SMOKING CESSATION: CURRENT TRENDS, AVAILABLE PRODUCTS, AND THE PHARMACIST’S ROLE

ELLEN JETT WILSON, R.PH., PH.D.
SMOKING CESSATION: CURRENT TRENDS, AVAILABLE PRODUCTS, AND THE PHARMACIST’S ROLE

ACTIVITY DESCRIPTION
Although tobacco use, in particular smoking, has been on the decline in the past 50 years, it is estimated that in 2009, over 46 million Americans, approximately 20% of the adult population, were current smokers. Almost the same percentage of high school students, over 19% were current smokers and over 5% of middle school students claimed to smoke. According to the American Lung Association, over 392,000 die each year from tobacco-related illness making it the leading cause of preventable death in the United States. In addition, another 50,000 people die as a result of secondhand smoke exposure. Smoking is the main cause of most lung cancer deaths and a large percentage of COPD-related deaths. Smoking is also related to coronary heart disease, stroke, and other cancers. This program will review the currently available smoking cessation drugs and products as well as discuss the pharmacist’s role in smoking cessation.

TARGET AUDIENCE
The target audience for this activity is pharmacists, nurses and pharmacy technicians in hospital, community, and retail pharmacy settings.

LEARNING OBJECTIVES
After completing this activity, the pharmacist and nurse will be able to:
- Examine the prevalence of smoking in the United States
- Discuss the health implications of tobacco
- Review currently available smoking cessation drugs and products
- Discuss the pharmacist’s role in smoking cessation counseling

After completing this activity, the pharmacy technician will be able to:
- List products used for smoking cessation

ACCREDITATION

PHARMACY
PharmCon, Inc. is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.

NURSING
PharmCon, Inc. is approved by the California Board of Registered Nursing (Provider Number CEP 13649) and the Florida Board of Nursing (Provider Number 50-3515). Activities approved by the CA BRN and the FL BN are accepted by most State Boards of Nursing.

CE hours provided by PharmCon, Inc. meet the ANCC criteria for formally approved continuing education hours. The ACPE is listed by the AANP as an acceptable, accredited continuing education organization for applicants seeking renewal through continuing education credit. For additional information, please visit http://www.nursecredentialing.org/RenewalRequirements.aspx

Universal Activity No.: 0798-0000-13-128-H01-P&T
Credits: 1 contact hour (0.1 CEU)

Release Date: July 25, 2014
Expiration Date: March 27, 2016

ACTIVITY TYPE
Knowledge-Based Home Study Webcast

FINANCIAL SUPPORT BY
Pharmaceutical Education Consultants, Inc.
ABOUT THE AUTHOR
Ellen Wilson is a freelance educator based in Greenville, SC. She received a B.S. in Pharmacy and a PhD in Pharmaceutical Sciences from the University of South Carolina. Her pharmacy practice experiences include retail, hospital, and consulting pharmacy. She also has nearly ten years of collegiate teaching experience at both four-year and two-year institutions. Currently, she teaches online chemistry courses and writes pharmacy continuing education.

Ellen lives in Greenville with her husband, two daughters, one cocker spaniel, and a once-stray cat. She is an active volunteer at both church and school, enjoys gardening and backyard birding, and is trying to master the art of French cooking.

Ellen Jett Wilson, RPh, PhD
Adjunct Professor, College of Southern Maryland

FACULTY DISCLOSURE
It is the policy of PharmCon, Inc. to require the disclosure of the existence of any significant financial interest or any other relationship a faculty member or a sponsor has with the manufacturer of any commercial product(s) and/or service(s) discussed in an educational activity. Ellen Jett Wilson reports no actual or potential conflict of interest in relation to this activity.

Peer review of the material in this CE activity was conducted to assess and resolve potential conflict of interest. Reviewers unanimously found that the activity is fair balanced and lacks commercial bias.

Please Note: PharmCon, Inc. does not view the existence of relationships as an implication of bias or that the value of the material is decreased. The content of the activity was planned to be balanced and objective. Occasionally, authors may express opinions that represent their own viewpoint. Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient or pharmacy management. Conclusions drawn by participants should be derived from objective analysis of scientific data presented from this monograph and other unrelated sources.
Smoking Cessation: Current Trends, Available Products and the Pharmacist's Role

Dr. Ellen Jett Wilson
RPh, PhD

Smoking Cessation: Current Trends, Available Products and the Pharmacist's Role

Accreditation
PharmCE: 0095-0000-14-026-L0-P
Pharmacy Technicians: 0095-0000-14-026-L0-T
Contact Info

CE Credit(s)
Contact Hours(s)

Learning Objectives:
- Examine the prevalence of smoking in the United States
- Discuss the health implications of tobacco
- Review currently available smoking cessation drugs and products
- Discuss the pharmacist's role in smoking cessation counseling

Faculty
Ellen Jett Wilson, RPh, PhD
Adjunct Professor
College of Southern Maryland

Faculty Disclosure
Ellen Jett Wilson has no actual or potential conflicts of interest in relation to this program.

Prevalence

Prevalence Facts and Figures

In 2010, 43.8 million (19%) American adults were smokers
The annual prevalence of smoking has declined more than 50% from 1965-2009

Age Group | Year | Number (millions) | %
--- | --- | --- | ---
Adults (+18) | 2009 | 46.6 | 20.6
Adults (+18) | 2010 | 43.8 | 19.0
High school | 2009 | 19.5 |
Middle school | 2009 | >5 |

| % | Gender |
--- | ---
21.5 | Men |
17.3 | Women |
Prevalence Facts and Figures

<table>
<thead>
<tr>
<th>%</th>
<th>Age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.1</td>
<td>18-24</td>
</tr>
<tr>
<td>22.0</td>
<td>25-44</td>
</tr>
<tr>
<td>21.1</td>
<td>45-64</td>
</tr>
<tr>
<td>9.5</td>
<td>65+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>Race/Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.4</td>
<td>American Indians/Alaska natives</td>
</tr>
<tr>
<td>21.0</td>
<td>Whites</td>
</tr>
<tr>
<td>20.6</td>
<td>Blacks</td>
</tr>
<tr>
<td>12.5</td>
<td>Hispanics</td>
</tr>
<tr>
<td>9.2</td>
<td>Asians</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.2</td>
<td>GED</td>
</tr>
<tr>
<td>33.8</td>
<td>9-11 years</td>
</tr>
<tr>
<td>23.8</td>
<td>High School</td>
</tr>
<tr>
<td>9.9</td>
<td>College</td>
</tr>
<tr>
<td>6.3</td>
<td>Graduate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>Poverty Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.9</td>
<td>Below</td>
</tr>
<tr>
<td>18.3</td>
<td>At or above</td>
</tr>
</tbody>
</table>

What’s Wrong With Cigarettes?

- Cigarette smoke contains approximately 7,000 chemicals
- At least 250 of them are known to be harmful to health
- Approximately 70 of them are known carcinogens
- Of the worst:
  - hydrogen cyanide
  - carbon monoxide
  - ammonia
  - arsenic

“Tobacco use is the leading preventable cause of death”

CDC Fast Facts, Morbidity and Mortality
Smoking-Related Deaths

- 443,000
- 1 in 5
- 50,000
- 13-14

Smoking-Related Illnesses

**Lung-Specific**
- Lung cancer
- Emphysema
- Bronchitis
- COPD
- Pneumonia
- Influenza

Smoking and Pregnancy

- Smoking during pregnancy is responsible for:
  - 20-30% of low-birth weight babies
  - 14% of preterm deliveries
  - 10% of all infant deaths
- Neonatal health-care costs are estimated at $336 million per year
- Smoking rates are decreasing in this group, down 45% from 1990-2005
Smoking and Women’s Health

- Postmenopausal women who smoke have lower bone densities than non-smoking women
- Women who smoke have an increased risk of hip fracture

Secondhand Smoke

- Causes lung cancer in nonsmokers
- Can trigger heart attacks
- Especially harmful to children
  - lower respiratory tract infection in children less than 18 mths
  - hospitalizations
  - SIDS
  - ear infections
  - exacerbation of asthma

What Does Smoking Cost?

<table>
<thead>
<tr>
<th>Advertising</th>
<th>Health Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2010, the tobacco industry spend $8.05 billion on advertising and promotions</td>
<td>Cigarette smoking is estimated to cost $96 billion per year in health care spending</td>
</tr>
</tbody>
</table>

Why Quit?

- 20 mins: heart rate returns to normal
- 12 hours: CO levels return to normal
- 2 weeks: heart attack risk decreases, lung function improves
- 1-9 months: coughing, shortness of breath improve
**Why Quit?**

- 1 year: coronary risk decreased by half
- 5-15 years: risk of stroke equal to non-smoker
- 10 years: decreased risk of many cancers
- 15 years: coronary disease risk = to non-smoker

---

**Smoking Cessation**

- Drugs and Products
  - Almost 70% of adult smokers say they want to quit
  - In 2010, 52% of smokers tried to quit

---

**Smoking Prevention**

- Almost no one begins smoking after age 25
  - 9 out of 10 smokers begin by age 18
  - 99% by age 26
  - Prevention should include media campaigns, higher prices, smoke-free laws, school and community programs

---

**Quitting is Difficult!**

- Many smokers make several attempts before they succeed
- Since 2002, the number of former smokers has exceeded the number of current smokers
- Keep trying!
Nicotine Gum

- OTC to 18 years and older
- Nicorette®, Thrive™ and various generics
- Variety of flavors—cinnamon, various mints, fruit
- How to use the gum
  - 4mg or 2mg
  - At least 9 pieces/day x 6 weeks
  - Use for at least 12 weeks

Nicotine Gum Dosing

<table>
<thead>
<tr>
<th>12 Week Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 piece every:</td>
</tr>
<tr>
<td>Week 1-6</td>
</tr>
<tr>
<td>Week 7-9</td>
</tr>
<tr>
<td>Week 10-12</td>
</tr>
</tbody>
</table>

Chew slowly until there is a tingling sensation in the mouth, stop chewing until the tingling stops, repeat for 30 minutes. Do not swallow gum!

Nicotine Lozenges

- OTC to 18 years and older
- Nicorette®, (Commit®), and various generics
- Original and mini lozenges
- Flavored in mint and cherry
- How to use the lozenge
  - 4mg or 2mg
  - At least 9 lozenges/day x 6 weeks
  - Use for at least 12 weeks

Nicotine Lozenge Dosing

<table>
<thead>
<tr>
<th>12 Week Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lozenge every:</td>
</tr>
<tr>
<td>Week 1-6</td>
</tr>
<tr>
<td>Week 7-9</td>
</tr>
<tr>
<td>Week 10-12</td>
</tr>
</tbody>
</table>

- Do not eat or drink for 15 mins prior or while using lozenge
- Dissolve slowly, moving back and forth for 20-30 mins
- Do not crush, chew, or swallow
Nicotine Gum and Lozenges

**Precautions**

- Patients must stop smoking and using tobacco products
- Keep away from children and pets
  - Wrap used gum in tissue and throw away
- Do not over-use
  - 5 lozenges/6 hours
  - 20 lozenges/day
  - 24 pieces gum/day

---

Nicotine Patches

- OTC to 18 years and older
- Nicoderm CQ®, Habitrol®, and various generics

---

### Nicotine Patch Dosing

**for Nicoderm CQ®**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>21mg/day</td>
<td>14mg/day</td>
<td>7mg/day</td>
</tr>
<tr>
<td>Weeks 1-6</td>
<td>Weeks 7-8</td>
<td>Weeks 9-10</td>
</tr>
</tbody>
</table>

>10/day

10/day

---

### Nicotine Patch Dosing

**for Habitrol®**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>21mg/day</td>
<td>14mg/day</td>
<td>7mg/day</td>
</tr>
<tr>
<td>Weeks 1-4</td>
<td>Weeks 5&amp;6</td>
<td>Weeks 7&amp;8</td>
</tr>
</tbody>
</table>

>10/day

10/day
How to Apply a Nicotine Patch

- Clean dry skin, hairless, intact
- Apply pressure for 10 secs
- Rotate site daily
- If you crave in am, wear for 24 hours
- If the patch interferes with sleep, take off at night

Nicotine Patch
Precautions

- Patients must stop smoking and using tobacco products even when the patch is removed
- Keep away from children and pets
  - Fold sticky ends together, discard in pouch
- Can cause skin irritation

What Does Quitting Cost?

<table>
<thead>
<tr>
<th>Product</th>
<th>Brand v. Generic</th>
<th>Est. Cost for Course of Therapy</th>
<th>Est. Cost of Cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUM</td>
<td>Brand</td>
<td>$294.69</td>
<td>$462.84</td>
</tr>
<tr>
<td></td>
<td>Generic</td>
<td>$163.71</td>
<td></td>
</tr>
<tr>
<td>LOZENGE</td>
<td>Brand</td>
<td>$321.85</td>
<td>$462.84</td>
</tr>
<tr>
<td></td>
<td>Generic</td>
<td>$216.86</td>
<td></td>
</tr>
<tr>
<td>PATCH</td>
<td>Brand</td>
<td>$389.80</td>
<td>$385.70</td>
</tr>
<tr>
<td></td>
<td>Generic</td>
<td>$259.80</td>
<td></td>
</tr>
</tbody>
</table>

Nicotine Oral Inhaler

- Rx, indicated as a smoking cessation aid
- Nicotrol®, no equivalents
- Simulates the hand-to-mouth and puffing actions of smoking
How to Use a Nicotine Inhaler

- Inhale deeply into the back of throat, or
- Puff in short breaths
- Use for longer periods of time and more often to start
- One cartridge will last 20 mins
- Use no more than 16/day

Nicotine Nasal Spray

- Rx, as a smoking cessation aid
- Nicotrol®, no equivalents
- One dose = 1 spray each nostril
  - Min = 8 doses/day
  - Max = 40 doses/day
- Patients to taper at their own pace

Nicotine Product Side Effects

<table>
<thead>
<tr>
<th>General</th>
<th>Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>irregular heart beat or palpitations</td>
<td>Gum and lozenges—mouth, teeth, or jaw pain, irritation; hiccups, heartburn, nausea</td>
</tr>
<tr>
<td>Symptoms of overdose:</td>
<td>Patches—skin irritation, swelling, redness that lasts &gt;4 days</td>
</tr>
<tr>
<td>- nausea, vomiting, dizziness, diarrhea, weakness, rapid heartbeat</td>
<td></td>
</tr>
</tbody>
</table>

Nicotine Products & Pregnancy

Can nicotine replacement products be used during pregnancy?
Varenicline (Chantix®)

- Rx, indicated as an aid to smoking cessation
- No generic equivalent
- Quit % in trials:
  - 44% on varenicline
  - 30% on bupropion
  - 18% on placebo

Varenicline is believed to break the cycle of nicotine receptor activation and subsequent dopamine release

---

Varenicline Dosing

<table>
<thead>
<tr>
<th>DAY</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days 1-3</td>
<td>0.5mg QD</td>
</tr>
<tr>
<td>Days 4-7</td>
<td>0.5mg BID</td>
</tr>
<tr>
<td>Day 8-12th Week</td>
<td>1mg BID</td>
</tr>
</tbody>
</table>

- Always take with food and water
- For those who quit in the first 12 weeks, a second 12 week course of therapy is recommended to improve success
- Reduce dosing for renal insufficiency (<30ml/min) and intolerance

---

How Supplied

- **Boxed Warning** of Serious neuropsychiatric symptoms
  - depression, mania, psychosis, hallucinations, paranoia, delusions, homicidal ideation, hostility, agitation, suicidal ideation
- **Most common** adverse reactions:
  - nausea, constipation, flatulence, vomiting
  - vivid, usual, or strange dreams
- Pregnancy Category C
**What Does Quitting Cost?**

Compare CHANTIX dosing and cost with commonly used nicotine replacement therapy (NRT)

<table>
<thead>
<tr>
<th>SMOKING CESSATION TREATMENT</th>
<th>NRT</th>
<th>CHANTIX® Non-nicotine</th>
<th>SHEET</th>
<th>S/N</th>
<th>推薦</th>
<th>OS</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine gum**</td>
<td>6mg</td>
<td>$4.95*</td>
<td>$7.45</td>
<td>$8.99</td>
<td>$8.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicotine lozenge**</td>
<td>4mg</td>
<td>$0.55*</td>
<td>$0.49</td>
<td>$0.49</td>
<td>$0.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicotine patch**</td>
<td>1mg</td>
<td>$2.99*</td>
<td>$2.79</td>
<td>$2.79</td>
<td>$2.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pay $40 or less*.

Savings up to $75 per monthly prescription.

* If your out-of-pocket costs are $115 or less, you pay $40.
* If your out-of-pocket costs are more than $115, you save $75 off your costs.

Offer can be used up to 3 times.

Have a Savings Card? **ACTIVATE NOW**

Need a Savings Card? **DOWNLOAD NOW**

www.chantix.com

---

**Bupropion (Zyban®)**

- Rx, non-nicotine aid in smoking cessation
- Zyban® and various generics
- NEpi/DA uptake inhibitor, mechanism of smoking cessation activity is unknown
- Boxed warning about psychiatric symptoms similar to varenicline
- Most common adverse effects are dry mouth and insomnia
- Pregnancy Category C

---

**Bupropion Dosing**

- Start at 150mg/day for first 3 days
- Increase to 150mg BID
- Continue to smoke for 1-2 weeks but set a quit date
- Continue therapy for 7-12 weeks
  - If patient quits, consider continuing therapy
  - If patient does not quit, stop therapy and try again later
The Pharmacist’s Role

- **Remind** patients that quitting is difficult, may take more than one attempt, never give up
- **Explain** the health benefits of quitting
- **Educate** them on the products available to help them quit
- **Counsel** them on the correct use of those products
- **Encourage** them to get support
- **Know** where to find quitting resources

---

Smoking Cessation Resources

- **American Lung Association**: Freedom from Smoking
- **The CDC**: smokefree.gov, Smokefree Women, Smokefree Teen
  - 1-800-QUIT-NOW
- **American Cancer Society**: Quit for Life, Great American Smokeout

---

There’s an APP for That!

- Livestrong My Quit Coach
- My Last Cigarette
- QuitNow!
  - KickSmoking
  - Quitter
ACTIVITY TEST

1. In 2010, there were 43.8 million American adult smokers. This represents what percentage of the population?
   A. About 5%
   B. About 10%
   C. About 20%
   D. About 50%6th

2. It is important to stop teenagers and young adults from smoking because almost no one begins smoking after the age of:
   A. 26
   B. 28
   C. 12
   D. 10

3. Which of the following statements about cigarette smoke is true?
   A. Cigarette smoke contains over 7,000 chemicals
   B. At least 250 chemicals in cigarette smoke are known to be harmful
   C. Approximately 70 chemicals in cigarette smoke are known carcinogens
   D. All of these statements are true

4. Smoking is known to cause or contribute to the following medical conditions:
   A. Lung cancer
   B. Coronary heart disease
   C. Abdominal aortic aneurysm
   D. All of the above

5. The immediate health benefits of smoking include:
   A. Return to normal heart rate
   B. Return to normal carbon monoxide levels
   C. Decreased risk of heart attack
   D. All of the above
6. Based on recently reported studies, if smokers stop smoking before the age of __________, the damaging effects of smoking can be reversed over time.
   A. 10
   B. 20
   C. 40
   D. 60

7. If a patient smokes cigarettes within 30 minutes of waking in the morning, they should use the __________ mg strength of nicotine gum or lozenges.
   A. 2mg
   B. 4mg
   C. 10mg
   D. There is no dosing recommendation for gum and lozenges

8. If a patient craves cigarettes in the morning, they should:
   A. Remove the nicotine patch before going to bed at night
   B. Wear the nicotine patch 24 hours/day and change it at the same time every day
   C. Stay on the 21mg/day nicotine patch for the duration of the 8-10 week treatment
   D. None of the above

9. Which statement about the cost of quitting smoking is true?
   A. The cost of quitting smoking is similar to the cost of cigarettes that a patient would purchase during the same time period
   B. The cost of quitting smoking is much greater than the cost of purchasing cigarettes during the same time period
   C. The cost of quitting smoking is much less than the cost of purchasing cigarettes during the same time period
   D. None of the above

10. Some of the advantage(s) of varenicline (Chantix®) is/are:
    A. Patients can continue to smoke while they start the therapy
    B. Varenicline is thought to break the cycle of nicotine receptor activation and subsequent dopamine release that causes cigarette cravings in smokers
    C. It comes packaged in convenient monthly packs to improve compliance
    D. All of the above

Please submit your final responses on freeCE.com. Thank you.