

## Adult Smoking Cessation Strategies: A Rural Healthcare CME Initiative

A CME program presented by  
The University of Illinois College of Medicine,  
Michigan Academy of Family Physicians  
and  
The Nurse Practitioner Healthcare Foundation



UNIVERSITY OF ILLINOIS  
COLLEGE OF MEDICINE AT ROCKFORD

## Learning Objectives

- Outline effective behavioral modification strategies for patients with nicotine addiction/dependence on smoking
- Describe the pharmacologic interventions useful for smoking cessation
- Discuss the issues in reimbursement for smoking cessation

## The Impact of Smoking

“Smoking harms nearly every organ of the body.”

U.S. Surgeon General,  
*The Health Consequences of Smoking (2004)*


Source: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. *The Health Consequences of Smoking: A Report of the Surgeon General*. Washington D.C.: U.S. Government Publishing Office; 2004.

## The Toll of Smoking

- Causally linked to various cancers, cardiovascular diseases, respiratory disorders, reproductive effects<sup>1</sup>
- 50% of current smokers will die from smoking if they do not quit<sup>2</sup>
- Leading cause of preventable disability and death in U.S.<sup>3</sup>

Sources: <sup>1</sup>Department of Health & Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General*. Washington D.C.: U.S. Government Publishing Office; 2004; <sup>2</sup>U.S. Department of Health and Human Services. *Health Benefits of Smoking Cessation. A Report of the US Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services; 1990; <sup>3</sup>Centers for Disease Control and Prevention. *MMWR*. 2002;51:300-303.

## Practice Recommendation

Providers should screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products. 

**Strength of Recommendation: "A" Level Evidence.** The USPSTF found good evidence that brief smoking cessation interventions, including shortening, brief behavioral counseling (< 3 min), and pharmacotherapy delivered in primary care settings, are effective in increasing the proportion of smokers who successfully quit smoking and remain abstinent after 1 year. The USPSTF found good evidence that smoking cessation lowers the risk for heart disease, stroke, and lung disease and concluded that there is good indirect evidence that even small increases in the quit rates from tobacco cessation counseling would produce important health benefits, and that the benefits of counseling interventions substantially outweigh any potential harms.

**EBM Source:** Agency for Healthcare Research and Quality. US Preventive Services Task Force (USPSTF). *Counseling to Prevent Tobacco Use*. 2003. <http://www.ahrq.gov/clinic/uspstf/uspstbac.htm>

## Benefits of Quitting

- Substantially reduces risk of all-cause mortality among patients with coronary heart disease<sup>1</sup>
- Significantly decreases mortality among those who have had a myocardial infarct<sup>2</sup>
- Substantially decreases cancer risk<sup>3</sup>
- Decreases risk of stroke<sup>4</sup>
- Improves airflow obstruction regardless of baseline lung function<sup>5</sup>

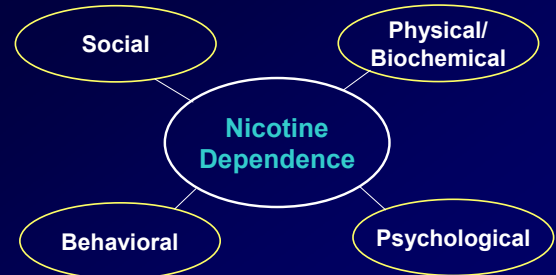
Sources: <sup>1</sup>Critchley JA, Capewell S. *JAMA*. 2003;290:86-97; <sup>2</sup>Wilson K, et al. *Arch Intern Med*. 2000;160:939-944; <sup>3</sup>U.S. Department of Health and Human Services. *Health Benefits of Smoking Cessation. A Report of the US Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services; 1990; <sup>4</sup>Wannamethee SG, et al. *JAMA*. 1995;274:155-160; <sup>5</sup>Scanton PD, et al. *Am J Resp Crit Care Med*. 2000;161:381-390.

## Challenges to Quitting

- Nicotine dependence is chronic condition
- Slightly more than half of those who wish to quit will attempt to do so in a given year<sup>1</sup>
- Of those, 3% will remain abstinent for 12 months<sup>1</sup>
- Most smokers will cycle through several periods of remission and relapse<sup>3</sup>

Sources: <sup>1</sup>Giovino GA, et al. *Epidemiol Rev.* 1995;17:48-65; <sup>2</sup>US Public Health Service. *JAMA.* 2000;283:3244-3254; <sup>3</sup>Hughes JR. *J Gen Intern Med.* 2003;18:1053-1057.

## Aspects of Nicotine Addiction



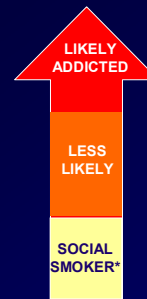
Sources: <sup>1</sup>Giovino GA, et al. *Epidemiol Rev.* 1995;17:48-65; <sup>2</sup>US Public Health Service. *JAMA.* 2000;283:3244-3254; <sup>3</sup>Hughes JR. *J Gen Intern Med.* 2003;18:1053-1057.

## Assessing the Degree of Nicotine Addiction

Ask about it:

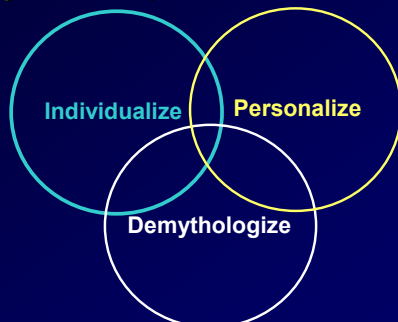
- How much do you smoke (how often, # of cigarettes/day)?
- When do you smoke the day's first cigarette?
- What is the longest period of time between cigarettes before you crave another one?

## Assessing the Degree of Nicotine Addiction



- > 20 cigarettes/day
  - 10-20/day with first one in 30 minutes of waking
  - 10-20/day with first > 30 min from waking
  - < 10/day
- \*These patients may demonstrate moderate amounts of addiction.

## Key Techniques for the Provider



Source: Blum AM and Solberg EJ. In *Fundamentals of Clinical Practice: A Textbook on the Patient, Doctor, and Society*. Eds. Mengel MB, Hollemann WL, Fields SA. New York: Plenum, 2002.

## Technique: Individualize

- Tailor motivational approach to the patient's needs and personality
- Appeal to specific characteristics, such as age, occupation, or avocation
- Motivate appropriately (e.g., fear, humor, anger)

Source: Blum AM and Solberg EJ. In *Fundamentals of Clinical Practice: A Textbook on the Patient, Doctor, and Society*. Eds. Mengel MB, Hollemann WL, Fields SA. New York: Plenum, 2002.

## Technique: Personalize

- Indicate that you care
- Discuss health, financial, or cosmetic benefits of quitting
- Use a positive approach
- Where possible, focus on product rather than on smoker

Source: Blum AM and Solberg EJ. In *Fundamentals of Clinical Practice: A Textbook on the Patient, Doctor, and Society*. Eds. Mengel MB, Hollemann WL, Fields SA. New York: Plenum, 2002.

## Technique: Demythologize

### De-bunk commonly-held smoking myths:

- Low-tar/lights/filtered cigarettes are not safer
- Smoking does not keep weight down in most persons
- Smoking does not relieve stress (it only satisfies the nicotine craving)

Source: Blum AM and Solberg EJ. In *Fundamentals of Clinical Practice: A Textbook on the Patient, Doctor, and Society*. Eds. Mengel MB, Hollemann WL, Fields SA. New York: Plenum, 2002.

## One-Liners that Focus on the Product Rather than the User

- “Menthol is an anesthetic.” (It deadens the throat, masking the sensation of the hot smoke).
- “‘Light’ and ‘ultra-light’ simply mean additional sweeteners.” (Cigarettes derive their tastes from added sweeteners, some geared to adolescents).
- “The filter is a fraud.” (Filters confer no health benefit and often require deeper inhalation or more cigarettes to achieve the same nicotine effect).

Source: Rakel RE, Blum A. In: Rakel R, ed. *Textbook of Family Practice*. 6th ed. Philadelphia: WB Saunders; 2002:1523-1538.

## One-Liners that Focus on the Product (cont.)

- “‘Low tar’ means ‘low poison.’” (“Tar” is the concentrate of > 4000 chemicals [more than 40 known carcinogens] in cigarette smoke).
- “Buying a pack of cigarettes for \$4 is like spending \$40 for a sandwich or \$400,000 for a used car.” (Cigarettes cost less than 15 cents a pack to manufacture; most of the price increase is set by tobacco manufacturers).

Source: Rakel RE, Blum A. In: Rakel R, ed. *Textbook of Family Practice*. 6th ed. Philadelphia: WB Saunders; 2002:1523-1538.

## One-Liners that Focus on the Product (cont.)

- “Ammonia is what makes cigarette smoke smell like urine.” (Cigarette smoke also contains formaldehyde, cyanide, and carbon monoxide).
- “Cigarettes are dead leaves.” (These leaves are laden with chemicals so that they will continue to burn no matter what, requiring the user to purchase more).

Source: Rakel RE, Blum A. In: Rakel R, ed. *Textbook of Family Practice*. 6th ed. Philadelphia: WB Saunders; 2002:1523-1538.

## The 5 “R’s” of Quitting

- **Relevance**—Cessation has major impacts on lifestyle and health.
- **Risks**—Smoking produces health-related, cosmetic, and functional side-effects.
- **Rewards**—Quitting confers physical, emotional, and financial rewards.
- **Roadblocks**—Patient support requires practical strategies to address withdrawal and relapse.
- **Repetition**—Quitting is a repetitive process for most people; several attempts may be needed.

## Preventing Relapse

- Counsel patient about benefits, milestones, difficulties of quitting
- Support unsuccessful attempts
- Involve loved-ones and family members in intervention<sup>1</sup>

The critical timeframe for relapse is within the first 3 months of abstinence, with the first few days being especially crucial.<sup>2</sup>

Sources: <sup>1</sup>Park EW, et al. *Ann Fam Med*. 2004;2:170-174; <sup>2</sup>Kerford SL, Fiore MC. *Med Clin North Am*. 2004;88:1553-1574. xi-xii.

## Smoking and Depression: A Common Combination

- Persons with psychiatric conditions are twice as likely to smoke as general population<sup>1</sup>
- 1 in 3 smokers is depressed and smokes to self-medicate<sup>2,3</sup>
- Tailored psychotherapy or combined psycho- and pharmacotherapy more likely to result in abstinence<sup>4,5</sup>
- Bupropion indicated for treatment of depression and smoking cessation

Sources: <sup>1</sup>el-Guebaly N, et al. *Psychiatr Serv*. 2002;53:1166-1170; <sup>2</sup>Rakel RE, Blum A. In: Rakel R, ed. *Textbook of Family Practice*. 6th ed. Philadelphia: WB Saunders; 2002:1523-1538; <sup>3</sup>Anda RF, et al. *JAMA*. 1990;264:1541-1545; <sup>4</sup>Brown RA, et al. *J Consult Clin Psychol*. 2001;69:471-480; <sup>5</sup>Hitsman B, et al. *J Consult Clin Psychol*. 1999;67:547-554.

## Interventions



- Self-help materials
- Brief Advice
- Counseling
- Exercise



- Nicotine-replacement therapy
- Bupropion
- Varenicline

## Multi-Component Interventions Increase Long-Term Quit Rates

	No Therapy	Brief Advice	Behavioral Therapy
Placebo/ No Medication	5%	10%	15%
First-Line Medication	10%	20%	30%

Source: Hughes JR. *CA Cancer J Clin* 2000;50:147.

## Behavioral Interventions



- Self-help materials
- Brief Advice
- Counseling
- Exercise

## Self-Help Materials

- Appear to increase long-term abstinence ~1.5-fold relative to no intervention<sup>1</sup>
- May be tailored to individual or type
- Should be available in office and provided to all smokers

Source: <sup>1</sup>Lancaster T, Stead LF. *Cochrane Database Syst Rev*. 2005(3):CD001118.

## Brief Advice (<3 Min)

- May be offered by clinician or nurse
- Should include firm quit recommendation and call attention to health outcomes and practical issues
- Increases odds of quitting ~1.7-fold compared to no advice<sup>1</sup>
- Absolute benefit appears greater for motivated patients

Source: <sup>1</sup>Lancaster T, Stead LF. *Cochrane Database Syst Rev*. 2004(4):CD000165.

## Individual Counseling

- Improves quit rates for adults<sup>1</sup>
- Recommended by US Public Health Service for adolescents
- May be more effective than team-based counseling<sup>2</sup>
- When possible, should be >10 minutes, face-to-face, with trained specialist<sup>3</sup>

Sources: <sup>1</sup>U.S. Department of Health and Human Services. *Reducing Tobacco Use. A Report of the Surgeon General*. Atlanta: U.S. Department of Health and Human Services; 2000; <sup>2</sup>Gorin SS, Heck JE. *Cancer Epidemiol Biomarkers Prev*. 2004;13:2012-2022; <sup>3</sup>Lancaster T, Stead LF. *Cochrane Database Syst Rev*. 2002(3):CD001292.

## Elements of a Counseling Intervention

- Discuss previous quit experiences
- Anticipate challenges
- Assess patient's household environment
- Provide patient with options for dealing with nicotine withdrawal
- Suggest abstaining from alcohol during quit attempt

## Strategies to Cope with Nicotine Withdrawal

Symptom	Strategy
<b>Cravings/Urges</b>	<ul style="list-style-type: none"> <li>• Distract self</li> <li>• Postpone cigarette</li> <li>• Breathe deeply</li> <li>• Call supportive person</li> </ul>
<b>Irritability</b>	<ul style="list-style-type: none"> <li>• Engage in pleasurable activity</li> <li>• Take hot bath</li> <li>• Breathe deeply</li> </ul>
<b>Hunger</b>	<ul style="list-style-type: none"> <li>• Select oral substitute</li> <li>• Drink water or low-calorie drinks</li> </ul>

Source: Cofta-Woerpel L, et al. *Behav Med* 2007;32:135-149.

## Coping with Nicotine Withdrawal (cont)

Symptom	Strategy
<b>Difficulty concentrating</b>	<ul style="list-style-type: none"> <li>• Take brisk walk</li> <li>• Simplify schedule</li> <li>• Take a break</li> </ul>
<b>Depression</b>	<ul style="list-style-type: none"> <li>• Schedule pleasurable events</li> <li>• Talk to supportive friend/family</li> <li>• Get ample rest</li> <li>• Reward self for working hard to quit</li> </ul>
<b>Sleep disturbance</b>	<ul style="list-style-type: none"> <li>• Pace self</li> <li>• Ask for help</li> </ul>

Source: Cofta-Woerpel L, et al. *Behav Med* 2007;32:135-149.

## Other Counseling Options

- Group counseling
- Telephone counseling
- Toll-free *quitlines*\*

\*Quit rates comparable to those achieved with individual counseling.<sup>1</sup>

The toll-free Illinois Tobacco Quitline is 1-866-QUIT-YES.

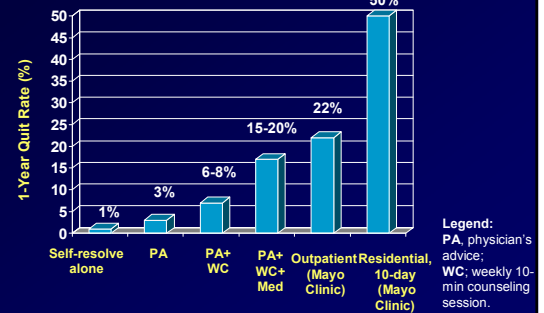
Source: <sup>1</sup>Schroeder SA. *JAMA*. 2005;294:482-487.

## Exercise

- Has acute effect on nicotine craving and withdrawal symptoms<sup>1</sup>
- Weakly linked to improved quit rates when used alone or in addition to structured cessation program<sup>2</sup>
- Confers numerous health benefits
- Can reduce post-cessation weight gain<sup>3</sup>

Sources: <sup>1</sup>Taylor AH, et al. *Addiction*. 2007;102:534-543; <sup>2</sup>Ussher M. *Cochrane Database Syst Rev*. 2005(1):CD002295; <sup>3</sup>Kawachi I, et al. *Am J Public Health*. 1996;86:999-1004.

## 1-Year Quit Rates for Behaviorally-Based Interventions



Source: Mayo Clinic. Mayo Clinic Nicotine Dependence Center Newsletter 2006, Issue 2. [www.mayoclinic.org/clinical-update-2006/22-2-2006-nicotine-dependence.html](http://www.mayoclinic.org/clinical-update-2006/22-2-2006-nicotine-dependence.html)

## FDA-Approved Pharmacotherapy

### Nicotine-replacement Therapy (NRT)

- Patch (OTC)
- Gum (OTC)
- Lozenge (OTC)
- Inhaler (Prescription)
- Nasal Spray (Prescription)

### Prescription Medications

- Bupropion
- Varenicline

## Nicotine-Replacement Therapy (NRT)

- Reduces nicotine withdrawal symptoms (e.g., anxiety, cravings, hunger)<sup>1</sup>
- All forms are effective<sup>2</sup>
- Effectiveness appears independent of intensity of additional support programs<sup>2</sup>
- Compatible with all other cessation interventions
- Limited evidence that combination NRT more effective than single formulations<sup>2</sup>

Sources: <sup>1</sup>Hughes JR, et al. *Arch Gen Psychiatry*. 1991;48:52-59; <sup>2</sup>Silagy C, et al. *Cochrane Database Syst Rev*. 2004;3:CD000146.

## Nicotine-Replacement Therapy

### Possible Side Effects:

- Headache
- Insomnia
- Jaw Pain
- Site Irritation

### Contraindications:

- Recent MI
- Arrhythmias
- TMJ

MI; myocardial infarct; TMJ; temporomandibular joint disease.

## Practice Recommendation

Providers should recommend nicotine replacement therapy in any formulation as part of a strategy to promote smoking cessation.



**Strength of Recommendation:** Meta-analysis of 103 randomized trials (duration ≥ 6 months) that compared nicotine replacement therapy (NRT) to placebo/no treatment or compared different doses of NRT. All forms of NRT were found to increase abstinence rates by 1.5-2.0-fold, regardless of setting.

**EBM Source:** Cochrane Database of Systemic Reviews, Silagy C, et al. "Nicotine replacement therapy for smoking cessation." *Cochrane Database Syst Rev* 2007(3):CD000146. <http://www.cochrane.org/reviews/en/ab000146.html>

## Bupropion

- Nor epinephrine and dopamine reuptake inhibitor
- Doubles odds of cessation relative to placebo<sup>1</sup>
- Efficacy undiminished by previous NRT use<sup>2</sup>
- Combining with NRT does not confer significant additive benefit<sup>1</sup>

Sources: <sup>1</sup>Hughes JR, et al. *Cochrane Database Syst Rev*. 2007(1);CD000031; <sup>2</sup>Durcan MJ, et al. *Am J Health Behav*. 2002;26:213-220.

## Bupropion

### Possible Side Effects:


- Headache
- Dry mouth
- Tremor
- Rash

### Contraindications:

- Eating disorders
- Seizure disorders
- Bipolar disorder
- Recent MAOI use

MAOI; monoamine oxidase inhibitor.

## Practice Recommendation

Providers should recommend bupropion to patients who wish to stop smoking, as it doubles the odds of quitting relative to alternative therapies. 

**Strength of Recommendation:** Meta-analysis of 40 randomized trials, each of duration 6 months or longer, that compared bupropion to placebo or an alternative pharmacotherapy.

**EBM Source:** Cochrane Database of Systemic Reviews. Hughes JR, et al. "Antidepressants for smoking cessation." *Cochrane Database Syst Rev* 2007(1);CD000031. <http://www.cochrane.org/reviews/en/ab000031.html>

## Varenicline

- Nicotine partial receptor agonist that can ease craving and withdrawal symptoms
- Approved for smoking cessation in 2006
- Increases smoking cessation ~3-fold compared to placebo<sup>1</sup>

Source: <sup>1</sup>Cahill K, et al. *Cochrane Database Syst Rev*. 2007;1:CD006103.

## Varenicline


### Possible Side Effects:

- Nausea
- Headache
- Insomnia

### Contraindications:

- Severe renal impairment

## Practice Recommendation

Providers should recommend varenicline to patients who wish to stop smoking, as it triples the odds of quitting relative to non-pharmacotherapeutic options. 

**Strength of Recommendation:** Meta-analysis of 6 randomized trials (n=4924) that compared varenicline to placebo or an alternative pharmacotherapy.

**EBM Source:** Cochrane Database of Systemic Reviews. Cahill K, et al. "Nicotine receptor partial agonists for smoking cessation." *Cochrane Database Syst Rev* 2007(1);CD006103. <http://www.cochrane.org/reviews/en/ab006103.html>

## Relative Cost of Pharmacotherapy

Agent	Relative Cost 1 pack/day = \$\$ (\$120/mo)
NRT Patch	\$
NRT Gum	\$
NRT Lozenge	\$\$
NRT Inhaler	\$\$
NRT Nasal Spray	\$\$\$
Bupropion	\$
Varenicline	\$\$

## 1-Year Abstinence Rates for Pharmacotherapy

Agent	1-Year Abstinence Rate*
NRT Patch <sup>1</sup>	7-13%
NRT Gum <sup>1</sup>	17%
NRT Lozenge <sup>2</sup>	15-18%
NRT Inhaler <sup>1</sup>	7-14%
NRT Nasal Spray <sup>1</sup>	7%
Bupropion <sup>3-5</sup>	6-30%
Varenicline <sup>3-5</sup>	6-23%

\*Studies and reported rates vary widely. Rates cannot be compared across treatment types.

Sources: <sup>1</sup>Silagy C, et al. *Cochrane Database Syst Rev*. 2004;3:CD000146; <sup>2</sup>Shiffman S, et al. *Arch Intern Med*. 2002;162:1267-1276; <sup>3</sup>Gonzales D, et al. *JAMA*. 2006;296:47-55; <sup>4</sup>Nides M, et al. *Arch Intern Med*. 2006;166:1561-1568; <sup>5</sup>Hyndryk DE, et al. *JAMA*. 2006;296:56-63.

## Smoking Cessation and Pregnancy

- Active counseling interventions promote quitting in pregnant women<sup>1</sup>
- Interventions implemented during pregnancy reduce low birth-weight and incidence of pre-term birth
- Use of NRT controversial for pregnant and breastfeeding women due to potential fetotoxicity and neuroteratogenicity<sup>2,3</sup>

Sources: <sup>1</sup>Lumley J, Oliver SS, et al. *Cochrane Database Syst Rev*. 2004(4):CD001055; <sup>2</sup>Ginzel KH, et al. *J Health Psychol*. 2007;12:215-224; <sup>3</sup>Ginzel KH. *Ob Gyn News*. 2007;42:8.

## FDA Pregnancy Categories for Cessation Pharmacotherapy

Agent	FDA Pregnancy Category
NRT Gum	C
NRT (All others)	D
Bupropion	C
Varenicline	C

## Coding and Billing

- ICD-9 Code: 305.1 (Tobacco Dependence)
- Medicare covers minimal counseling (<3 min) at each visit + 2 practitioner-initiated counseling sessions/ year
- CPT Codes: GO375 (3-10 min counseling); GO376 (> 10 min)

For more information, see:

[http://www.endsmoking.org/resources/reimbursementguide/pdf\\_reimbursementguide-3rd-edition.pdf](http://www.endsmoking.org/resources/reimbursementguide/pdf_reimbursementguide-3rd-edition.pdf) (General Coding)  
[www.cms.hhs.gov/MLNGenInfo](http://www.cms.hhs.gov/MLNGenInfo) (Medicare)

## Online Resources

Organization	URL
U.S. Dept. of Health & Human Services	<a href="http://www.smokefree.gov">www.smokefree.gov</a>
QuitNet	<a href="http://www.quitnet.com">www.quitnet.com</a>
WhyQuit	<a href="http://www.whyquit.com">www.whyquit.com</a>
Centers for Disease Control and Prevention	<a href="http://www.cdc.gov/tobacco">www.cdc.gov/tobacco</a>
Office of the U.S. Surgeon General	<a href="http://www.surgeongeneral.gov/tobacco">www.surgeongeneral.gov/tobacco</a>
Addressing Tobacco in Managed Care	<a href="http://www.atmc.wisc.edu">www.atmc.wisc.edu</a>

## Summary

- Smoking cessation confers numerous well-established health benefits.
- Providers should initially assess a smoker's degree of nicotine addiction.
- A proactive intervention strategy that includes counseling and/or pharmacotherapy should be tailored to the patient.
- Providers must individualize and personalize therapy and debunk smoking myths.
- Relapse is common among smokers who try to quit.

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