Tobacco dependence as a chronic disease

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Learning objectives

At the end of this presentation the participations will be able to

- Identify the physical, psychological and social aspects of tobacco use
- Describe the health impact from the tobacco epidemic
- Describe the physiology of tobacco dependence
- Describe the 4 components of the Mayo Model
Everybody knows smoking is bad, well how bad is it?
The Cigarette Death Epidemic in Perspective in the USA

- Annual smoking: 440,000
- World War II: 416,000
- Vietnam War: 58,000
- Annual auto accidents: 33,000
- AIDS Annual: 18,000
- Annual murders: 15,000
- Annual heroin, morphine & cocaine deaths: 14,000

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The tobacco epidemic

- Cigarettes cause nearly one in five deaths in US (Mokdead et al. 2004)
- Cigarettes kill one in three beginning smokers (CDC, 2006)
- There are effective treatments for tobacco dependence that are underutilized (Fiore et al. 2000)
Cigarette smoking – 30% of all cancer deaths (>180,000 in 2005)

Risk of cancer death 2 x higher in smokers and 4 x higher in heavy smokers

Smoking causally linked to cancers of lung, larynx, oral cavity, esophagus, pancreas, bladder, kidney, stomach, and uterine cervix
On one point, however, there is nearly complete consensus of opinion, and that is that primary malignant neoplasms of the lungs are among the rarest forms of disease.
Annual Age-adjusted Cancer Death Rates among Males for Selected Cancers, U.S. 1930-2005

Rates are age adjusted to the 2000 US population. Due to changes in ICD coding, numerator information has changed over time. Rates for cancers of the lung and bronchus, colon and rectum, and liver are affected by these changes.

On one point, however, there is nearly complete consensus of opinion, and that is that primary malignant neoplasms of the lungs are among the rarest forms of disease.
4.) DIED from emphysema on Dec. 16, 1964
1900-2005 U.S. Per Capita Cigarette Consumption

and 1930-2005 Age Adjusted Lung Cancer Death Rate per 100,000

NCHS Vital Statistics; Death rates are age-adjusted to 2000 US standard population.

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Smoking-Attributable Mortality, 1997-2001

Number of average annual deaths

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>437,902</td>
</tr>
<tr>
<td>Neoplasms</td>
<td>158,529</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>131,502</td>
</tr>
<tr>
<td>Respiratory disease</td>
<td>101,454</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>910</td>
</tr>
<tr>
<td>Burn deaths</td>
<td>818</td>
</tr>
<tr>
<td>Total</td>
<td>38,112</td>
</tr>
<tr>
<td>Environmental Tobacco Smoke</td>
<td>3,060</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>35,052</td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td></td>
</tr>
</tbody>
</table>

Smoking-attributable (18.2%)

CDC, 2005
Medical Complications of Tobacco

All cancer

- Cigarette smoking – 30% of all cancer deaths

- Risk of cancer death 2 x higher in smokers and 4 x higher in heavy smokers

- Smoking causally linked to cancers of lung, larynx, oral cavity, esophagus, pancreas, bladder, kidney, stomach, and uterine cervix

US Dept. Health and Human Services, 2004
Smoking causes coronary artery disease
- Over 130,000 CVD deaths per year due to smoking
- >35% occur before age 65
- JCAHO core measure

Increased likelihood of a heart attack

Increased sudden death if there is an MI

US Dept. Health and Human Services, 2004
Numerous health effects

- **Respiratory diseases**
  - Chronic obstructive pulmonary disease, Pneumonia, Respiratory effects in utero, Respiratory effects in childhood, adolescence, and adulthood, also cough, wheezing, and respiratory infections

- **Reproductive effects**
  - Fetal death and stillbirths, Lower fertility, Low birth weight, pregnancy complications

- **Cataract**
The promotion of an epidemic
Economics

- Crop of the Americas

- Strachey – 1612 Jamestown tobacco from Trinidad seeds – best tobacco there is

- 1620 cost 3c per pound Orinico plantations and Trinidad
  - 40c per pound at market
Precursors to the epidemic

- Mass Production
  - Cigarette rolling machine

- Modern Marketing
  - Salesmenship
  - Advertising
  - Price
  - Product placement

- Portable matches
Trends in Per Capita Consumption of Various Tobacco Products – United States, 1880-2004

Source: Tobacco Situation and Outlook Report, U.S. Department of Agriculture, U.S. Census
Note: Among persons > 18 years old. Beginning in 1982, fine-cut chewing tobacco was reclassified as snuff.
What we need to know above all things is what constitutes the hold of smoking, that is, to understand addiction.
The cigarette should be conceived not as a product but as a package. The product is nicotine.

Think of the cigarette pack as a storage container for a day’s supply of nicotine:

Think of the cigarette as a dispenser for a dose unit of nicotine:
Asthma
- High genetic predisposition
- Voluntary and lifestyle choices affect course of illness
- Treatment consists of behavioral changes and medication
- Poor adherence affects outcomes
- Outcomes poorest among patients with more SES and comorbidity problems

Diabetes

Hypertension

Tobacco dependence

McLellan, 2000
Change the paradigm

- Relapse after cessation of treatment for asthma, diabetes, or hypertension seen as evidence for treatment effectiveness

- Relapse after cessation of treatment for tobacco dependence is seen as evidence of treatment failure!
Greatest impact upon the spread of the tobacco epidemic

- Smoke free ordinances
- Price increases
- Marketing restrictions
- Truthful and targeted education
- Treatment
Clinical approaches

- Most people who smoke want to stop

- People who do continue to smoke usually don’t feel capable of stopping and living without cigarettes
Summary

- One in five deaths in US caused by tobacco
- Worldwide epidemic is growing
- Tobacco illnesses include
  - 14 types of cancer
  - Coronary artery disease
  - Lung disease
- Smoking cessation dramatically improves health
- Tobacco dependence is best treated as a chronic illness
Assessment

- Dependence level
- Tobacco type and amount
- Stressors
- Barriers
- Previous quit attempt(s)
- Previous relapse(s)
- Coping skills
- Support
Key Treatment Component
Addiction Information

- Nicotine - highly addictive substance
- Brain chemistry changes
- Affirm the difficulty in stopping
Substance Dependence

DSM-IV

- Tolerance
- Withdrawal
- Substance taken in larger amounts or over a longer period than intended
- Persistent desire or unsuccessful efforts to cut down or control
- Great deal of time spent in activities necessary to obtain or use
• Important social, occupation, or recreational activities given up or reduced because of use

• Continued use despite having had a persistent or recurrent physical or psychological problem caused or exacerbated by substance
Carbon Monoxide Detector

- Measures CO in expired air
- Does not measure lung function
- Objective feedback
- Personalized teaching tool
Pharmacotherapy

Give Patient a Menu of Options

Medication options
Your treatment specialist or other health care provider can help complete this page and discuss recommendations with you.

Nicotine patch
Recommendations:
- mg, daily for __ weeks
- mg, daily for __ weeks
- mg, daily for __ weeks
- mg, daily for __ weeks
- mg, daily for __ weeks

Comments:

Nicotine gum
Recommendations:
- 2 mg
- 4 mg

Comments:

Nicotine lozenge
Recommendations:
- 2 mg
- 4 mg

Comments:

Nicotine inhaler
Comments:

Nicotine nasal spray
Comments:

Bupropion
Available dose:
- 150 mg

Comments:

Varenicline
Available dose:
- 0.5 mg
- 1 mg

Comments:
### Key Treatment Components

#### Cognitive-Behavioral

#### Thoughts
- “Smoking isn’t an option”
- “I happily see myself as a nonsmoker”
- “I can do this.”

#### Behaviors
- Alter routines
- Behavioral substitutes
- Problem-solving skills
Key Treatment Component
Pharmacotherapy

- Rationale for medication(s)
  - Goal is to stop tobacco use
  - Can’t match dose delivery or concentration of nicotine
  - Double the success rate
  - “Takes the edge off” while incorporating behavioral change
Key Treatment Component

Relapse Prevention

- Individualized
- Red flags/high risk situations
- "Fire plan"
- Follow-up
- Support
- Stress management

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Relapse is a Process

Triggers → Lapse → Relapse

Lapse vs. Relapse?
Abstinence-Violation Effect

- Lapse

  ...leads to

- Loss of control

  “I might as well give up”
Individualized Plan

Motivational Interviewing

Next Steps For your Patient

Addiction Concepts
Pharmacotherapy
Cognitive/Behavioral
Relapse prevention
USPHS Guidelines

10 Recommendations

1. Tobacco dependence is a chronic disease
   1. requires repeated intervention
   2. multiple attempts to quit.

2. Systems should identify and treat all tobacco users.

3. Tobacco dependence treatments are effective. Every patient willing should use counseling and medications.

4. Brief tobacco dependence treatment works.
USPHS Guidelines

10 Recommendations

5. Individual, group, and telephone counseling are all effective.

6. All patients should be encouraged to use medications unless contraindicated.

7. Counseling and medication are effective alone and more in combination.
8. Telephone quitline counseling is effective.

9. If a tobacco user currently is unwilling to make a quit attempt, use motivational treatments.

10. Tobacco dependence treatments are both clinically effective and highly cost-effective.

1. Insurers and purchasers should ensure that all insurance plans include counseling and medication as covered benefits.