Assessment and Management of Tobacco Use Disorders

AOAAM Essentials in Addiction Medicine
Disclosures

• None
Objectives

• Review Diagnostic Criteria for Tobacco Use Disorder
• Learn about the History of Tobacco
• Understand the impact of Tobacco Use Disorders on health.
• Review a common assessment instrument
• Learn about behavioral change.
• Understand the more common forms of treatment.
Columbus Introduced Tobacco To Europe
A Brief History of Tobacco

First human use 2000-8000 years ago

Consumed in a variety of ways

Why is there a teapot?
“There is no habit to which we are given that sit so vilely on us and shows our selfishness as a people as this perpetual smoking, chewing, and spitting...”
The MARINES are landing on the JUMP!

THEY'VE GOT WHAT IT TAKES

You bet. Camels are first with me! They've got what it takes in flavor and mildness.

First in the Service

The favorite cigarette with men in the Army, Navy, Marines, and the Coast Guard is Camel. (Based on actual sales records.)

check Camels with your "T-zone"

Camels suit me to a T. They taste grand and they don't get my throat.
Tobacco Use Disorder Diagnosis DSM-V

According to the DSM-5, there are three Criterion with sub features to diagnose Tobacco Use disorder. Use of tobacco products over one year has resulted in at least two of the following sub features:

A: Larger quantities of tobacco over a longer period then intended are consumed.
   1. Unsuccessful efforts to quit or reduce intake of tobacco
   2. Inordinate amount of time acquiring or using tobacco products
   3. Cravings for tobacco
   4. Failure to attend to responsibilities and obligations due to tobacco use
   5. Continued use despite adverse social or interpersonal consequences
   6. Forfeiture of social, occupational or recreational activities in favor of tobacco use
   7. Tobacco use in hazardous situations
   8. Continued use despite awareness of physical or psychological problems directly attributed to tobacco use

B: Tolerance for nicotine, as indicated by:
   9. Need for increasingly larger doses of nicotine in order to obtain the desired effect and or
   A noticeably diminished effect from using the same amounts of nicotine

C. Withdrawal symptoms upon cessation of use as indicated by:
   10. The onset of typical nicotine associated withdrawal symptoms is present
   11. More nicotine or a substituted drug is taken to alleviate withdrawal symptoms
Tobacco Use Disorder Epidemiology

- Tobacco use:
  - #1 preventable cause of disease, disability, and death in U.S..
  - Yearly one-half million Americans die prematurely from tobacco use.
  - >16 million Americans suffer from a disease caused by smoking.
  - Approximately 42.1 million U.S. adults currently smoke cigarettes.
  - Secondhand smoke exposure causes serious disease and death.
    - Each year, primarily because of exposure to secondhand smoke, an estimated 7,330 nonsmoking Americans die of lung cancer and more than 33,900 die of heart disease.
  - Economic costs attributable to smoking and exposure to secondhand smoke now approach $300 billion annually.

CDC
Adult Per Capita Cigarette Consumption, US, 1900-2011
Reducing Tobacco Use

• Policy Interventions:
  • Taxation
  • Smoke free legislation
  • Health warning labels
  • Increased insurance premiums

• Clinical Interventions:
  • Stage of change-based interventions
  • Motivational interviewing (MI)
  • Physician delivered advice to quit
  • Behavioral strategies to induce cessation
Co-Occurring Substance Use and Tobacco Use Disorder

• An 80 to 90 percent rate of smoking has been found in persons with current alcohol use disorder (Patten et al. 1996).
  • Heavy smoking linked with drinking,
  • 72% in treatment for AUD smoking heavily vs 9 percent general pop. (Hughes 1995).

• Similar results in illicit drug users
  • Smoking rates as high as 90% among outpatient substance abuse clients (Clarke et al. 2001; Clemney et al. 1997; Stark and Campbell 1993b).

• Smoking also has been shown to be a predictor of greater problem severity and poorer treatment response (Krejci et al. 2003).
Co-Occurring Substance Use and Tobacco Use Disorder

- AUD individuals:
  - find nicotine more reinforcing,
  - meet more nicotine dependence criteria and withdrawal symptoms (Hughes et al. 2000; 2002).
- There is evidence that many people in substance abuse treatment are interested in smoking cessation treatment simultaneously (Joseph et al. 2002; Saxon et al. 1997)
- There is continued debate as to the best time for tobacco treatment during substance abuse treatment.
- Smoking prevalence rates of between 85 and 98 percent in OTPs (Berger 1972; Stark and Campbell 1993a)
  - Smoking status is predictive of illicit substance use in OTPs
  - Increases stepwise from people who do not smoke, to people who smoke but are nondependent, to people who smoke heavily (Frosch et al. 2002)
  - There is a significant positive relationship during treatment between rates of change in heroin use and rates of change in tobacco use
Tobacco Use Among Individuals With Mental Illness

• Prevalence of smoking among all types of mental illnesses:
  • schizophrenia (70 to 90 percent),
  • affective disorders (42 to 70 percent),
  • anxiety disorders, especially agoraphobia and panic d/o.
• Conversely, there is evidence that affective, anxiety, and substance use disorders may be more common in individuals who smoke than in those who do not or in those who have never smoked.
• The presence of depressive symptoms during withdrawal is also associated with failed cessation attempts

CDC Recommendations

• The goal is to ensure that every patient is screened for tobacco use, their tobacco use status is documented, and patients who use tobacco are advised to quit.
• Followed by offering the patient cessation medication (unless contra-indicated), counseling, and assistance, as well as arranging follow-up contact either on-site or through referrals to the state quitline or other community resources.
  • This approach has been summarized as the “5 A’s”:
    • (1) Ask about tobacco use;
    • (2) Advise to quit;
    • (3) Assess willingness to make a quit attempt;
    • (4) Assist in the quit attempt;
    • (5) Arrange follow-up.
Tobacco Use Disorder

• Like other substance use disorders:
  • chronic, relapsing illness with a course of intermittent episodes alternating with periods of remission for most people who smoke
  • 3% of quit attempts w/o formal tx are successful
  • About 30% of people who want to quit are seeking treatment.
  • Outcomes vary by type and intensity of
    • Reports of 1 year abstinence rates following treatment about 15 to 45%
    • Relapse curve for smoking cessation paralleling that for opioids.
    • Most relapse during the first 3 days of withdrawal
    • Most others will relapse within the first 3 months
    • However, like any other substances, individuals can relapse to tobacco in any stage of recovery.

APA 1996; Ziedonis and Fiester 2003
Management of Tobacco Use Disorders

MOTIVATIONAL INTERVIEWING PLUS PHARMACOTHERAPY
Precontemplation & Contemplation Phases may benefit from advice & medical Consequences
<table>
<thead>
<tr>
<th>Patient Stage</th>
<th>Physician Intervention</th>
<th>Frequency of Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>cks about the presence of a problem and no plans to change.</td>
<td>Follow-up visits as needed for other primary care problems or health maintenance.</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Perception that there is a problem but ambivalence about change.</td>
<td>Schedule follow-up visits to specifically discuss chemical dependence every 3-4 months. Offer a family interview.</td>
</tr>
<tr>
<td>Determination</td>
<td>Awareness that a problem definitely exists and something must be done about it.</td>
<td>Frequent visits, perhaps every 2-4 weeks for a month or more.</td>
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<tr>
<td>Action</td>
<td>Ready for the initiation of behavior change.</td>
<td>Weekly to every other week.</td>
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<tr>
<td>Maintenance</td>
<td>Incorporation of behavior change into daily routine.</td>
<td>Initially monthly, then decreasing in frequency as appropriate.</td>
</tr>
<tr>
<td>Relapse</td>
<td>Reversion back to contemplation or precontemplation with continued substance abuse.</td>
<td>Frequently at first, then plan according to the new stage of patient readiness.</td>
</tr>
<tr>
<td></td>
<td>Voice continued optimism; encourage return to determination, action, and maintenance; aid continued treatment and recovery attempts by patient or family members.</td>
<td></td>
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</table>
Counseling for Tobacco Use Disorders

• Strong dose-response relationship between intensity of tobacco dependence counseling and its effectiveness.

• Effective treatments: person-to-person contact (via individual, group, or proactive telephone counseling):
  • Practical counseling (problem solving/skills training),
  • Provision of social support,
  • Help in securing social support outside treatment.

• Brief interventions (3+ minutes) increase quit rates (congratulations on any success, encouragement for abstinence, health benefits, discussion of any problems in maintaining abstinence).
Who Should Be Offered Pharmacotherapy?

- All patients willing to attempt to quit smoking
  - Exceptions:
    - Those with medical contraindications
    - Those smoking fewer than 10 cigarettes/d
    - Pregnant/breastfeeding women
    - Adolescents
    - Smokeless tobacco users
  - Consider risk/benefit for all patients being considered for pharmacotherapy
**Fagerström Tolerance Questionnaire**

The Fagerström Tolerance Questionnaire is designed to help you and your doctor assess how dependent you are on the nicotine found in cigarettes.

Please read each question below. For each question, check (✓) the box that best describes your response.

1. How soon after you wake up do you smoke your first cigarette?
   - [ ] 1 Within 30 minutes
   - [ ] 0 After 30 minutes

2. Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, at the movies, etc.?
   - [ ] 1 Yes
   - [ ] 0 No

3. Which cigarette would you hate most to give up?
   - [ ] 1 The first one in the morning
   - [ ] 0 Any other

4. How many cigarettes per day do you smoke?
   - [ ] 1 15 or less
   - [ ] 2 16-25
   - [ ] 3 26 or more

5. Do you smoke more frequently during the first hours after awakening than during the rest of the day?
   - [ ] 1 Yes
   - [ ] 0 No

6. Do you smoke even when you are so ill that you are in bed most of the day?
   - [ ] 1 Yes
   - [ ] 0 No

7. What is the tar content of your brand?
   - [ ] 1 Low
   - [ ] 2 Medium
   - [ ] 3 High

8. Do you inhale?
   - [ ] 1 Never
   - [ ] 2 Sometimes
   - [ ] 3 Always

To determine your score, add up the numbers that correspond with each of your responses. If your score is between 0 and 6 points, your dependence on nicotine is in the low to moderate range. If your score is between 7 and 14 points, you are very dependent on nicotine. In either case, you should talk with your doctor about your score.

Permission to use: Dr. Karl Fagerström, April 1999.
Nicotine Replacement Therapy

<table>
<thead>
<tr>
<th>TABLE 1. Comparison of NRT Products</th>
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</thead>
<tbody>
<tr>
<td><strong>Dimension</strong></td>
</tr>
<tr>
<td>Availability</td>
</tr>
<tr>
<td>Flexible dosing</td>
</tr>
<tr>
<td>Allows for extinction of sensory/ritual reinforcees</td>
</tr>
<tr>
<td>Speed of onset (T_max)</td>
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<tr>
<td>Frequency of use (doses per day)</td>
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<tr>
<td>Effort required for proper use</td>
</tr>
<tr>
<td>Mimics oral/behavioral aspects of smoking</td>
</tr>
<tr>
<td>Primary side effects</td>
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</tbody>
</table>
Medication Management

- FDA-approved:
  - Nicotine Replacement (Agonist Therapy)
    - Nicotine gum, Nicotine lozenge
    - Nicotine patch
    - Nicotine nasal spray, Nicotine inhaler
  - Bupropion (approved for treatment of depression and smoking cessation)
  - Varenicline (nicotine partial agonist)
Nicotine Inhaler

- FDA Approved
- Nicotine Replacement (Agonist Therapy)
- Available by prescription only
- Not a pulmonary effect; nicotine delivered to oropharynx and absorbed
- A cartridge delivers a total of 4 mg of nicotine with 80 inhalations over 20 min.
- Recommended dosage is 6–16 cartridges/day
- Recommended duration of therapy is 12 weeks, but up to 6 months.
- Approximate Costs:
  - 1 box of 168 10-mg cartridges = $196
  - Less than cost of cigarettes
Nicotine Nasal Spray

- FDA Approved
- Nicotine Replacement (Agonist Therapy)
- Rapid delivery system of 1 mg nicotine (0.5 mg/nostril/dose)
- Peak nicotine blood level in 10 minutes
- Rapid relief of withdrawal and craving
- Associated with greater sense of control
- 1-2 doses/h; min: 8/d; max 40/d; Use 3-6 mos
Nicotine Nasal Spray

• Side effects: throat irritation, coughing, sneezing, lacrimation; don’t use in active airway disease
• Use in those who fail nicotine gum and/or patch
• Highest potential for dependence; 15-20% will use longer than recommended (6-12 mos)
• Approximate Costs:
  • $49 per bottle/ 100 doses/bottle
Nicotine Gum

• FDA Approved
• Nicotine Replacement (Agonist Therapy)
• Reduces nicotine withdrawal: anxiety, anger/irritability, depression, poor concentration
• Effect on craving is minimal
• 2- or 4-mg gum; use over 30 min
• Use 4-mg dose for heavy smokers (>25 cigarettes daily)
• Dosing: 1 piece q hr better than prn for craving
• 50-90% nicotine released, depending on chewing rate
Nicotine Gum

- Absorbed through buccal mucosa
- Peak concentrations in 15-30 min (compared to 1-2 min for cigarette smoking)
- Avoid acidic foods/beverages (e.g. coffee, juices, soda) as these decrease absorption of nicotine
- Pregnancy Class D: risk to fetus has been shown, but use could be justified in some cases
Nicotine Gum

- Length of treatment is up to 12 weeks
- Approximate Costs:
  - $48/2 mg gum
  - $63/4 mg gum
  - Boxes with 100-170 pieces
- Abstinence rate: NRTs increase quit rates by 50-70% (Stead et al. 2012), to 6.8% sustained abstinence at 6 months (Moore et al. 2009)

Nicotine Lozenges

- FDA Approved
- Nicotine Replacement (Agonist Therapy)
- 2 and 4 mg (4 mg for those who smoke within 30 min after waking)
- 1 lozenge every 1–2 hours during Weeks 1-6, using a minimum of 9 lozenges/day
- Decrease lozenge use to 1 lozenge every 2–4 hours during weeks 7–9
- Then decrease to 1 lozenge every 4–8 hours during weeks 10–12.
Transdermal Nicotine Patch

- FDA Approved
- Nicotine Replacement (Agonist Therapy)
- 24 h patch delivers 21 mg nicotine
- Peak levels 6-10 h after application
- Length of Treatment: 8 weeks as effective as longer periods
  - 4 weeks: 21 mg/24 hours
  - Then 2 weeks at: 14 mg/24 hours
  - Then 2 weeks: 7 mg/24 hours
- Side effects: local irritation, mild gastric or sleep disturbances
Transdermal Nicotine Patch

- End of treatment smoking cessation: 18-77%; 6-month abstinence rates: 22-42%
- Can use patch and gum together
- Approximate Costs:
  - 7 mg, box (14 patches) = $37
  - 14 mg, box = $47
  - 21 mg, box = $48
  - Less than cost of cigarettes
Bupropion

- Good Quit Rates
- Predictors of Response Enhance Good Outcome
Bupropion

- FDA Approved
- Dopaminergic/noradrenergic
- Initial Dose: 150 mg SR daily, then increase to 300 mg SR
- Quit after 7-14 days of treatment
- Treatment: 12 weeks; up to 6 mos.
- Adverse events: dry mouth, insomnia, stimulation
- Do not use in patients with history of seizures or bulimia
Varenicline

- FDA Approved
- Nicotinic acetylcholine receptor partial agonist
- Decreases craving to smoke
- Twice daily oral medication to be started 1 week before quit date (0.5 mg/d x 3d; 0.5 BID x 4d; 1 mg BID)
- Length of Treatment: 12 weeks; max: 6 mos
Varenicline

- Monitor for depression/ agitation/suicidal thinking
- Common side effect: nausea (mild, resolves over time)
- Get psychiatric history prior to prescribing
- Discontinue if adverse neuropsychiatric symptoms
- No abuse liability
- Approximate Costs:
  - 1-mg, box (#56) = $131 (28-d supply)

(Carson et al., 2013)
Summary

- Review Diagnostic Criteria for Tobacco Use Disorder
- Learn about the History of Tobacco
- Understand the impact of Tobacco Use Disorders on Health.
- Review a Common Assessment Instrument
- Learn about Behavioral Change.
- Understand the more common forms of treatment: Motivational Interviewing and Medications