MACS

Maryland Addiction Consultation Service

1-855-337-MACS (6227)

www.marylandMACS.org

The Treatment of Tobacco (nicotine) Use Disorders: Brief Motivational Interventions & Medication Strategies

David R. McDuff, M.D.
Clinical Professor of Psychiatry
University of Maryland School of Medicine, Baltimore, USA
dmcduff52@gmail.com
www.mdsports.net

MACS

Maryland Addiction Consultation Service (MACS)

Provides support to prescribers and their practices in addressing the needs of their patients with substance use disorders and chronic pain management.

All Services are FREE

- Phone consultation for clinical questions
- Education and training opportunities related to substance use disorders and chronic pain management
- Assistance with addiction and behavioral health resources and referrals
- Technical assistance to practices implementing or expanding office-based addiction treatment services
- MACS TeleECHO™ Clinics: collaborative medical education through didactic presentations and case-based learning

1-855-337-MACS (6227) • www.marylandMACS.org

MACS

Addiction & Sports Psychiatrist: Faculty Bio

Dr. David McDuff
Clinical Professor

- Retired Army Colonel (28 Yrs) with Command, Combat, & Special Operations Experience
- Clinical Professor - Univ. Maryland School of Medicine, Baltimore, USA (1988 –present)
- Founding Director, UMB Division of Addiction Research and Treatment & Addiction Psychiatry & Medicine Fellowship Programs
- International Olympic Committee-Consensus Panel & Work Group Member (2018-present)
- Author-"Sports Psychiatry: Strategies for Life Balance & Peak Performance" 2012
- MLB Team Psychiatrist/Mental Skills Trainer Baltimore Orioles (1996-present)
- NFL Sports Psychiatrist: Baltimore Ravens (1996-2013) & Indianapolis Colts (2015-2018)

Disclosures

- No financial or commercial interests to report

MACS

Tobacco (nicotine) Use Disorders
Lecture Content

- Types of tobacco & nicotine vaping devices
- Tobacco/nicotine use trends & morbidity/mortality
- Nicotine brain circuits & cravings
- Five steps to Quitting
- Motivational strategies
- Medication strategies

Recovery Oriented Psychotherapy
Statement of Purpose

- Tobacco and nicotine use disorders are common in the general population and even more common in persons with mental illness and other substance use disorders. The best outcomes in their treatment come from engaging tobacco/nicotine users in an active process of change utilizing psychoeducational, motivational and medication strategies. In this CME activity, we will learn about nicotine brain circuits, cravings and withdrawal and use a five-step model to facilitate successful quitting. The appropriate use of nicotine replacement, bupropion, and varenicline will be reviewed.

Tobacco (nicotine) Use Disorders
Learning Objectives

- As a result of this lecture participants will be able to:

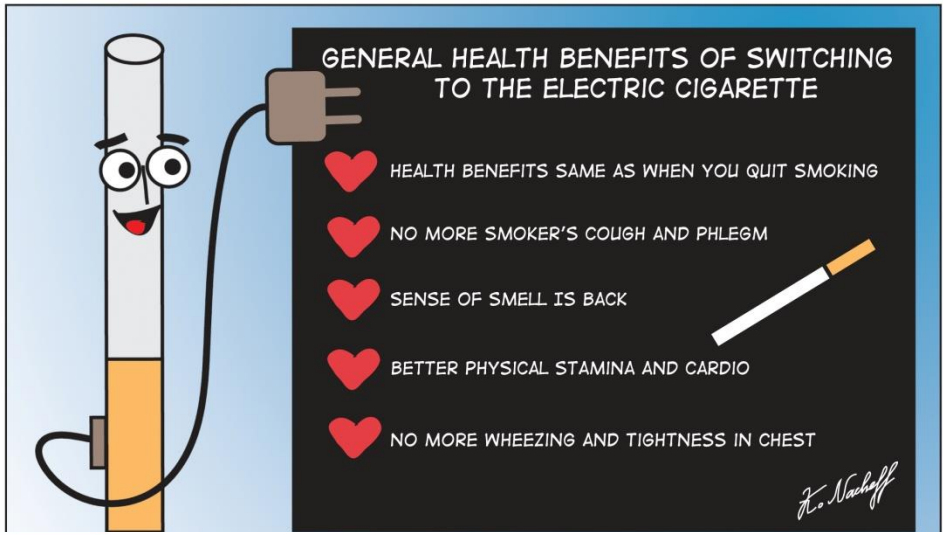
1. Recite the recent trends in tobacco use & nicotine vaping.

2. Explain nicotine brain circuits and common barriers to quitting.

3. Organize brief motivational interventions in support of tobacco/nicotine cessation.

4. Utilize the effective medications to manage nicotine withdrawal and cravings and support long term abstinence (e.g. nicotine replacement, bupropion, varenicline, combinations).


ADULTS WITH MENTAL ILLNESS ARE 70% MORE LIKELY TO SMOKE THAN ADULTS WITH NO MENTAL ILLNESS.
Vitalsigns
www.cdc.gov/vitalsigns
TOBACCO



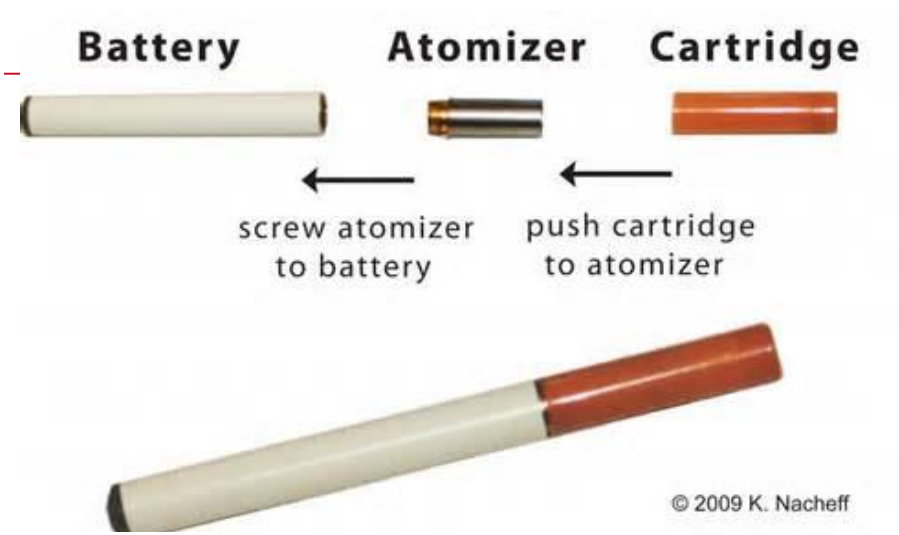
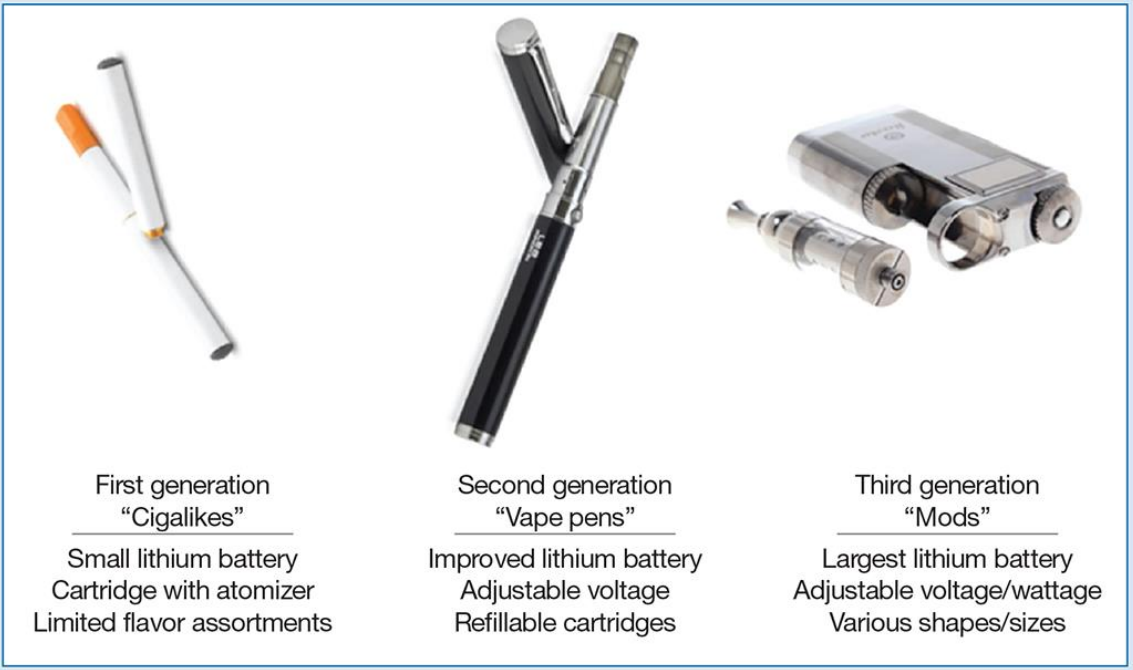


Figure 1

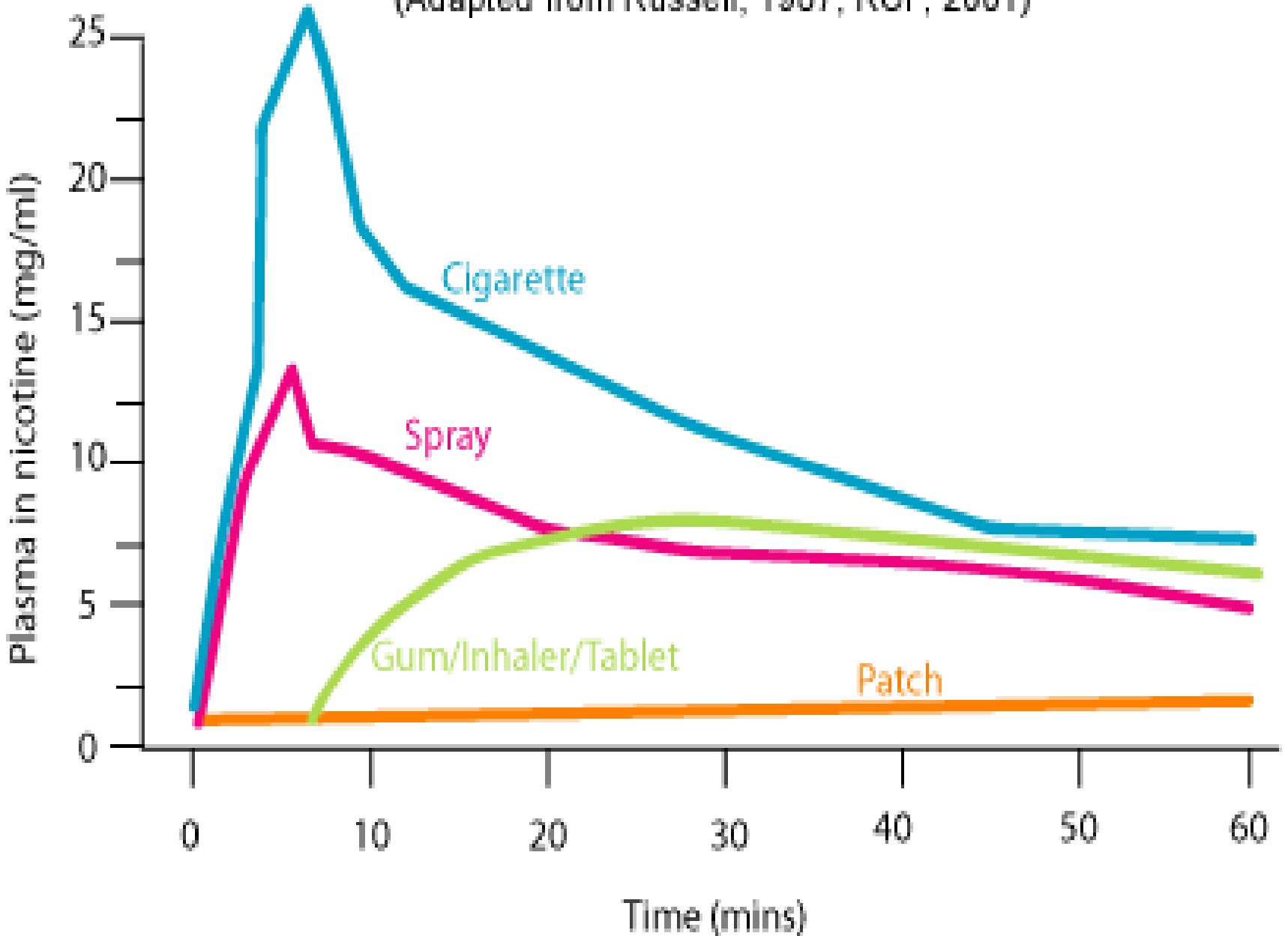
Evolution of the electronic cigarette



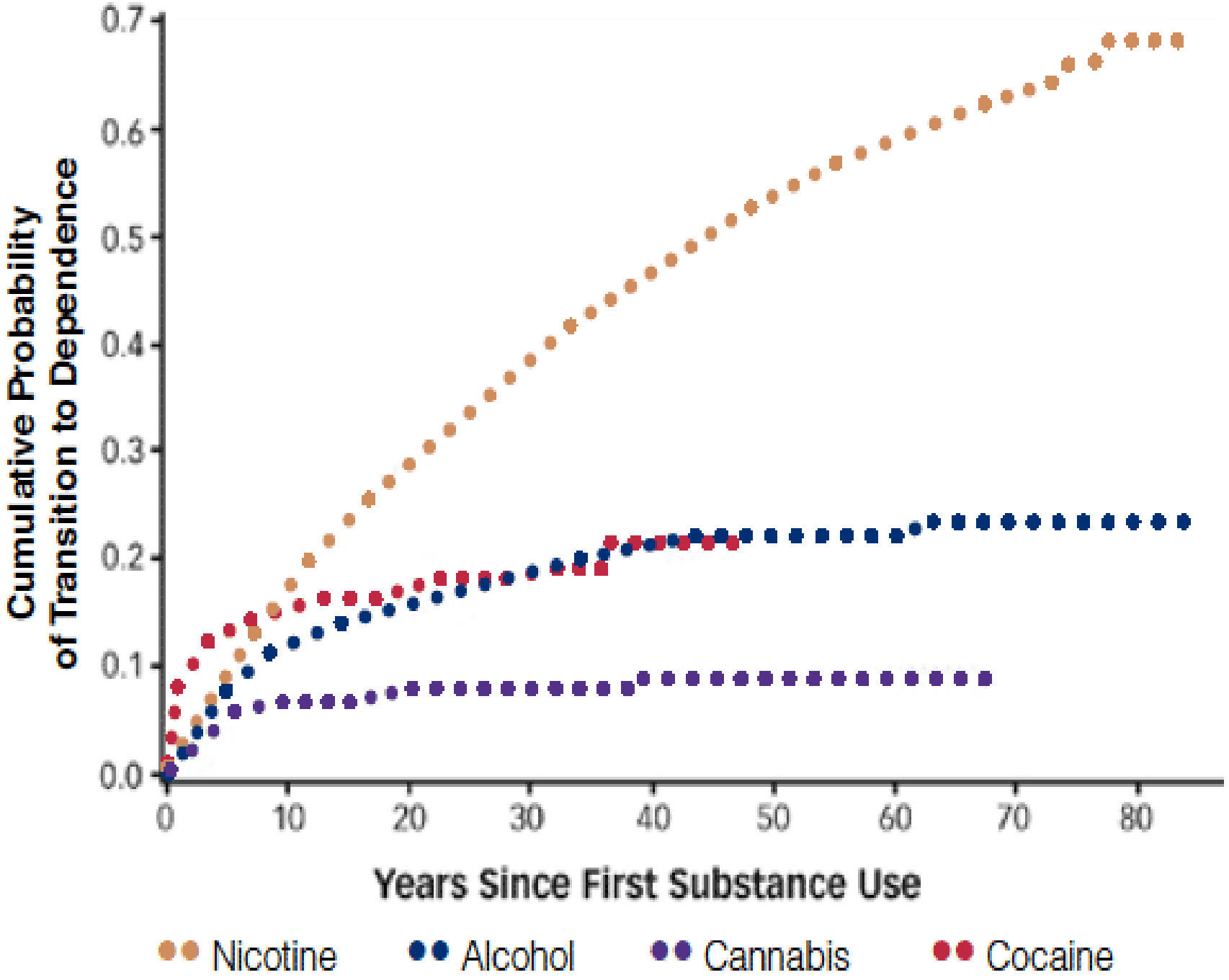
Source: Adapted from reference 2

Rise in Venous Blood Nicotine Levels After Smoking a Cigarette and After Using Different Nicotine Replacement Therapy Products

(Adapted from Russell, 1987; RCP, 2001)



M


Cumulative Probability of Transition to Dependence
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
10
20
30
40
50
60
70
80
Years Since First Substance Use
Nicotine
Alcohol
Cannabis
Cocaine

Other Cancers
36,000 (7%)

Stroke **15,300** (3%)

Other Diagnoses
56,800 (12%)

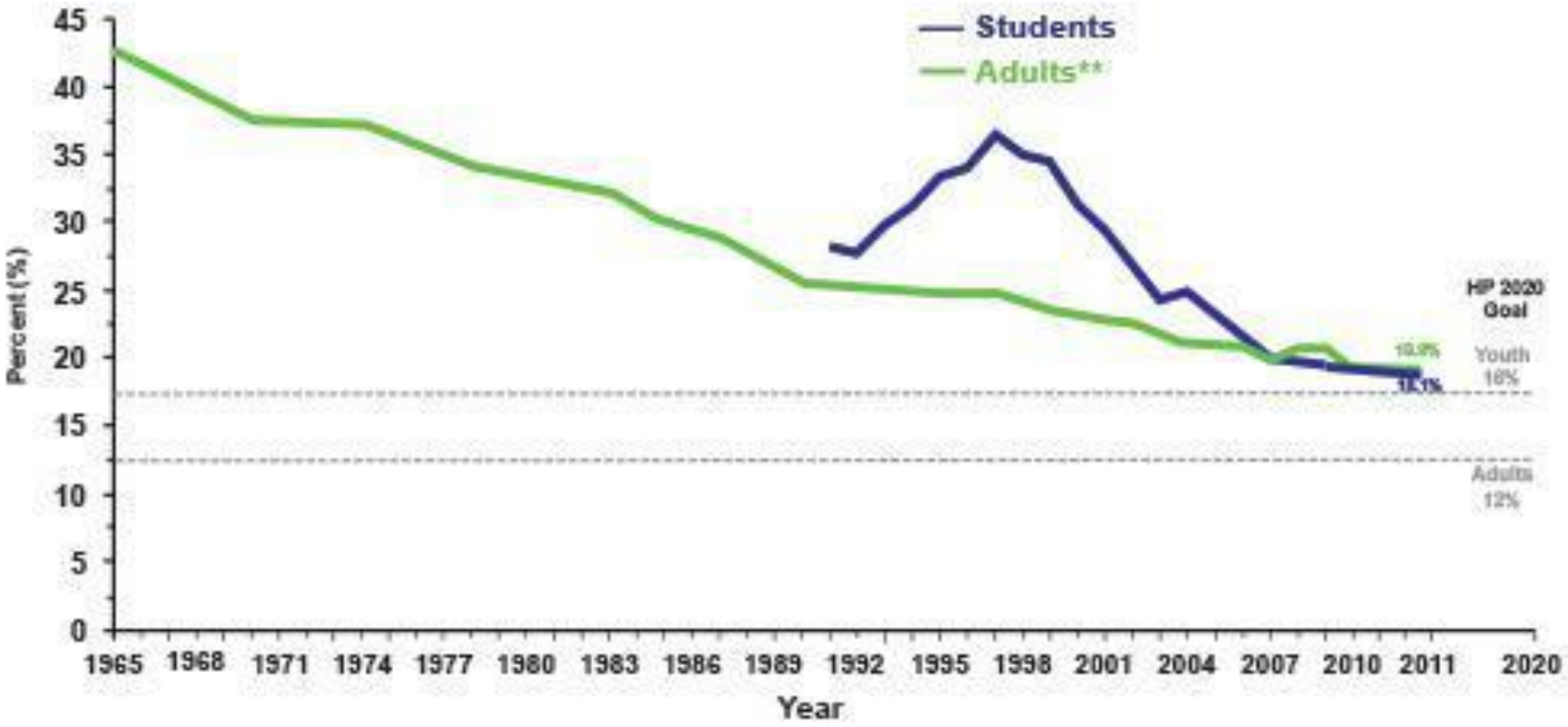
Chronic Obstructive Pulmonary Disease
100,600
(21%)

Lung Cancer
138,000
(29%)

Coronary Heart Disease
133,300 (28%)

More Than
480,000
U.S. Deaths Attributable Each Year to Cigarette

Trends in Current Cigarette Smoking by High School Students* and Adults** —United States, 1965-2011

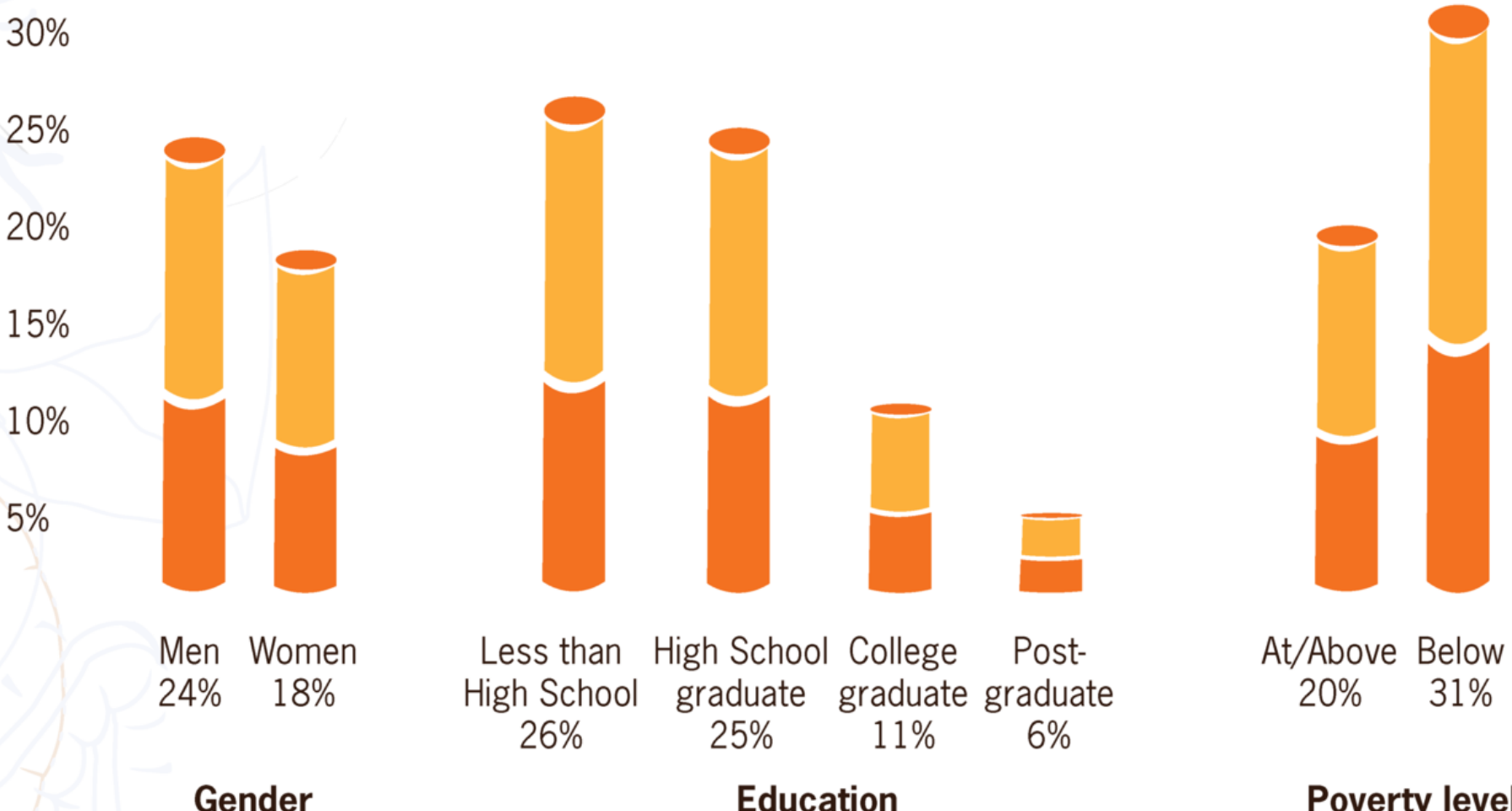


*Percentage of high school students who smoked cigarettes on 1 or more of the 30 days preceding the survey (Youth Risk Behavior Survey, 1991-2011).
**Percentage of adults who are current cigarette smokers (National Health Interview Survey, 1965-2011).

MACS

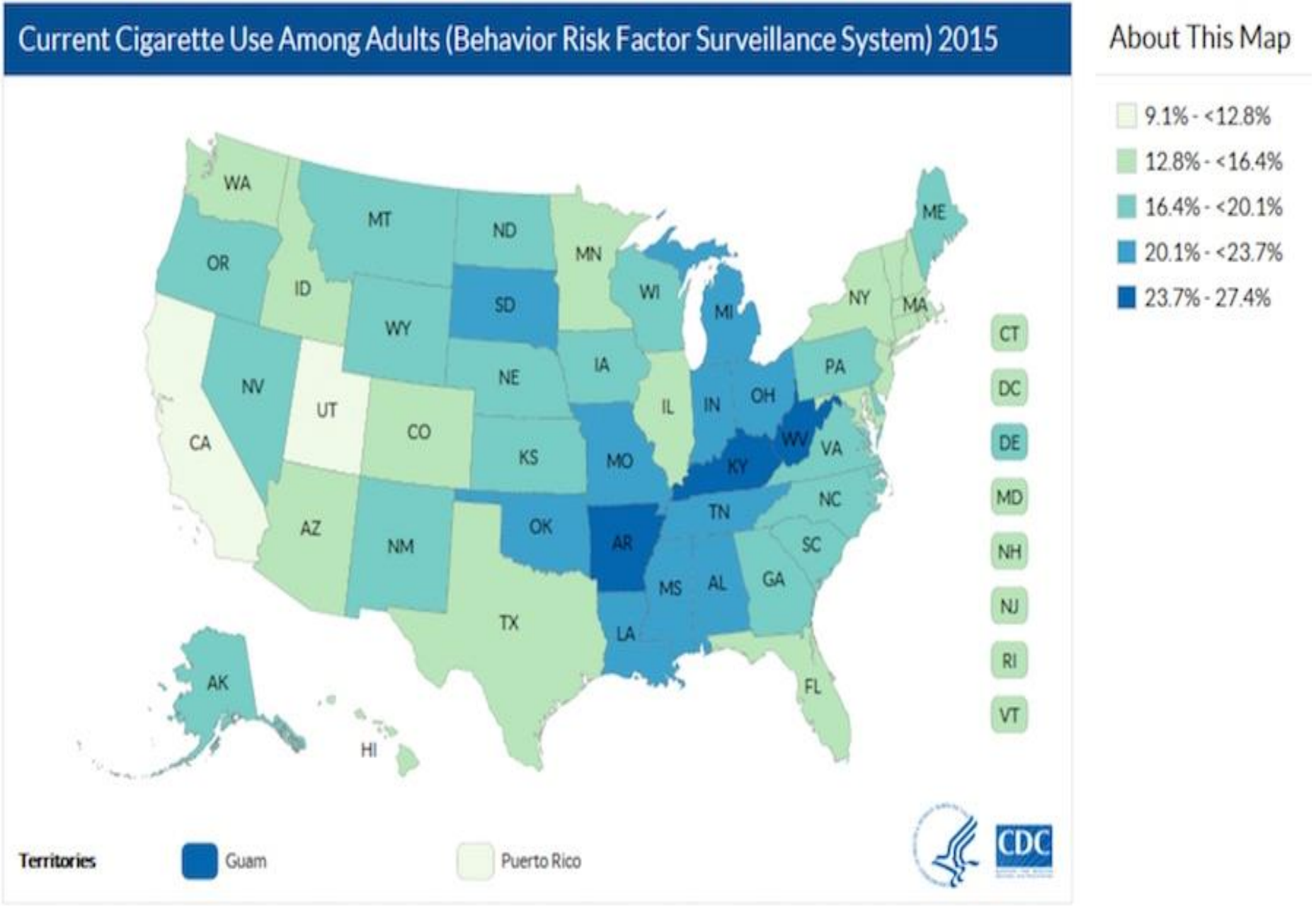
2010

Current smoking percentages by group



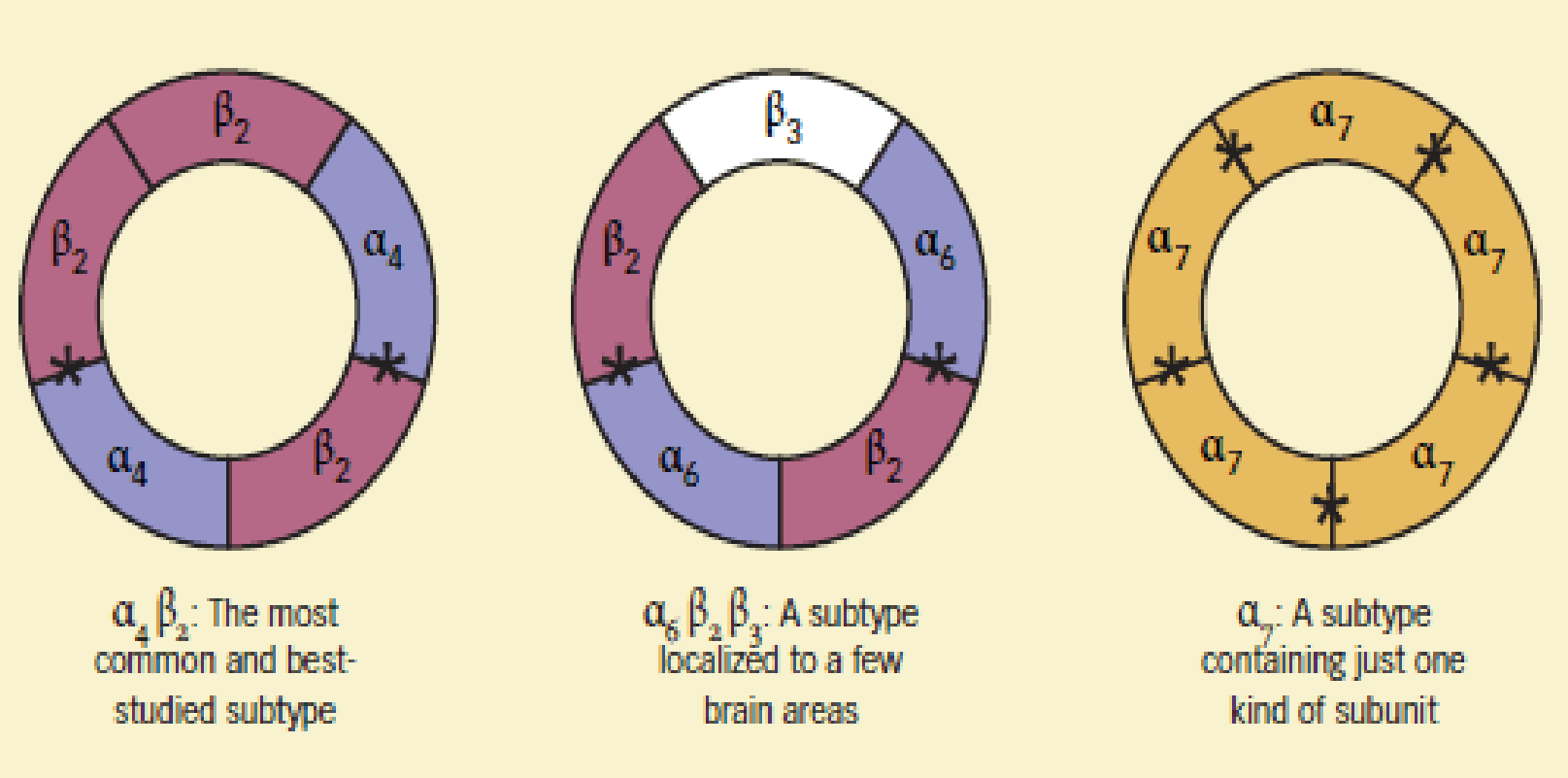
MACS

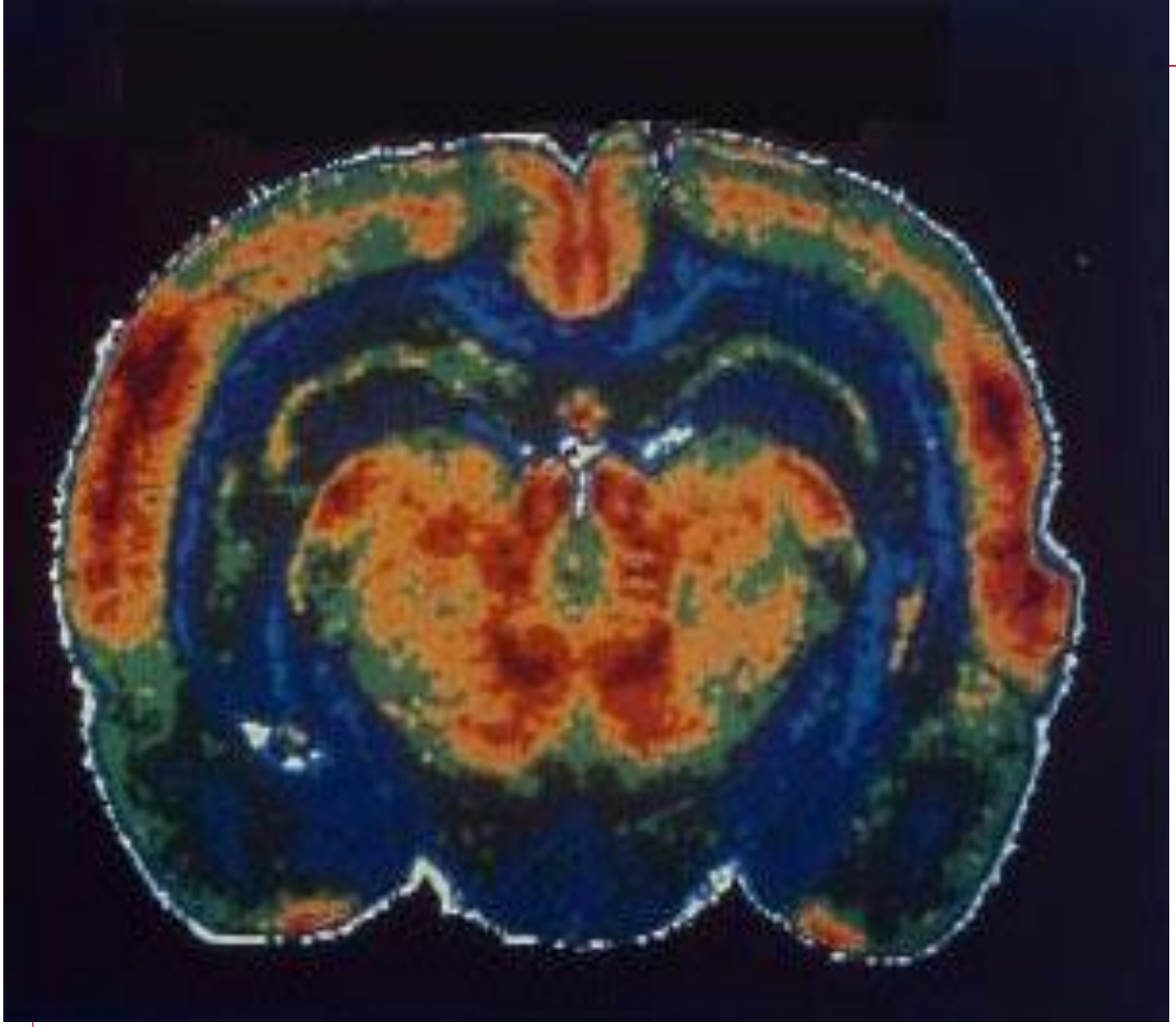
Tobacco Use Percentages by States-2015



MACS

NICOTINIC RECEPTORS VARY IN COMPONENT PROTEINS & ACTIVITY Nicotine initiates its effects by binding to nicotinic acetylcholine (nACh) receptors, each consisting of five proteins arranged in a circle around a central pore. The receptors occur in subtypes, which differ in their constituent proteins & physiological & pharmacological characteristics. Asterisks indicate where nicotine & acetylcholine bind to each receptor subtype.





Receptor Occupancy

One Puff: 30%

Two Puffs: 70%

One Cig: 88%

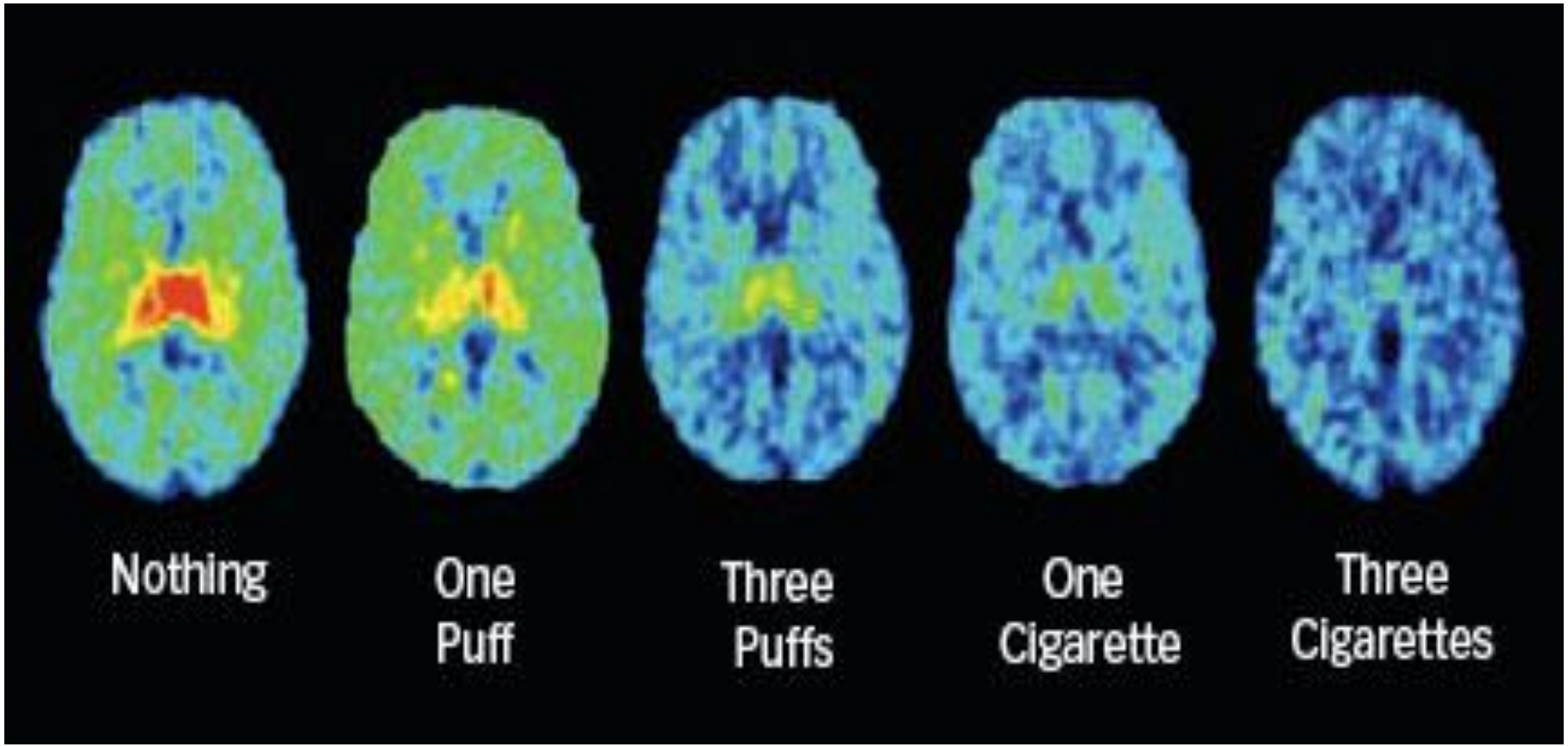
Two Cigs: 100%

Brody AL. et al Arch Gen Psych, 2006

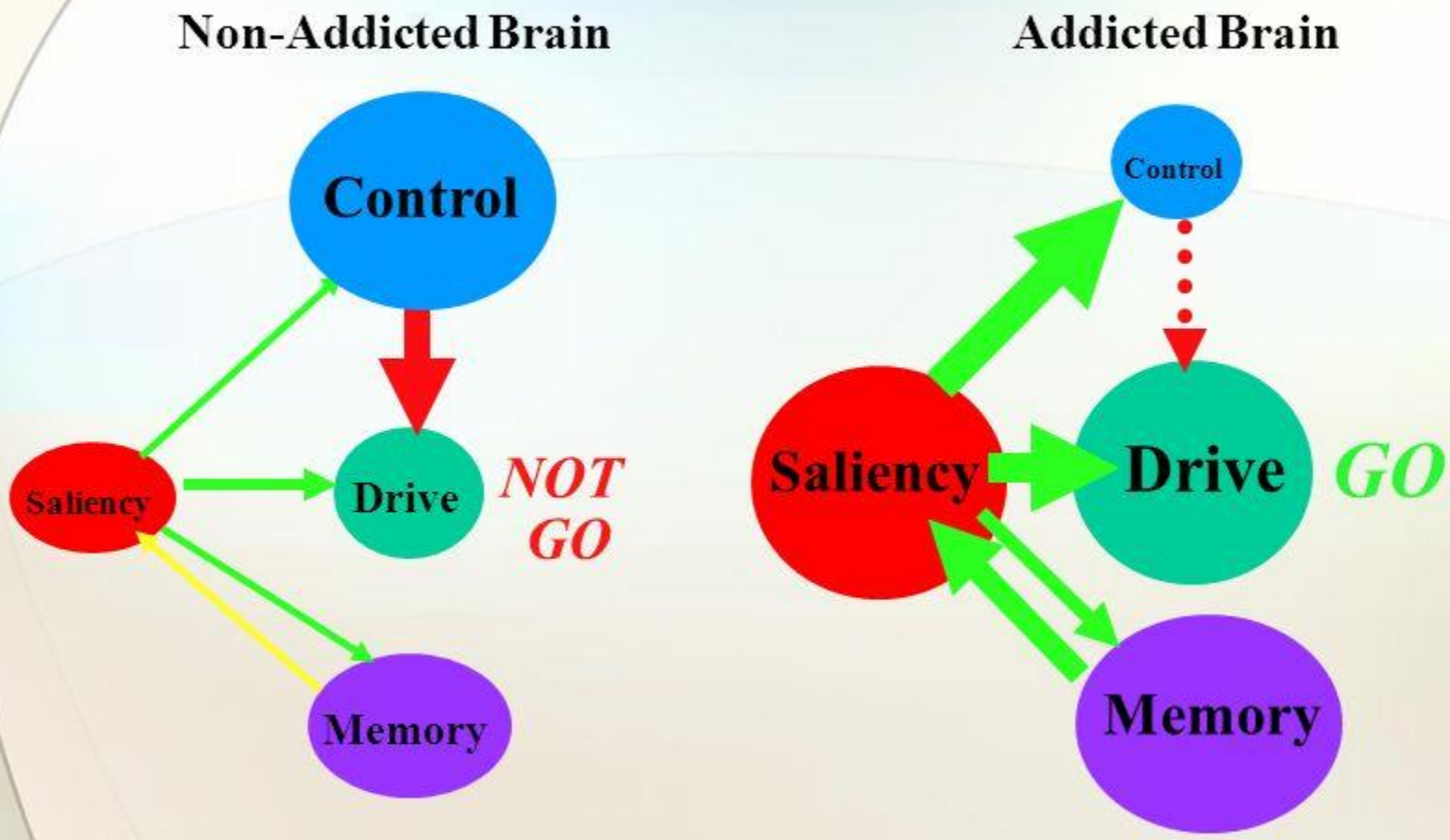
Pet Scan: Nicotine Receptor Activity

MACS

SMOKING SATURATES RECEPTORS As nicotine from a cigarette attaches to the α4β2*-nACh nicotinic receptors in the brain, it displaces a radiolabeled tracer (red and yellow indicate high levels of the tracer, green indicates intermediate levels, and blue indicates low levels). The nicotine from three puffs displaced 75 percent of the tracer from study participants' receptors, and the nicotine from three cigarettes, nearly all.



Addiction Changes Brain Circuits



Source: Adapted from Volkow et al., Neuropharmacology, 2004.

Opportunity for Intervention

- 70% of smokers have made at least one unsuccessful quit attempt
- 46% try to quit each year
- More than 70% of smokers visit a health care setting each year
- Effective treatments exist which produce long-term or permanent abstinence

Tobacco Use: Five Keys for Quitting

1. **Get Ready**
2. **Get Support**
3. **Learn New Skills**
4. **Try Medication**
5. **Prepare for cravings & relapse**

Quitting: Get Ready

1. Set a Quit Date

2. Change Your Environment (get rid of cigarettes & ashtrays, clean your car, stay away from high risk places, walk)

3.Review Past Quit Attempts (what worked and what didn't)

4. Once You Quit-Don't Smoke

Photo: Miles Ladin

Quitting: Get Support & Encouragement

1. Tell your family, friends & co-workers

2. Tell your health care provider (doctor, dentist, pharmacist, therapist, counselor)

3. Get individual, group or telephone counseling (doubles the quit rate)

4. Free counseling at hospitals & health depts (call 1-800-QUIT-NOW; www.mdquit.org)

Quitting: Learn New Skills & Behaviors

1. Distract Yourself from Urges (talk, walk, water, busy, breath, gum)

2. Change Your Routines (tea for coffee, eat different food, drive another route)

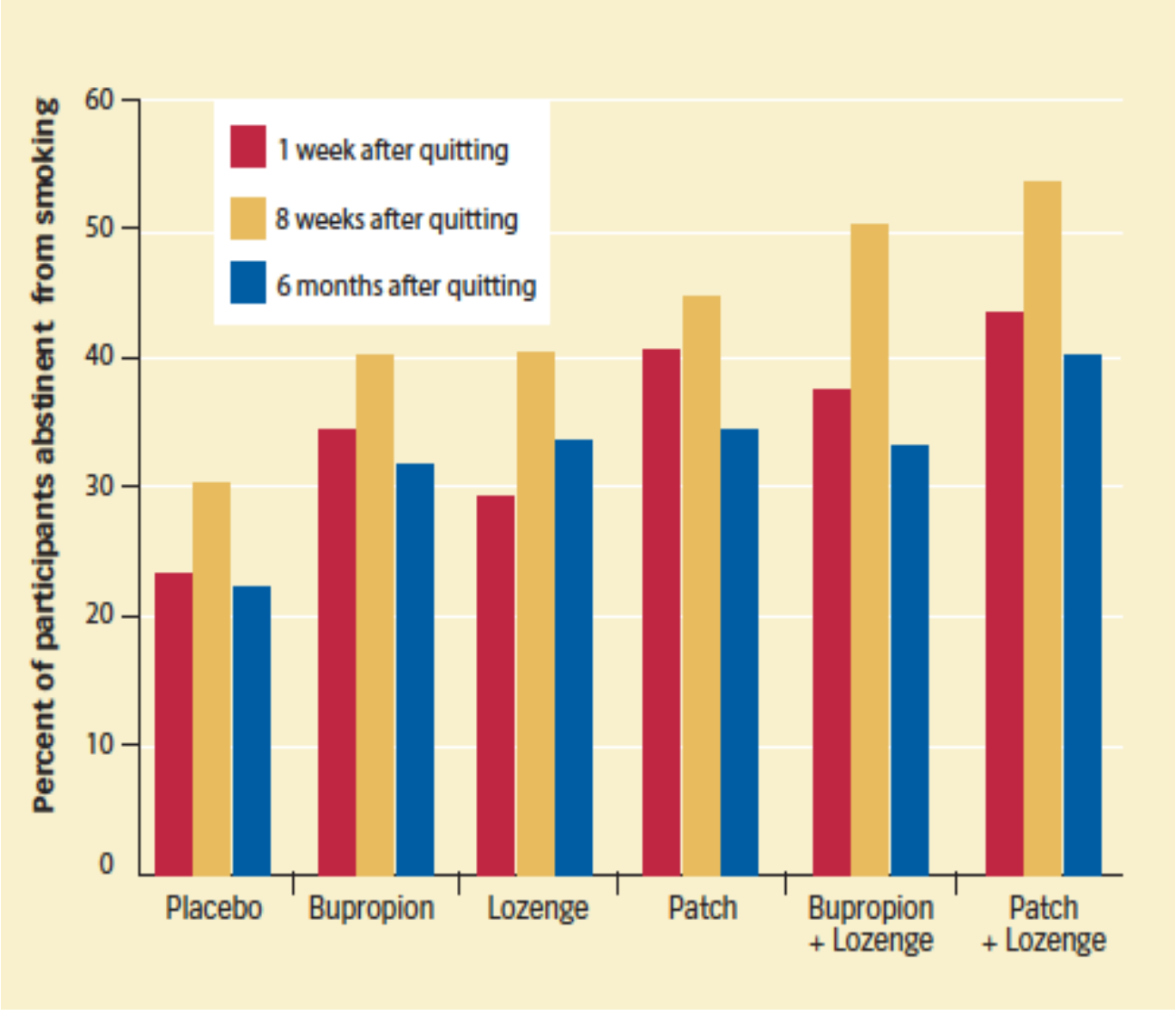
3. Stress Control (walk, massage, stretch, read, meditate, music, pet, fluids)

4. Something enjoyable every day

Quitting: Try Medications

- Nicotine Gum
- Nicotine Lozenges
- Nicotine Patch
- Nicotine Inhaler
- Nicotine Nasal Spray
- Bupropion SR (Zyban)
- Bupropion XL
- Varenicline (Chantix)
- Combinations

MANY THERAPIES REDUCE SMOKING Abstinence rates for all treatments peaked at the 8-week assessment. Abstinence was confirmed by breath carbon monoxide levels measured during visits to the clinic.



What is New?

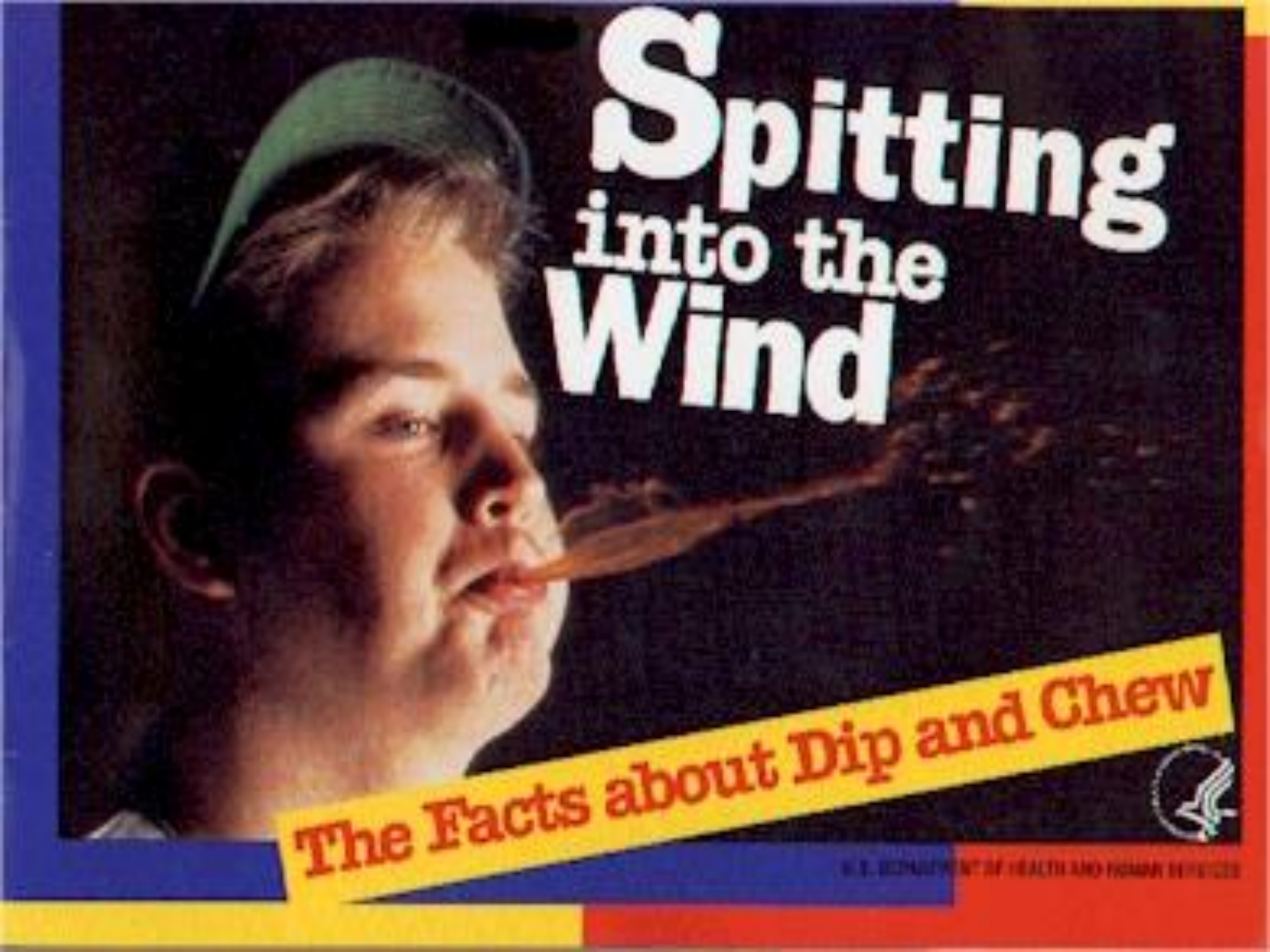
1. Ebbert JO et al. (2014) **Combination Varenicline & Bupropion SR** for Tobacco- Dependence Treatment in Cigarette Smokers: A Randomized Trial. JAMA 311(2):155-163 (30.9/36.6% vs 24.5/29.2 @ 52 weeks)

2. Evins et al. (2014) **Maintenance Treatment With Varenicline** for Smoking Cessation in Patients With Schizophrenia and Bipolar Disorder: A Randomized Clinical Trial. JAMA 311(2):145-154. (36 vs 11% @ 76 weeks)

3. Eisenberg M. ClinicalTrials.gov (March 2016) **Varenicline in Hospital Boosts Smoking Quit Rates**-EVITA Study

   (47.3% vs 32.5% @ 24 weeks)

4. Use of **nicotine metabolite ratio** as a genetically informed biomarker of response to nicotine patch or varenicline for smoking cessation: a randomised, double-blind, placebo-controlled trail. Lerman et al.Lancet Respiratory Medicine (2015) 2:131-138.


Spitting into the Wind
The Facts about Dip and Chew

Varenicline (Chantix-0.5 & 1.0 mg)

Partial agonist selective for nicotinic acetylcholine receptor subtypes (alpha4;beta2)

Receptor blockade for nicotine preventing it from stimulating the mesolymbic dopamine (smoking reinforcement/reward) system

Efficacy established in 6 studies (3659 chronic smokers)

9-12 wk abstinence (44-51% vs 30% vs 12-17%)

Combination Pharmacotherapy

- Bupropion SR may be combined with any of the NRTs
- Varenicline plus NRT caused toxicity & drop-outs
- Verenicline plus Bupropion !
- Combination NRT
  - Patch + gum/lozenge or patch + nasal spray is more efficacious than a single NRT

Quitting: Prepare for Triggers & Relapse

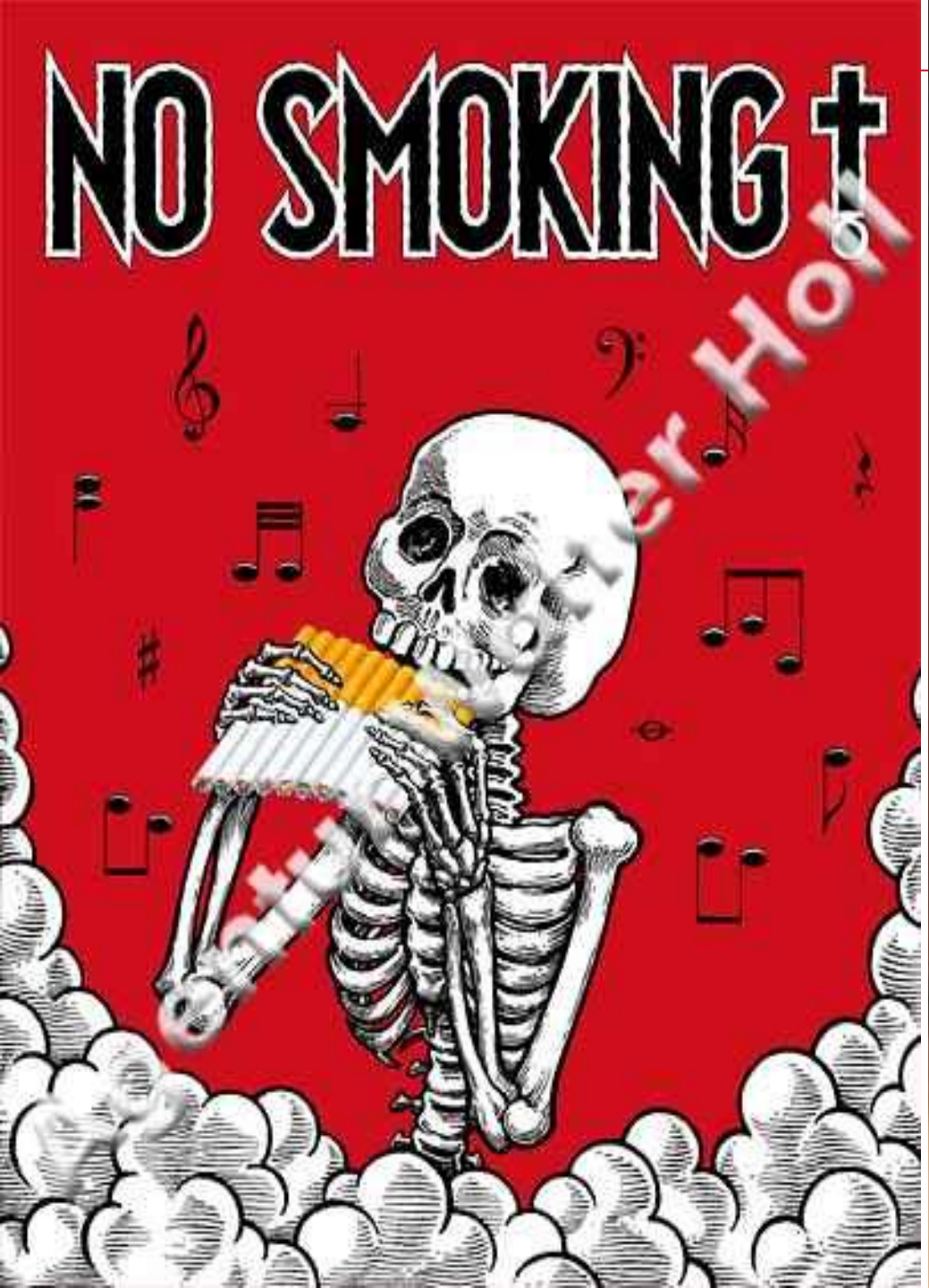
1. Avoid Drinking Alcohol

2. Avoid Other Smokers

3. Weight Gain (some gain-some don't-most gain no more than 10 pounds)

4. Negative Emotions,Stress, Depression

5. Most Relapses in the 1st 3 months; most smokers have 5 or so quit attempts


NO SMOKING

QUESTIONS?

TYPE QUESTIONS INTO THE CHAT OR RAISE HAND

Additional questions:

1-855-337-MACS (6227)
MACS@som.umaryland.edu

MACS Services

Stay up to date: MACS Monthly Newsletter

www.marylandmacs.org/Contact-Us/

Prescribers: Sign up for MACS via phone or

https://bit.ly/2KE5nCT