Navigating Medication Options for Smoking Cessation in Mental Health Settings

Presenter:

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Purdue University College of Pharmacy

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Rethink Tobacco Indiana

Funded by the Indiana State Department of Health's **Tobacco Prevention and Cessation Commission**

Aim to reduce the prevalence of tobacco and nicotine use among persons with mental health conditions, substance use disorders, or co-occurring disorders through the following activities:

- Technical Assistance
- Policy Development
- Education
- Specialized Training
- Resources

Indiana Department of Health | Tobacco Prevention and Cessation

www.in.gov/isdh/tpc

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www.RethinkTobaccoIndiana.org

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Navigating Medication Options: Tobacco Cessation in Behavioral Health

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LEARNING OBJECTIVES

1. Describe the tobacco use prevalence among persons with behavioral health conditions
2. Introduce the clinical practice guidelines evidence-based recommendation on pharmacologic treatment options for patients with tobacco dependence
3. Compare various tobacco treatment medications, including the safety and efficacy data, for the management of tobacco cessation
4. Examine tobacco treatment medications, including doses, routes, and frequency of administration

"In terms of lives saved, quality of life, and cost-efficacy, **treating smoking** is considered the most important activity a clinician can do."

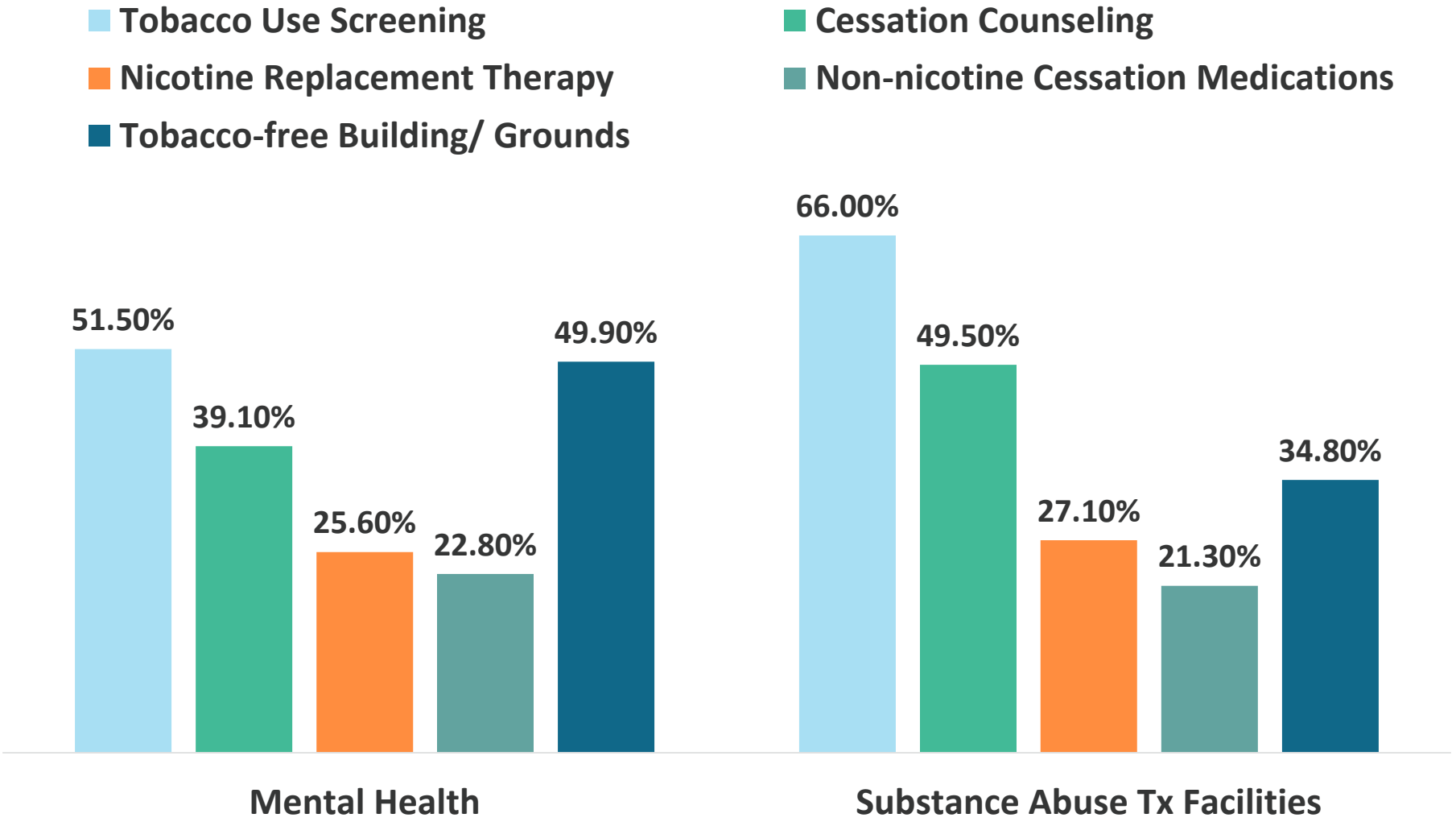
-- John Hughes, MD
Professor of Psychiatry
University of Vermont

TOBACCO USE in BEHAVIORAL HEALTH

- **Nicotine dependence:** most prevalent substance use disorder among persons with mental illness
- Adults living with a mental illness:
  - Smoke more cigarettes/month than persons without mental illness (326 vs. 284)
  - Account for 31% to 46% of all cigarettes smoked
  - Account for nearly half of 480,000 annual tobacco-related deaths in U.S.

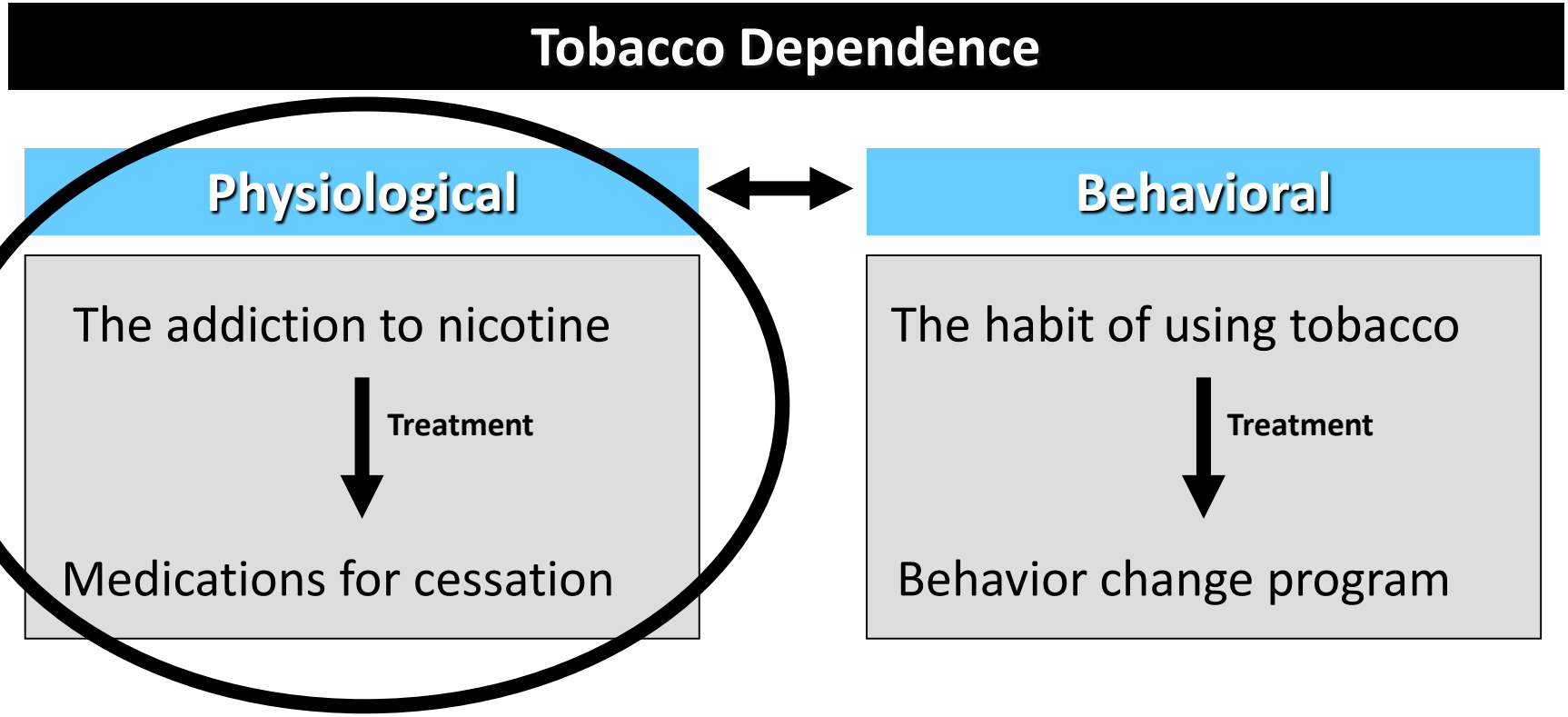
Over the past 40 years, there has been NO reduction in the prevalence of smoking in the MH/SU population

TOBACCO INTERVENTIONS IN U.S. BEHAVIORAL HEALTH FACILITIES, 2017



Sources: *National Mental Health Services Survey (N-MHSS): 2017. Data on Mental Health Treatment Facilities; National Survey of Substance Abuse Treatment Services (N-SSATS): 2017. Data on Substance Abuse Treatment Facilities.*

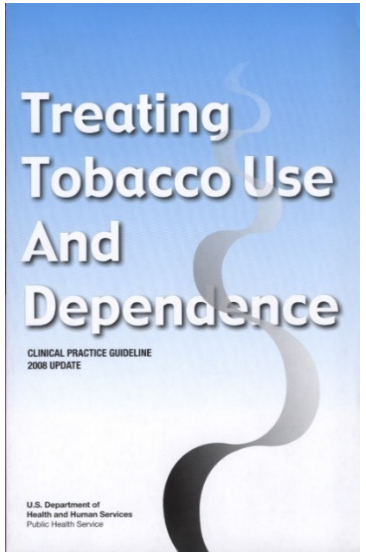
TOBACCO DEPENDENCE: A 2-PART PROBLEM



Treatment should address the physiological **and** the behavioral aspects of dependence.

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.

FIRST-LINE PHARMACOTHERAPIES

OTC

Nicotine gum*
- Nicorette
- Generic nicotine gum

Nicotine lozenge*
- Nicorette / Nicorette Mini
- Generic nicotine lozenge

Nicotine patch*
- NicoDerm CQ
- Generic nicotine patches

Rx

Nicotine inhaler*
- Nicotrol

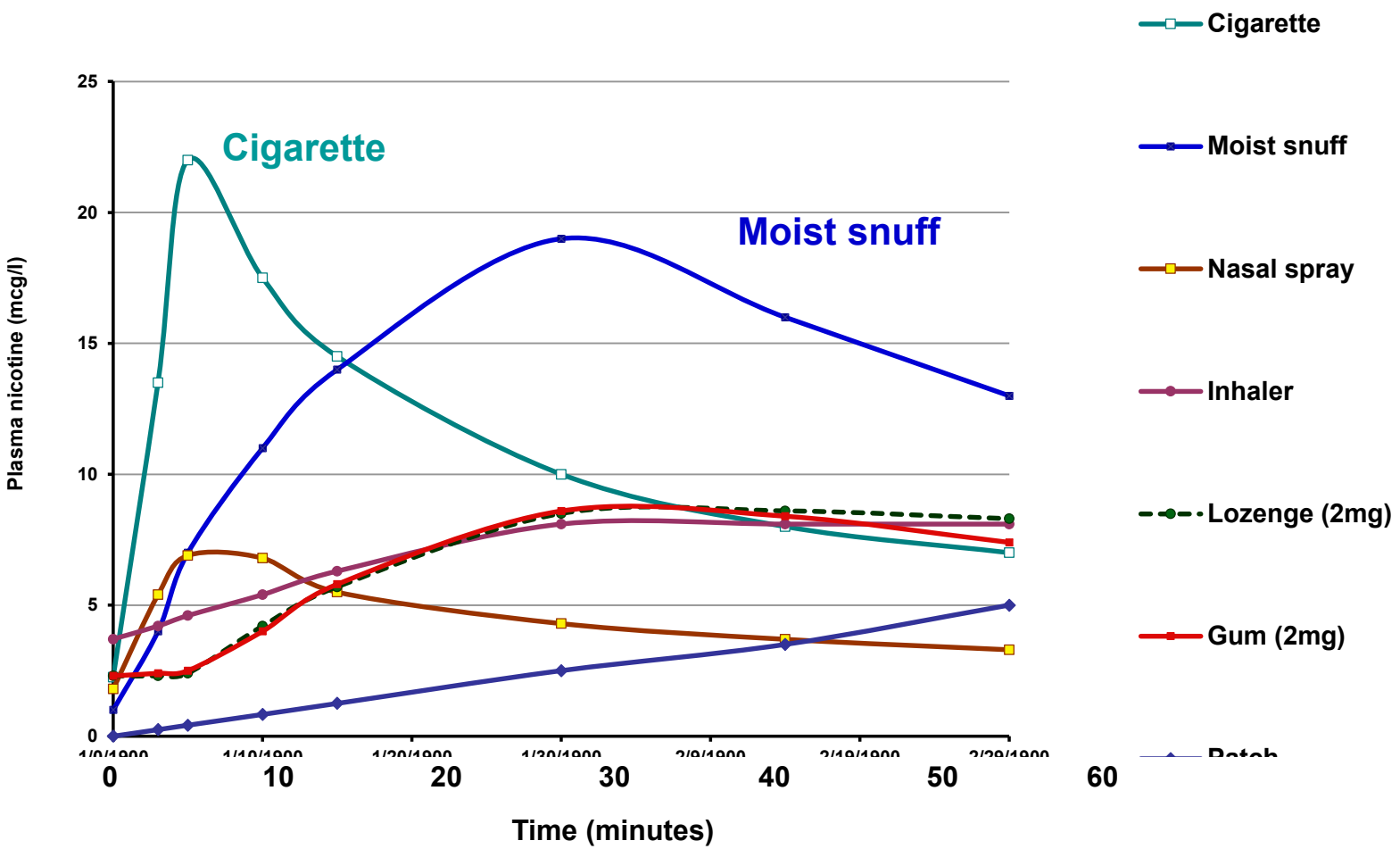
Nicotine nasal spray*
- Nicotrol NS

Varenicline tablets
- Chantix

Bupropion SR tablets
- Generic

** Nicotine replacement therapy (NRT) products.*

PLASMA NICOTINE CONCENTRATIONS for NICOTINE-CONTAINING PRODUCTS



NRT products should be taken to PREVENT withdrawal.

NICOTINE GUM and LOZENGE

Available: 2 mg, 4 mg; various flavors (OTC)

Pros:

- Oral substitute for tobacco
- Can titrate to manage withdrawal symptoms
- Might delay weight gain
- Used in combination with other agents to manage situational urges
- Relatively inexpensive

Cons:

- Frequent dosing = poor adherence with monotherapy
- Gastrointestinal side effects might be bothersome
- Dental work/jaw issues (gum only)
- Proper chewing technique is necessary (gum only)
- Gum chewing might not be acceptable/desirable

TRANSDERMAL NICOTINE PATCH

Available: 21 mg, 14 mg, 7 mg (OTC)

Pros:

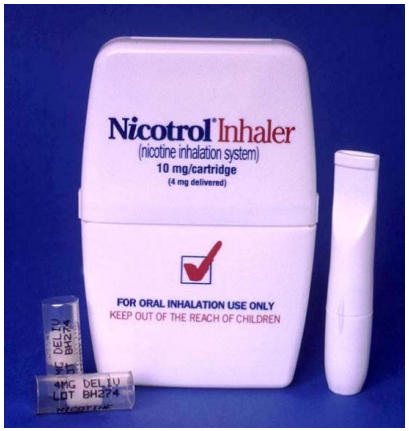
- Once-daily dosing
- Can use in combination with other agents; delivers consistent nicotine levels over 24 hours
- Of all nicotine replacement products, use is least obvious
- Relatively inexpensive

Cons:

- Cannot be titrated to acutely manage withdrawal symptoms
- Not recommended for use with dermatologic conditions

NICOTINE INHALER

Available: 10mg cartridge delivers 4mg inhaled vapor for absorption across buccal mucosa (Rx)



Pros:

- Oral substitute
- Can titrate to manage withdrawal symptoms
- Mimics hand-to-mouth ritual of smoking
- Can use in combination with other agents to manage situational urges

Cons:

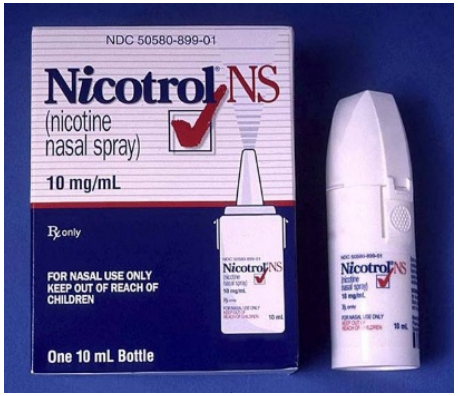
- Frequent dosing = poor adherence with monotherapy
- Cartridges might be less effective in cold environments (≤60°F)
- Cost of treatment

NICOTINE NASAL SPRAY

Available: 10ml bottle; 0.5 mg per spray (Rx)

Pros:

- Can titrate to more closely manage withdrawal symptoms
- Can use in combination with other agents to manage situational urges



Cons:

- Frequent dosing = poor adherence with monotherapy
- Nasal administration; nasal irritation often problematic
- Not recommended for use with chronic nasal disorders or severe reactive airway disease
- Cost of treatment

BUPROPION SR

Medication is initiated before the quit date.

Available: 150 mg tablets (Rx)

Pros:

- Twice-daily dosing
- Might be beneficial in patients with depression
- Can use in combination with NRT
- Relatively inexpensive

Cons:

- Seizure risk is increased
- Several contraindications and precautions that require screening
- Patients must be monitored for potential neuropsychiatric symptoms

VARENICLINE

Medication is initiated before the quit date.

Available: 0.5 and 1.0 mg tablets (Rx)

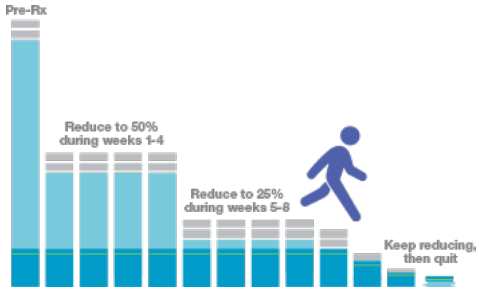
Pros:

- Twice-daily dosing
- Offers a different mechanism of action
- Most effective monotherapy agent for cessation

Cons:

- Nausea (28%): take with food or full glass of water
- Insomnia/sleep disturbances (13%)
- Patients must be monitored for potential neuropsychiatric symptoms
- Cost of treatment

VARENICLINE: Quitting Approaches



FIXED QUIT approach
- Set quit date for 1 week after starting varenicline
- Continue treatment for 12 weeks

FLEXIBLE QUIT approach
- Start taking varenicline and pick a quit date between 8 to 35 days from treatment initiation
- Continue treatment for 12 weeks

GRADUAL QUIT approach
- Start taking varenicline and reduce smoking by 50% within the first 4 weeks, an additional 50% in the next 4 weeks, and continue until complete abstinence by 12 weeks

Images from: Pfizer Inc. website

PATIENT ENCOUNTER: Greg

Greg has expressed interest in quitting smoking and wants to discuss his options.

- 54 yo male with controlled HTN, hyperlipidemia, depression, chronic rhinitis
- Current medications:
  - Valsartan 80mg QAM for HTN
  - Atorvastatin 40mg QAM for hyperlipidemia
  - Bupropion XL 300mg QAM for depression
  - Flonase (50mcg/spray), 1 spray in each nostril QAM for rhinitis
- Wants to quit in the next month

What questions do you want to ask Greg?

KEY CONSIDERATIONS for GREG

What is his tobacco use history?

- Current use: 25 cigarettes/day x 25 years
- Smokes within 20 min of waking
- Prior quit attempts: many, longest duration tobacco-free = 2 weeks
- Reasons for relapse: withdrawal, stress, after meals, other smokers

What are his key issues related to quitting?

- Reasons, motivation for wanting to quit: worsening CVD
- Confidence in ability to quit: 9 out of 10 (high)
- Primary concern: withdrawal symptoms during past quit attempt

MEDICATION SELECTION for GREG

Relevant information related to medication selection:

- Previous failed quit attempts with monotherapy (patch, gum)
- Did not like chewing the gum
- Challenges adhering with complex regimens
- Currently taking bupropion XL 300mg daily for depression x 18 mo
- Concerned about side effects of varenicline
- Chronic rhinitis

Which of the following treatment options is most appropriate for Greg, and why?

A. NRT monotherapy (gum, lozenge, patch, inhaler, nasal spray)
B. Combination NRT
C. Bupropion SR
D. Varenicline

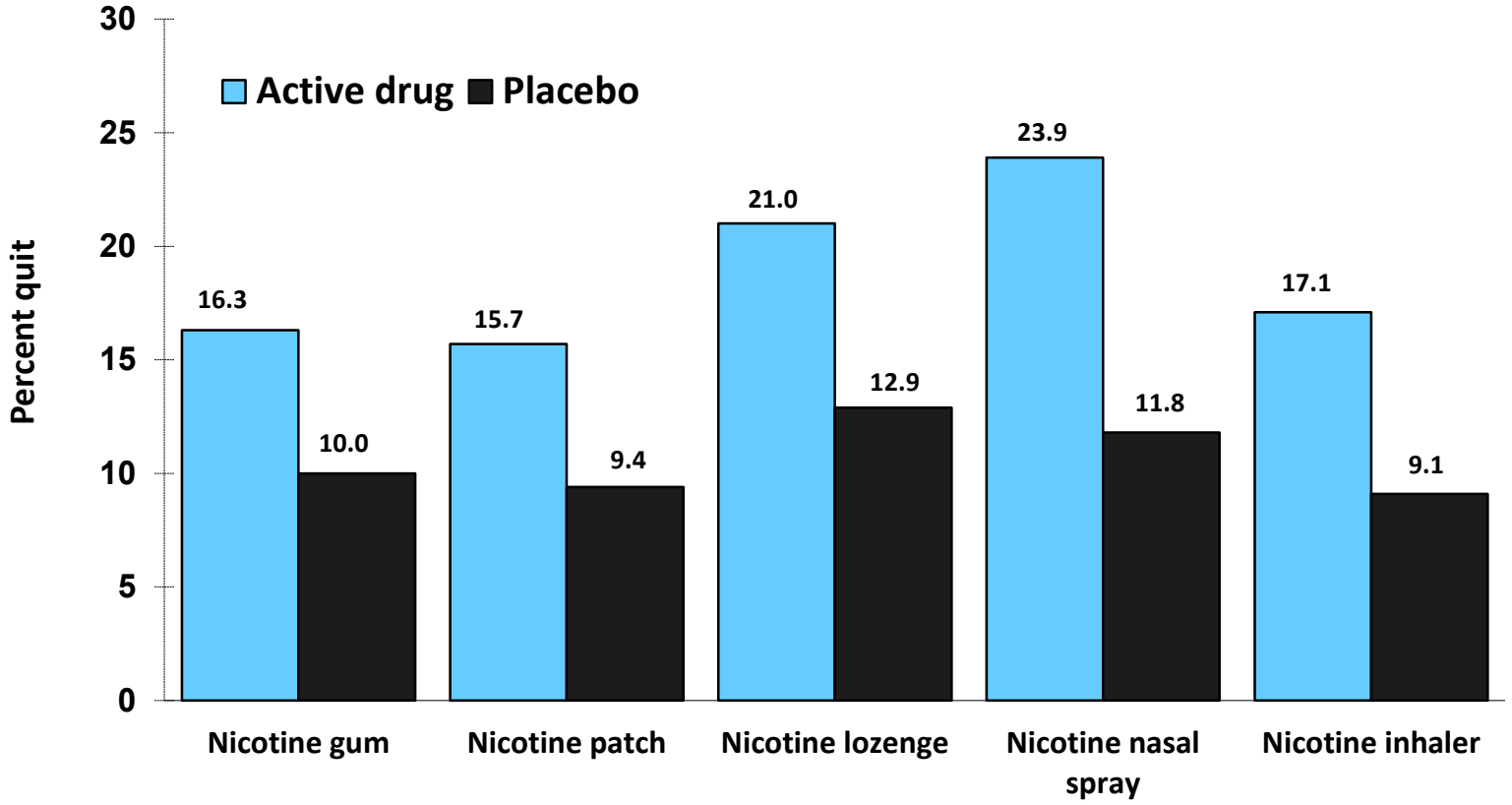
OPTION #1: NRT monotherapy

Feature	G	L	P	I	NS
Available OTC	✓	✓	✓		
Oral substitute for tobacco	✓	✓		✓	
Relatively inexpensive*	✓	✓	✓		
Long-acting; once daily dosing			✓		
Used prn for nicotine withdrawal symptoms	✓	✓		✓	✓
Used in combination with other NRTs	✓	✓	✓	✓	✓

G=gum; L=lozenge; P=patch; I=inhaler; NS=nasal spray

* When compared to the cost of 1 pack of cigarettes/day

LONG-TERM QUIT RATES: NRT



Data adapted from Hartmann-Boyce et al. (2018). *Cochrane Database Syst Rev.* CD000146.

OPTION #2: Combination NRT

- **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 nicotine withdrawal symptoms

Combination therapy increases dosing flexibility and overall plasma nicotine concentration.

COMPARING NRT OPTIONS

Multiple Treatment Comparison Meta-Analysis

Comparison	Odds ratio (95% credible interval)
Nicotine patch vs Placebo	1.9 (1.7, 2.1)
Nicotine gum vs Placebo	1.7 (1.5, 1.9)
Other NRT* vs Placebo	2.0 (1.8, 2.4)
Combination NRT vs Placebo	2.7 (2.1, 3.7)

*Includes nicotine nasal spray, lozenge, and inhaler

Strong evidence that varenicline and combination NRT are most effective.

Cahill et al. (2013). *Cochrane Database Syst Rev 5:CD009329*

COMBINATION NRT DOSING

- **Nicotine patch**

  Dose: 21 mg/day x 4–6 wks → 14 mg/day x 2 wks → 7 mg/day x 2 wks

PLUS

- **Nicotine gum or lozenge** (2 mg/4 mg; based on time-to-first cigarette)

  Dose: Use 1 piece q 1–2 hours as needed (use at least 4-5/day)

OR

- **Nicotine inhaler** (10 mg cartridge; delivers 4 mg nicotine vapor)

  Dose: Use 1 cartridge q 1–2 hours as needed

OR

- **Nicotine nasal spray** (0.5 mg/spray)

  Dose: Use 1 spray in each nostril q 1–2 hours as needed

COMBINATION NRT DOSING for GREG

- **Nicotine patch**

  Dose: 21 mg/day x 4–6 wks → 14 mg/day x 2 wks → 7 mg/day x 2 wks

PLUS

- **Nicotine gum or lozenge** (2 mg/4 mg; based on time-to-first cigarette)

  Dose: Use 1 piece q 1–2 hours as needed (use at least 4-5/day)

OR

- **Nicotine inhaler** (10 mg cartridge; delivers 4 mg nicotine vapor)

  Dose: Use 1 cartridge q 1–2 hours as needed

OR

- **Nicotine nasal spray** (0.5 mg/spray)

  Dose: Use 1 spray in each nostril q 1–2 hours as needed

OPTION #3: Bupropion SR

Available for cessation: 150 mg tablets

Considerations for Greg:

- Ease of use, twice-daily oral tablet
- Can be used in combination with NRT
- No medical history precluding use
- Might be beneficial in patients with depression
  - Greg is still smoking while on 300mg XL daily

Dosing approaches

- Usual dose:
  - 150mg every morning x 3 days, then 150mg twice daily x 7-12 weeks

OPTION #4: Varenicline

Available for cessation: 0.5 and 1.0 mg tablets

Considerations for Greg:

- Ease of use, twice-daily oral tablet
- Neuropsychiatric side effects in patients with psychiatric disorders
  - Recent safety data for varenicline versus other agents (Anthenelli et al., 2016)

Dosing approaches:

- Usual dose, with:
  - Fixed Quit, Flexible Quit, or Gradual Quit

Anthenelli RM et al. Lancet 2016;387:2508-2520.

COMPARING MEDICATION OPTIONS

Multiple Treatment Comparison Meta-Analysis

Comparison	Odds ratio (95% credible interval)
Nicotine patch vs Placebo	1.9 (1.7, 2.1)
Nicotine gum vs Placebo	1.7 (1.5, 1.9)
Other NRT* vs Placebo	2.0 (1.8, 2.4)
Bupropion SR vs Placebo	1.9 (1.6, 2.1)
Varenicline vs Placebo	2.9 (2.4, 3.5)
Combination NRT vs Placebo	2.7 (2.1, 3.7)

Monotherapy

*Includes nicotine nasal spray, lozenge, and inhaler

Based on current evidence: These are our most effective approaches.

Strong evidence that varenicline and combination NRT are most effective.

Cahill et al. (2013). *Cochrane Database Syst Rev 5:CD009329*

SUMMARY of OPTIONS for GREG

Options ruled out:

- NRT monotherapy (gum, lozenge, inhaler, nasal spray)
- Bupropion SR

Less preferred option:

- Nicotine patch as monotherapy

Preferred options:

- Combination NRT (patch + short-acting formulation; NOT gum or nasal spray)
- Varenicline

GREG’s QUESTION

VARENICLINE and BUPROPION SR: Warnings and Precautions

- Neuropsychiatric symptoms and suicide risk
  - Changes in mood (including depression and mania)
  - Psychosis/hallucinations/paranoia/delusions
  - Homicidal ideation
  - Aggression/hostility/anxiety/panic
  - Suicidal ideation, suicide attempt, completed suicide

FDA boxed warning removed Dec 2016

Advise patients to stop taking VARENICLINE or BUPROPION SR and contact a health care provider immediately if symptoms such as agitation, depressed mood, or changes in behavior or thinking that are not typical are observed or if the patient develops suicidal ideation or suicidal behavior.

Neuropsychiatric safety and efficacy of varenicline, bupropion, and nicotine patch in smokers with and without psychiatric disorders (EAGLES): a double-blind, randomised, placebo-controlled clinical trial

Robert M Anthenelli, Neal L Benowitz, Robert West, Lisa St Aubin, Thomas McRae, David Lawrence, John Ascher, Cristina Russ, Alok Krishen, A Eden Evins

Summary

Background Substantial concerns have been raised about the neuropsychiatric safety of the smoking cessation medications varenicline and bupropion. Their efficacy relative to nicotine patch largely relies on indirect comparisons, and there is limited information on safety and efficacy in smokers with psychiatric disorders. We compared the relative neuropsychiatric safety risk and efficacy of varenicline and bupropion with nicotine patch and placebo in smokers with and without psychiatric disorders.

Methods We did a randomised, double-blind, triple-dummy, placebo-controlled and active-controlled (nicotine patch; 21 mg per day with taper) trial of varenicline (1 mg twice a day) and bupropion (150 mg twice a day) for 12 weeks with 12-week non-treatment follow-up done at 140 centres (clinical trial centres, academic centres, and outpatient clinics) in 16 countries between Nov 30, 2011, and Jan 13, 2015. Participants were motivated-to-quit smokers with and without psychiatric disorders who received brief cessation counselling at each visit. Randomisation

Lancet 2016; 387: 2507–20

Published Online
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http://dx.doi.org/10.1016/S0140-6736(16)30272-0

See Comment page 2481

University of California, San Diego, CA, USA (Prof R M Anthenelli MD); University of California, San Francisco, CA, USA (Prof N L Benowitz MD); University College, London, UK

VARENICLINE and BUPROPION SR: Safety Update

FDA-mandated clinical trial

24-week, double-blind; active and placebo-controlled:

- Varenicline: standard dosing, 12 wks
- Bupropion SR: standard dosing, 12 wks
- Nicotine patch: 21 mg/day with standard taper, 12 wks
- Placebo, 12 wks
- All arms: 13 counseling visits, 11 telephone calls

n=8,144 (4028 non-psychiatric cohort; 4,116 psychiatric cohort)

Follow-up through 24 wks; outcome = continuous abstinence

Anthenelli RM et al. Lancet 2016;387:2508-2520.

VARENICLINE and BUPROPION SR: Safety Update (cont'd)

Incidence of Moderate or Severe Neuropsychiatric Adverse Events

Patient cohort	Varenicline	Bupropion SR	Nicotine patch	Placebo
Non-psychiatric	1.3%	2.2%	2.5%	2.4%
Psychiatric	6.5%	6.7%	5.2%	4.9%

No significant differences in neuropsychiatric events by treatment arm

Anthenelli RM et al. Lancet 2016;387:2508-2520.

EAGLES STUDY: Efficacy Data

% Achieving Continuous Abstinence, Weeks 9-24

Patient cohort	Varenicline	Bupropion SR	Nicotine patch	Placebo
Non-psychiatric	25.5%	18.8%	18.5%	10.5%
Psychiatric	18.3%	13.7%	13.0%	8.3%

Highest efficacy with varenicline

Anthenelli RM et al. Lancet 2016;387:2508-2520.

Drug Safety and Availability
Drug Alerts and Statements
Medication Guides
Drug Safety Communications
Drug Shortages
Postmarket Drug Safety Information for Patients and Providers
Information by Drug Class
Medication Errors
Drug Safety Podcasts
Safe Use Initiative
Drug Recalls
Drug Supply Chain Integrity

FDA Drug Safety Communication: FDA revises description of mental health side effects of the stop-smoking medicines Chantix (varenicline) and Zyban (bupropion) to reflect clinical trial findings

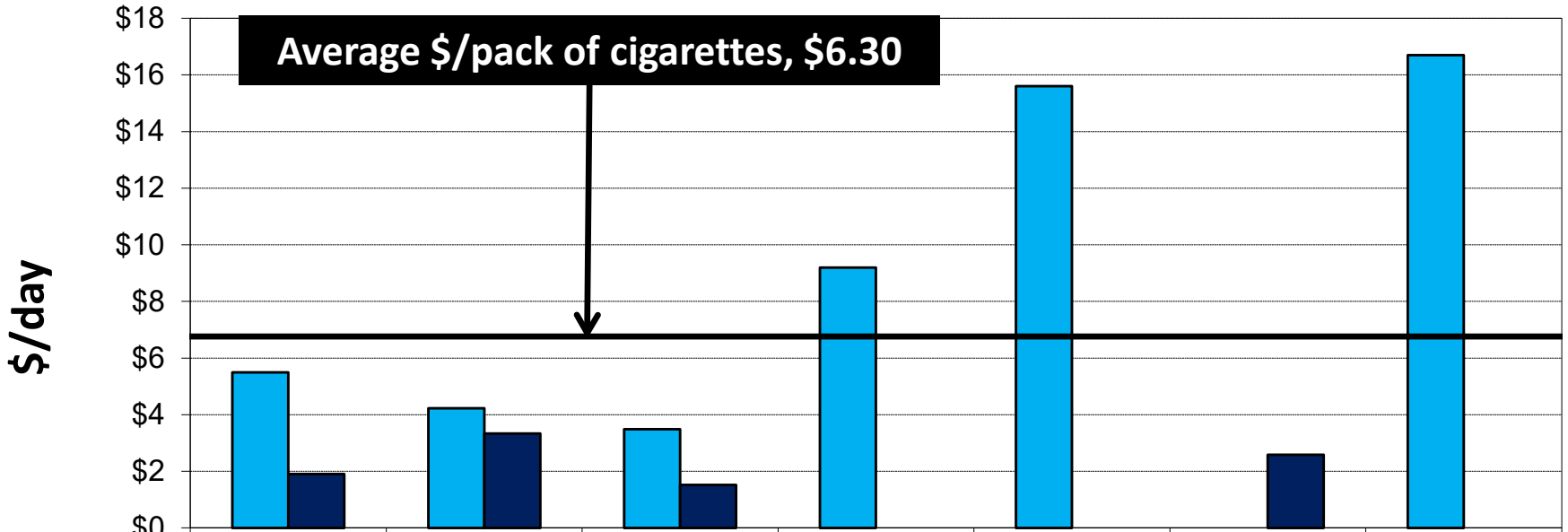
This is an update to the **Drug Safety Communication** issued on March 9, 2015.

Safety Announcement

[12-16-2016] Based on a U.S. Food and Drug Administration (FDA) review of a large clinical trial that we required the drug companies to conduct,[1] we have determined the risk of serious side effects on mood, behavior, or thinking with the stop-smoking medicines Chantix (varenicline) and Zyban (bupropion)* is lower than previously suspected. The risk of these mental health side effects is still present, especially in those currently being treated for mental illnesses such as depression, anxiety disorders, or schizophrenia, or who have been treated for mental illnesses in the past. However, most people who had these side effects did not have serious consequences such as hospitalization. The results of the trial confirm that the benefits of stopping smoking outweigh the risks of these medicines.

As a result of our review of the large clinical trial, we are removing the *Boxed Warning*, FDA's most prominent warning, for serious mental health side effects from the Chantix drug label. The language describing the serious mental health side effects seen in patients quitting smoking will also be removed from the *Boxed Warning* in the Zyban label.† We are also updating the existing warning section in both labels that describes the side effects on mood, behavior, or thinking to include the results from the clinical trial. This

COMPARATIVE DAILY COSTS* of PHARMACOTHERAPY



	Gum	Lozenge	Patch	Nasal spray	Inhaler	Bupropion SR	Varenicline
Trade	$5.49	$4.23	$3.49	$9.19	$15.60		$16.70
Generic	$1.90	$3.33	$1.52			$2.58	

*Wholesale acquisition cost from Red Book Online. Thomson Reuters, January 2020.

TREATMENT CONSIDERATIONS: Mental Health

- Might require:
  - Longer durations for medication regimens
  - More intensive medication treatment (combined medications)
  - More intensive behavioral counseling
- To enhance adherence, consider QD or BID dosing
  - Varenicline recommended in patients with MH disorders (ATS, 2020)
- Closer monitoring to ensure adherence
  - Adjust medication(s), strength(s), and timing of doses to more effectively alleviate withdrawal
- Discuss caffeine consumption

Drug Interactions with Smoking

Drug Interactions with Tobacco Smoke

Many interactions between tobacco smoke and medications have been identified. Note that in most cases it is the tobacco smoke—not the nicotine—that causes these drug interactions. Tobacco smoke interacts with medications through pharmacokinetic (PK) and pharmacodynamic (PD) mechanisms. PK interactions affect the absorption, distribution, metabolism, or elimination of other drugs, potentially causing an altered pharmacologic response. The majority of PK interactions with smoking are the result of induction of hepatic cytochrome P450 enzymes (primarily CYP1A2). Smokers may require higher doses of medications that are CYP1A2 substrates. Upon cessation, dose reductions might be needed. PD interactions alter the expected response or actions of other drugs. The amount of tobacco smoking needed to have an effect has not been established, and the assumption is that any smoker is susceptible to the same degree of interaction.
The most clinically significant interactions are depicted in the shaded rows.

Drug/Class	Mechanism of Interaction and Effects
Pharmacokinetic Interactions	
Alprazolam (Xanax®)	▪ Conflicting data on significance, but possible ↓ plasma concentrations (up to 50%); ↓ half-life (35%).
Bendamustine (Treanda®)	▪ Metabolized by CYP1A2. Manufacturer recommends using with caution in smokers due to likely ↓ bendamustine concentrations, with ↑ concentrations of its two active metabolites.
Caffeine	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (56%). Caffeine levels likely ↑ after cessation.
Chlorpromazine (Thorazine®)	▪ ↓ Area under the curve (AUC) (36%) and serum concentrations (24%). ▪ ↓ Sedation and hypotension possible in smokers; smokers may require ↑ dosages.
Clopidogrel (Plavix®)	▪ ↑ Metabolism (induction of CYP1A2) of clopidogrel to its active metabolite. ▪ Enhanced response to clopidogrel in smokers (≥10 cigarettes/day): ↑ platelet inhibition, ↓ platelet aggregation; improved clinical outcomes have been shown (smokers' paradox; may be dependent on CYP1A2 genotype); tobacco cessation should still be recommended in at-risk populations needing clopidogrel.
Clozapine (Clozaril®)	▪ ↑ Metabolism (induction of CYP1A2); ↓ plasma concentrations (by 18%). ▪ ↑ Levels upon cessation may occur; closely monitor drug levels and reduce dose as required to avoid toxicity.
Erlotinib (Tarceva®)	▪ ↑ Clearance (24%); ↓ trough serum concentrations (2-fold).
Flecainide (Tambocor®)	▪ ↑ Clearance (61%); ↓ trough serum concentrations (25%). ▪ Smokers may need ↑ dosages.
	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (24%); ↓ AUC (31%); ↓ Cmax (32%)

DRUG INTERACTIONS with SMOKING

- **Pharmacokinetic (PK)**
  - Impact of the body on the drug
  - Affects absorption, distribution, metabolism, and elimination (ADME) of drugs
  - Can alter the pharmacologic response to the drug
- **Pharmacodynamic (PD)**
  - Impact of the drug on the body
  - Can alter the expected response or actions of other drugs

Smokers typically require higher doses of medications that are metabolized by the CYP1A2 enzyme; when quitting, dose reductions might be needed.

DRUG INTERACTIONS with TOBACCO SMOKE: Key Points

- Clinically significant interactions result the combustion products of tobacco smoke, not from nicotine.
- Constituents in tobacco smoke (e.g., polycyclic aromatic hydrocarbons; PAHs) may enhance the metabolism of other drugs, resulting in an altered pharmacologic response.
- Changes in smoking status might alter the clinical response to the treatment of a wide variety of conditions.
- Drug interactions with smoking should be considered when patients start smoking, quit smoking, or markedly alter their levels of smoking.

PHARMACOKINETIC DRUG INTERACTIONS with SMOKING

Drugs that may have a *decreased effect* due to induction of CYP1A2 (↑ metabolism) in the presence of tobacco smoke:

- Bendamustine
- Caffeine
- Clozapine
- Erlotinib
- Fluvoxamine
- Haloperidol
- Olanzapine
- Riociguat
- Ropinirole
- Tacrine
- Tasimelteon
- Theophylline
- Irinotecan (clearance increased and systemic exposure decreased, due to increased glucuronidation of its active metabolite)

Smoking cessation will reverse these effects.

DRUG INTERACTION: Tobacco Smoke and Caffeine

- Constituents in tobacco smoke induce CYP1A2 enzymes, which metabolize caffeine
  - Caffeine levels increase ~56% upon quitting
- Nicotine withdrawal effects might be enhanced by increased caffeine levels
- RECOMMENDATION when quitting:
  - Decrease caffeine intake by 50%
  - No caffeine after 1PM for individuals with a typical bedtime

Symptoms of caffeine excess can be confused with nicotine withdrawal.

PHARMACODYNAMIC DRUG INTERACTIONS with SMOKING

Smokers who use combined hormonal contraceptives have an increased risk of serious cardiovascular adverse effects:

- Stroke
- Myocardial infarction
- Thromboembolism

This interaction **does not** decrease the efficacy of hormonal contraceptives.

Women who are 35 years of age or older AND smoke at least 15 cigarettes per day are at significantly elevated risk.

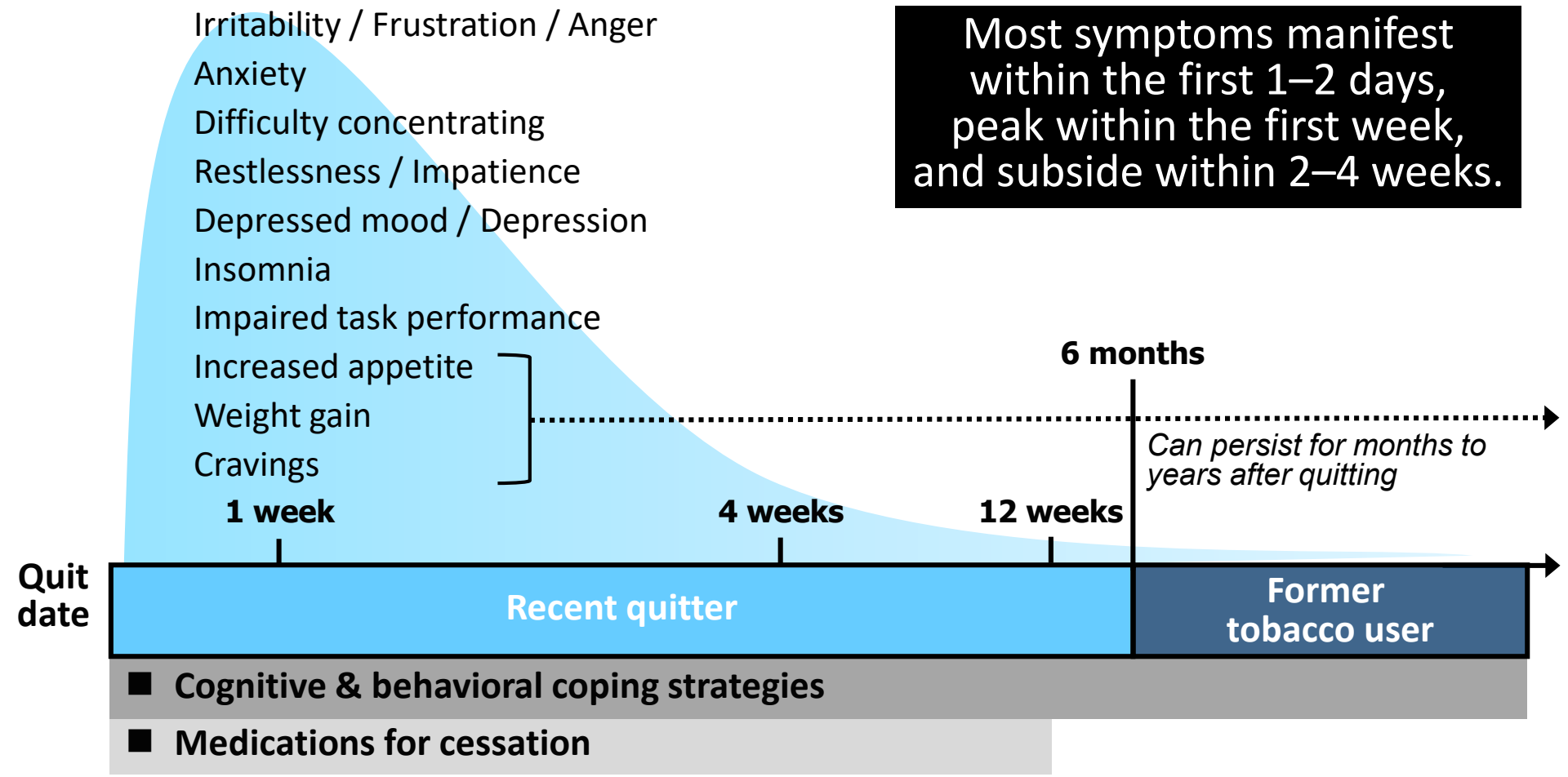
"Drugs don't work…

…in patients who don't take them."

C. Everett Koop, M.D., former U.S. Surgeon General

Medication adherence should be addressed at each encounter.

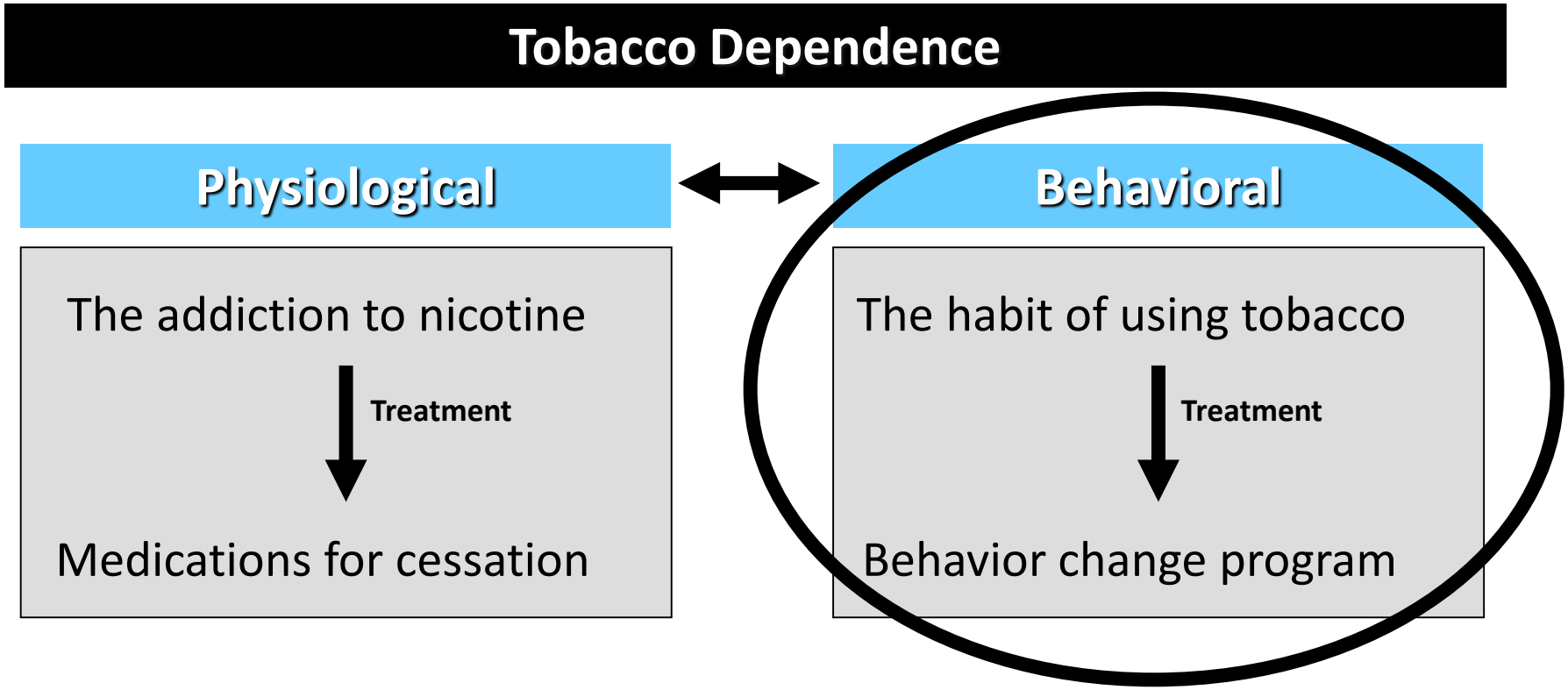
NICOTINE WITHDRAWAL SYMPTOMS



*Timeline aspect of the figure is not according to scale.

Data from Hughes. (2007). *Nicotine Tob Res* 9:315–327.

TOBACCO DEPENDENCE: A 2-PART PROBLEM



Treatment should address the physiological **and** the behavioral aspects of dependence.

Additional Tools

rethink tobacco indiana

Pharmacologic Product Guide: FDA-Approved Medications for Smoking Cessation

	Nicotine Replacement Therapy (NRT) Formulations					Bupropion SR	Varenicline
	Gum	**Lozenge**	**Transdermal Patch**	**Nasal Spray**	**Oral Inhaler**		
Product	**Nicorette[1], Generic** OTC 2 mg, 4 mg original, cinnamon, fruit, mint	**Nicorette[1], Generic** **Nicorette[1] Mini** OTC 2 mg, 4 mg; cherry, mint	**NicoDerm CQ[1], Generic** OTC (NicoDerm CQ, generic) 7 mg, 14 mg, 21 mg (24-hr release)	**Nicotrol NS[2]** Rx Metered spray 10 mg/mL nicotine solution	**Nicotrol Inhaler[2]** Rx 10 mg cartridge delivers 4 mg inhaled vapor	**Generic** **(formerly available as Zyban[1])** Rx 150 mg sustained-release tablet	**Chantix[2]** Rx 0.5 mg, 1 mg tablet
Precautions	▪ Recent (≤ 2 weeks) myocardial infarction ▪ Serious underlying arrhythmias ▪ Serious or worsening angina pectoris ▪ Temporomandibular joint disease ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years)	▪ Recent (≤ 2 weeks) myocardial infarction ▪ Serious underlying arrhythmias ▪ Serious or worsening angina pectoris ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years)	▪ Recent (≤ 2 weeks) myocardial infarction ▪ Serious underlying arrhythmias ▪ Serious or worsening angina pectoris ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years)	▪ Recent (≤ 2 weeks) myocardial infarction ▪ Serious underlying arrhythmias ▪ Serious or worsening angina pectoris ▪ Underlying chronic nasal disorders (rhinitis, nasal polyps, sinusitis) ▪ Severe reactive airway disease ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years)	▪ Recent (≤ 2 weeks) myocardial infarction ▪ Serious underlying arrhythmias ▪ Serious or worsening angina pectoris ▪ Bronchospastic disease ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years)	▪ Concomitant therapy with medications/conditions known to lower the seizure threshold ▪ Hepatic impairment ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years) ▪ Treatment-emergent neuropsychiatric symptoms[4] Boxed warning removed 12/2016 **Contraindications:** ▪ Seizure disorder ▪ Concomitant bupropion (e.g., Wellbutrin) therapy ▪ Current or prior diagnosis of bulimia or anorexia nervosa ▪ Simultaneous abrupt discontinuation of alcohol or sedatives/benzodiazepines ▪ MAO inhibitors in preceding 14 days; concurrent use of reversible MAO inhibitors	▪ Severe renal impairment (dosage adjustment is necessary) ▪ Pregnancy[3] and breastfeeding ▪ Adolescents (<18 years) ▪ Treatment-emergent neuropsychiatric symptoms[4] Boxed warning removed 12/2016
Dosing	*1st cigarette ≤30 minutes after waking:* 4 mg *1st cigarette >30 minutes after waking:* 2 mg Weeks 1–6: 1 piece q 1–2 hours Weeks 7–9: 1 piece q 2–4 hours Weeks 10–12: 1 piece q 4–8 hours ▪ Maximum, 24 pieces/day ▪ Chew each piece slowly ▪ Park between cheek and gum when peppery or tingling sensation appears (~15–30 chews) ▪ Resume chewing when tingle fades ▪ Repeat chew/park steps until most of the nicotine is gone (tingle does not return; generally 30 min) ▪ Park in different areas of mouth ▪ No food or beverages 15 minutes before or during use ▪ Duration: up to 12 weeks	*1st cigarette ≤30 minutes after waking:* 4 mg *1st cigarette >30 minutes after waking:* 2 mg Weeks 1–6: 1 lozenge q 1–2 hours Weeks 7–9: 1 lozenge q 2–4 hours Weeks 10–12: 1 lozenge q 4–8 hours ▪ Maximum, 20 lozenges/day ▪ Allow to dissolve slowly (20–30 minutes) ▪ Nicotine release may cause a warm, tingling sensation ▪ Do not chew or swallow ▪ Occasionally rotate to different areas of the mouth ▪ No food or beverages 15 minutes before or during use ▪ Duration: up to 12 weeks	*>10 cigarettes/day:* 21 mg/day x 4–6 weeks 14 mg/day x 2 weeks 7 mg/day x 2 weeks *≤10 cigarettes/day:* 14 mg/day x 6 weeks 7 mg/day x 2 weeks ▪ Rotate patch application site daily; do not apply a new patch to the same skin site for at least one week ▪ May wear patch for 16 hours if patient experiences sleep disturbances (remove at bedtime) ▪ Duration: 8–10 weeks	1–2 doses/hour (8–40 doses/day) One dose = 2 sprays (one in **each** nostril); each spray delivers 0.5 mg of nicotine to the nasal mucosa ▪ Maximum – 5 doses/hour or – 40 doses/day ▪ For best results, initially use at least 8 doses/day ▪ Do not sniff, swallow, or inhale through the nose as the spray is being administered ▪ Duration: 3 months	6–16 cartridges/day Individualize dosing; initially use 1 cartridge q 1–2 hours ▪ Best effects with continuous puffing for 20 minutes ▪ Initially use at least 6 cartridges/day ▪ Nicotine in cartridge is depleted after 20 minutes of active puffing ▪ Inhale into back of throat or puff in short breaths ▪ Do NOT inhale into the lungs (like a cigarette) but "puff" as if lighting a pipe ▪ Open cartridge retains potency for 24 hours ▪ No food or beverages 15 minutes before or during use ▪ Duration: 3–6 months	150 mg po q AM x 3 days, then 150 mg po bid ▪ Do not exceed 300 mg/day ▪ Begin therapy 1–2 weeks **prior** to quit date ▪ Allow at least 8 hours between doses ▪ Avoid bedtime dosing to minimize insomnia ▪ Dose tapering is not necessary ▪ Duration: 7–12 weeks, with maintenance up to 6 months in selected patients	Days 1–3: 0.5 mg po q AM Days 4–7: 0.5 mg po bid Weeks 2–12: 1 mg po bid ▪ Begin therapy 1 week **prior** to quit date ▪ Take dose after eating and with a full glass of water ▪ Dose tapering is not necessary ▪ Dosing adjustment is necessary for patients with severe renal impairment ▪ Duration: 12 weeks; an additional 12-week course may be used in selected patients ▪ May initiate up to 35 days before target quit date OR may reduce smoking over a 12-week period of treatment prior to quitting and continue treatment for an additional 12 weeks

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This program was developed in collaboration with the Rx for Change: Clinician-Assisted Tobacco Cessation program.

http://rxforchange.ucsf.edu

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