FORMs of TOBACCO

2nd of 3
Prep for Session 1
FORMS of TOBACCO

- Cigarettes
- Spit tobacco (chewing tobacco, oral snuff)
- Pipes
- Cigars
- Clove cigarettes
- Bidis
- Hookah (waterpipe)
- Dissolvable tobacco
- E-cigarettes

All forms of tobacco are harmful.
AMERICAN CIGARETTES

Most common form of tobacco in U.S.
Sold in packs (20 cigarettes/pack)

Total nicotine content, per cigarette:
- Average 13.5 mg (range, 11.9 to 14.5 mg)

Machine-measured nicotine yield:

<table>
<thead>
<tr>
<th>Type of cigarette</th>
<th>Yield per cigarette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-flavor (regular)</td>
<td>1.1 mg</td>
</tr>
<tr>
<td>Light</td>
<td>0.8 mg</td>
</tr>
<tr>
<td>Ultra-light</td>
<td>0.4 mg</td>
</tr>
<tr>
<td>Average (all brands)</td>
<td>0.9 mg</td>
</tr>
</tbody>
</table>

Smoker’s nicotine yield, per cigarette: ~ 1-2 mg

“Light” cigarettes: Nicotine exposure may be higher

Marlboro and Marlboro Light are registered trademarks of Philip Morris, Inc.
SPIT TOBACCO

Chewing tobacco
- Looseleaf
- Plug
- Twist

Snuff
- Moist
- Dry

The Copenhagen and Skoal logos are registered trademarks of U.S. Smokeless Tobacco Company, and Red Man is a registered trademark of Swedish Match.
## NICOTINE CONTENT in SMOKELESS TOBACCO PRODUCTS

<table>
<thead>
<tr>
<th>Dose</th>
<th>Product</th>
<th>pH</th>
<th>Total free nicotine (mg/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Hawken Wintergreen</td>
<td>5.2 - 5.7</td>
<td>0.01 - 0.02</td>
</tr>
<tr>
<td></td>
<td>Skoal Bandits Wintergreen</td>
<td>6.9 - 7.1</td>
<td>0.5 - 1.0</td>
</tr>
<tr>
<td>Medium</td>
<td>Skoal Long Cut Straight</td>
<td>7.5 - 7.6</td>
<td>2.4 - 3.7</td>
</tr>
<tr>
<td>High</td>
<td>Kodiak Wintergreen</td>
<td>8.2 - 8.4</td>
<td>5.8 - 6.5</td>
</tr>
<tr>
<td></td>
<td>Copenhagen</td>
<td>7.6 - 8.6</td>
<td>3.1 - 9.4</td>
</tr>
</tbody>
</table>

HEALTH CONSEQUENCES of SMOKELESS TOBACCO USE

Periodontal effects
- Gingival recession
- Bone attachment loss
- Dental caries

Oral leukoplakia

Cancer
- Oral cancer
- Pharyngeal cancer
PIPE TOBACCO

- Prevalence of pipe smoking in the U.S. is less than 1%
- Pipe smokers have an increased risk of death due to:
  - Cancer (lung, oral cavity, esophagus, larynx)
  - Chronic obstructive pulmonary disease
- Risk of smoking tobacco-related death: cigarettes > pipes ≈ cigars
CIGARS

- Tobacco content of cigars varies greatly
- One cigar can deliver enough nicotine to establish and maintain dependence
- Cigar smoking is not a safe alternative to cigarette smoking
CLOVE CIGARETTES
(also known as KRETEKS)

- Mixture of tobacco and cloves
- Imported from Indonesia
- Use is more prevalent among young smokers
- Two times the tar and nicotine content of standard cigarettes
- Hazards of ordinary tobacco cigarettes plus others due to cloves
BIDIS

- Imported from India
- Resemble marijuana joints
- Available in candy flavors
- Deliver 3-fold higher levels of carbon monoxide and nicotine and 5-fold higher levels of tar when compared to standard cigarettes
- “Cigarettes with training wheels”

*Image courtesy of the Centers for Disease Control and Prevention / Dr. Clifford H. Watson*
HOOKAH (WATERPIPE SMOKING)

- Also known as Shisha, Narghile, Goza, Hubble bubble
- Tobacco flavored with fruit pulp, honey, and molasses
- Increasingly popular among young adults in coffee houses, bars, and lounges
- Nicotine, tar and carbon monoxide levels comparable to or higher than those in cigarette smoke
- A 1-hr hookah smoking session ~ 200 puffs, (avg cigarette ~ 20 puffs). Volume of smoke inhaled = 90,000 milliliters (ml), compared with 500-600ml when smoking a cigarette.

Image courtesy of Mr. Sami Romman / www.hookah-shisha.com
DISSOLVABLE TOBACCO

- Pellet, film, sticks, strips
- Cured tobacco and flavorings
- Melt within 3-30 min
- 0.6 – 3.1 mg NIC delivered
ELECTRONIC CIGARETTES

- Devices similar in appearance to cigarettes, cigars, pipes, or pens
- Battery-operated devices that create a vapor for inhalation
  - Simulates smoking but does not involve combustion of tobacco
- Also known as
  - E-cigarette
  - E-hookah, Hookah pen,
  - Vapes, Vape pen, Vape pipe
  - Electronic nicotine delivery system (ENDS)

Image from: http://www.nytimes.com/2014/03/05/business/e-cigarettes-under-aliases-elude-the-authorities.html
ELECTRONIC CIGARETTES:
Components

- Power source
  - Rechargeable or disposable battery

- Cartridge containing liquid solution
  - Propylene glycol
  - Glycerin
  - Flavorings (tobacco, fruit, chocolate, mint, cola, candy, etc.)
  - Nicotine (0-36 mg/mL)

- Electronic atomizer/vaporizer
  - Heating element vaporizes liquid at temperatures 65-120 °C
ELECTRONIC CIGARETTES: Potential health risks

- Propylene glycol may cause respiratory irritation and increase the risk for asthma
- Glycerin may cause lipoid pneumonia on inhalation
- Nicotine is highly addictive and can be harmful
  - Refill cartridges with high concentrations of nicotine are a poisoning risk, especially in children
- Carcinogenic substances are found in some aerosols
- Use of e-cigarettes leads to emission of propylene glycol, particles, nicotine, and carcinogens into indoor air
  - Long-term safety of second hand exposure to e-cigarette aerosols is unknown

Electronic cigarettes are not proven to be safe.
ELECTRONIC CIGARETTES:
Indoor Air Pollution

- E-cigarettes are not emission-free
- During vaping sessions, compounds and particles emitted into the indoor air include
  - Propylene glycol
  - Glycerin
  - Heavy metals
  - Nicotine
  - Flavoring agents
  - Polycyclic aromatic hydrocarbons
- Levels of most substances lower than conventional cigarettes
- Long-term safety of second hand exposure to e-cigarette aerosols is unknown

ELECTRONIC CIGARETTES: Current Trends and Evidence

- Predominantly used by smokers and smokers who are considering quitting

- Used as an alternative to cigarette smoking and as an aid for cessation
  - Perceived as less harmful than conventional cigarettes

- Use is increasing among adolescents and young adults
ELECTRONIC CIGARETTES: Current Trends and Evidence, cont’d

- Can reduce the desire (craving) to smoke cigarettes and alleviate nicotine withdrawal symptoms
- Some smokers reduce the number of cigarettes smoked or quit smoking as a result of using e-cigarettes
- Have not been proven effective as an aid for sustained smoking cessation

Long-term safety and efficacy data are lacking.
FORMS of TOBACCO: SUMMARY

- Cigarettes are, by far, the most common form of tobacco used in the U.S.
- Other forms of tobacco exist and are increasing in popularity.
- All forms of tobacco are harmful.
- The safety/efficacy of e-cigarettes is not established.
- Attention to all forms of tobacco is needed.