Assessment and Management of Tobacco Use Disorders

AOAAM Essentials in Addiction Medicine

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Disclosures

- None

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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.

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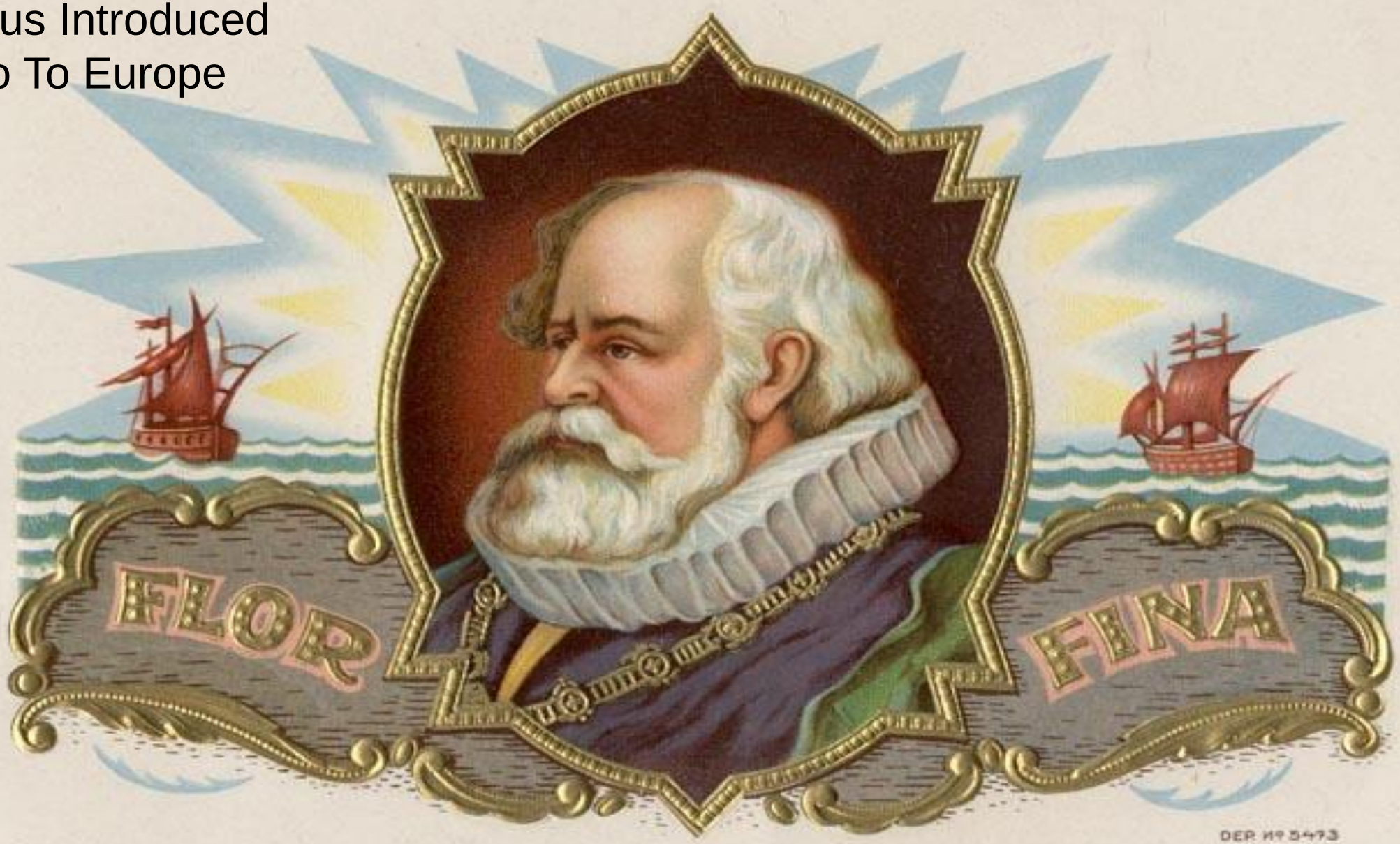
Columbus Introduced Tobacco To Europe



A Brief History of Tobacco

First human use 2000-8000 years ago

Consumed in a variety of ways

Why is there a teapot?

http://mingeiarts.com/wp-content/uploads/2011/11/BOwen-Teapot.jpeg

"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…"

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

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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

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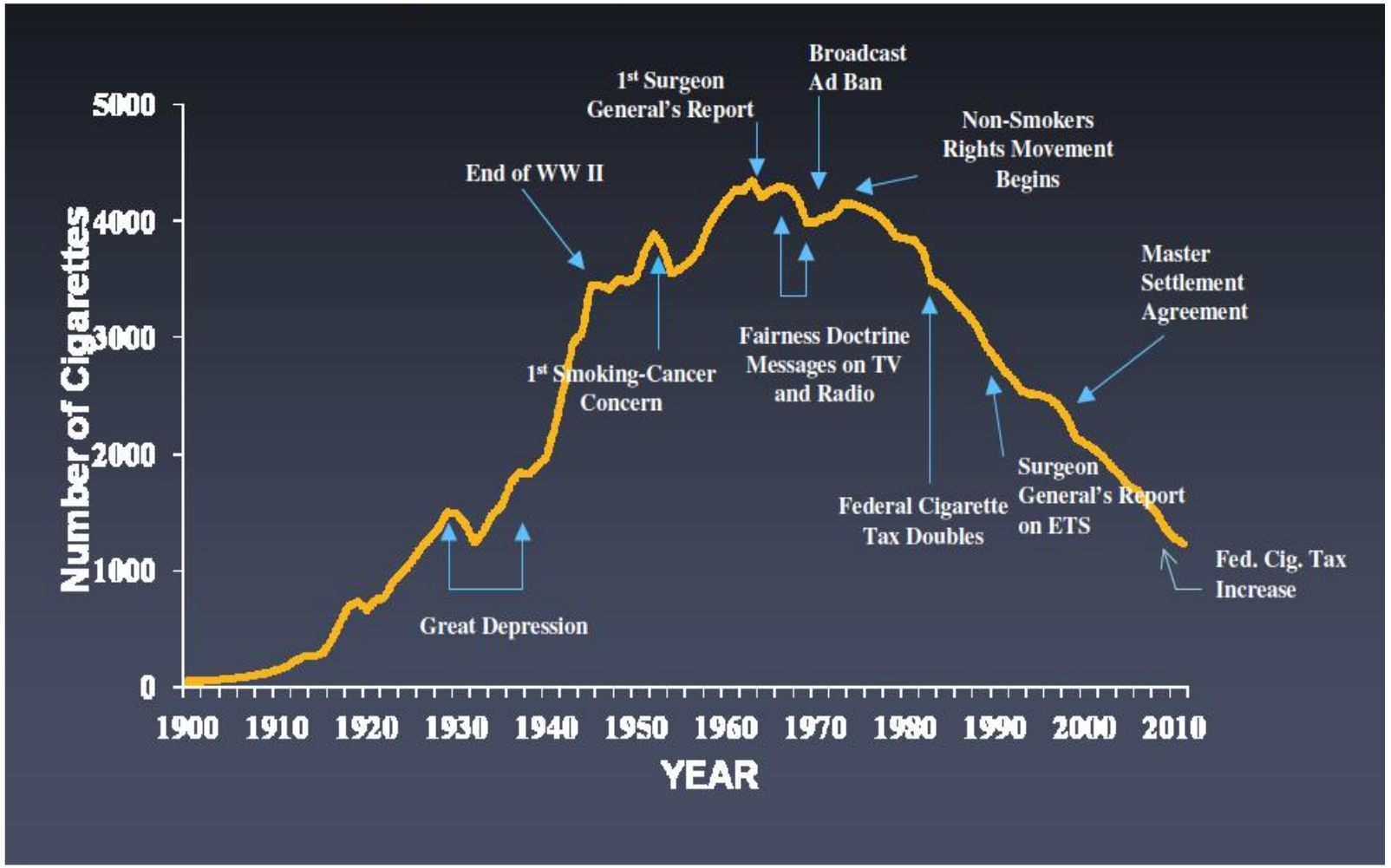
Adult Per Capita Cigarette Consumption, US, 1900-2011



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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

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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

(APA 1996; Ziedonis and Fiester 2003).

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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) **A**sk about tobacco use;
    - (2) **A**dvise to quit;
    - (3) **A**ssess willingness to make a quit attempt;
    - (4) **A**ssist in the quit attempt;
    - (5) **A**rrange follow-up.

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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

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Management of Tobacco Use Disorders

MOTIVATIONAL INTERVIEWING PLUS PHARMACOTHERAPY

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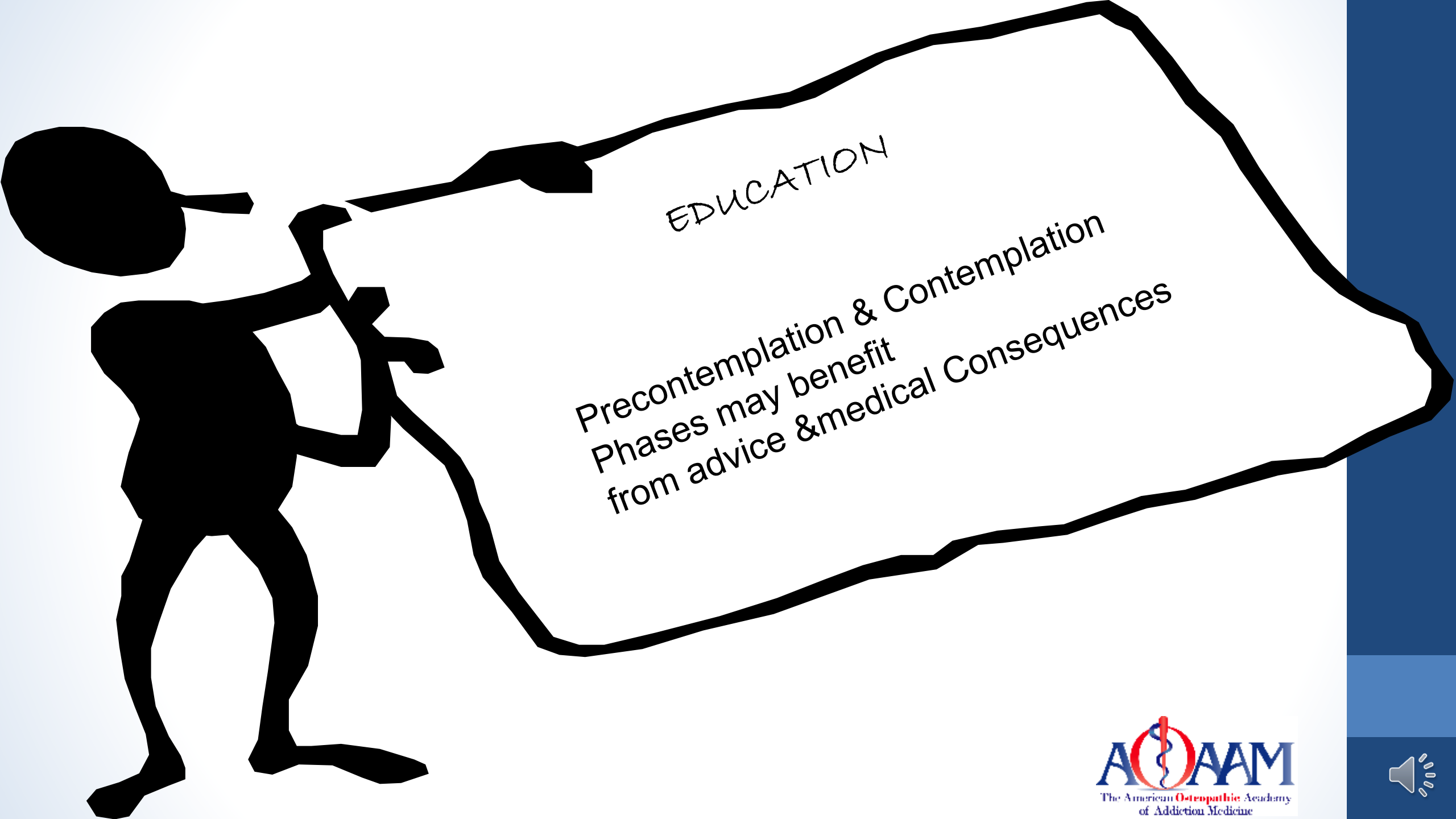

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TABLE 6. [illegible]

	Patient Stage	Physician Intervention	Frequency of Follow-up
Precontemplation	No conception of a problem and no plans to change.	Agree to disagree about presence of chemical dependence. Briefly bring up your concern periodically in future. Reassess for a change in readiness.	Follow-up visits as needed for other primary care problems or health maintenance.
Contemplation	Perception that there probably is a problem but ambivalent about change.	Present evidence of dysfunction and disability from the screening and assessment questionnaires, as well as the laboratory and toxicology testing. Be sure to use SOAPE in order to avoid a confrontation.	Schedule follow-up visits to specifically discuss chemical dependence every 3–4 months. Offer a family interview.
Determination	Awareness that a problem definitely exists and something must be done about it.	Problem solve with patient about what forms of action she/he might take. Module 4 can be helpful to negotiate a treatment plan.	Frequent visits, perhaps every 2–4 weeks for a month or more.
Action	Ready for the initiation of behavior change.	Provide strong encouragement and support; assist with referral as needed; encourage family participation; consider pharmacotherapy; collaborate and consult with treatment program staff.	Weekly to every other week.
Maintenance	Incorporation of behavior change into daily routine.	Encourage success; discuss difficulties and problems; encourage compliance with out-patient counseling (aftercare and self-help meetings); reassess pharmacotherapy; monitor for relapse signs; routine toxicology testing; and GGT testing if indicated.	Initially monthly, then decreasing in frequency as appropriate.
Relapse	Reversion back to contemplation or precontemplation with continued substance abuse.	Voice continued optimism; encourage return to determination, action, and maintenance; aid continued treatment and recovery attempts by patient or family members.	Frequently at first, then plan according to the new stage of patient readiness.

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).

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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?

Within 30 minutes ☐ 1 After 30 minutes ☐ 0

---

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.?

Yes ☐ 1 No ☐ 0

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3. Which cigarette would you hate most to give up?

The first one in the morning ☐ 1 Any other ☐ 0

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4. How many cigarettes per day do you smoke?

15 or less ☐ 1 16-25 ☐ 2 26 or more ☐ 3

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5. Do you smoke more frequently during the first hours after awakening than during the rest of the day?

Yes ☐ 1 No ☐ 0

---

6. Do you smoke even when you are so ill that you are in bed most of the day?

Yes ☐ 1 No ☐ 0

---

7. What is the tar content of your brand?

Low ☐ 1 Medium ☐ 2 High ☐ 3

---

8. Do you inhale?

Never ☐ 1 Sometimes ☐ 2 Always ☐ 3

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.

Nicotine Replacement Therapy

TABLE 1. Comparison of NRT Products

Dimension	Gum (4 mg)	Patch	Nasal Spray	Oral Inhaler
Availability	OTC	OTC	Rx	Rx
Flexible dosing	yes	no	yes	yes
Allows for extinction of sensory/ritual reinforcers	no	yes	no	no
Speed of onset (T_{max})	10 mins	2–12 hrs	5–10 mins	15 mins
Frequency of use (doses per day)	9–20	1	13–20	6–16
Effort required for proper use	high	low	moderate	high
Mimics oral/behavioral aspects of smoking	no	no	no	yes
Primary side effects	mouth/throat soreness	topical skin irritation	nose/throat irritation, runny nose	cough, throat irritation

Medication Managment

- 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

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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)

(See U.S. Public Health Service: A clinical practice guideline for treating tobacco use and dependence: A US public health service report. J Am Med Assoc 2000; 283: 3244–3254)

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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

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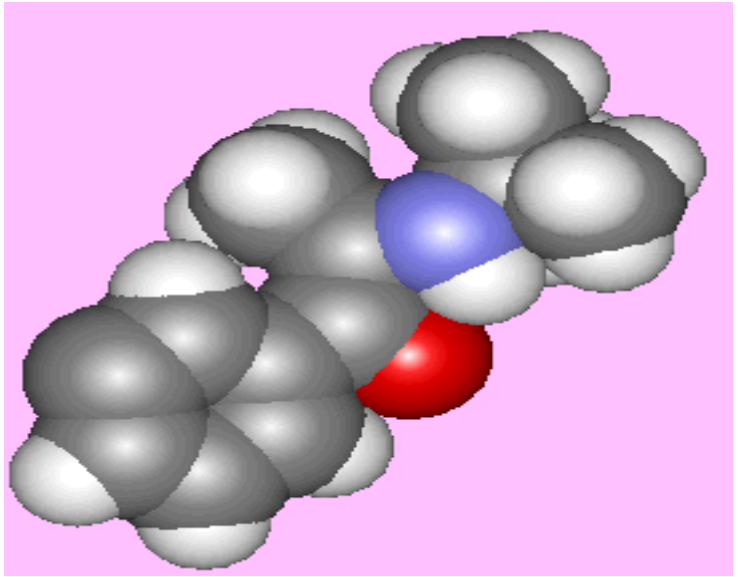
Transdermal Nicotine Patch

- 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

Buproprion

- Good Quit Rates
- Predictors of Response Enhance Good Outcome



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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

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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)

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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

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