amputation for people with diabetes is 10 times higher than for people without diabetes. American Diabetes Association

- the prevalence of foot ulcer increased with smoking, from 10.3% among nonsmokers to 11.9% among former smokers to 15.8% among current smokers. MMWR, November 14, 2003; 52(45);1098-1102

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Smoking, and the nicotine within cigarettes, increases blood pressure.

High blood pressure can cause kidney damage.

2 of 3 adults with diabetes have high blood pressure. American Diabetes Association

Hypertension is an important risk factor for the development and worsening of diabetes complications, especially heart disease.
American Heart Association
High Cholesterol

- smoking potentiates endothelial dysfunction by enhancing LDL oxidation. 2004 Surgeon Generals Report on Smoking

- smoking is associated with increases in triglycerides and decreases HDL. Lancet. 1992 May 9;339(8802):1128-30

- diabetes causes an adverse lipid profile (Diabetic dyslipidemia)- an increased triglycerides and decreased HDL leading to risk for heart attack and stroke. American Heart Association
Smoking changes the blood supply, immune response, and healing mechanisms of the mouth, increasing risk of infections and periodontal disease. *Journal of Periodontal Research, 34(7): 363-9, October 1999*

In uncontrolled diabetes people are more likely to have periodontal disease and is often considered the 6th complication of diabetes.

Periodontal disease increases blood sugar-contributing diabetes complications. *American Academy of Periodontology*
people with diabetes are already at risk for eye-related disease and smoking complicates further.

- tobacco smoke is composed of as many as 4,000 active compounds, most of them are toxic and damaging to the eye. 2004 Surgeon Generals Report on Smoking

- smokers have 2 to 3 times the risk of developing cataracts as nonsmokers. 2004 Surgeon Generals Report on Smoking

Other Concerns & Worries for People with Diabetes

- same strategies for diabetes and tobacco control
- smoking - an excuse to avoid weight gain
- healthy eating focus than a restrictive diet
- people with diabetes has depression
- depression has been linked to smoking
- encourage counseling and use of bupropion (helpful for depression and delay of weight gain)

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More Reasons Not to Smoke

- Other effects on the body
  - Depressed immune system
  - Irritation and inflammation of gastrointestinal system
  - Reduced bone density
  - Sinusitis and rhinitis

- Pregnancy and smoking
  - Low birth weight
  - Placental problems
  - Stillbirth/miscarriage
  - SIDS
  - Preterm labor

- Second hand smoke
  - Increases risk for heart disease and diabetes

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Benefits After Quitting

20 minutes: Blood pressure and pulse return to normal
8 hours: Carbon monoxide level in blood returns to normal and oxygen level increases.
24 hours: Breath, hair, and body stop smelling like smoke. Chance of heart attack decreases
48 hours: Nerve endings recover. Sense of taste and smell improve
72 hours: Nicotine is out of the body. Bronchial tubes relax, making breathing easier.
2 weeks - 3 months: Lungs can hold more air. Exercise becomes easier. Circulation increases.
1 month – 9 months: Coughing, congestion, fatigue, and shortness of breath decrease. Cilia regain function in lungs and fight off infections. Overall body energy increases.
Benefits of Quitting for People with Diabetes

- Less resistance to insulin
- Less chance of eye damage
- Less chance of kidney damage and kidney failure
- Less chance of nerve damage
- Better control of your diabetes overall
- More energy
- Lower A1c levels
- Lower glucose levels
- Lower cholesterol levels
- Lower LDL (bad) cholesterol levels
- Lower triglycerides (fats) levels
- Higher HDL (good) cholesterol levels

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Long-term Benefits of Quitting

1 year: Risk of coronary heart disease cut in half.

5 years: Stroke risk reduced to that of a non-smoker.

10 years: Lung cancer risk cut in half, risk of other cancers decreases significantly.

15 years: Risk of coronary heart disease drops, usually to the level of a non-smoker.
An Opportunity for Health Care Providers

- 70% of smokers want to quit
- A brief 30-second intervention can help someone to quit
- Health care provider’s advice can double a smoker’s chance of quitting
- Patients are more satisfied with their health care if their provider offers smoking cessation interventions - even if they’re not yet ready to quit.
Tobacco Policies & Cessation Intervention - Reimbursable Service

- Tobacco policies depend on states, Medicaid covers Tobacco cessation counseling (IN=yes, IL=no). ([http://impacteen.org/statetobaccodata/chartbook_final060409.pdf](http://impacteen.org/statetobaccodata/chartbook_final060409.pdf)
- Medicare reimburses its health care providers for cessation counseling.
  - The CPT codes are 99406 (3-10 minute intervention) and 99407 (over 10 minute intervention)
- American Academy of Family Physicians website for more information
Diabetes Policy Recommendations

- **American Association of Diabetes Educators Urges**
  Congress to include Diabetes Self-Management education/Training (S. 3211) to prevent diabetes onset.

- **American Diabetes Association Urges**
  Congress to pass a budget that increases CDC diabetes prevention and treatment efforts and NIH diabetes research funding.

State legislators to increase funding for state programs and to expand existing prevention efforts. [http://www.diabetes.org/advocate/our-priorities/funding/diabetes-control-programs.html](http://www.diabetes.org/advocate/our-priorities/funding/diabetes-control-programs.html). Encourage legislators to support opportunities to increase physical fitness and ensure that school systems offer meals that meet nutritional standards and that information about calories and carbohydrates is more available, so people can make more informed, healthier food choices.

2008 Clinical Guideline Update

Recommendations

- Tobacco dependence is a chronic condition that requires repeated intervention.
- All healthcare providers should identify and offer treatment to every tobacco user.
- Counseling and medication is the most effective treatment of tobacco dependence.
- Quitline counseling is effective with diverse populations and has broad reach.
- There are now seven effective medications approved by the FDA for treating tobacco dependence. http://www.ahrq.gov/path/tobacco.htm#Clinic
The 5 A’s: Review

- **ASK** about tobacco USE
- **ADVISE** tobacco users to QUIT
- **ASSESS** readiness to make a QUIT attempt
- **ASSIST** with the QUIT ATTEMPT
- **ARRANGE** FOLLOW-UP care

Ask. Advise. Refer. = 5

A’s

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)
National Quitline Services

- The most typical Quitline is a smoking cessation services
- Include counseling, nicotine replacement therapy (NRT), referrals, educational materials, and training for health care providers
- Appeal to those uncomfortable in a group setting
- Easy intervention for health care professionals
- 1-800-Quit-Now is a national router number that accepts calls from throughout the nation,
- The router directs callers to the appropriate state Quitline.

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Do Quitlines Really Work?

- Quitlines play an important role in a comprehensive tobacco control program
- Proactive telephone counseling, helps smokers interested in quitting
- It provides an important access route to support smokers
- Quitline can increase an individual’s success in quitting by up to 56%
  - (CDC & Surgeon General)
2008 PHS Clinical Guidelines Update key finding – combining counseling and medication is the most effective clinical treatment of tobacco dependence

FDA-approved medications to help patients quit smoking

- Nicotine replacement therapy (NRT)
  - Nicotine gum, patch, lozenge, nasal spray, inhaler
- Partial nicotinic receptor agonist
  - Varenicline
- Psychotropic agent
  - Bupropion

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**Source:** WHO Report on the Global Tobacco Epidemic, 2008 - The MPOWER package.

- **Monitor** tobacco use and prevention policies
- **Protect** people from tobacco smoke
- **Offer** help to quit tobacco use
- **Warn** about the dangers of tobacco
- **Enforce** bans on tobacco advertising, promotion and sponsorship
- **Raise** taxes on tobacco
Online Resources

- Office of Smoking and Health [http://www.cdc.gov/tobacco/]
- Publications:
  [http://apps.nccd.cdc.gov/osh_pub_catalog/PublicationList.aspx]
- Surgeon General’s Report – The Health Consequences of Smoking
- Office of Smoking and Health
  [http://www.cdc.gov/tobacco/]
  - Publications:
  [http://apps.nccd.cdc.gov/osh_pub_catalog/PublicationList.aspx]
- Surgeon General’s Report – The Health Consequences of Smoking
- Agency for Healthcare Research and Quality Tobacco Use Clinical Guidelines and Materials
  [http://www.ahrq.gov/path/tobacco.htm]
  - CDC Diabetes Public Health Resources
- [http://www.cdc.gov/diabetes/]

DO YOU CAARD? Diabetes and Tobacco Cessation Campaign 2008
Online Resources – Cont.

- National Diabetes Education Program, CDC
- Smoking Cessation Leadership Center
  - [http://smokingcessationleadership.ucsf.edu/](http://smokingcessationleadership.ucsf.edu/)
- Tobacco Free Nurses
  - [http://www.tobaccofreenurses.org/](http://www.tobaccofreenurses.org/)
- American Academy of Family Physicians
  - [www.askandact.org](http://www.askandact.org)
- American Dental Hygienists’ Association
  - [http://www.askadviserefer.org/](http://www.askadviserefer.org/)
- American Lung Association
  - [http://www.lungusa.org](http://www.lungusa.org)
  - [www.smokefree.gov/](http://www.smokefree.gov/)
  - [www.mytimetoquit.com](http://www.mytimetoquit.com)
  - [www.becomeanex.org](http://www.becomeanex.org)

DO YOU CAARD? Diabetes and Tobacco Cessation Campaign 2008
Thank you!

For More Information:
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