
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



The tobacco epidemic

- ◆ **Cigarettes cause nearly one in five deaths in US** (Mokdeed 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)

Medical Complications of Tobacco

Cancer

- 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

PRIMARY
MALIGNANT GROWTHS
OF THE
LUNGS AND BRONCHI

A PATHOLOGICAL
AND CLINICAL STUDY

BY

I. ADLER, A.M., M.D.,

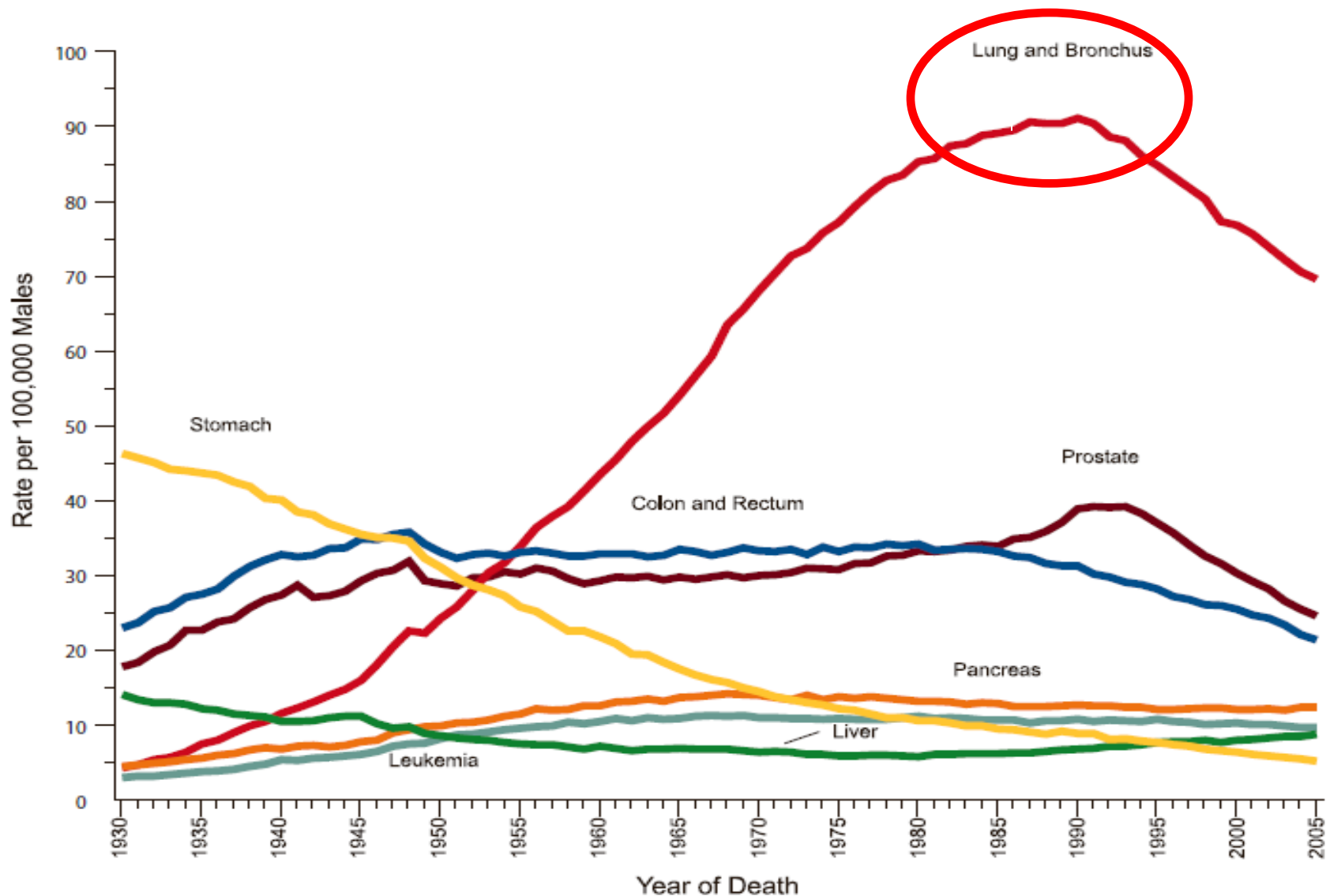
*Professor Emeritus at the New York Polyclinic, Consulting
Physician to the German, Beth-Israel, Har Moriah,
and Peoples Hospitals, and Montefiore
Home and Hospital*

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.

LONGMANS, GREEN, AND CO.
FOURTH AVENUE & 30TH STREET, NEW YORK
LONDON, BOMBAY, AND CALCUTTA
1912

Annual Age-adjusted Cancer Death Rates among Males for Selected Cancers, U.S. 1930-2005

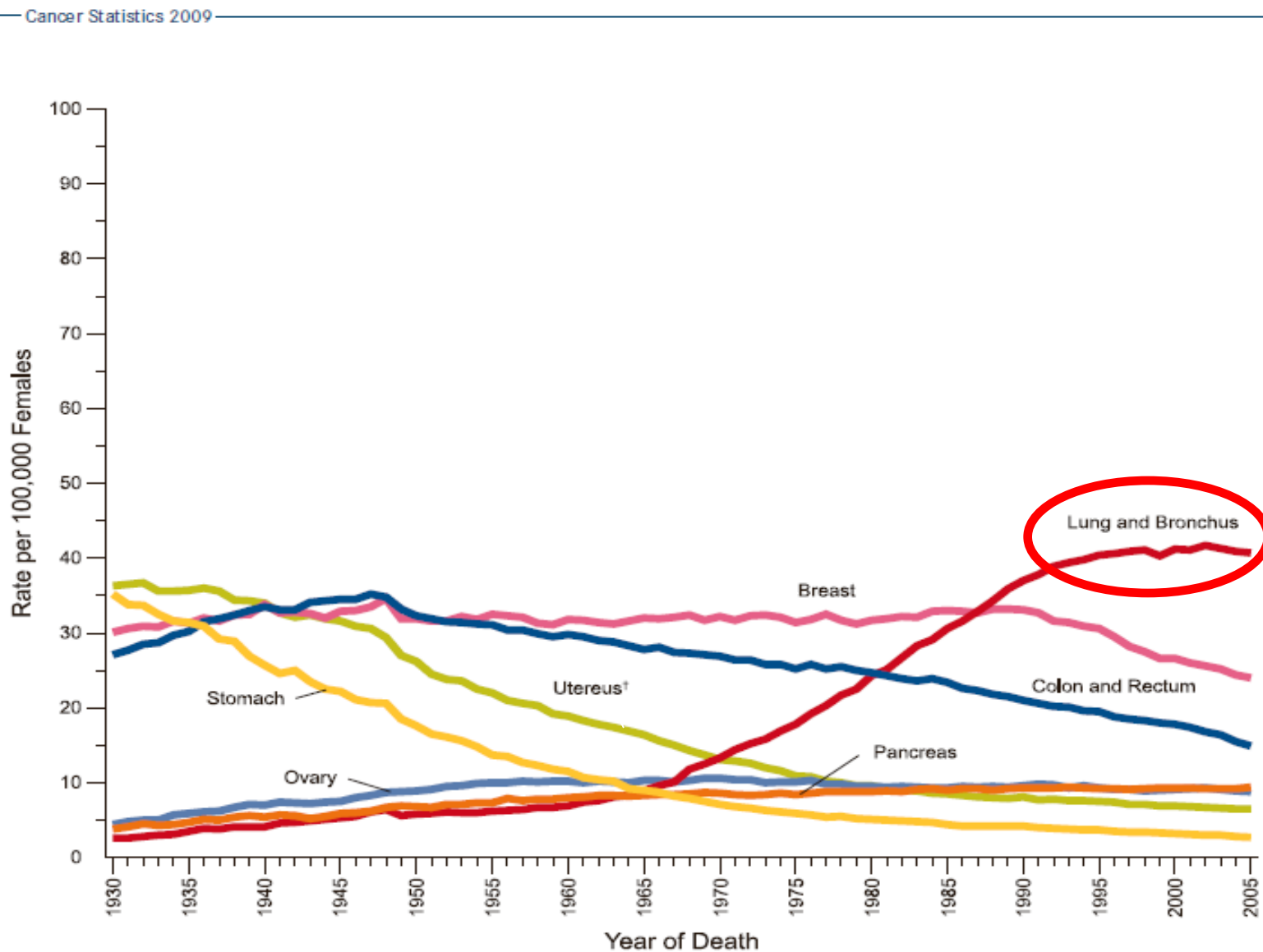
CA CANCER J CLIN 2009;59:000-000



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.

Source: US mortality data, 1960 to 2005, US Mortality Vol. 1930-1959, National Cancer Institute, Centers for Disease Control and Prevention, 2008.

Annual Age-adjusted Cancer Death Rates* among Females for Selected Cancers, U.S., 1930-2005



*Rates are age adjusted to the 2000 US standard population.

†Uterus includes uterine cervix and uterine corpus. Due to changes in ICD coding, numerator information has changed over time. Rates for cancers of the uterus, ovary, lung and bronchus, and colon and rectum are affected by these changes. Source: US mortality data, 1960 to 2005, US Mortality Vol. 1930 to 1959, National Center for Health Statistics, Centers for Disease Control and Prevention, 2008.

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1912



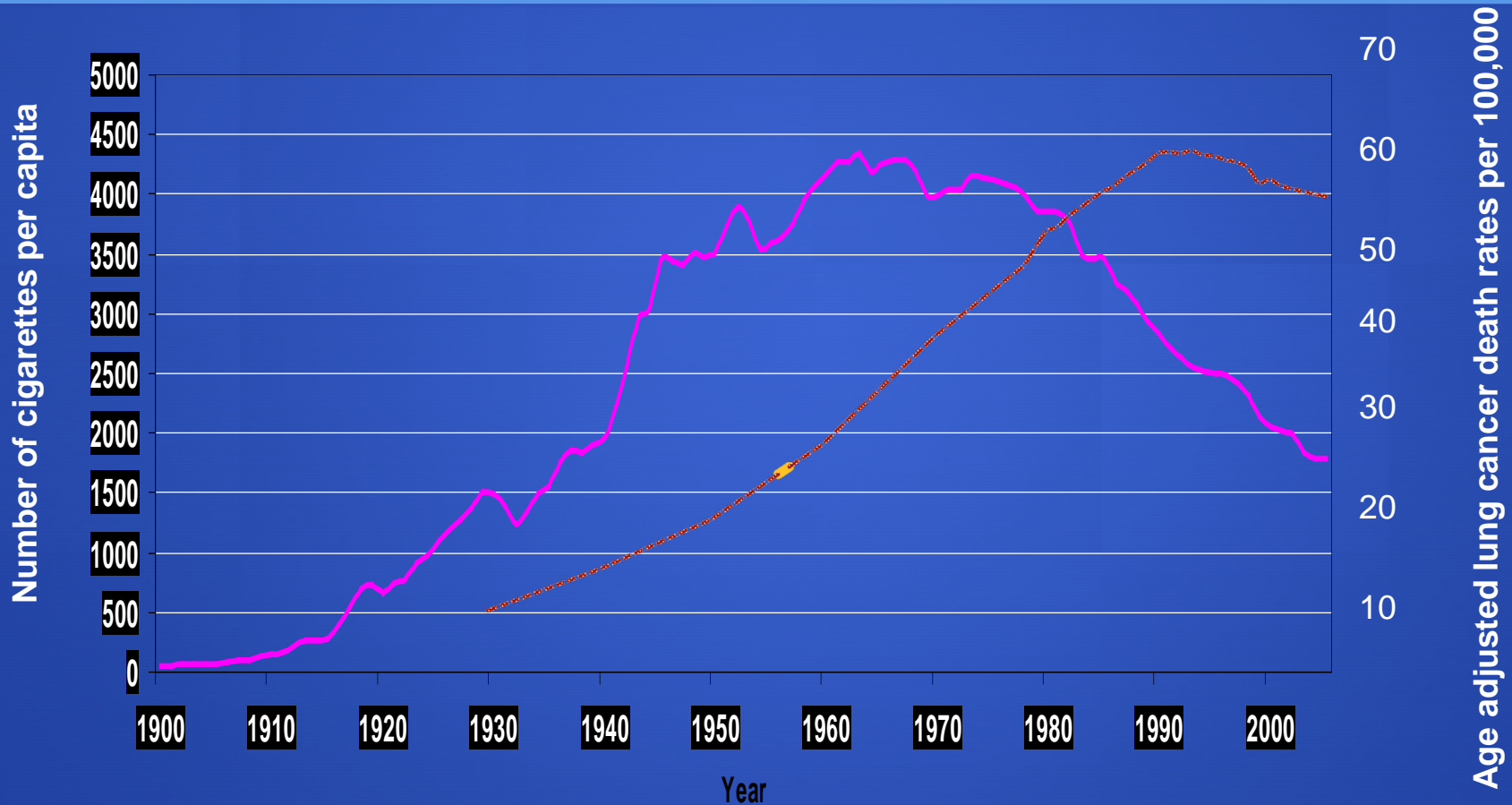
3.) **SMOKED TOBACCO: R.J. REYNOLDS, JR.**
and Patrick's mother **MARIANNE**, c. 1950.



4.) DIED from emphysema on Dec. 16, 1964
R.J. REYNOLDS, JR. in 1962.

1900-2005 U.S. Per Capita Cigarette Consumption

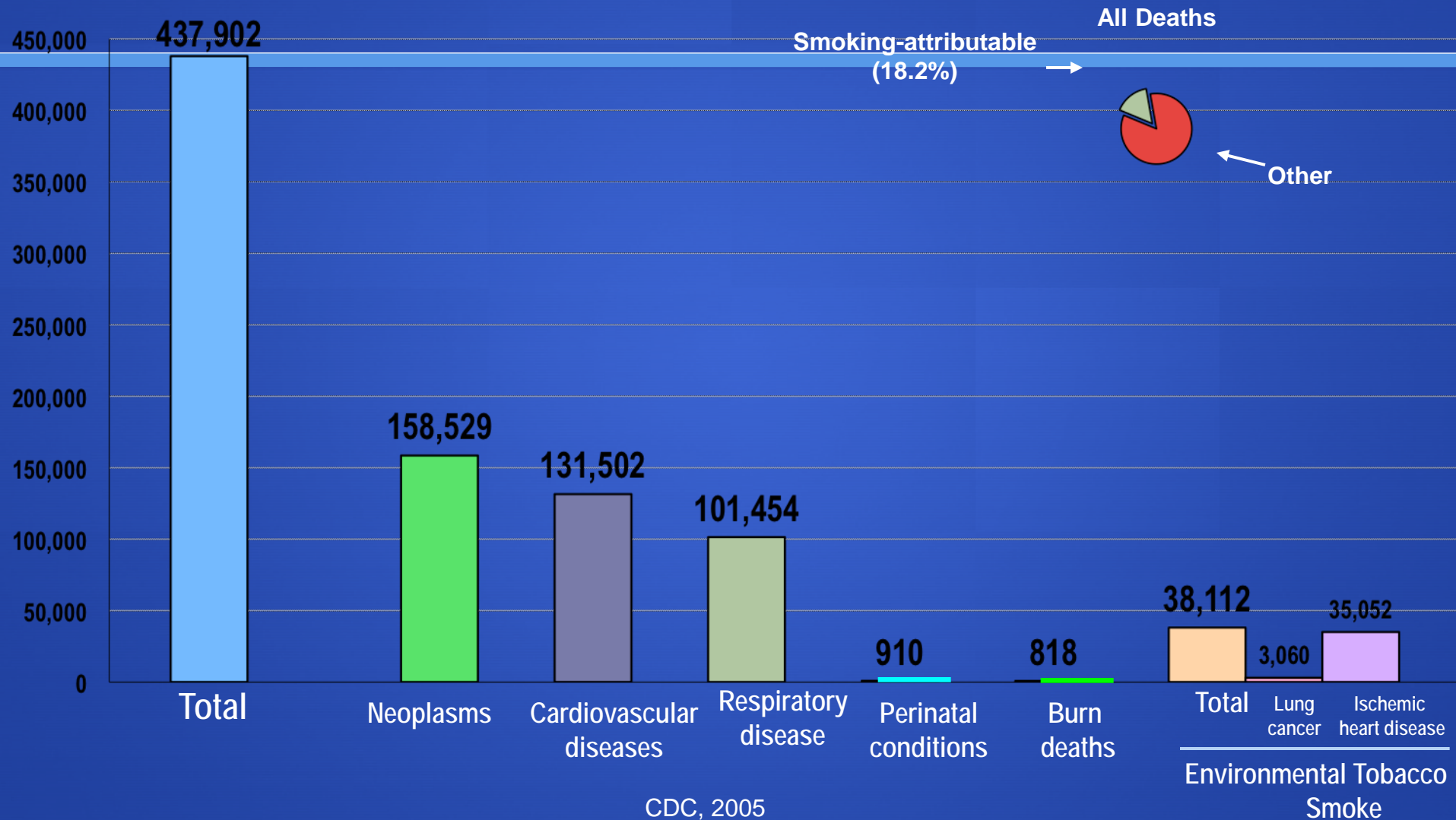
and 1930-2005 Age Adjusted Lung Cancer Death Rate per 100,000



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

Smoking-Attributable Mortality, 1997-2001

Number of average annual deaths



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

Medical Complications of tobacco

Coronary Artery Disease

- 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



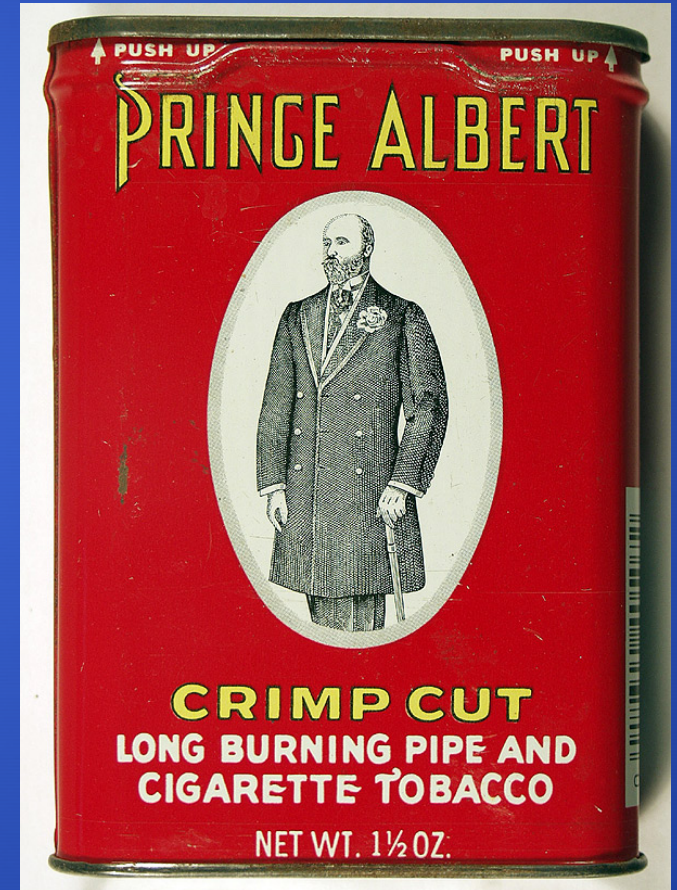
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Economics

- 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

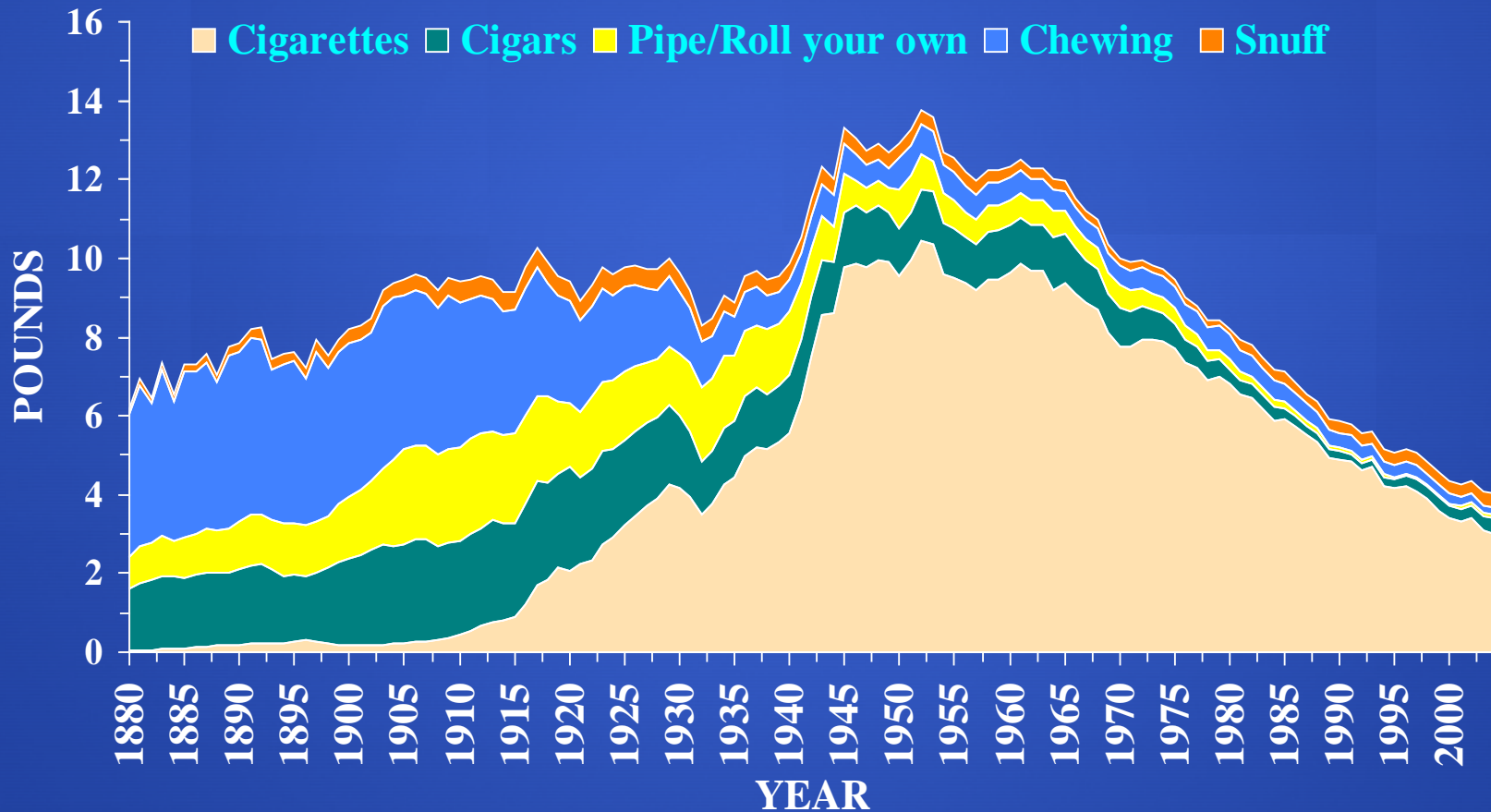
TOBACCO



Precursors to the epidemic

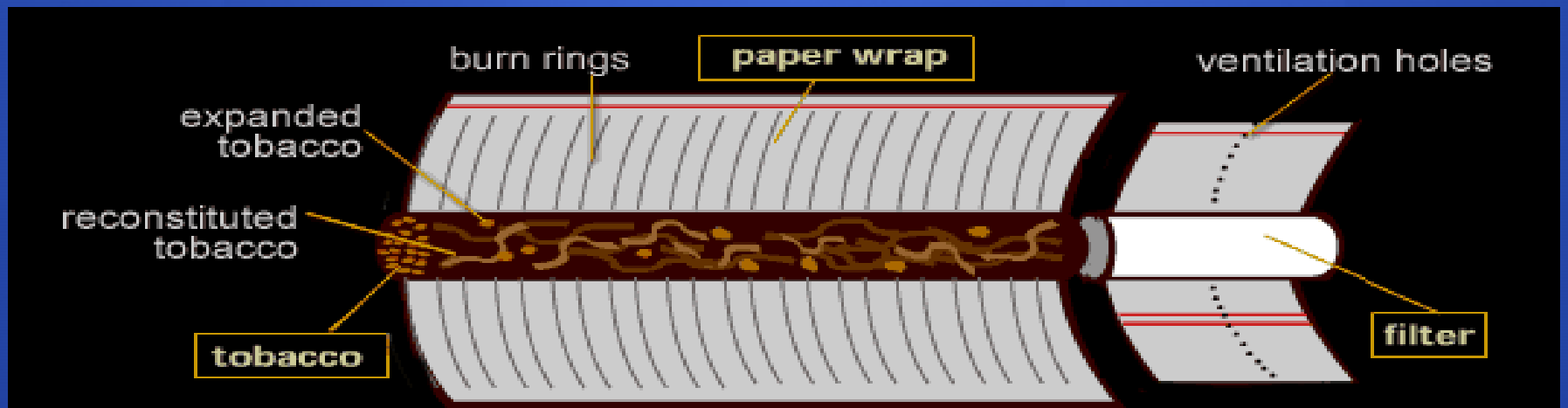
- Mass Production
 - Cigarette rolling machine
- Modern Marketing
 - Salesmanship
 - Advertising
 - Price
 - Product placement
- Portable matches

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.





The important question is whether the harmful aspects, either real or imaginary, will seriously weigh in the public estimation against the benefits. The force of the psychological effects in maintaining smoking are liable to be over-estimated; they are strong if smoking is accepted as a good practice but they are unlikely to be able long to hold the position if smoking were to be condemned on physiological grounds. The important support for smoking comes from the stimulation of the body's stress-resisting mechanisms which, under modern conditions of life, is an essential function. If the absorption of nicotine is made pleasant and attractive this enhances the benefit just as in the case of well prepared and well served food. However, the force of the habit or the strength of addiction is not such as to give any grounds for complacency in the face of alternative methods of stimulating the body to meet stress, and that is just where the danger lies since alternative methods are becoming available. In the last few years there has been a quite remarkable increase in the production of tranquilliser drugs, and while most of these need a doctor's prescription there is already one on free sale in Switzerland [litrium made by Hoffmann La Roche]. If such drugs become more freely available they will compete with nicotine, which is a natural tranquilliser, and will leave smoking primarily dependent on its psychological effects for the maintenance of the habit.

What we need to know above all things is what constitutes the hold of smoking, that is, to understand addiction.

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BAT CO LTD - MINNESOTA TOBACCO LITIGATION

Why then is there not a market for nicotine per se, to be eaten, sucked, drunk, injected, inserted or inhaled as a pure aerosol? The answer, and I feel quite strongly about this, is that the cigarette is in fact among the most awe-inspiring examples of

The cigarette should be conceived not as a product but as a package. The product is nicotine.

which contains the cigarette, which contains the smoke. The smoke is the final package. The smoker must strip off all these package layers to get to that which he seeks.

But consider for a moment what 200 years of trial and error

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:

- 2) Its rate of combustion meters the dispensing rate, setting an upper safe limit for a substance that can be toxic in large doses.
- 3) Dispensing is unobtrusive to most ongoing behavior.

2024273963



Asthma

Diabetes

Hypertension

Tobacco dependence

- ◆ **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**

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

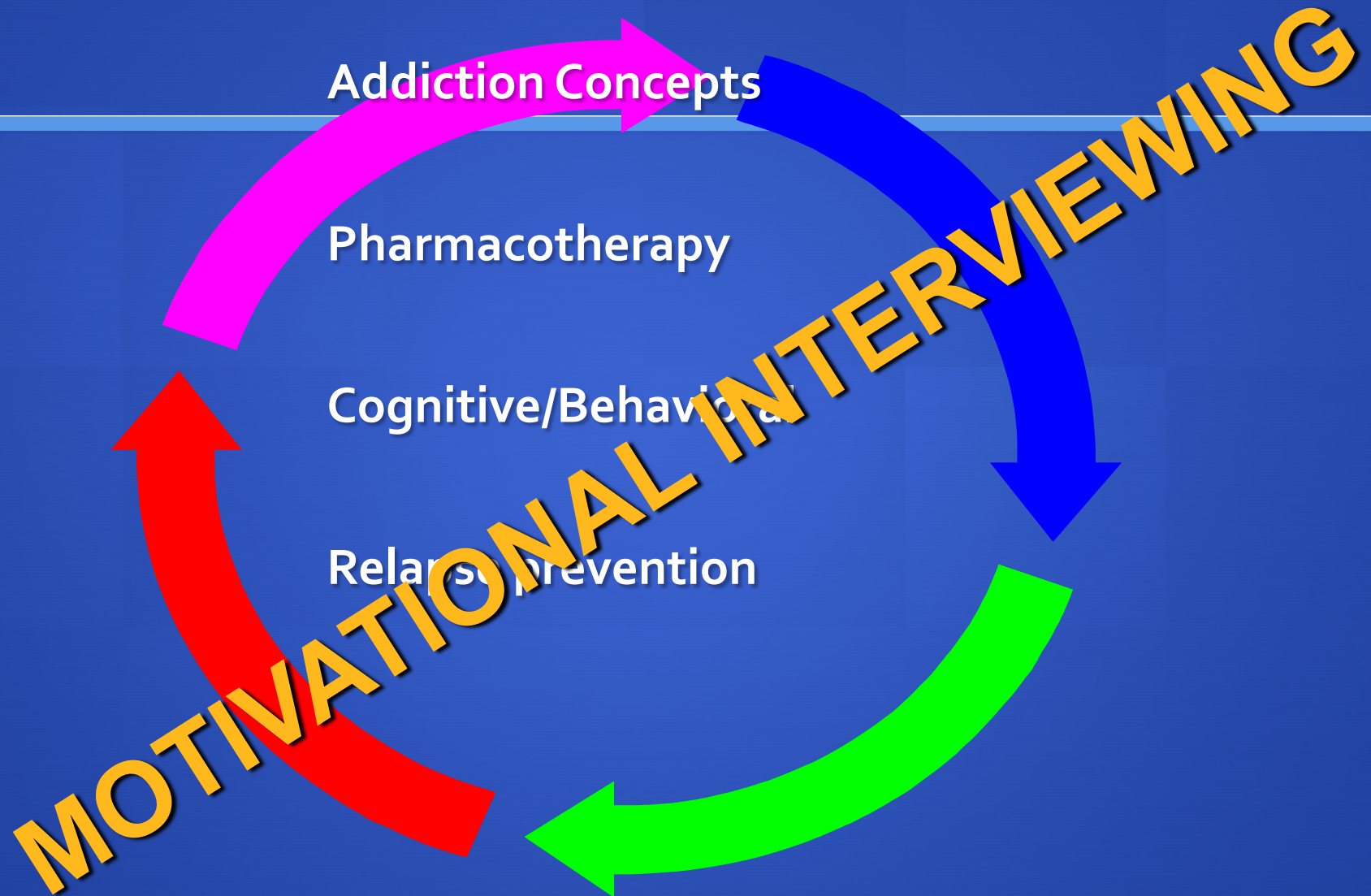
Clinical approaches

- **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

Mayo Model



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

Substance Dependence

DSM-IV (cont)

- 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
___ mg, daily for ___ weeks

Comments:

The suggested taper schedule above can be adjusted if necessary.



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 doses:
150 mg

Comments:



Varenicline

Available doses:
0.5 mg
1 mg

Comments:

Images on pages 14-15 © 2013

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

Relapse is a Process

Triggers

Lapse

Relapse



Lapse vs. Relapse?

Abstinence-Violation Effect

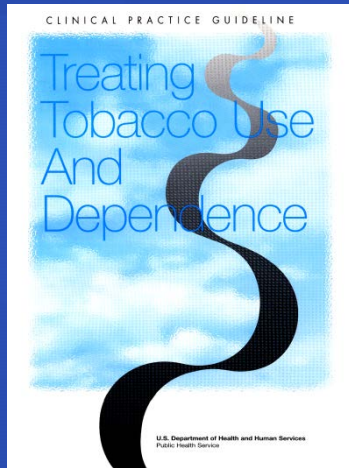
- Lapse

...leads to

- Loss of control

“I might as well give up”

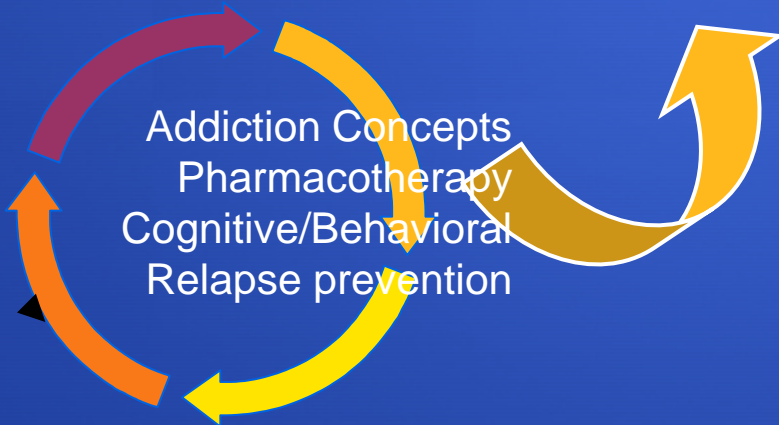
Individualized Plan



Motivational Interviewing



Next Steps
For your Patient



USPHS Clinical Practice Guideline 2008

<http://www.surgeongeneral.gov/tobacco/>

CLINICAL PRACTICE GUIDELINE



Treating Tobacco Use And Dependence

AHRQ Publ 00-0032

U.S. Department of Health and Human Services
Public Health Service

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.

USPHS Guidelines

10 Recommendations

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.