



## **Remarks for Dr. Cheryl Heaton**

### **Legacy® and Women's Policy, Inc. Breakfast Briefing**

#### **Women and Addiction: Why Is It More Difficult for Women to Quit Smoking?**

**Friday, June 8, 2012  
8:30-9:45 a.m. ET  
B-338 Rayburn House Office Building**

#### **SPEAKERS**

**Cheryl G. Heaton, DrPH**, President and CEO, Legacy, will speak about Legacy's work to end tobacco use by women.

**Nora D. Volkow, MD**, Director, National Institute on Drug Abuse, National Institutes of Health, will discuss recent research on addiction, with a focus on women and smoking.

#### **Remarks for Dr. Heaton**

Thanks so much, Cindy. It is terrific to be back again on the Hill to address this important issue. Like you, I couldn't be happier to have Dr. Volkow with us this morning to help us better understand women and addiction.

This morning we're here to discuss the current landscape of women smoking in the U.S. and why it is so hard for them to quit. I'm pleased to share the podium with Nora as she shares her expertise on our brain's wiring. Dr. Volkow's work has been groundbreaking in helping us better understand addiction.

Just this past Mother's Day, I celebrated 20 years of being smoke-free, but it is an addiction I will always have to guard against. This was despite my personal experience of losing family members to smoking, including my mother when she was only 62 years old. It was despite my education, resources and position that I held at the time as Associate Dean of Public Health at Columbia. And it was despite the fact that my husband and children desperately wanted me to quit. Despite all this, quitting was one of the hardest things I have ever done in my life.

#### **Landscape of Women and Tobacco**

Since the time that I smoked, the profile of the typical American female smoker has changed dramatically. How many women continue to smoke today? More than you might think. Roughly, 20% of American adult women ages 25 to 44 currently smoke. That's 1 in 5. What's especially worrisome is not only the number of women in the US that are addicted to a lethal product, it is compounded by the challenges that today's female smoker faces in her ability to overcome her addiction.

Women smokers are more likely to have the following characteristics:

- She is more likely to be less educated. Nearly 45% of women with GEDs are smokers, while less than 10% of their college educated peers smoke. Those with graduate degrees smoke at rates closer to 6%.
- She is more likely to be of low income status or poor, 26% of women below the poverty level smoke. These women are less likely to successfully quit smoking compared to smokers at or above poverty level although they attempt to quit at the same rate.
- In today's economy this is especially distressing since the prevalence of current smoking is greatest among adults with working class jobs, low educational levels, low income, and those who are unemployed.
- Some minority/ethnic groups smoke at higher rates: 36% of American Indian/Alaska Native women, 24% (23.8%) of multi-racial women smoke. They are followed by 20% of whites (19.6%), 17% of African-American and Hispanic and Asian women smoke at the lowest rates of 9% and 4% (4.3%) respectively.

[Source: Centers for Disease Control and Prevention. Racial/Ethnic Differences Among Youths in Cigarette Smoking and Susceptibility to Start Smoking – United States, 2002-2004; Morbidity and Mortality Weekly Report. December 1, 2006; 55(47):1275-7.]

- For a woman who self-identifies as Gay or Lesbian, she is 1.5 to 2.4 more likely to smoke than if she were straight. In California, the smoking prevalence among WSW (women who have sex with women but do not self-identify as Lesbians) is over 3.5 times higher than among women in the general population (44% vs. 12%).
- Of course, we all know the disturbing outcomes for women that aren't able to quit. Maybe some of us know women who have lost their battles with smoking. The annual risk of death in women who smoke cigarettes is 80-90% greater than in women who have never smoked.
- Lung cancer is the leading cancer killer. In fact, tobacco is the single largest cause of preventable death for women in the U.S. – robbing us of 174,000 mothers, sisters, friends every year. It stole my Mom and several of my aunts.

And this statistic literally and figuratively takes my breath away...

- Between 1980 and 2001, an estimated 3 million women died due to tobacco, and they've lost on average, respectively 14 years of life.

### Why is it so hard to quit?

Addiction to nicotine is not a character flaw. Cigarettes are engineered to be addictive and keep people hooked. Some have argued, like former Surgeon General Koop, that nicotine and tobacco might be the most addictive substances known to humankind. Additionally, women have been extensively targeted in tobacco marketing dominated by themes of an association between social desirability, independence, weight control and smoking messages conveyed through advertisements featuring slim, attractive, and athletic models.

[Source: U.S Department of Health and Human Services. Women and Smoking: A Report of the Surgeon General. 2001.]

Many smokers, particularly women, report delaying quit attempts or relapsing once they have quit due to a fear of weight gain. Studies show that most former smokers gain less than ten pounds; however, some medications and nicotine replacement therapies may reduce or delay weight gain.

So why do we smoke and why is it so tough to quit when we all know very well what the health risks are?

There is some fascinating new research published just recently in three separate peer reviewed journals that add to the body of science on this issue. Last month in the April issue of the *Archives of General Psychiatry* findings revealed that women's brains react differently to nicotine than men's brains do. Due to hormone level differences, women may respond better to behavioral support and learning to better address cultural cues and triggers with exercise and relaxation techniques as opposed to traditional pharmacotherapies.

And from the *American Journals of Psychiatry*, new research from the Washington University School of Medicine in St. Louis found that a smoker's gene variations may foretell whether or not they will find quitting smoking especially challenging. This study also found that those gene variations may predict a smoker's capacity for responding positively or negatively to nicotine-replacement drugs.

Finally, yet another study released late last month in the journal *Tobacco Control* posed that among smokers over 60, men were more likely to quit than women, but that women under 50 -- especially young women in their 20s and 30s -- may be more likely to quit than men.

That is just one study however, and we will need more research to confirm it.

### What we must do

Everyone quits differently, and I know for me personally, it would have been extremely tough to quit a three-pack a day addiction to cigarettes without nicotine replacement therapies. But every day, we're learning more about the gender differences that play such an important role in addressing addiction.

But what can we do?

First, we need to recognize the important differences and barriers women face when quitting smoking. As I mentioned, today's average female smoker already faces many disadvantages in her life. She is more likely to have less education and very limited resources available to her to help her quit. We must do all we can to provide comprehensive cessation resources available to those that need it most.

Second, smoking cessation for women requires a multicomponent intervention.

When a person is dealing with an addiction to cocaine, heroin or other highly addictive substances – a clinical treatment program or, rehab, is often recommended or even expected as a solution. Similar to other drug addictions, nicotine dependence is a chronic, relapsing disorder and may require repeated treatment and multiple quit attempts.

If we are serious about helping people overcome their addictions to nicotine and tobacco - a clinical treatment programs might be our best defense against this formidable foe.

Third, we need to continue to educate women about the harms of smoking and encourage women to quit. With ad campaigns, the CDC currently is airing a national campaign promoting free cessation services. This is mission critical if we're serious about reducing tobacco use in America.

I'd like to close with some good news. Quitting is possible. I'm proof positive of that. More good news is that we know what works and our country is positioned to address tobacco use so it is no longer one of our nation's most deadly epidemics.

Thank you for joining us today, I'll turn the podium back to Cindy Hall, so we can hear from Nora.

Thank you.

# Genes predict if medication can help you quit smoking

May 30, 2012

By Jim Dryden



LI-SHIUN CHEN

High-risk genetic variations can increase the risk for nicotine dependence, but the same gene variants predict a more robust response to anti-smoking medications.

The same gene variations that make it difficult to stop smoking also increase the likelihood that heavy smokers will respond to nicotine-replacement therapy and drugs that thwart cravings, a new study shows.

The research, led by investigators at [Washington University School of Medicine](#) in St. Louis, will appear online May 30 in the *American Journal of Psychiatry*.

The study suggests it may one day be possible to predict which patients are most likely to benefit from drug treatments for nicotine addiction.

“Smokers whose genetic makeup puts them at the greatest risk for heavy smoking, nicotine addiction and problems kicking the habit also appear to be the same people who respond most robustly to pharmacologic therapy for smoking cessation,” says senior investigator Laura Jean Bierut, MD, professor of psychiatry. “Our research suggests that a person’s genetic makeup can help us better predict who is most likely to respond to drug therapy so we can make sure those individuals are treated with medication in addition to counseling or other interventions.”

For the new study, the researchers analyzed data from more than 5,000 smokers who participated in community-based studies and more than 1,000 smokers in a clinical treatment study. The scientists focused on the relationship between their ability to quit smoking successfully and genetic variations that have been associated with risk for heavy smoking and nicotine dependence.

“People with the high-risk genetic markers smoked an average of two years longer than those without these high-risk genes, and they were less likely to quit smoking without medication,” says first author Li-Shiun Chen, MD, assistant professor of psychiatry at Washington University. “The same gene variants can predict a person’s response to smoking-cessation medication, and those with the high-risk genes are more likely to respond to the medication.”

In the clinical treatment trial, individuals with the high-risk variants were three times more likely to respond to drug therapy, such as nicotine gum, nicotine patches, the antidepressant bupropion and other drugs used to help people quit.

Tobacco use is the leading cause of preventable illness and death in the United States and a major public health problem worldwide. Cigarette smoking contributes to the deaths of an estimated 443,000 Americans each year. Although lung cancer is the leading cause of smoking-related cancer death among both men and women, tobacco also contributes to other lung problems, many other cancers and heart attacks.

Bierut and Chen say that the gene variations they studied are not the only ones involved in whether a person smokes, becomes addicted to nicotine or has difficulty quitting. But they contend that because the same genes can predict both heavy smoking and enhanced response to drug treatment, the genetic variants are important to the addiction puzzle.

“It’s almost like we have a ‘corner piece’ here,” Bierut says. “It’s a key piece of the puzzle, and now we can build on it. Clearly these genes aren’t the entire story — other genes play a role, and environmental factors also are important. But we’ve identified a group that’s responding to pharmacologic treatment and a group that’s not responding, and that’s a key step in improving, and eventually tailoring, treatments to help people quit smoking.”

Since people without the risky genetic variants aren’t as likely to respond to drugs, Bierut says they should get counseling or other non-drug therapies.

“This is an actionable genetic finding,” Chen says. “Scientific journals publish genetic findings every day, but this one is actionable because treatment could be based on a person’s genetic makeup. I think this study is moving us closer to personalized medicine, which is where we want to go.”

And Bierut says that although earlier studies suggested the genes had only a modest influence on smoking and addiction, the new clinical findings indicate the genetic variations are having a big effect on treatment response.

“These variants make a very modest contribution to the development of nicotine addiction, but they have a much greater effect on the response to treatment. That’s a huge finding,” she says.

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Chen LS, Baker TB, Piper ME, Breslau N, Cannon DS, Doheny KF, Gogarten SM, Johnson EO, Saccone NL, Wang JC, Weiss RB, Goate AM, Bierut LJ. Interplay of genetic risk factors

(CHRNA5-CHRNA3-CHRNA4) and cessation treatments in smoking cessation success. *American Journal of Psychiatry*, published online May 30, 2012; doi:10.1176/appi.ajp.2012.11101545.

Bierut, Goate and Wang are listed as inventors on issued U.S. Patent 8,080,371, “Markers for Addiction” covering the use of certain SNPs in determining the diagnosis, prognosis and treatment of addiction.

Funding for this research comes from the National Cancer Institute, the National Institute on Drug Abuse, the National Human Genome Research Institute, the National Heart, Lung, and Blood Institute and the National Center for Research Resources of the National Institutes of Health (NIH). NIH grant numbers P01 CA089392, P50 CA84724, K05 CA139871, P50 DA19706, R01 DA026911, K02 DA021237, K08 DA030398, U01 HG004422, KL2 RR024994, U01 HG004438, HHSN268200782096C (contract), U01 HG004446, N01 HC55015 (contract), N01 HC55016 (contract), N01 HC55018 (contract), N01 HC-55019 (contract), N01 HC55020 (contract), N01 HC55021 (contract), N01 HC55022 (contract), R01 HL087641, R01 HL59367, R01 HL086694, U01 HG004402, HHSN268200625226C (contract) and UL1 RR025005.

Washington University School of Medicine’s 2,100 employed and volunteer faculty physicians also are the medical staff of [Barnes-Jewish](#) and [St. Louis Children’s](#) hospitals. The School of Medicine is one of the leading medical research, teaching and patient care institutions in the nation, currently ranked sixth in the nation by *U.S. News & World Report*. Through its affiliations with Barnes-Jewish and St. Louis Children’s hospitals, the School of Medicine is linked to BJC HealthCare.

## Why women find it harder to quit smoking

By [Rachael Rettner](#), April 3, 2012



### MyHealthNewsDaily

Women tend to find it harder to quit smoking than men, and a new study suggests why — women’s brains respond differently to nicotine, the researchers say.

When a person smokes, the number of [nicotine receptors](#) in the brain — which bind to nicotine and reinforce the habit of smoking — are thought to increase in number.

The study found in men, this is true — male smokers had a greater number of nicotine receptors compared to male nonsmokers. But surprisingly, women smokers had about the same number of nicotine receptors as nonsmokers.

"When you look at it by gender, you see this big difference," said study researcher Kelly Cosgrove, an assistant professor of psychiatry at Yale University School of Medicine.

The findings are important because the main treatments for people who want to quit smoking are nicotine-replacement therapies, such as [nicotine patches](#) and gums. The study suggests women smokers may benefit more from other types of treatment that don't involve nicotine, including behavioral therapies, such as exercise or relaxation techniques, and non-nicotine containing medications, Cosgrove said.

Elements of smoking not related to nicotine, such as the smell and act of holding a cigarette, may play a greater role in fueling the habit of women smokers, compared with men, Cosgrove said.

### **Locating nicotine receptors**

Cosgrove and colleagues scanned the brains of 52 men and 58 women, about half of whom were smokers. The researchers examined nicotine receptors in the brain by using a radioactive marker that binds specifically to an important group of receptors that are primarily responsible for the body's [physical dependence on nicotine](#), Cosgrove said.

Smokers in the study had abstained from smoking for a week so that their nicotine receptors would be free to bind to the marker used for imaging.

The researchers found that male smokers had about 16 percent more nicotine receptors in an area of their brain known as the striatum, 17 percent more in the cerebellum, and 13 to 17 percent more in the cortical region, or outside layer, of the brain compared with male nonsmokers. Female smokers, on the other hand, had similar numbers of nicotine receptors in these brain regions.

### **Why are female brains different?**

Dr. Len Horovitz, a pulmonary specialist at Lenox Hill Hospital in N.Y., agreed more attention should be paid to non-nicotine related smoking therapies.

"You can replace all the nicotine you want, and people might still want to smoke," Horovitz said. For instance, smoking is a big stress reliever for some people. Even the act of deep breathing is a part of the habit, and breathing exercises may help smokers because they mimic puffing a cigarette, Horovitz said.

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The reason for the sex difference seen in the study is not known, but it may have something to do with levels of the hormone progesterone. Levels of this hormone fluctuate in females depending on the stage of the menstrual cycle, and are much higher after ovulation. The study found higher levels of progesterone were associated with a lower number of available nicotine receptors, the researchers said, suggesting progesterone may indirectly block these receptors.

The study is published in the April issue of Archives of General Psychiatry.

Read more: <http://www.foxnews.com/health/2012/04/03/why-women-find-it-harder-to-quit-smoking/#ixzz1vWqqcEWU>

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