Smoking and HIV: Helping your clients understand the risks and how to stop

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USCA
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The Association of Nurses in AIDS Care (ANAC)
ANAC is the leading professional HIV nursing association educating, connecting and advocating for nurses concerned about HIV and HIV-related care. Founded in 1987, ANAC represents nurses, nurse practitioners, and other health care providers worldwide. We promote a comprehensive, holistic and evidence-based approach to quality HIV care, and advocate for policies grounded in a human rights approach to health.
Agenda

Resources & Opportunities

- Introductions
- Smoking & HIV - Overview
- Smoking & HIV - Harm reduction
- Interactive case studies
- Further Discussion

Association of Nurses in AIDS Care [www.nursesinaidscare.org]

2018 Annual Conference
Denver November 8-10, 2018
Cigarette Smoking in the General U.S. Population, 2009-2014

Approximately 18%

Current Tobacco Use, by SES
Current Tobacco Use, by Education

Current Use* of Cigarettes, Cigars, and Smokeless Tobacco Among Adults with Less Than High School Education Compared With Adults with College Degree‡

Current Tobacco Use, by Mental Illness

Current Use* of Specific Tobacco Products Among Adults with Mental Illness Compared with Adults with No Mental Illness‡
More than 480,000 U.S. Deaths Attributable Each Year to Cigarette Smoking*

* CDC, 2018.
Economic Impact

- Total economic cost of smoking is more than $300 billion a year, including:
  - Nearly $170 billion in direct medical care for adults
  - More than $156 billion in lost productivity due to premature death and exposure to secondhand smoke

Current Smoking: PLWH vs General Population, 2009-2014

HIV and Tobacco Use

- 54% of PLWH are tobacco users
- PLWH smoker compared to PLWH non-smokers were more likely to be:
  - Depressed
  - Have worse quality of life
  - Lower ART adherence

2016 Medical Monitoring Project, NYS

HIV and Tobacco Use & Mortality

- Smokers vs Never-smokers had 5x higher rates of non-HIV-related mortality among:
  - Pneumonia
  - COPD
  - Cardiovascular Disease
  - Bone mineral density
  - Thrush
  - Malignancies
HIV, Smoking and Risk of Death

• Current smokers had **86% more death risk** than never smokers\(^1\).

• In PLWH, between **23% and 61%** of deaths were **associated** with smoking.
  • approximately **2x %** of non-PLWH.


Cardiovascular Disease risk in PLWH who smoke

- **73%** increase in heart attack risk
- **60%** increase in coronary heart disease risk

Rate of Heart Attack in PLWH who Currently Smoke vs Former Smokers

Petoumenos et al. (2011). HIV Medicine, Volume 12, Issue 7

Lung Cancer in PLWH

6-13 times more likely to die from lung cancer than from AIDS-related causes.

Cancer and Smoking in PLWH

• Among PLWH, approximately one-fifth of all incident cancer, and 94% of lung cancer diagnoses could potentially be prevented by eliminating cigarette smoking.

QUITTING: HEALTH BENEFITS

<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></td>
<td>Ability to clear lungs of mucus increases</td>
</tr>
<tr>
<td>1 to 9 months</td>
<td>Coughing, fatigue, shortness of breath decrease</td>
</tr>
<tr>
<td>1 year</td>
<td>Risk of stroke is reduced to that of people who have never smoked</td>
</tr>
<tr>
<td>5 years</td>
<td>Risk of CHD is similar to that of people who have never smoked</td>
</tr>
<tr>
<td>10 years</td>
<td>Risk of cancer of mouth, throat, esophagus, bladder, kidney, pancreas decrease</td>
</tr>
<tr>
<td>after 15 years</td>
<td>Lung function increases up to 30%</td>
</tr>
<tr>
<td></td>
<td>Circulation improves, walking becomes easier</td>
</tr>
<tr>
<td></td>
<td>Excess risk of CHD decreases to half that of a continuing smoker</td>
</tr>
</tbody>
</table>
Tobacco Use Disorder

- “Giving up smoking is the easiest thing in the world. I know because I've done it thousands of times.”
- -Mark Twain

Tobacco Use Disorder

<table>
<thead>
<tr>
<th>Physiological</th>
<th>Behavioral</th>
</tr>
</thead>
<tbody>
<tr>
<td>The addiction to nicotine</td>
<td>The habit of using tobacco</td>
</tr>
<tr>
<td>Medications for cessation</td>
<td>Treatment</td>
</tr>
<tr>
<td>Treatment</td>
<td>Behavior change program</td>
</tr>
</tbody>
</table>

Treatment should address the physiological and the behavioral aspects of the disorder.
Tobacco Use Disorder is a Brain Disease

Effects of Drugs on Dopamine Levels

- MORPHINE
- COCAINE
- NICOTINE
- ETHANOL

Adapted from: Di Chiara and Imperato, Proceedings of the National Academy of Sciences USA; 1988; courtesy D. Vallois, M.D.

Screening for Tobacco Use

USPSTF recommendation

The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop smoking tobacco, and provide behavioral interventions and U.S. Food and Drug Administration (FDA)-approved pharmacotherapy for cessation to adults who use tobacco.

(“A” recommendation)

Screening & Approach to Care: The 5 A’s

- ASK
- ADVISE
- ASSESS
- ASSIST
- ARRANGE


IS a PATIENT READY to QUIT?

Does the patient now use tobacco?
Yes
No

Is the patient now ready to quit?
No
Yes

Did the patient once use tobacco?
Yes Prevent relapse*
No Encourage continued abstinence

*Relapse prevention interventions are not necessary if patient has not used tobacco for many years and is not at risk for re-initiation.

Stages of Change

Moving forward at least one stage doubles the chance that the patient will quit in the next six months.

Pre-Action Stage Progression
Precontemplation

Characteristics of Precontemplation

- Cons > Pros
- Defensive
- Resistant
- Change is experienced as coerced
- Demoralized
- From 30 to 85% of population at risk
What Do You Do with Pre-contemplators?

• **Goal:**
  • Engage them in the change process

• **Key Strategy:**

• **Increase the Pros**
  - Encourage patient to list benefits for them
  - Point out benefits specific to their co-morbid conditions
  - Encourage them to look for more benefits

Contemplation

Getting Ready

Intend to quit smoking in next 6 months
Characteristics of Contemplation

- Pros = Cons
- Ambivalent
- Lack commitment
- Lack confidence
- ‘Chronic’ contemplation
- From 10 to 50% of population at risk

What Do You Do with Contemplators?

- **Goal:**
  - Overcome ambivalence
- **Key Strategy:**
  - Make the Pros Outweigh the Cons
    - Ask participant to name most significant con(s)
    - Ask participant to shrink cons by:
      - Comparing them to growing list of pros
      - Asking how important they are relative to pros
      - Challenging themselves to counter the cons
More About Contemplation

• Don’t encourage Contemplators to take action – but rather to start to prepare
• Encourage small steps

Preparation

Ready to Take Action

Intend to quit smoking in next 30 days
Already taking small steps
Characteristics of Preparation

- Pros > Cons
- Have a plan
- Have taken small steps
- Decisive/committed
- More confident
- “Ideal” patients
- From 5 to 35% of population at risk

Key Behavior Change Strategy for Patients in Preparation

**Goal:**
- Help the patient quit successfully

**Key Strategy:**
- Encourage participant to make strong commitment by:
  - Setting a specific start date, rather than wait for a magic moment
  - Sharing commitment with others
  - Creating a specific “Action Plan”
  - What method for quitting will they use?
  - NRT or pharmacological intervention?
Action

Recently Changed Behavior

Quit smoking less than 6 months ago

Characteristics of Action

• Working to make change
• May experience strong urge to revert to old behavior
• Recycling to earlier stage is common
• Greatest risk of relapse
  • Inappropriate goals
  • Inadequate preparation
  • Not enough time
  • Give up too easily
Key Behavior Change Strategy for Patients in Action

• **Goal:**
• Help the patient stay smoke-free

• **Key Strategy:**
• **Manage environment**
  - Identify and avoid people, places, things that tempt them to smoke
  - Ensure all smoking cues are gone
  - Use reminders to stay quit
  - Re-structure environment to make it easier to remain smoke-free

Maintenance

**Changed Behavior**
Has quit for at least 6 months
Characteristics of Maintenance

• Higher self-efficacy
• Dynamic, not static
• Improve coping skills
• Life-long struggle

Key Behavior Change Strategy for Patients in Maintenance

• **Goal:**
  • Help the patient stay smoke-free for good

• **Key Strategy:**
  • **Focus on rewards of being a non-smoker**
    - Underscore other benefits
    - Money saved
    - No more going outside to smoke in the cold
    - More responsible
    - More independent; able to overcome addiction
    - Role model for others by staying smoke-free
Relapse Prevention

• Majority of relapses occur at times of distress
• Although distress cannot be prevented, relapse can be
• Prepare patients to cope with distress using a healthy alternative:
  • Exercise
  • Seeking support
  • Relaxation

Recycling: Getting Patients Back on Track

• Many patients relapse before reaching permanent Maintenance
  • Approximately 70% of HIV+ smokers have made a previous quit attempt
• Encourage patients to view setbacks/lapses as an opportunity to learn and move ahead better prepared
  • Encourage view of setback as temporary
  • Analyze slip and problem-solve about what can be done differently the next time
  • Re-assess current stage
MI: Obstacles to Effective Listening

- Warnings and threats
- Persuading with logic, arguing, lecturing
- Asking questions
- Ordering and directing
- Giving advice, making suggestions, providing solutions

PHARMACOTHERAPY

“Clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations* for which there is insufficient evidence of effectiveness.”

*Includes pregnant women, smokeless tobacco users, light smokers, and adolescents.

Medications significantly improve success rates.
Tobacco Cessation
Pharmacotherapy and HIV

• 59% of smokers with HIV have used smoking cessation pharmacotherapy (Pacek et al. 2014)

• While only 4%-7% of people can quit smoking without medicine, 25% of smokers who use medicines can stay smoke free for over 6 months (American Cancer Society)

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Pharmacotherapy is not recommended for:

- Smokeless tobacco users
- < 10 cigarettes per day: though weigh risks versus benefits individually with patients
- Adolescents

Recommended treatment is behavioral counseling.

First-Line Pharmacotherapies

- Nicotine Replacement Therapy (NRT)
  - Nicotine Patch
  - Nicotine Gum
  - Nicotine Lozenge
  - Nicotine Inhaler
  - Nicotine Nasal Spray
- Bupropion SR
- Varenicline

Advantages
- Steady-state nicotine levels are achieved throughout the day
- Easy to use and conceal
- Fewer compliance issues are associated with the patch

Disadvantages
- Cannot titrate dose
- Allergic reactions to adhesive may occur
- Patients with underlying dermatologic conditions (e.g., psoriasis, eczema, atopic dermatitis) should not use the patch

Nicotine Patch
### Nicotine Gum

#### Advantages
- May satisfy oral cravings
- May delay weight gain
- Patients can titrate therapy to manage withdrawal symptoms

#### Disadvantages
- Gum chewing may not be socially acceptable
- May stick to dental work and dentures
- Proper chewing technique (Chew/Park) needed to minimize adverse effects
- Cannot eat or drink 15 minutes before or while using the nicotine gum

### Nicotine Lozenge

#### Advantages
- May satisfy oral cravings
- Easy to use and conceal
- Patients can titrate therapy to manage withdrawal symptoms

#### Disadvantages
- Gastrointestinal side effects (nausea, hiccups, heartburn) may be bothersome
- Must allow slow dissolution for 20-30 minutes (no chewing)
- Should not eat or drink for 15 minutes before or while using the nicotine lozenge
Nicotine Inhaler

**Advantages**
- Easily titrate therapy to manage withdrawal symptoms
- Mimics the hand-to-mouth ritual of smoking

**Disadvantages**
- Initial throat or mouth irritation (in first week)
- Cartridges should not be stored in conditions >86°F or <59°F
- Patients with underlying bronchospastic conditions should use with caution

Nicotine Nasal Spray

**Advantages**
- Easily titrated to rapidly manage withdrawal symptoms

**Disadvantages**
- Initial nasal or throat irritation can be bothersome (may last up to 3 weeks)
- Higher dependence potential relative to other NRT formulations
- Patients with chronic nasal disorders (e.g., rhinitis, polyps, sinusitis) or severe reactive airway disease should not use
**Bupropion**

**Advantages**
- Easy to use
- May be beneficial for patients with coexisting depression
- Initiated before quit date
- No risk of nicotine toxicity if patient continues to smoke

**Disadvantages**
- Increases seizure risk
- Several contraindications and precautions that may preclude use
- Side effects of insomnia and dry mouth

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**Varenicline**

**Advantages**
- Easy to use
- Initiate before quit date
- New mechanism of action for persons who previously failed using other medications

**Disadvantages**
- May induce nausea in up 1/3 of patients (need to titrate)
- Post-marketing surveillance data stimulated FDA warning
Neuropsychiatric Sx and Tobacco Cessation

Hazard ratios of events during 6 months follow-up in the propensity score matched samples

<table>
<thead>
<tr>
<th>Event</th>
<th>Bupropion vs NRT (n=12786)</th>
<th>Varenicline vs NRT (n=100326)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>0.59 (0.37-0.93)</td>
<td>0.86 (0.76-0.97)</td>
</tr>
<tr>
<td>Cerebral infarction</td>
<td>0.46 (0.24-0.89)</td>
<td>0.58 (0.47-0.73)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>0.44 (0.14-1.44)</td>
<td>0.64 (0.42-0.98)</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>1.62 (0.57-3.92)</td>
<td>0.95 (0.73-1.23)</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td>0.43 (0.21-0.91)</td>
<td>0.72 (0.55-0.97)</td>
</tr>
<tr>
<td>Depression</td>
<td>0.80 (0.70-0.92)</td>
<td>0.65 (0.51-0.86)</td>
</tr>
<tr>
<td>Self-harm</td>
<td>0.90 (0.49-1.68)</td>
<td>0.60 (0.48-0.76)</td>
</tr>
</tbody>
</table>

Data in parentheses are 95% CIs. NRT=nicotine replacement treatment.

- No evidence of increased risk of CV or neuropsychiatric events in varenicline or bupropion vs NRT
- Varenicline was effective in psychiatric patients

Kotz et al. The Lancet, Volume 3, No. 10, p761–768, October 2015

Varenicline in PLWH

Combo Therapy: NRT and Oral Tx

**Combinations of Varenicline with NRT and Bupropion**

Combination NRT and varenicline was more effective than varenicline alone at 12 weeks, main side effect, rash from patch
(Koegelenberg CF et al. JAMA. 2014 Jul;312(2):155-61)

Combination bupropion and varenicline was more effective than varenicline alone and was more effective in men and the highly nicotine dependent


**LONG-TERM (≥6 month) QUIT RATES for AVAILABLE TOBACCO CESSATION MEDICATIONS**

![Graph showing quit rates for different medications](image)
# Monotherapy

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Arms (#)</th>
<th>Estimated Odds Ratio (95% CI)</th>
<th>Estimated Abstinence Rates (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo</td>
<td>80</td>
<td>1.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Nicotine Gum</td>
<td>15+6</td>
<td>1.5 (1.2-1.7)</td>
<td>2.2 (1.5-3.2)</td>
</tr>
<tr>
<td>Nicotine Inhaler</td>
<td>6</td>
<td>2.1 (1.5-2.9)</td>
<td>2.3 (1.7-3.0)</td>
</tr>
<tr>
<td>Nicotine Nasal</td>
<td>4</td>
<td>2.3 (1.7-3.0)</td>
<td></td>
</tr>
<tr>
<td>Nicotine Patch</td>
<td>32+10+4</td>
<td>1.9 (1.7-2.2)</td>
<td>2.3 (1.7-3.0)</td>
</tr>
<tr>
<td>Bupropion SR</td>
<td>26</td>
<td>2.0 (1.8-2.2)</td>
<td></td>
</tr>
<tr>
<td>Varenicline (2 mg/d)</td>
<td>5</td>
<td>3.1 (2.5-3.8)</td>
<td>36.5 (28.6-45.3)</td>
</tr>
</tbody>
</table>

* These combinations are considered “effective” according to guidelines

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# Combination Pharmacotherapy

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Arms (#)</th>
<th>Estimated Odds Ratio (95% CI)</th>
<th>Estimated Abstinence Rates (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Patch (&gt;14 wk) + ad lib Nicotine Gum/Spray</td>
<td>3</td>
<td>3.6 (2.5-5.2)</td>
<td>36.5 (28.6-45.3)</td>
</tr>
<tr>
<td>Nicotine Patch + Nicotine Inhaler</td>
<td>2</td>
<td>2.2 (1.3-3.6)</td>
<td>25.8 (17.4-36.5)</td>
</tr>
<tr>
<td>Nicotine Patch + Bupropion SR</td>
<td>3</td>
<td>2.5 (1.9-3.4)</td>
<td>28.9 (23.5-35.1)</td>
</tr>
</tbody>
</table>
### Meta Analysis 2008 (n=18 studies)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Arms (#)</th>
<th>Estimated Odds Ratio (95% CI)</th>
<th>Estimated Abstinence Rates (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication Alone</td>
<td>8</td>
<td>1.0</td>
<td>21.7</td>
</tr>
<tr>
<td>Medication and Counseling</td>
<td>39</td>
<td>1.4 (1.2-1.6)</td>
<td>27.6 (25.0-30.3)</td>
</tr>
<tr>
<td>0-1 Sessions plus Medication</td>
<td>13</td>
<td>1.0</td>
<td>21.8</td>
</tr>
<tr>
<td>2-3 Sessions plus Medication</td>
<td>6</td>
<td>1.4 (1.1-1.8)</td>
<td>28.0 (23.0-33.6)</td>
</tr>
<tr>
<td>4-8 Sessions plus Medication</td>
<td>19</td>
<td>1.3 (1.1-1.5)</td>
<td>26.9 (24.3-29.7)</td>
</tr>
<tr>
<td>&gt; 8 Sessions plus Medication</td>
<td>9</td>
<td>1.7 (1.3-2.2)</td>
<td>32.5 (27.3-38.3)</td>
</tr>
</tbody>
</table>

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### Smoking Cessation in the WIHS Cohort, 2008-2016

- Factors associated with higher sustained cessation rates:
  - Smoking History
  - Having own residence
  - Self-Help/’Cold Turkey”
  - Nicotine Replacement Therapy

Newman, Sarah, 2017
https://jscholarship.library.jhu.edu/handle/1774.2/44637
Nicotine Withdrawal Symptoms

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Duration</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urges to smoke</td>
<td>&gt; 2 weeks</td>
<td>70%</td>
</tr>
<tr>
<td>Increase appetite</td>
<td>&gt;10 weeks</td>
<td>70%</td>
</tr>
<tr>
<td>Poor concentration</td>
<td>&lt; 2 weeks</td>
<td>60%</td>
</tr>
<tr>
<td>Depression</td>
<td>&lt; 4 weeks</td>
<td>60%</td>
</tr>
<tr>
<td>Restlessness</td>
<td>&lt; 4 weeks</td>
<td>60%</td>
</tr>
<tr>
<td>Irritability/aggression</td>
<td>&lt; 4 weeks</td>
<td>50%</td>
</tr>
<tr>
<td>Mouth ulcers</td>
<td>&gt; 4 weeks</td>
<td>40%</td>
</tr>
<tr>
<td>Night-time awakenings</td>
<td>&lt; 1 week</td>
<td>25%</td>
</tr>
<tr>
<td>Constipation</td>
<td>&gt; 4 weeks</td>
<td>17%</td>
</tr>
<tr>
<td>Light-headedness</td>
<td>&lt; 48 hours</td>
<td>10%</td>
</tr>
</tbody>
</table>


Strategies to Cope with Nicotine Withdrawal

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cravings/Urges</td>
<td>• Distract self</td>
</tr>
<tr>
<td></td>
<td>• Postpone cigarette</td>
</tr>
<tr>
<td></td>
<td>• Breathe deeply</td>
</tr>
<tr>
<td></td>
<td>• Call supportive person</td>
</tr>
<tr>
<td>Irritability</td>
<td>• Engage in pleasurable activity</td>
</tr>
<tr>
<td></td>
<td>• Take hot bath</td>
</tr>
<tr>
<td></td>
<td>• Breathe deeply</td>
</tr>
<tr>
<td>Hunger</td>
<td>• Select oral substitute</td>
</tr>
<tr>
<td></td>
<td>• Drink water or low-calorie drinks</td>
</tr>
</tbody>
</table>

### Coping with Nicotine Withdrawal

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Strategy</th>
</tr>
</thead>
</table>
| Difficulty concentrating | • Take brisk walk  
                              • Simplify schedule  
                              • Take a break          |
| Depression            | • Schedule pleasurable events  
                              • Talk to supportive friend/family  
                              • Get ample rest  
                              • Reward self for working hard to quit |
| Sleep disturbance     | • Pace self  
                              • Ask for help |
Conclusions

- Tobacco use is a modifiable risk factor which can significantly impact the health of PLWH
- Clinician should assess all patients for tobacco use and assist those who are ready to quit.
- Combination therapy is better than one form of pharmacotherapy

Resources

- 1-800-QUIT-NOW
- 1-855-DÉJELO-YA (1-855-335-3569)
- BeTobaccoFree.gov
- American Cancer Society
  Guide to quitting smoking.
- American Heart Association
  Information and support to help you quit smoking.
- American Lung Association
  Resources to help smokers figure out their reasons for quitting and then take the big step of quitting for good.
Contact Information:
Jeffrey Kwong
Jeff@anacnet.org