

## **Overview**

Currently, approximately 48 million smokers in US population (26% of adult population)

- ♦ 28.2% of males
- ♦ 23.1% of females
- ♦ 70% of smokers want to quit

The mean age of initiation for females to begin smoking is 12–13 years of age.

Females are five times more likely to smoke if one or both parents or an older sibling in the household smokes.

Smoking prevalence among females • 25 years of age highest among those with 12 years of education (26.9%) or less (24.2%) and lowest among those with • 16 years of education (11.9%).

## Health Effects

Tobacco use remains the chief preventable cause of premature mortality and morbidity. Despite the decline in prevalence, disease implications are likely to increase in coming decades, particularly for women.

In the United States, smoking causes 140,000 deaths among women each year.

## Cancer

Eighty-five percent of all lung cancer deaths are caused by tobacco.

Smoking increases the risk of developing cancer in the following organs:

- ♦ lung
- ♦ larynx
- ♦ esophagus
- ♦ oral cavity
- ♦ kidney
- ♦ bladder
- ♦ uterine cervix

## Cardiovascular Disease

Smokers are twice as likely to develop heart disease than nonsmokers.

### Pulmonary Disease

Smoking is associated with an increased incidence of respiratory infections

- ♦ acute bronchitis
- ♦ pneumonia
- ♦ sinusitis

There is also an increased incidence of chronic bronchitis.

### Environmental Tobacco Smoke (ETS)

ETS causes an estimated 53,000 deaths annually in the US and is considered a leading cause of respiratory illness in infants and children.

Other health effects associated with smoking include:

- ♦ increased prevalence of peptic and gastric ulcer disease
- ♦ increased risk of periodontal disease
- ♦ increased risk of peripheral arterial occlusive disease and cerebrovascular disease
- ♦ slower wound healing

### Female-Specific Health Effects

- ♦ increased risk of stroke for females using oral contraceptives (after age 35 risk is prohibitive)
- ♦ increased risk of cervical neoplasia
- ♦ higher rates of osteoporosis
- ♦ earlier menopause

## Comorbid Substance Use/Abuse

Smoking is identified as a “gateway drug”—the first drug an individual is exposed to, which paves the way for subsequent involvement with other legal and illegal drugs.

Some evidence to suggest females who experiment with cigarettes are more likely to proceed to other illicit drugs than females who never experiment with cigarettes.

## Pregnancy

Studies suggest 20–40% of women who smoke quit when they become pregnant (i.e., 60–80% of women smoke throughout pregnancy).

Seventy to eighty percent of women who quit during pregnancy relapse within one year of delivery.

Some characteristics associated with smoking during pregnancy are:

- ♦ unmarried
- ♦ under age 30
- ♦ less than 12 years education
- ♦ low socioeconomic status

Smoking during pregnancy increases the risk of:

- ♦ tubal pregnancy
- ♦ spontaneous abortion
- ♦ prenatal mortality
- ♦ perinatal mortality
- ♦ neurobehavioral deficits in offspring
- ♦ placental abruption
- ♦ stillbirth
- ♦ preterm delivery
- ♦ intra-uterine growth retardation
- ♦ sudden infant death syndrome
  - ♦ depressed or low 1- and 5-min Apgar score
  - ♦ lower respiratory tract illness during the infant's first 5 years of life

## **Why Is It So Difficult to Quit?**

More than 80% of adults who try to quit fail on the first attempt and over 50% fail on second attempt.

Most individuals attempt to quit an average of three times before reaching maintenance or termination.

### Sociological Aspects

Peer group influences are especially important in initiation.

Other influences include: role models, such as parents, advertising, television, movies, etc. and a decreasing societal acceptance of smoking.

### Physiological Aspects

#### Benefits of Nicotine

- ◆ can improve memory, attention, and performance
- ◆ can modulate stress and regulate mood through neurophysiologic pathways
- ◆ psychoactive effects reinforce smoking and motivate tobacco seeking and using behavior

### Nicotine Dependence

- ◆ past withdrawal symptoms
- ◆ inability to abstain for a number of hours without becoming agitated or fidgety; Ask how patients do on long plane trips, in church, in a library, and other various places where they spend an extended time without smoking
- ◆ smoking within the first half-hour of waking up
- ◆ waking up in the middle of the night to smoke
- ◆ quantity: more than a pack and a half a day (for many a pack) indicates dependence

Nicotine Withdrawal Symptoms

- ✦ craving
- ✦ anxiety
- ✦ irritability
- ✦ hunger
- ✦ restlessness
- ✦ decreased concentration
- ✦ drowsiness
- ✦ sleep disturbance

Weight Management Effects and Issues

Smoking depresses body weight and therefore represents a potential for weight management.

Upon smoking cessation, BMI increases to level of non-smokers (secondary to dietary and metabolic changes).

Average weight gain attributable to smoking cessation is between 10.6 pounds and 13.0 pounds (Klesges, et al, 1997).

- ✦ women gain more on average than men when they quit
- ✦ women more likely to gain more weight (>29 lbs.).  
Approximately 20% of women who quit smoking gain weight—“supergainers”

Younger age and sedentary lifestyle are risk factors for greater weight gain in women.

Women smokers consistently more likely than men to state that fear of weight gain reduces motivation to quit.

Weight gain can be minimized if smoking cessation is accompanied by a moderate increase in physical activity (Nurse’s Health Study).

### Psychological Aspects

Smoking is associated with environmental, behavioral and cognitive “cues” or “triggers” which maintain use.

Positive consequences (e.g. mood regulation, improved memory) serve to reinforce continued use.

Evidence that many smokers may be using nicotine to self-medicate for co-morbid depression and anxiety.

#### Depression and smoking cessation

- ♦ lifetime depression higher among smokers (30–40%) than overall population (4–5%)
- ♦ females (20.8%) more likely than males (15.2%) to report feelings of depression during previous quit attempts
- ♦ some evidence that cessation is followed by depression, especially in individuals with history of depression
- ♦ anxiety/stress—females often report smoking to cope with anxiety/stress and negative mood

### **Role of Primary Care Provider**

Primary care providers need to take advantage of opportunities to intervene: bronchitis, pneumonia, sinus infection, or some health problem that clearly relates to smoking and the health effects of smoking.

Simple provider advice to stop smoking can result in an increased quit rate. Advice such as “Quitting smoking will be the best move to improve your health, and I strongly recommend it, but the choice is your personal decision.”

A follow-up session approximately doubles the effect of simple advice alone.

## **Counseling Strategies**

### Prochaska & Diclemente's 'Readiness for Change'

Precontemplation Stage; the patient has not been considering quitting. The goal is to get the patient to understand there is a problem and to think about quitting.

- ✦ address agenda/express willingness to help
- ✦ assess smoking and quitting history, elicit pros and cons of smoking (suggest patient make a list)
- ✦ advise with personalized message and feedback about health risks/benefits
- ✦ arrange/offer follow-up to readdress

Contemplation Stage; the patient has thought about quitting but is not ready to quit. The goal is to help the patient overcome obstacles to quitting and reinforce the patient's interest in quitting.

- ✦ address the agenda/express willingness to help
- ✦ assess smoking and quitting history and current obstacles to quitting
- ✦ advise/Educate on how to overcome obstacles to quitting, identify potential resources
- ✦ arrange/offer follow-up to readdress

Action Stage; the patient is ready to quit smoking and will agree to a plan (Work with the patient to develop specific strategies for quitting and set a quit date).

- ✦ assess smoking and quitting history and level of nicotine dependence
- ✦ assist in making a plan to quit
  - helping with the habit
  - nicotine replacement as needed
  - referral as appropriate

Maintenance Stage; the patient has quit and is maintaining nonsmoking status; may relapse (Reinforce success and repeated attempts to quit).

Relapse; use relapse to learn new strategies for avoiding smoking.

The 5 A's of Smoking Cessation

Address the agenda with all patients

Assess all patients for

- ◆ readiness to quit (stage of change)
- ◆ smoking and quitting history
- ◆ level of nicotine dependence
- ◆ knowledge of health risks from smoking

Advise all patients on

- ◆ own personal health risks and benefits of quitting
- ◆ availability of nicotine replacement

Assist (provide information) patients who are not ready to quit

- ◆ focus on benefits of quitting vs. risks of continued smoking; scare tactics may backfire
- ◆ have patients make a list of pros and cons of smoking
- ◆ identify barriers and solve problems
- ◆ identify potential supports and resources
- ◆ legitimize difficulty of quitting (empathy)

Assist patients who are ready to quit

- ◆ teach behavioral skills to help them break the habit
- ◆ evaluate need for nicotine replacement
- ◆ refer patient when appropriate
- ◆ provide ALA or ACS self-help manuals

Arrange follow-up for all patients (appointment, card, or phone call)

Emphasis of risks may prove beneficial following cessation

- ◆ patients appreciate what they've escaped
- ◆ increases motivation for continued abstinence

The 4 R's to Enhance Motivation to Quit Smoking  
(AHCPR guidelines)

- ♦ **Rewards:** What **rewards** will they reap from quitting?
- ♦ **Relevance:** Why is this **relevant** to them?
- ♦ **Risks:** What are they?
  - acute
  - long-term
- ♦ **Repetition:** Repeat important messages

Specific Strategies

- ♦ Personalized messages are most effective
- ♦ Smoking diary
  - one to two weeks prior to quit date
  - index card kept with cigarettes to record: When? Where? Why? How? and How patient is feeling with every cigarette smoked
- ♦ Behavioral skills
  - identify triggers/cues
  - **avoid a trigger**, e.g. stop drinking coffee, avoid alcohol
  - **change cues**, e.g. change black coffee to coffee with milk and sugar, or change to tea or soda for caffeine without coffee cue
  - **substitute behavior for smoking**, e.g. take a walk or brush teeth after dinner instead of smoking
- ♦ Set a “quit date”

- ♦ Relapse prevention
  - patterns of relapse to smoking are similar to relapse patterns noted for other drugs of abuse
  - frame relapse as learning experience. For example, “Well, you know what? Now you know that this is going to trip you up. Now we have to plan better. Next time around you’ll be prepared for this.”
- ♦ Increase patient self-efficacy
  - set concrete and attainable goals
  - discuss patient’s past successes in overcoming obstacles
  - discuss that it often takes multiple tries to quit
  - support patient with confidence, for example, “I think you can do this.”
- ♦ Attention to concern regarding weight gain
- ♦ Provide information on physical activity
  - physical activity is a healthful alternative to smoking that may enhance achievement and maintenance of smoking cessation due to its effect on three key areas of concern for women
  - may increase motivation, coping skills, and self-efficacy to maintain cessation through enhanced awareness of improved physiological and psychological functioning

Gender-Specific (female) Risk Factors for Relapse

- ♦ lack of partner/social support
- ♦ smoking member of household
- ♦ less than high school education
- ♦ greater perception of nicotine dependence
- ♦ reported alcohol consumption of greater than 7 drinks/week

Counseling the Pregnant Smoker

- ♦ Be aware of the pregnant smoker's view point
  - what are her worries or fears?
  - pregnant smokers likely feel guilty about continuing to smoke and may not tell the doctor the truth about their status
  - convey and maintain a supportive stance, rather than punitive or judgmental
- ♦ Urge patient to quit early in pregnancy if possible
  - some evidence women who quit early in pregnancy more likely to remain abstinent
  - early quitting provides the greatest benefit to the fetus; however, quitting later in pregnancy is also beneficial
  - emphasize that it's never too late to quit
- ♦ Provide pregnancy-related motivational messages
  - cessation messages tailored to the pregnant smoker enhances quit rates
  - decisional balance: costs of quitting are far less than costs of continued smoking
  - explain benefits of quitting for both woman and baby
- ♦ Discuss the pros and cons of nicotine replacement in pregnancy.
- ♦ Relapse prevention should begin during pregnancy
  - assess patient for relapse
  - postpartum relapse rates are high even if a woman maintains abstinence throughout pregnancy

## **Pharmacologic Approaches to Nicotine Dependence and Withdrawal**

### Nicotine Replacement Products

#### Nicorette Gum

- ♦ Important to explain/review how to chew gum
  - chew only to release “pepper” taste and park between cheek and gum for 20–30 minutes
  - repeat as needed
  
- ♦ Dosing
  - recommendation: start with 2 mg dose; 4 mg dose if smoking 25 cigarettes/day, and then move up as needed
  - some data that women do better with 4 mg dose
  - each piece releases nicotine for 20–30 minutes
  - a fixed dosing schedule (every 3 hours) shown to be more efficacious than ad-hoc dosing schedule
  
- ♦ Low efficacy when used independently (without behavioral counseling)
  
- ♦ Postcessation weight gain shown to be delayed with use
  
- ♦ Relative contraindications
  - temporomandibular joint disease
  - dentures
  - dental bridges

Nicoderm CQ (OTC)

- ♦ 24 hour patch
- ♦ 7, 14, 21 mg doses available
- ♦ 21 mg Nicoderm patch provides the highest mean daily plasma nicotine level of all patches; recommended starting dose for smokers who smoke >10 cigarettes/day and weigh >100 lbs
- ♦ price is the same regardless of dose
- ♦ remove the patch at night if sleeping difficulties and nightmares occur
- ♦ efficacy independent of counseling (but improved results with counseling)

Nicotrol (OTC)

- ♦ 16 hour patch
- ♦ designed to be removed at night
- ♦ 5, 10, 15 mg doses available
- ♦ efficacy independent of counseling (but improved results with counseling)

Habitrol (prescription only)

- ♦ more expensive than OTC patches
- ♦ 7, 14, 21 mg doses available
- ♦ mean daily plasma nicotine levels in between Nicoderm and Nicotrol
- ♦ efficacy independent of counseling (but improved results with counseling)

Bupropion (Wellbutrin, Zyban)

- ▶ Bupropion, an antidepressant, has been FDA approved as an effective aid in smoking cessation.
- ▶ Bupropion hydrochloride is now being marketed in two sustained-release formulations as Zyban and Wellbutrin SR for smoking cessation.
- ▶ Recommended start is two weeks prior to quit date at 150 mg once a day for three days, then 150 mg twice a day for weeks to months, depending on individual cases.
- ▶ It has been shown to be effective independent of nicotine replacement or counseling but can be used in conjunction with both.

Other antidepressants such as doxepin have also shown promise as smoking aids, especially in those with comorbid depression.

Antihypertensives may prove to be useful as an adjunct to behavioral treatment interventions, for example, Clonidine.

- ▶ Reduces withdrawal symptoms (anxiety and craving) after smoking cessation
- ▶ Shown to improve 6 month smoking cessation treatment outcome

## **SUGGESTED READINGS**

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