What to Do With a Patient Who Smokes: Bridging the Gap Between the Clinic and the Community

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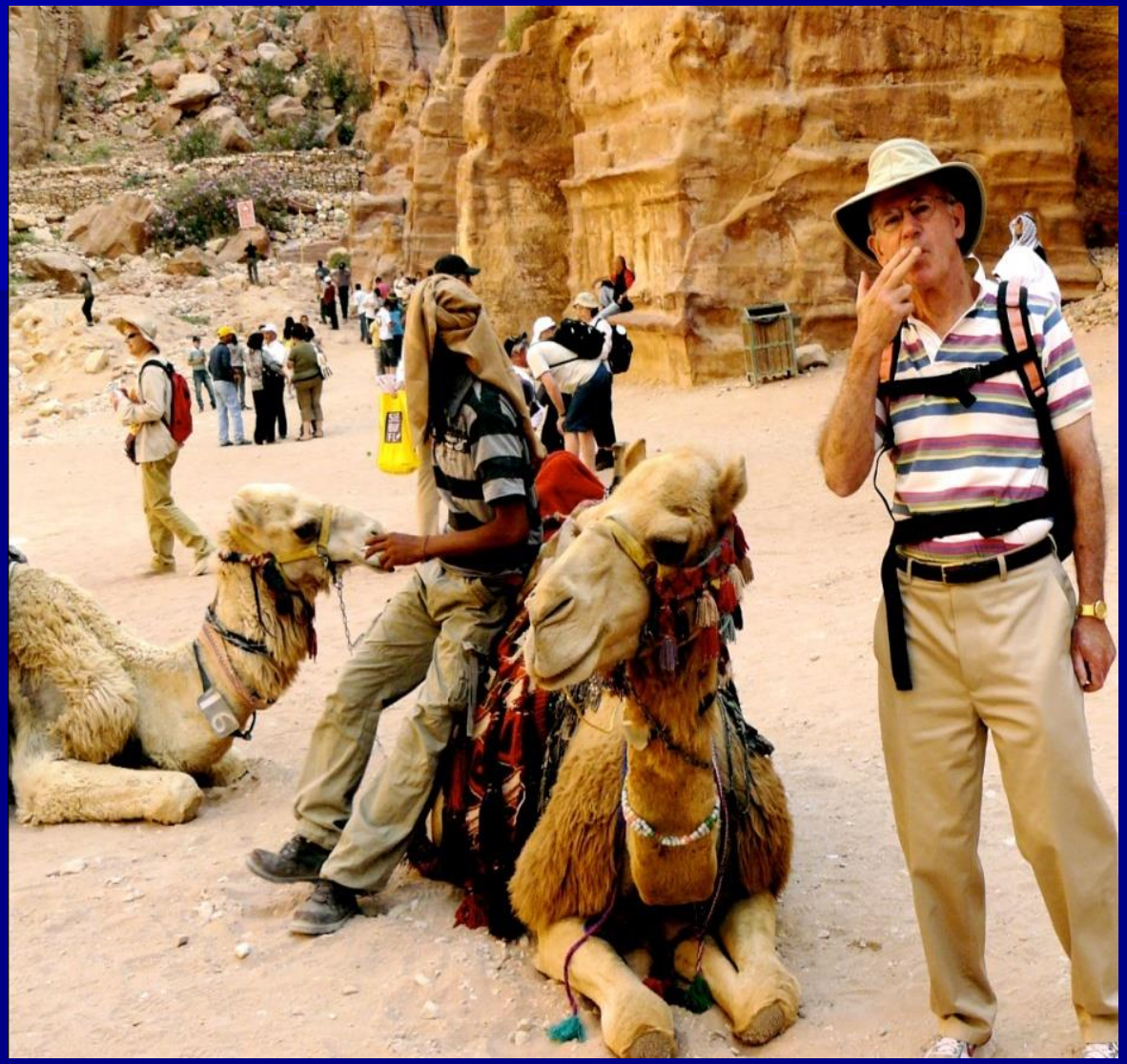
Presentation courtesy of

The Smoking Cessation Leadership Center

and Rx for Change



Topics for Today

- Facts about smoking and health
- Tobacco use epidemiology
- Smoking cessation

  --Nicotine and dependence

  --Aids for cessation

  --Telephone quitlines
- Conclusion and next steps

Facts About Smoking and Health

Tobacco's Deadly Toll

- 443,000 deaths in the U.S. each year
- 4.8 million deaths world wide each year
- 10 million deaths estimated by year 2030
- 50,000 deaths in the U.S. due to second-hand smoke exposure
- 8.6 million disabled from tobacco in the U.S. alone
- 45.3 million smokers in U.S. (78% daily smokers, averaging 15 cigarettes/day, 2010)

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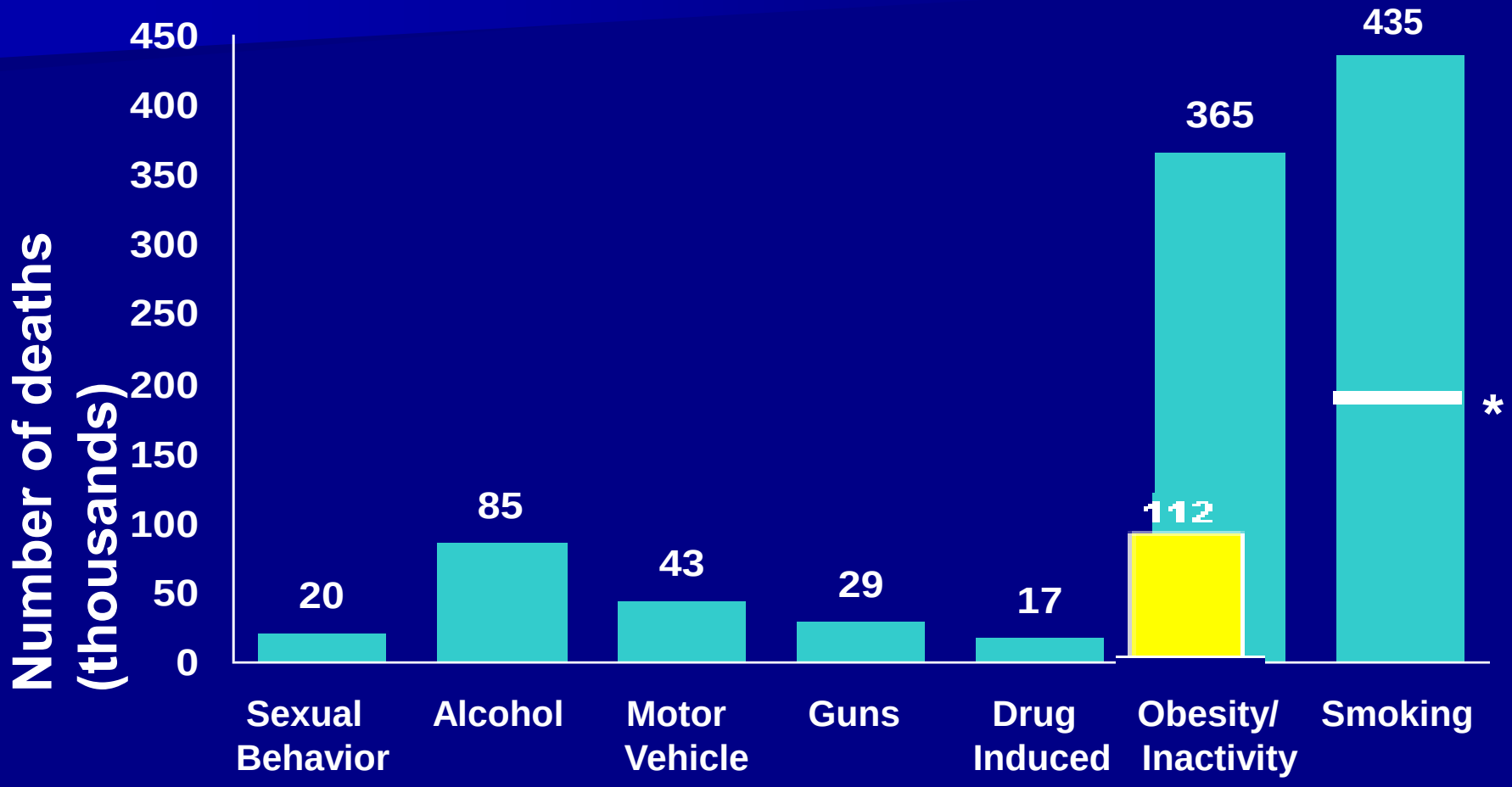
- 43.8 million smokers in U.S. (77.8% daily smokers, averaging 15.1 cigarettes/day, 2011)

Behavioral Causes of Annual Deaths in the United States, 2000



Source: Mokdad et al, JAMA 2004; 291:1238-1245
Mokdad et al; JAMA. 2005; 293:293

* Also suffer from mental illness and/or substance abuse

Annual U.S. Deaths Attributable to Smoking, 2000–2004

		Percent of all smoking-attributable deaths
Cardiovascular diseases	128,497	**29%**
Lung cancer	125,522	**28%**
Respiratory diseases	103,338	**23%**
Second-hand smoke	49,400	**11%**
Cancers other than lung	35,326	**8%**
Other	1,512	**<1%**

TOTAL: 443,595 deaths annually

Centers for Disease Control and Prevention. *MMWR* 2008;571226–1228.

Health Consequences of Smoking

- Cancers
  - Acute myeloid leukemia
  - Bladder and kidney
  - Cervical
  - Esophageal
  - Gastric
  - Laryngeal
  - Lung
  - Oral cavity and pharyngeal
  - Pancreatic
  - Prostate (↑incidence and ↓survival)
- Pulmonary diseases
  - Acute (e.g., pneumonia)
  - Chronic (e.g., COPD)
- Cardiovascular diseases
  - Abdominal aortic aneurysm
  - Coronary heart disease
  - Cerebro-vascular disease
  - Peripheral arterial disease
  - Type 2 diabetes mellitus
- Reproductive effects
  - Reduced fertility in women
  - Poor pregnancy outcomes (e.g., low birth weight, preterm delivery)
  - Infant mortality; childhood obesity
- Other effects: cataract, osteoporosis, periodontitis, poor surgical outcomes, Alzheimers; rheumatoid arthritis; less sleep

U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General,* 2010.

QUITTING: HEALTH BENEFITS

Time Since Quit Date

Circulation improves, walking becomes easier Lung function increases up to 30%	2 weeks to 3 months	
	1 to 9 months	Lung cilia regain normal function Ability to clear lungs of mucus increases Coughing, fatigue, shortness of breath decrease
Excess risk of CHD decreases to half that of a continuing smoker	1 year	
	5 years	Risk of stroke is reduced to that of people who have never smoked
Lung cancer death rate drops to half that of a continuing smoker Risk of cancer of mouth, throat, esophagus, bladder, kidney, pancreas decrease	10 years	
	after 15 years	Risk of CHD is similar to that of people who have never smoked

Never Too Late to Quit*

Age of quitting smoking	Years of life saved
25-34	10
35-44	9
45-54	8
55-64	4

* Jha, NEJM Jan 24, 2013

Smoking and Mental Illness: The Heavy Burden

- 200,000 annual deaths from smoking occur among patients with CMI and/or substance abuse
- This population consumes 44% of all cigarettes sold in the United States

  -- higher prevalence

  -- smoke more

  -- more likely to smoke down to the butt
- People with CMI die on average 25 years earlier than others, and smoking is a large contributor to that early mortality
- Social isolation from smoking compounds the social stigma

Smoking Prevalence by MH Diagnosis

2007 NHIS data

- Schizophrenia 59.1%
- Bipolar disorder 46.4%
- ADD/ADHD 37.2%

Current smoking:

- 1 MH 31.9%
- 2 MH 41.8%
- 3+ MH 61.4%

Grant et al., 2004, Lasser et al., 2000

- Major depression 45-50%
- Bipolar disorder 50-70%
- Schizophrenia 70-90%

Causal Associations with Second-hand Smoke

- Developmental
  - Low birth weight
  - Sudden infant death syndrome (SIDS)
  - Pre-term delivery
  - -- Childhood depression
- Respiratory
  - Asthma induction and exacerbation
  - Eye and nasal irritation
  - Bronchitis, pneumonia, otitis media, bruxism in children
  - Decreased hearing in teens
- Carcinogenic
  - Lung cancer
  - Nasal sinus cancer
  - Breast cancer (younger, premenopausal women)
- Cardiovascular
  - Heart disease mortality
  - Acute and chronic coronary heart disease morbidity
  - Altered vascular properties

There is no safe level of second-hand smoke.

USDHHS. (2006). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: Report of the Surgeon General.*

Compounds in Tobacco Smoke

An estimated 7,000 compounds in tobacco smoke, including 69 proven human carcinogens

Gases

- Carbon monoxide
- Hydrogen cyanide
- Ammonia
- Benzene
- Formaldehyde

Particles

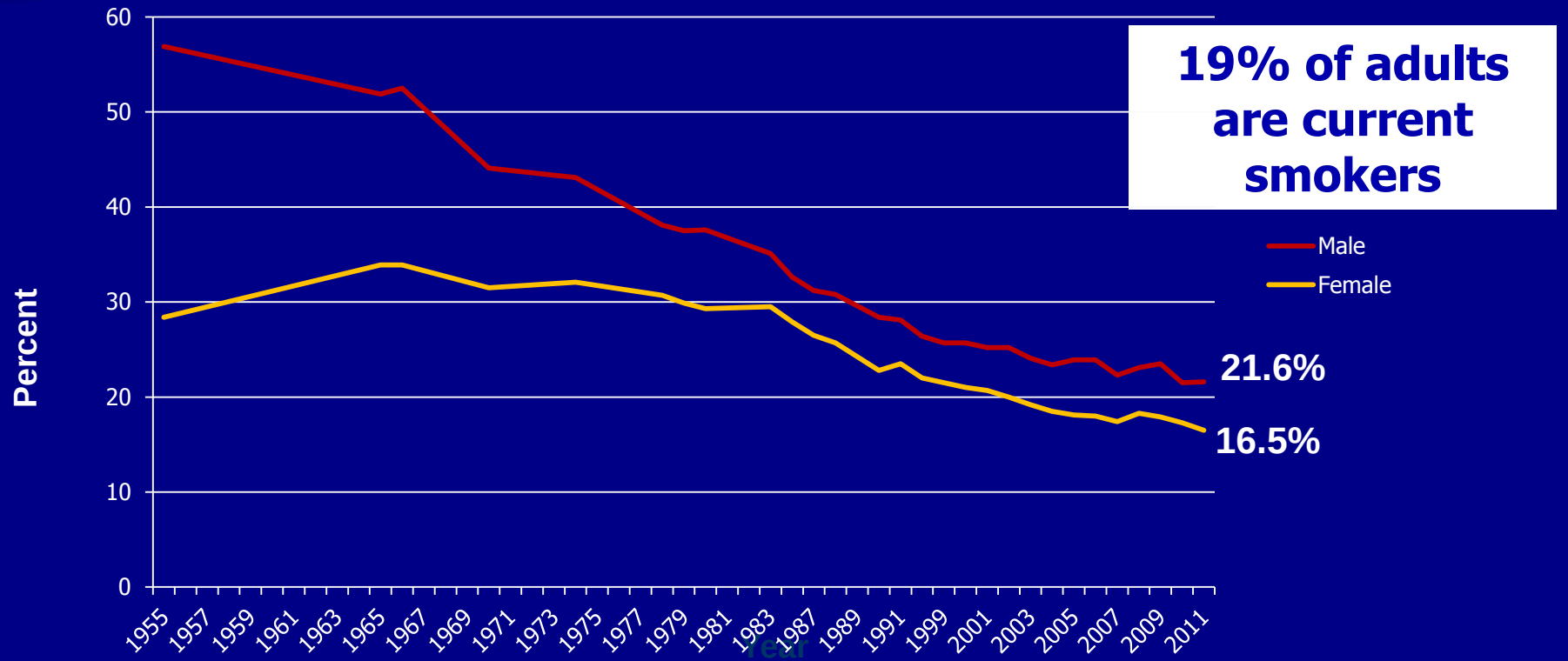
- Nicotine
- Nitrosamines
- Lead
- Cadmium
- Polonium-210

Nicotine does NOT cause the ill health effects of tobacco use.

Epidemiology of Tobacco Use

TRENDS in ADULT SMOKING, by SEX—U.S., 1955–2011

Trends in cigarette current smoking among persons aged 18 or older



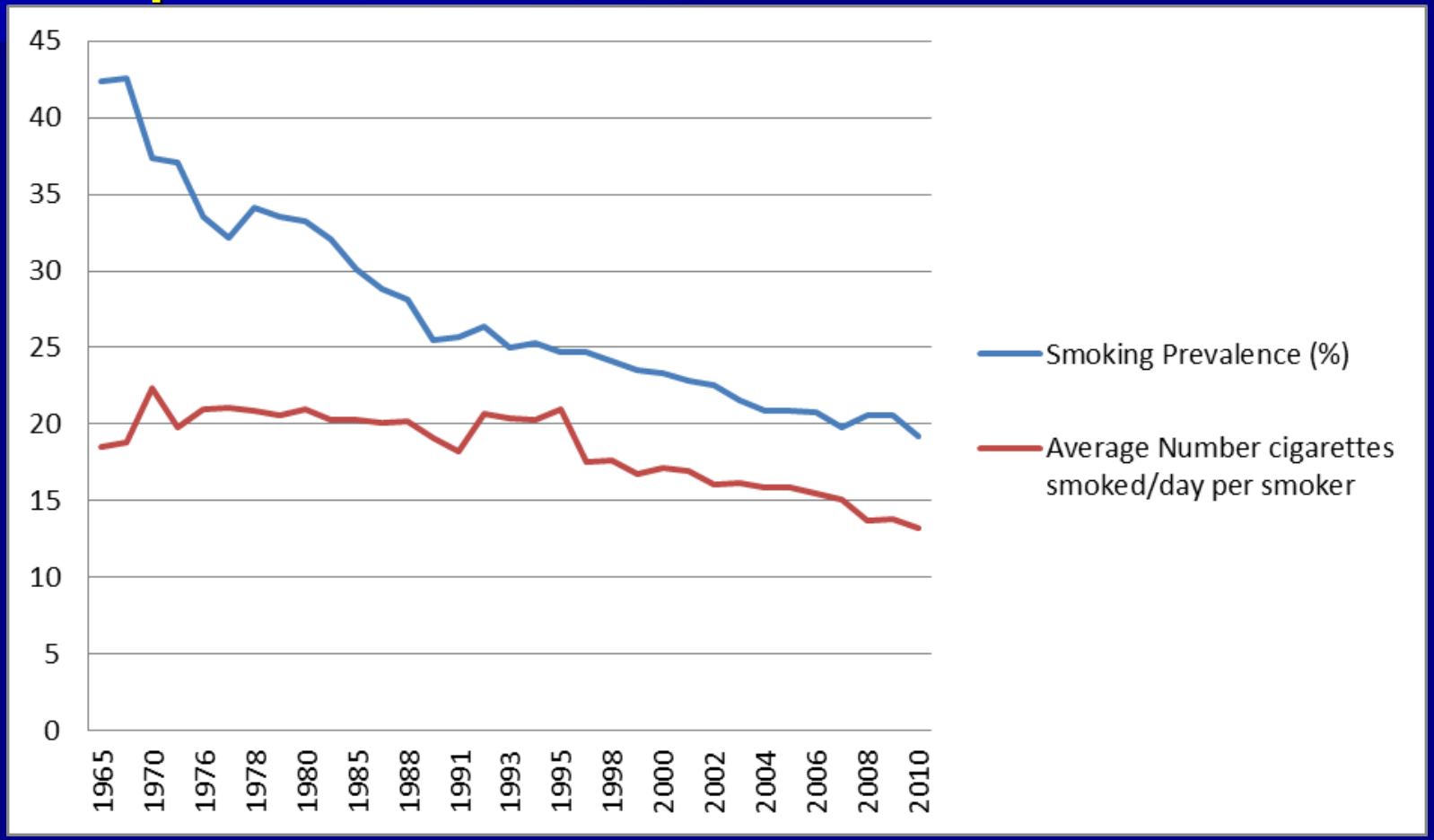
19% of adults are current smokers

70% want to quit

Graph provided by the Centers for Disease Control and Prevention. 1955 Current Population Survey; 1965–2011 NHIS. Estimates since 1992 include some-day smoking.

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

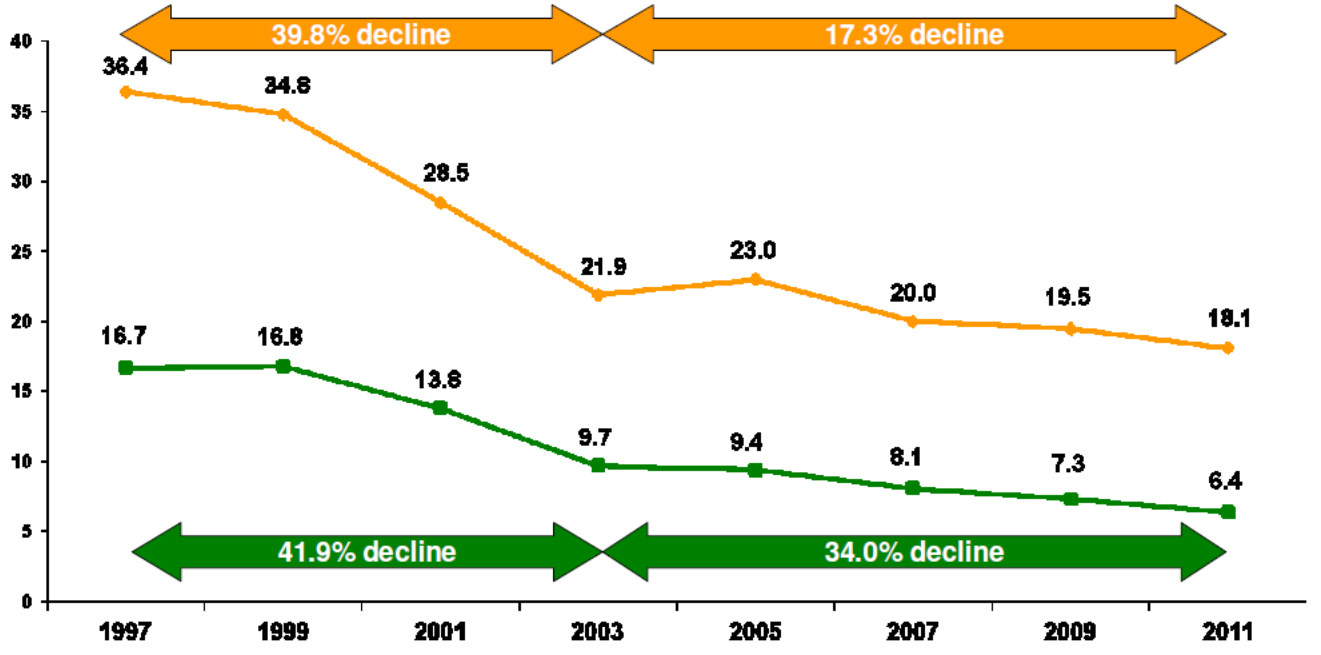
Smoking Prevalence and Average Number of Cigarettes Smoked per Day per Current Smoker 1965-2010



Source: Centers for Disease Control and Prevention (1965-2010). *NHIS*

National Youth Smoking

1997 - 2011

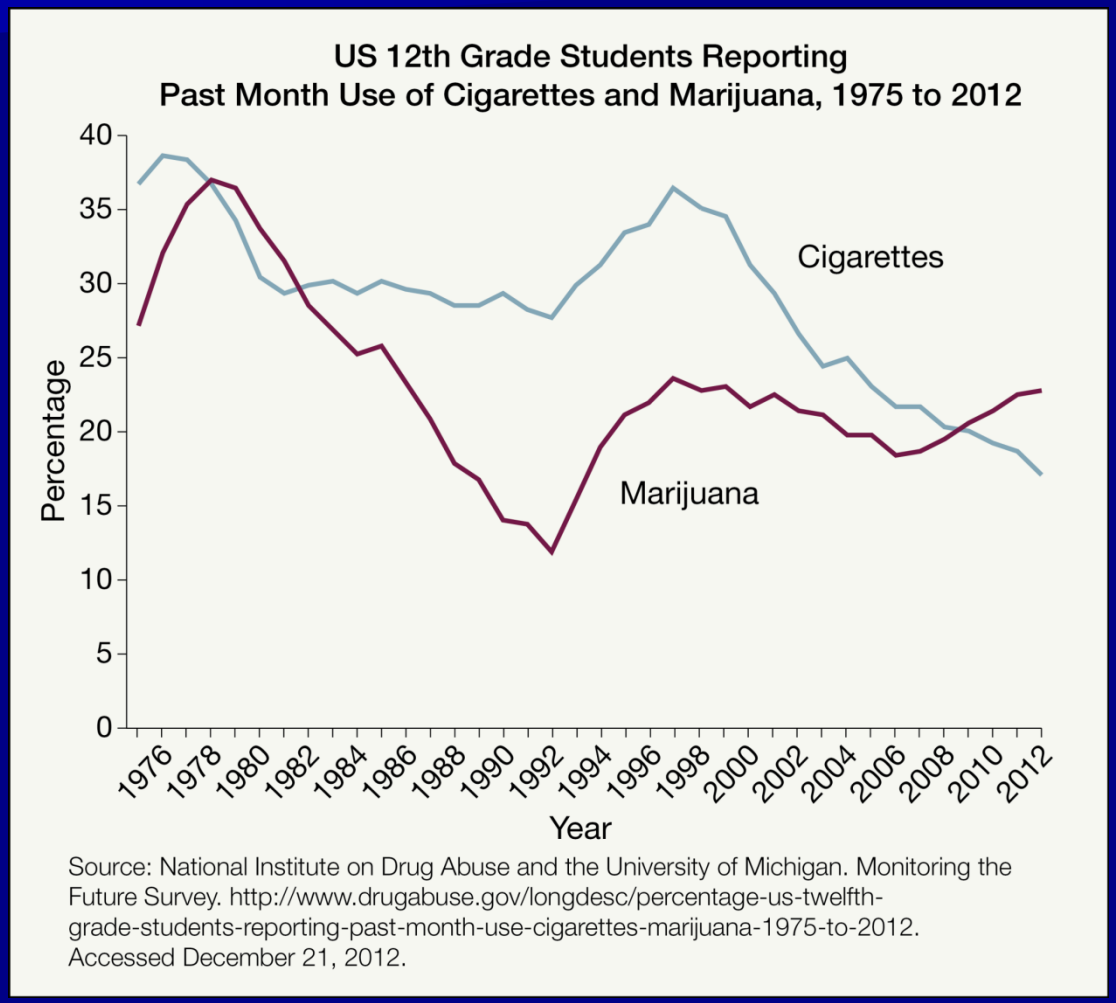


Current cigarette use (smoked cigarettes on at least 1 day during the 30 days before the survey)

Current frequent cigarette use (smoked cigarettes on 20 or more days during the 30 days before the survey)

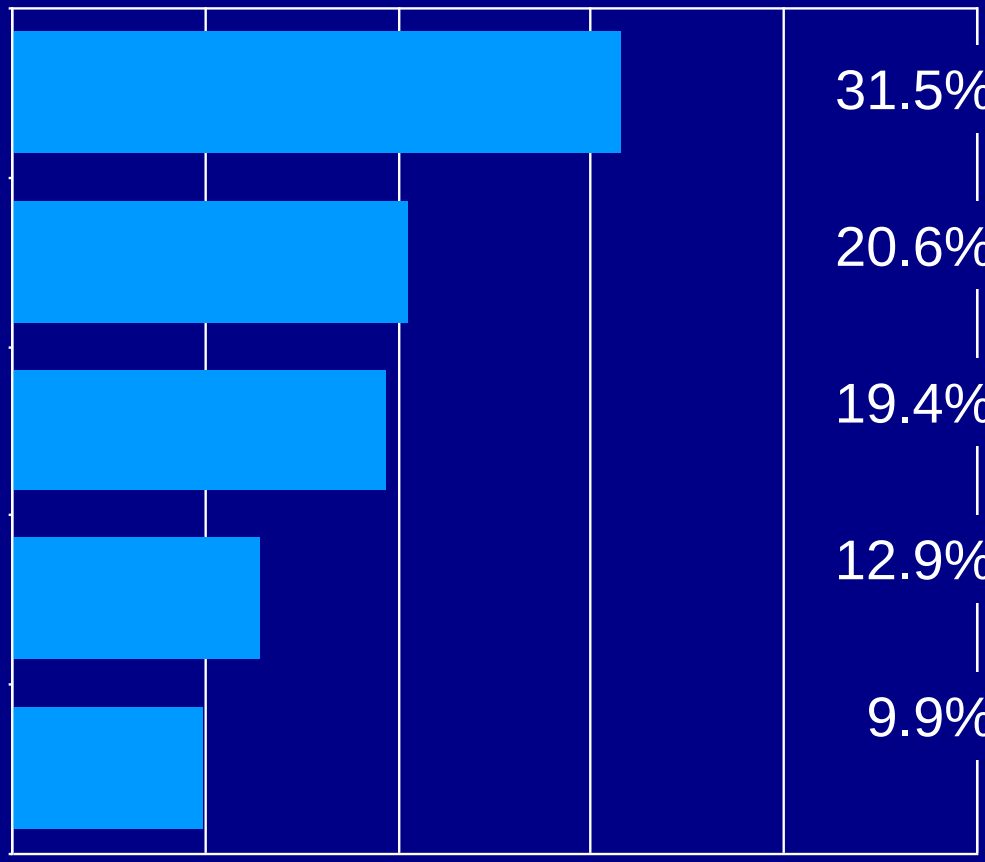
Data are from the Youth Risk Behavior Surveillance Survey

Past Month Use of Cigarettes and Marijuana among US 12th Grade Students, 1975-2012



Source: National Institute on Drug Abuse and the University of Michigan. Monitoring the Future Survey. http://www.drugabuse.gov/longdesc/percentage-us-twelfth-grade-students-reporting-past-month-use-cigarettes-marijuana-1975-to-2012. Accessed December 21, 2012.

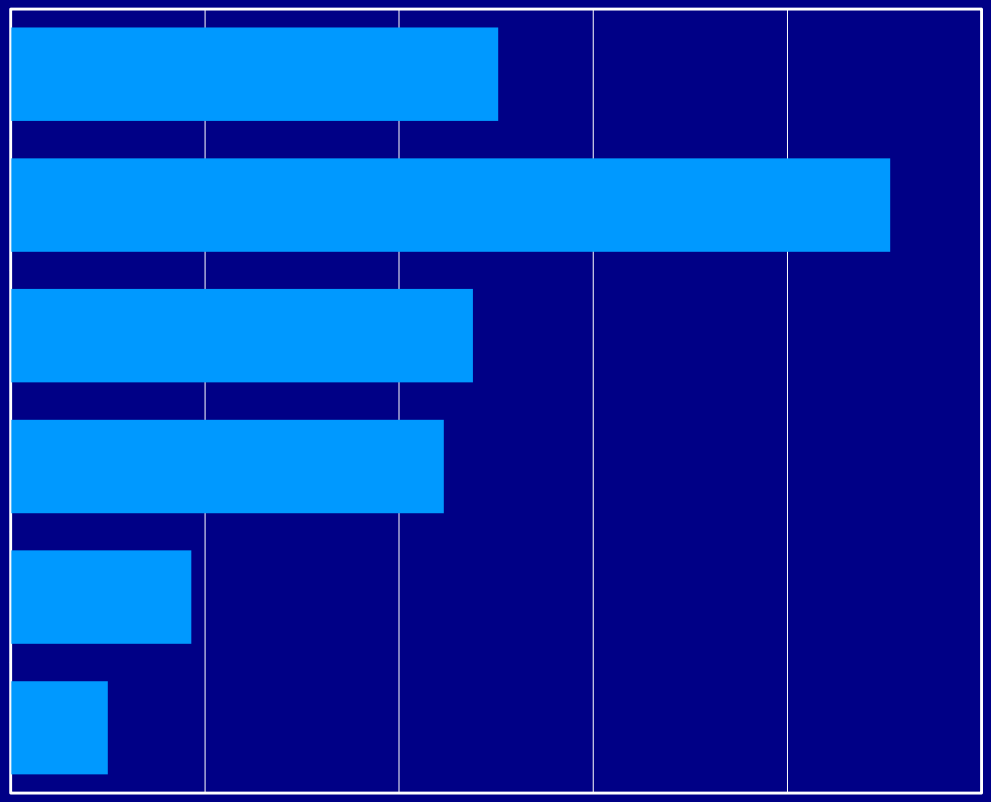
PREVALENCE of ADULT SMOKING, by RACE/ETHNICITY—U.S., 2011



* non-Hispanic.

Centers for Disease Control and Prevention. (2012). *MMWR 61(44);889-894*.

PREVALENCE of ADULT SMOKING, by EDUCATION—U.S., 2011



25.1% No high school diploma

45.3% GED diploma

23.8% High school graduate

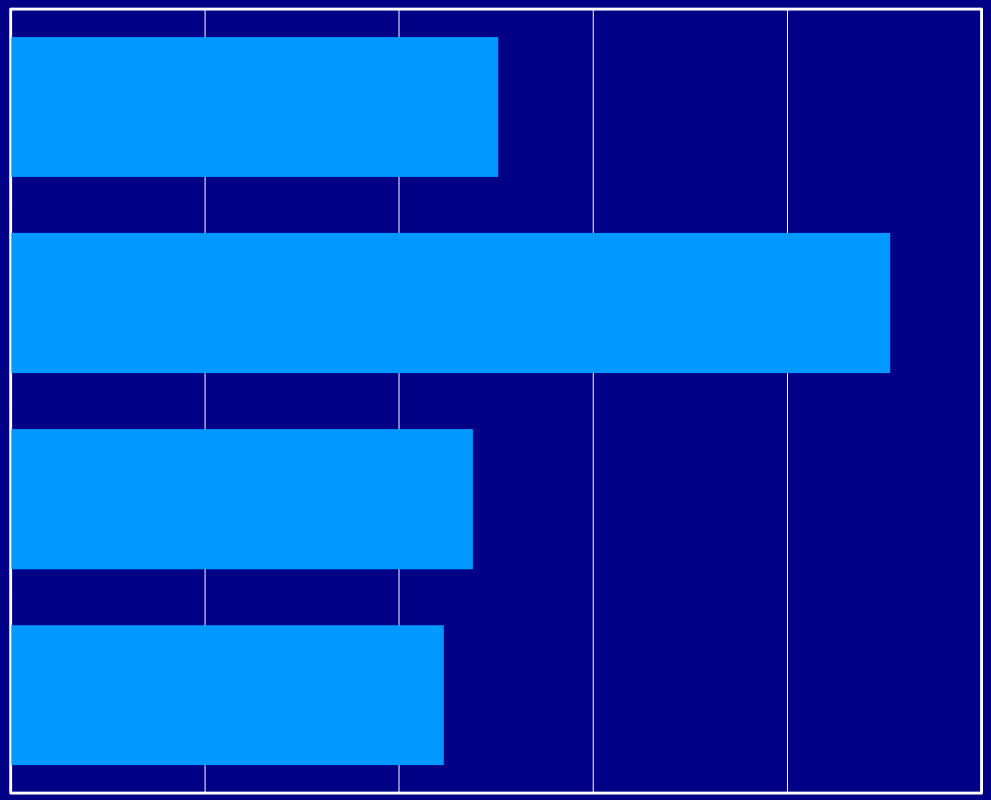
22.3% Some college

9.3% Undergraduate degree

5.0% Graduate degree

Centers for Disease Control and Prevention. (2012). *MMWR 61(44);889-894*.

PREVALENCE of SMOKING, by AGE GROUP—U.S., 2011



25.1%, 18 – 24 yrs

45.3%, 25 – 44 yrs

23.8%, 45 – 64yrs

22.3%, ≥ 65 yrs

Centers for Disease Control and Prevention. (2012). *MMWR 61(44);889-894*.

Number of Smokers =
New Smokers + Old Smokers - Quitters

Number of Quitters =

Number of Quit Attempts X % of Quitters

Clinical Issues

Physicians Under-treat Smokers*

- AAMC survey of 3012 physicians representing FM, GIM, Ob-Gyn, Psych
- Only 1% were current smokers
- 84% asked about smoking
- 86% advised to quit
- 31% recommended NRT
- 17% arranged follow-up
- 7% referred to quitlines

*AAMC-Legacy survey: Physician behavior and practice patterns related to smoking cessation, 2007.

Health Professionals' Smoking Rates, 2004 *

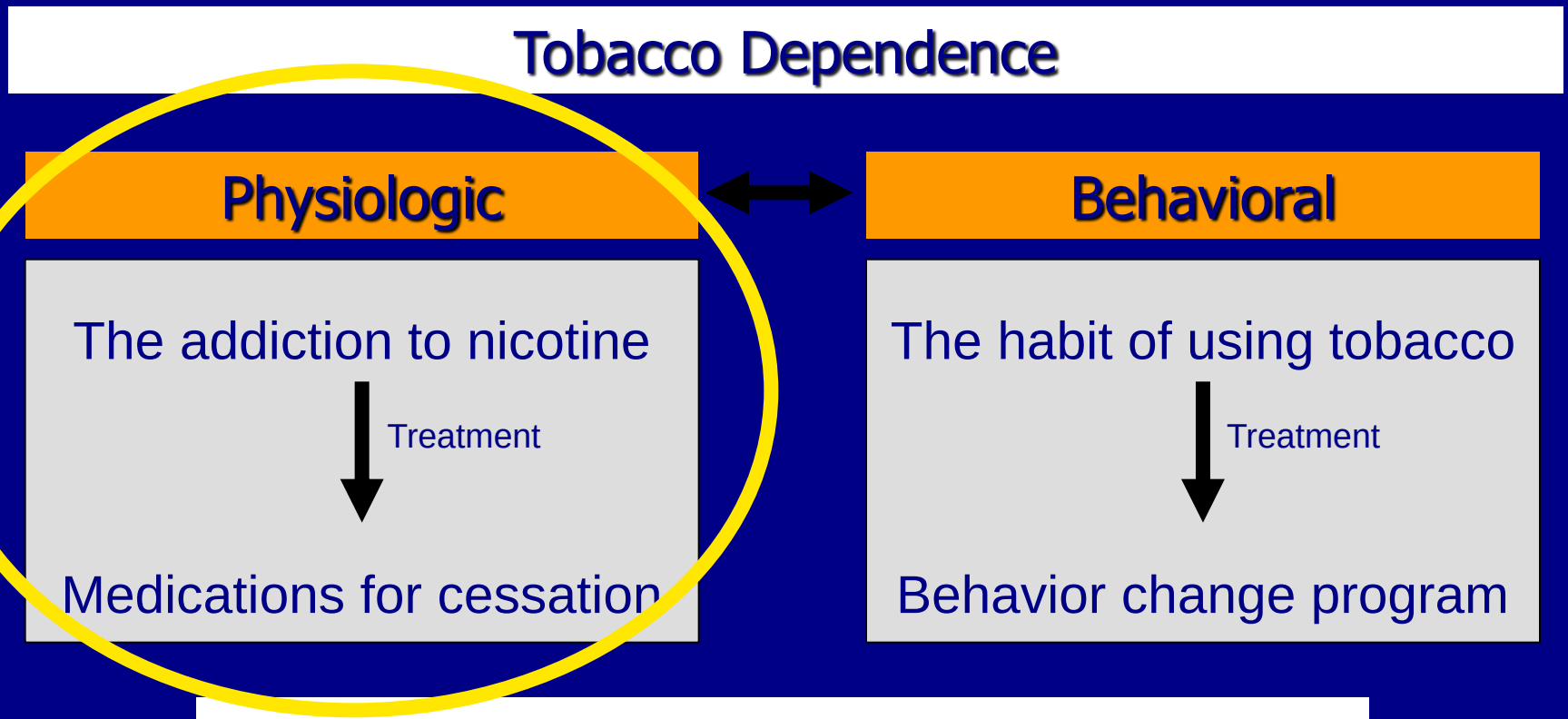
- Primary Care Physicians - 1.7%
- Emergency Physicians - 5.7%
- Psychiatrists - 3.2%
- RN's - 13.2%
- Dentists - 5.8%
- Dental Hygienists - 5.4%
- Pharmacists – 4.5%

* E. Tong et al, Nicotine & Tobacco Research (Nicotine and Tobacco Research, May 27, 2010)

Responses to Patient Who Smokes

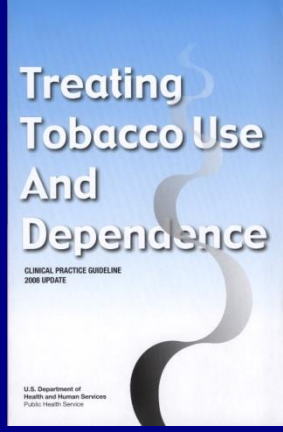
- Unacceptable: "I don't have time."
- Acceptable
  - Refer to a quit line and/or web program
  - Establish systems in your office and hospital
  - Become a cessation expert

TOBACCO DEPENDENCE: A 2-PART PROBLEM



Treatment should address the physiologic and the behavioral aspects of dependence.

The 5 A's: Review



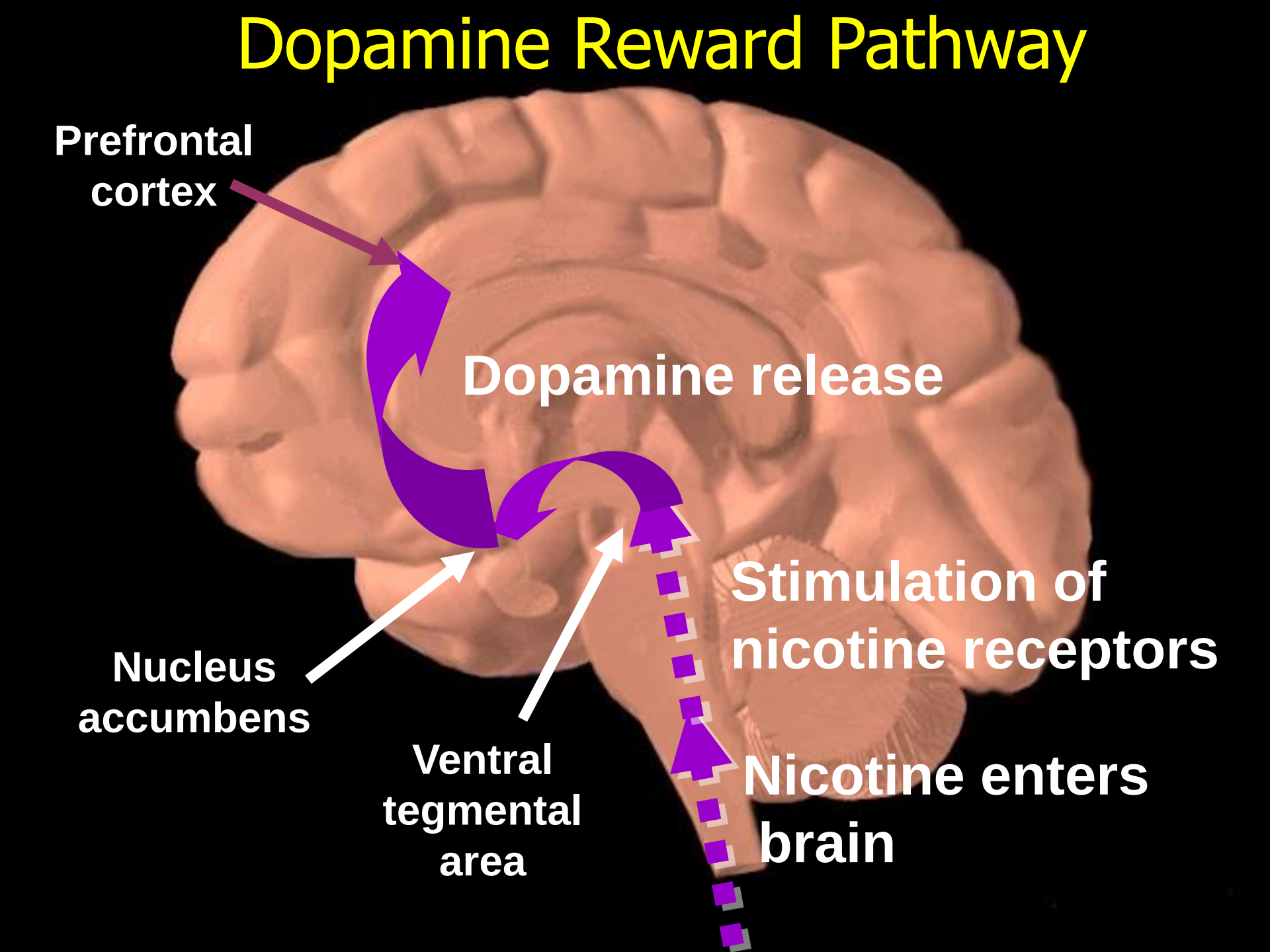
ASK	about tobacco USE
ADVISE	tobacco users to QUIT
ASSESS	readiness to make a QUIT attempt
ASSIST	with the QUIT ATTEMPT
ARRANGE	FOLLOW-UP care

Fiore et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline.* Rockville, MD: USDHHS, PHS, May 2008.

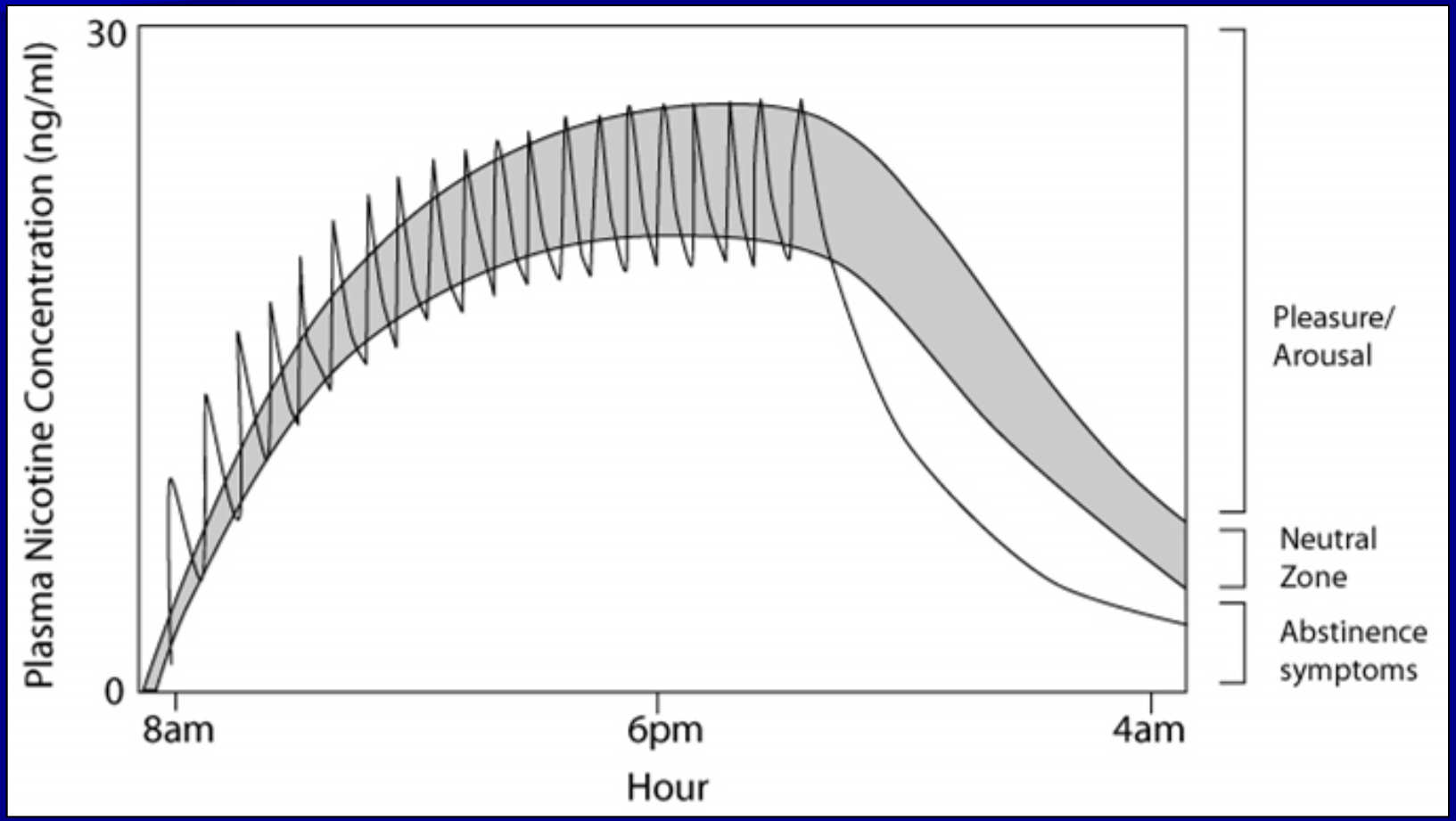
Measurements of Smoking Intensity

- Fagerström Test for Nicotine Dependence
- Biochemical
  - Serum, urinary, or saliva cotinine testing
  - Carbon monoxide testing

Dopamine Reward Pathway



Nicotine Addiction Cycle



The Real Culprit

- It is the smoke, tar, and additives that make people sicken and die.
- Nicotine is dangerous because it leads to addiction, and therefore increased exposure tobacco constituents.
- Therefore, nicotine replacement therapy is helpful, not harmful. It is a "clean" form of nicotine.

Cognitive Strategies for Cessation

- Review commitment to quit, focus on downsides of tobacco use
- Reframe the way a patient thinks about smoking
- Distractive thinking
- Positive self-talks, "pep talks"
- Relaxation through imagery
- Mental rehearsal, visualization

Behavioral Strategies for Cessation (Avoiding Stimuli that Trigger Smoking)

- Stress
  - Anticipate future challenges
  - Develop substitutes for tobacco
- Alcohol
  - Limit or abstain during early stages of quitting
- Other tobacco users
  - Stay away
  - Ask for cooperation from family and friends

Behavioral Strategies for Cessation (Part 2)

- Oral gratification needs
  - Use substitutes: water, sugar-free chewing gum or hard candies
- Automatic smoking routines
  - Anticipate routines and develop alternative plans, e.g., with morning coffee
- Weight gain after cessation
  - Anticipate; use gum or bupropion; exercise
- Cravings
  - Distractive thinking; change activities

SOCIAL SUPPORT for QUITTING

- Key ingredients for successful quitting:
  - Social support as part of treatment (intra-treatment)
  - Social support outside of treatment (extra-treatment)

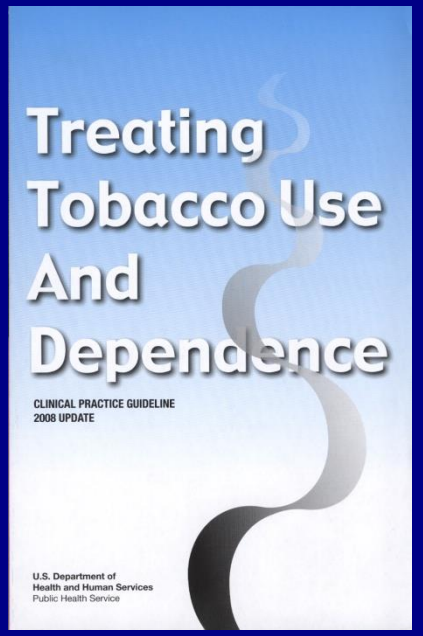
PATIENTS SHOULD BE ADVISED TO:

- Ask family, friends, and coworkers for support – ask them not to smoke around you and not to leave cigarettes out
- Get individual, group, or telephone counseling

Patients who receive social support and encouragement are more successful in quitting

PHARMACOTHERAPY

"Clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations* for which there is insufficient evidence of effectiveness."



** Includes pregnant women, smokeless tobacco users, light smokers, and adolescents.*

Medications significantly improve success rates.

Fiore et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline.* Rockville, MD: USDHHS, PHS, May 2008.

Pharmacologic Methods: First-line Therapies*

Three general classes of FDA-approved medications for smoking cessation:

- Nicotine replacement therapy (NRT)
  -- nicotine gum, patch, lozenge, nasal spray, inhaler
- Partial nicotine receptor agonist
  -- varenicline
- Psychotropics
  -- sustained-release bupropion

* Counseling plus meds better than either alone

Currently, no medications have an FDA indication for use in spit tobacco cessation.

VARENICLINE

- Chantix, marketed by Pfizer
- Partial nicotinic receptor agonist
  - Approved by the FDA May 2006, hit the market in the fall of 2006
  - Much DTC marketing in fall of 2007
- Good results as seen with quit rates
- Lessens withdrawal symptoms and inhibits the "buzz" from a smoke
- But may have rare though serious side affects: suicides and heart episodes
- In March 2013, Pfizer settled suicide law suits for $288 million

Combination Therapy

- Combination NRT
  - Long-acting formulation (patch)
    - Produces relatively constant levels of nicotine

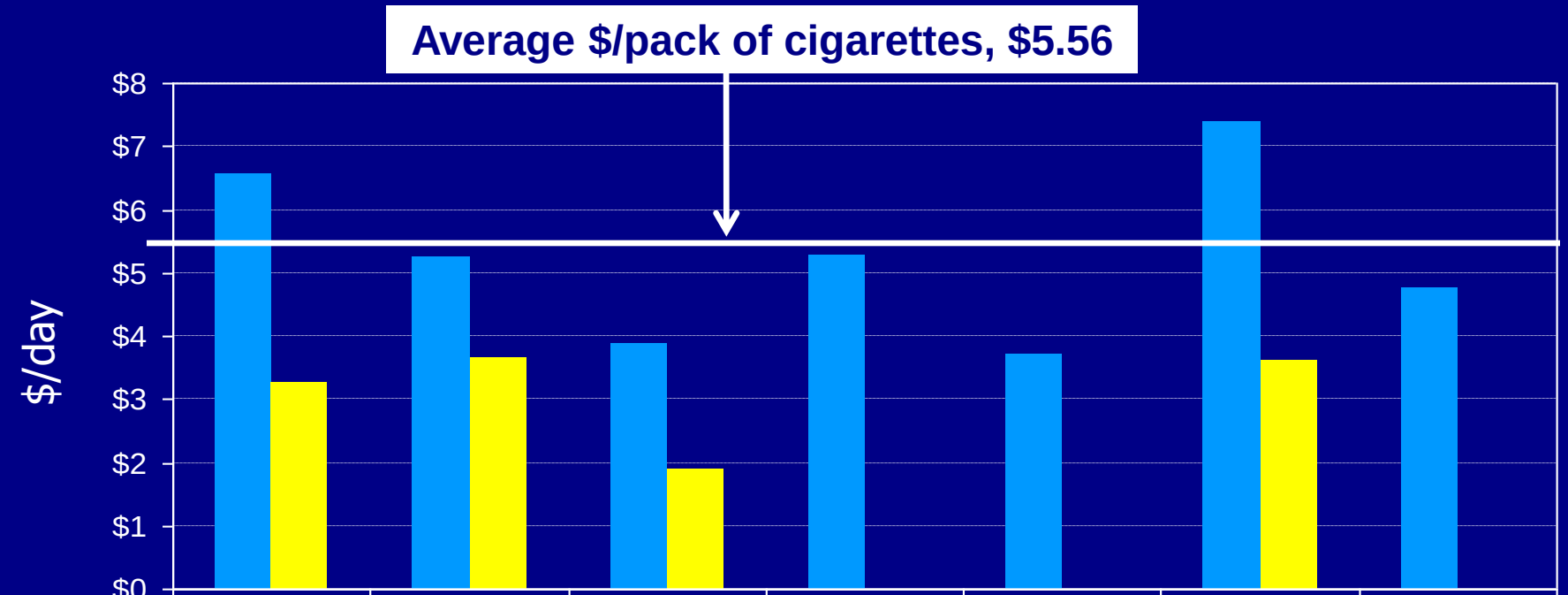
    PLUS
  - Short-acting formulation (gum, lozenge, inhaler, nasal spray)
    - Allows for acute dose titration as needed for withdrawal symptoms
- Bupropion SR + NRT
- The safety and efficacy of combination of varenicline with NRT or bupropion has not been established.

Because many of the remaining smokers are very addicted, use of combination therapies is becoming normalized.

Combination Therapy for the Heavily Addicted Smoker—Mayo Clinic Style

- Nicotine patch
  - Strongest dose, can use more than one
- Shorter acting nicotine replacement
- Bupropion SR

COMPARATIVE DAILY COSTS of PHARMACOTHERAPY

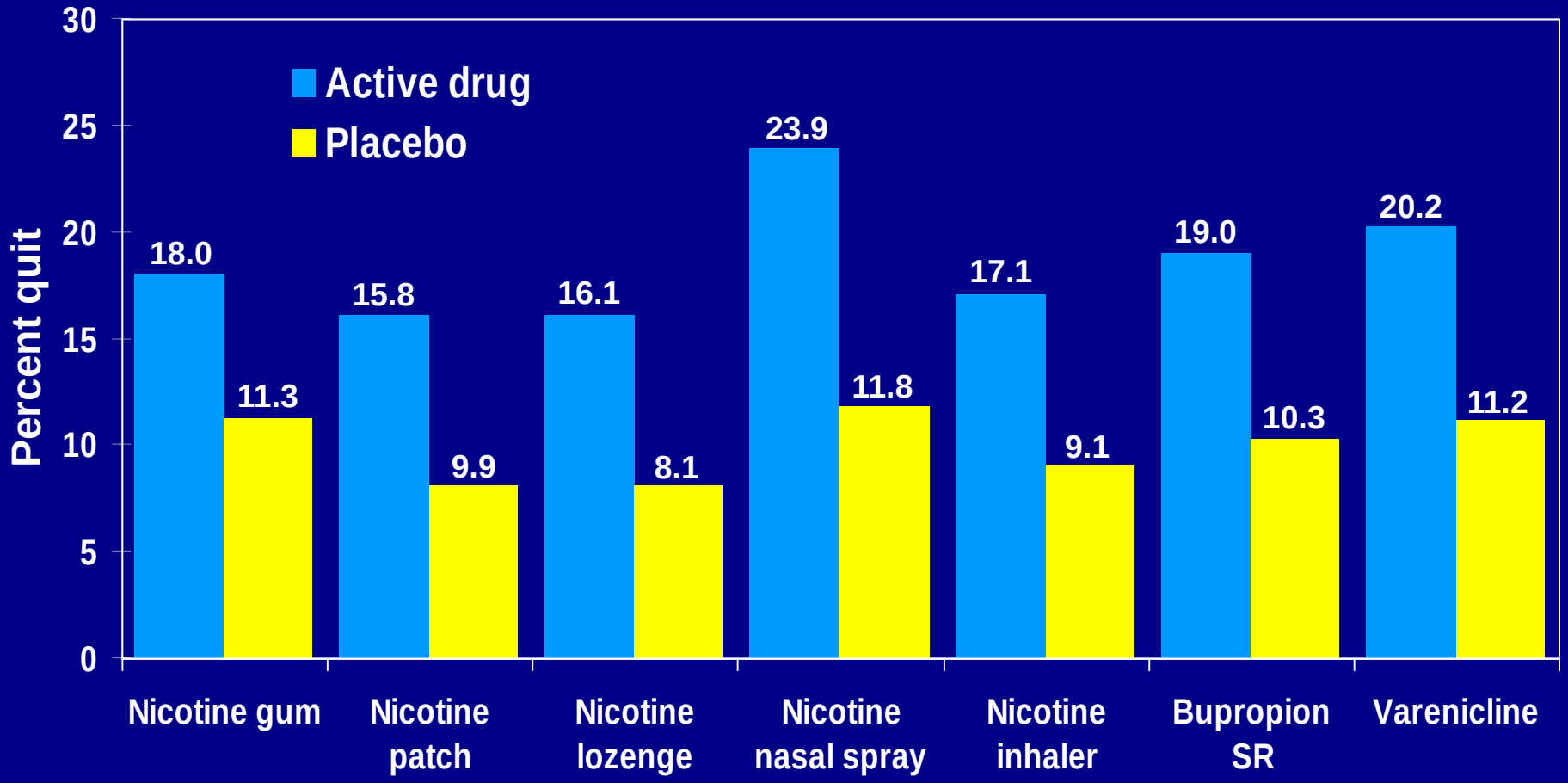


	Gum	Lozenge	Patch	Inhaler	Nasal spray	Bupropion SR	Varenicline
Trade	$6.58	$5.26	$3.89	$5.29	$3.72	$7.40	$4.75
Generic	$3.28	$3.66	$1.90	-	-	$3.62	-

Caveats About Cessation Literature

- Smoking should be thought of as a chronic condition, yet drug treatment often short (12 weeks) in contrast to methadone maintenance
- Great spectrum of severity and addiction; treatment should be tailored accordingly
- Volunteers for studies likely to be more motivated to quit
- Placebo and drug groups tend to have more intensive counseling than found in real practice world; and counseling is not a monolithic black box
- Most drug trials exclude patients with mental illness

LONG-TERM (≥6 month) QUIT RATES for AVAILABLE CESSATION MEDICATIONS



Data adapted from Cahill et al. (2008). *Cochrane Database Syst Rev;* Stead et al. (2008). *Cochrane Database Syst Rev;* Hughes et al. (2007). *Cochrane Database Syst Rev*

Questions About Light Smokers

- Do smoking cessation medications work? Probably, at least for those who smoke more than 5 per day.
- Nicotine addiction not as important. So why can't they quit, what are the reinforcers?
- Why are they concentrated among young adults?

Myths About Smoking and Mental Illness*

- Tobacco is necessary self-medication (industry has supported this myth)
- They are not interested in quitting (same % wish to quit as general population)
- They can't quit (quit rates same or slightly lower than general population)
- Quitting worsens recovery from the mental illness (not so; and quitting increases sobriety for alcoholics)
- It is a low priority problem (smoking is the biggest killer for those with mental illness or substance abuse issues)

* Prochaska, NEJM, July 21, 2011

What Are "Tobacco Quitlines"?

- Tobacco cessation counseling, provided at no cost via telephone to all Americans
- Staffed by trained specialists
- Up to 4–6 personalized sessions (varies by state)
- Some state quitlines offer nicotine replacement therapy at no cost (or reduced cost)
- Up to 30% success rate for patients who complete sessions

Most health-care providers, and most patients, are not familiar with tobacco quitlines.

California's 1-800-NO BUTTS

The National Quitline Card

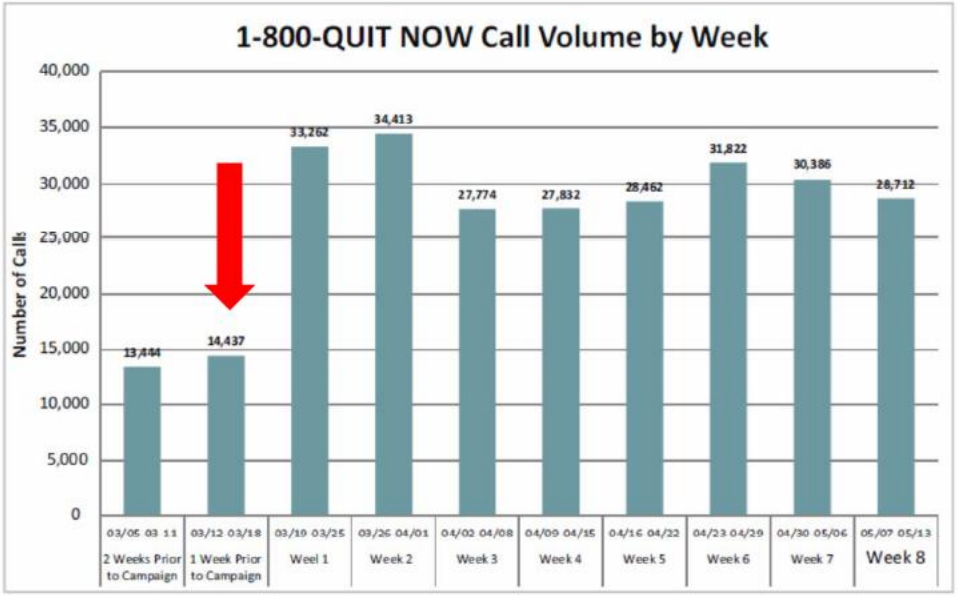
Efficacy and Average Sample Size of Tobacco Cessation Studies Reviewed by the Cochrane Library†

Type of Intervention	Odds Ratio (95% CI*)	Average Sample Size, per trial
Nicotine Replacement Therapy (NRT, n=98*)	1.74 (1.64, 1.86)	385
Telephone Counseling (TC, n=13*)	1.56 (1.38, 1.77)	1,100

*n indicates number of studies; CI. Confidence interval.

†Based on Silagy et al. (2004) and Stead et al. (2004). *The Cochrane Library.*

TIPS Campaign 2012



Source: CDC & North American Quitline Consortium

Photos from: http://www.cdc.gov/tobacco/campaign/tips/

Online Smoking Cessation Assistance

- Online smoking cessation services now available for smokers who prefer using computers over telephones
- Anonymity is a plus, as with telephone quitlines
- Early studies show promising efficacy
  - www.quitnet.com
  - www.smokefree.gov
  - www.becomeanex.org

www.becomeanex.org

Conclusion and Next Steps

Tips for Your Office

- Referral forms to the quitline (1-800-QUITNOW)
- Carbon monoxide breathalyzer (cost about $500 plus disposal mouthpieces)
- One key question to ask: "When do you have your first cigarette of the day?"
- Approach smoking as a chronic illness

Tobacco Tipping Point?

- California 11.9% adult smoking prevalence in 2010
- National prevalence at modern low—19%!
- Smokers smoke fewer cigarettes
- Northern California Kaiser Permanente at 9%
- Physician smoking prevalence at 1%

Tobacco Tipping Point (2)

- Proliferation of smoke-free areas
- Higher insurance premiums for smokers
- April 2009 62 cent/pack federal tax increase
- Lung cancer deaths in women start to fall
- Increasing stigmatization of smoking
- National mass media campaigns—FDA and CDC—in 2012

Australian Health Minister

"We are killing people by not acting."

Nicola Roxon, 2009

The Electronic Cigarette *

- Aerosolizes nicotine in propylene glycol soluent
- Cartridges contain about 20 mg nicotine
- Safety unproven, but >cigarette smoke
- Bridge use or starter product?
- Probably deliver < nicotine than promised
- Not approved by FDA
- My advice: avoid unless patient insists

* Cobb & Abrams. NEJM July 21, 2011

Power of Intervention

- ⅓ to ½ of the 46.6 million smokers will die from the habit. Of the 31.1 million who want to quit, 10.3 to 15.5 million will die from smoking.
- Increasing the 3% base line cessation rate to 10% would save 1 million additional lives.
- If cessation rates rose to 15%, 1.5 million additional lives would be saved.
- No other health intervention could make such a difference!