

Smoking Cessation Nicotine Replacement Therapy

Bovornpat Suriyapakorn, PharmD, BCPS

Department of Pharmacy Practice

Faculty of Pharmaceutical Sciences

Chulalongkorn University

E-mail: bovornpat.s@pharm.chula.ac.th

Disclosure

Faculty: Bovornpat Suriyapakorn, PharmD, BCPS

Relationships with commercial interests:

- Speakers: DKSH, Johnson & Johnson

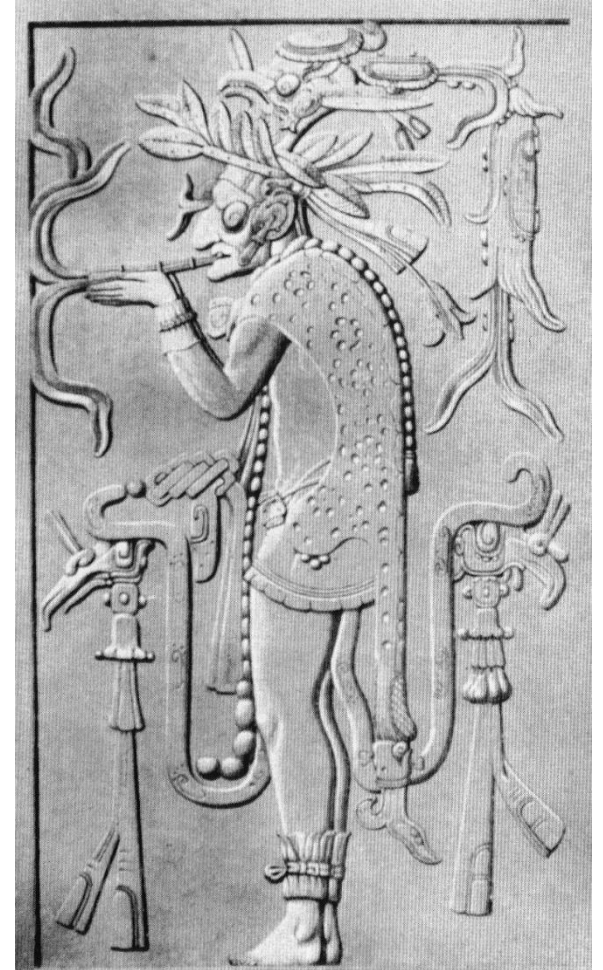
Managing potential bias

- Relationships do not affect my choices in developing content.

Outline

This Part of the Webinar Consists of

- ① Introduction
- ① Assess of Nicotine Dependence
- ① Smoking Cessation Strategy
- ① Non-Pharmacological Therapy
- ① Pharmacological Treatment
- ① Nicotine Replacement Therapy
- ① Compliance in Smoking Cessation



Tobacco Use

The use of tobacco in any form, frequently accompanied by addiction to nicotine.

 Secondhand smoke

 Thirdhand smoke

0-100 mg



0.2-34 mg/g



10-444 mg



1.13-3.30 mg/g



1-2 mg



Tobacco Use

Smoker



Currently smoking

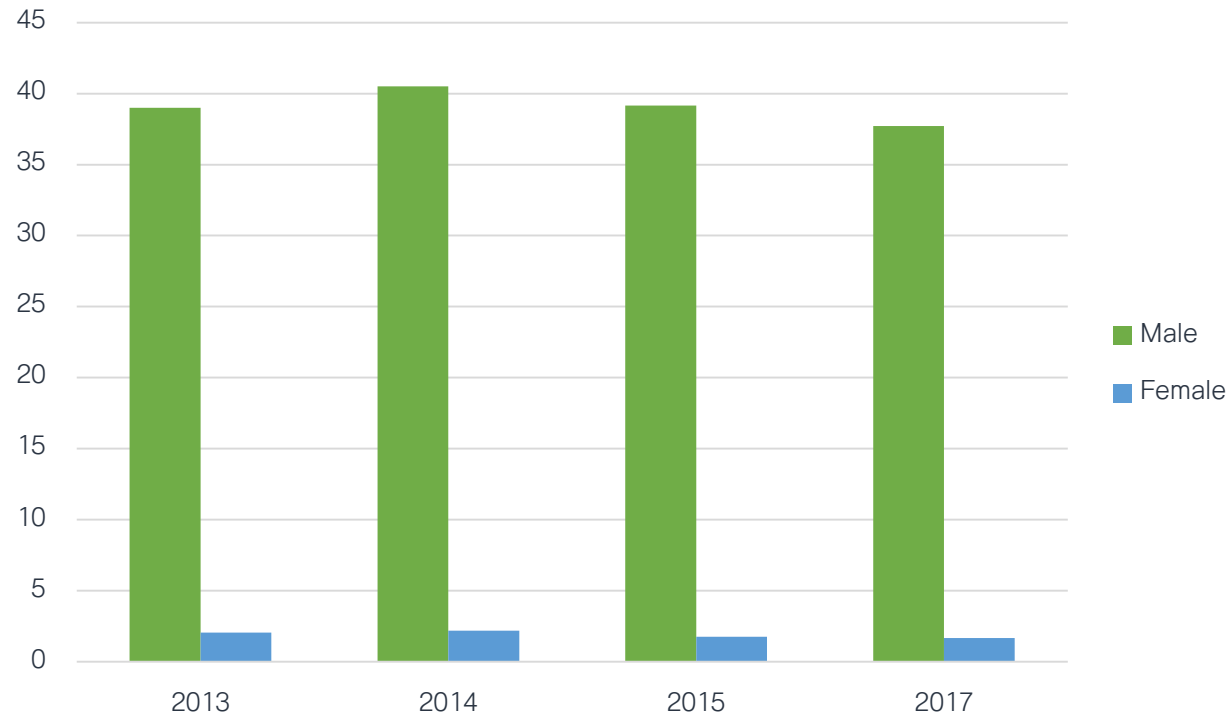


Who has smoked at least 100 cigarettes in entire life

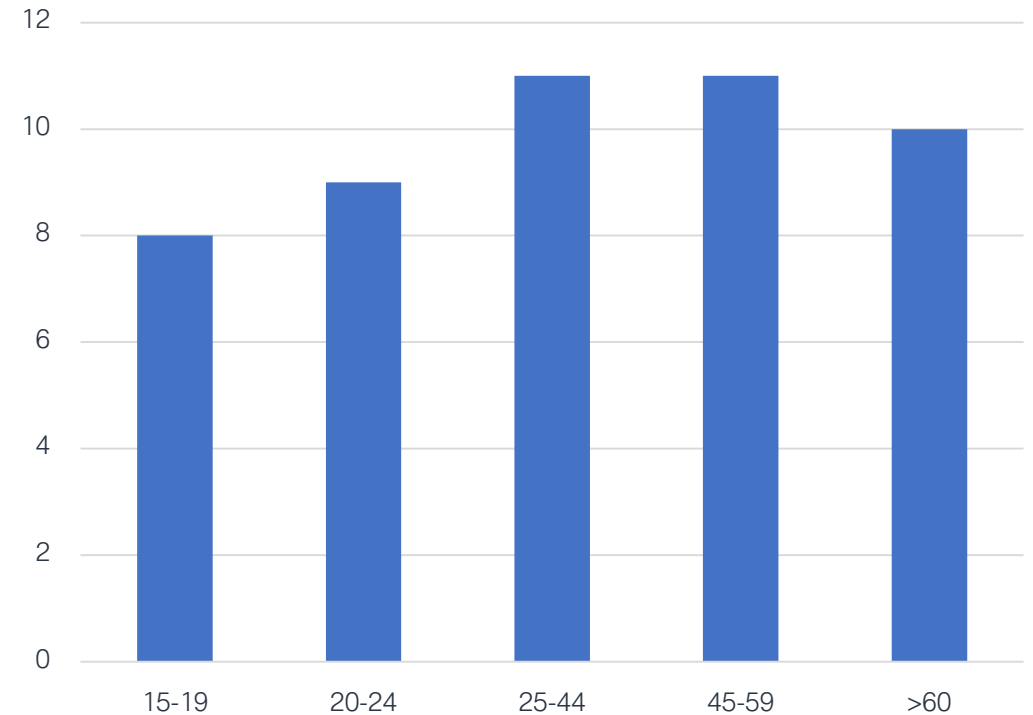
Tobacco Use

Tobacco Use in Thailand

Percentage of Tobacco Use in 15 year Thai









No. of Cigarette per Day According to Age



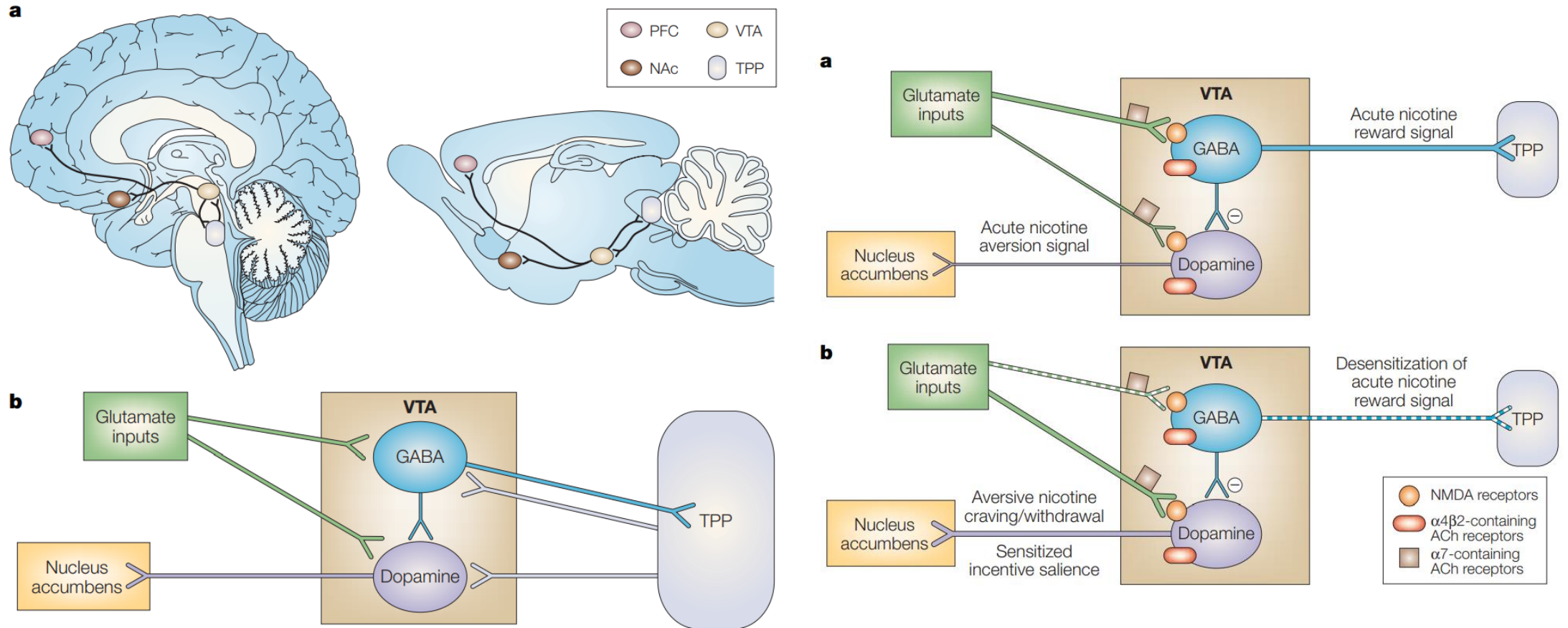
Tobacco Use

Risk Factors for Tobacco Use

-  Peer influence
-  Parental influence
-  Poor school performance
-  Risk-taking personality
-  Depression
-  Anxiety

Tobacco Use

Pathogenesis



Smoking Cessation

Interventions

- ① Brief intervention is generally advice and counseling <10 min in length
- ① Minimal intervention considered brief advice, usually <3 min
- ① Motivational interviewing involves a directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence

Smoking Cessation

Interventions

- ④ Counseling encompasses multiple modalities such as behavioral therapy, relaxation, practical counseling (skills training), and aversion therapy
- ④ Proactive telephone counseling includes quit-lines with call-back counseling
- ④ Reactive helplines require patient to initiate counseling and do not have call-back counseling

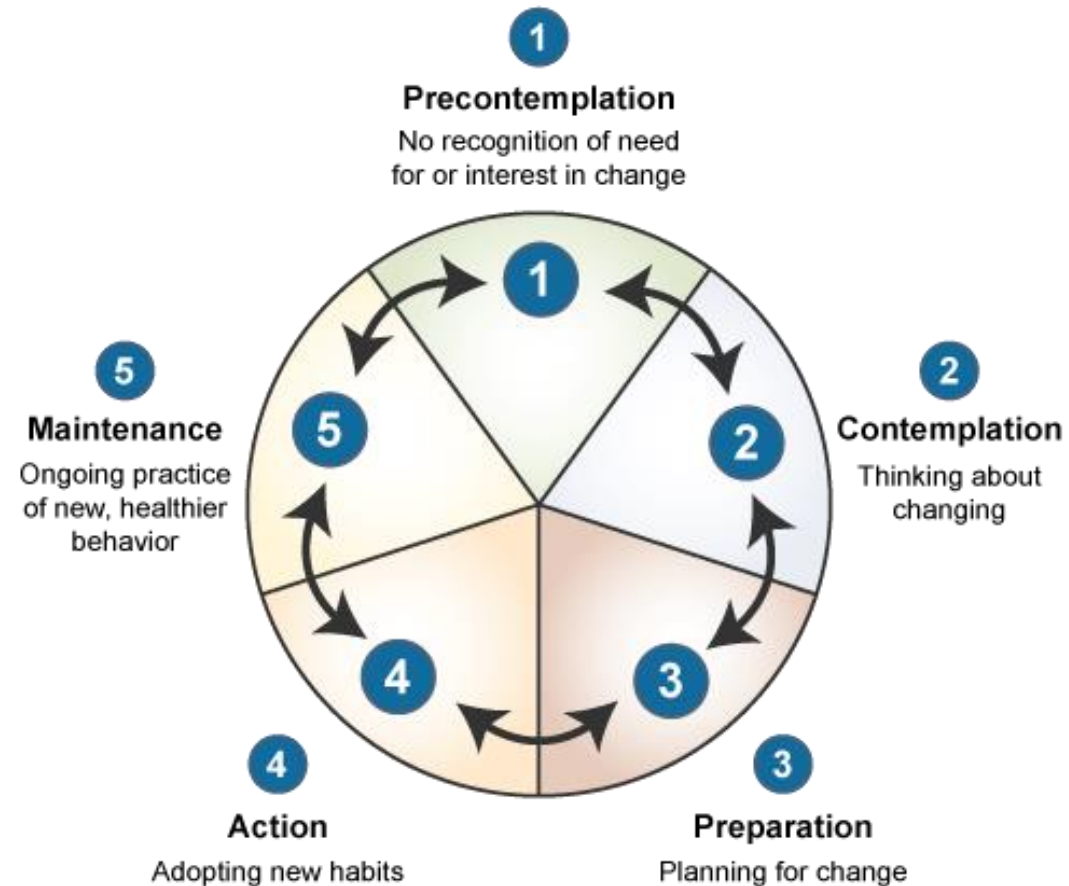
Smoking Cessation

Outcomes

- ② Continuous abstinence, a measure of abstinence based on whether subjects are continuously abstinent from quit day to a specific point in time such as end of treatment or 6 months after the quit day
- ② Point prevalence, defined as measure of abstinence within set time period, usually 7 days before follow-up assessment

Smoking Cessation

Stage Model of Behavioral Change – The Transtheoretical Model



Smoking Cessation

The 5A Approach

Ask-Advice-Refer

Ask	to quit at every visit
Advice	to quit tobacco every visit
Assess	willingness to quit at every visit
Assist	quitting within 2 weeks with pharmacotherapy or counseling
Arrange	follow-up contact in 1 st week after quitting

Smoking Cessation

The Fagerström Test for Nicotine Dependence (FTND)

1. How soon after you wake up do you smoke your first cigarette?
Within 5 minutes (3 points)
5 to 30 minutes (2 points)
31 to 60 minutes (1 point)
After 60 minutes (0 points)
2. Do you find it difficult not to smoke in places where you shouldn't, such as in church or school, in a movie, at the library, on a bus, in court or in a hospital?
Yes (1 point)
No (0 points)
3. Which cigarette would you most hate to give up; which cigarette do you treasure the most?
The first one in the morning (1 point)
Any other one (0 points)
4. How many cigarettes do you smoke each day?
10 or fewer (0 points)
11 to 20 (1 point)
21 to 30 (2 points)
31 or more (3 points)
5. Do you smoke more during the first few hours after waking up than during the rest of the day?
Yes (1 point)
No (0 points)
6. Do you still smoke if you are so sick that you are in bed most of the day, or if you have a cold or the flu and have trouble breathing?
Yes (1 point)
No (0 points)

Scoring: 7 to 10 points = highly dependent; 4 to 6 points = moderately dependent; less than 4 points = minimally dependent.

Smoking Cessation

The Heaviness of Smoking Index (HSI)

1. On the days that you smoke, how soon after you wake up do you have your first cigarette?
 - A. Within 5 minutes (3 points)
 - B. 6- 30 minutes (2 points)
 - C. 31-60 minutes (1 point)
 - D. After 60 minutes (0 points)

2. How many cigarettes do you typically smoke per day?
 - A. 10 or fewer (0 points)
 - B. 11-20 (1 point)
 - C. 21-30 (2 points)
 - D. 31 or more (3 points)

SCORING:

0-2: low addiction

3-4: moderate addiction

5-6: high addiction

Smoking Cessation

The Time to First Cigarette (TTFC)

1. How soon after you wake up do you smoke your first cigarette?

Within 5 minutes (3 points)

5 to 30 minutes (2 points)

31 to 60 minutes (1 point)

After 60 minutes (0 points)

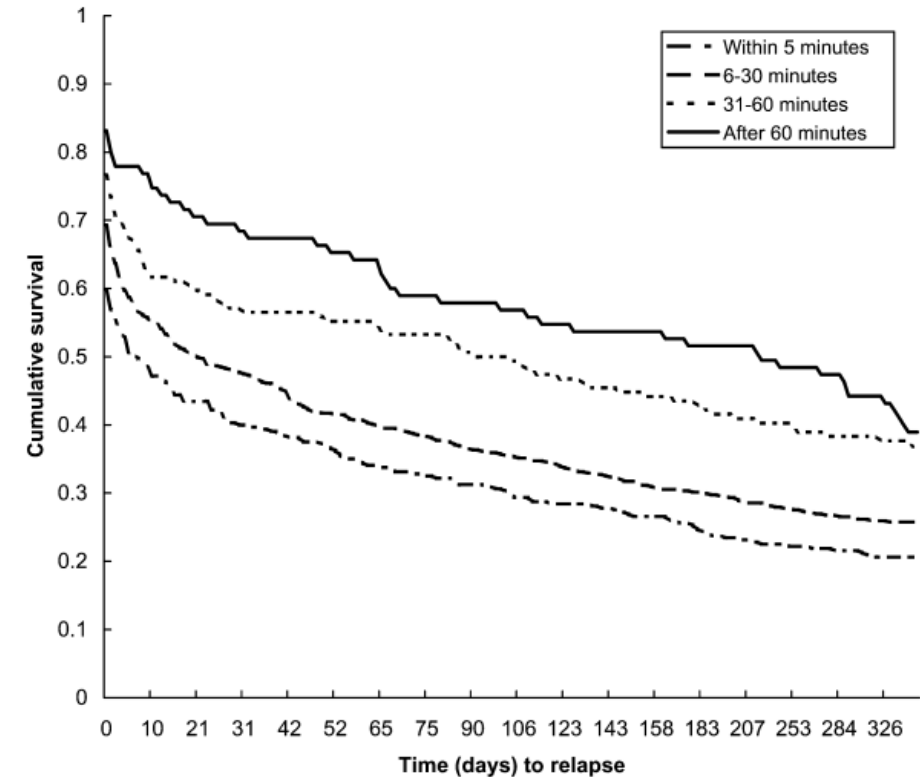
1. On the days that you smoke, how soon after you wake up do you have your first cigarette?

A. Within 5 minutes (3 points)

B. 6- 30 minutes (2 points)

C. 31-60 minutes (1 point)

D. After 60 minutes (0 points)



Smoking Cessation

Nicotine Withdrawal

Symptom	Duration	Incidence (%)
Lightheadedness	<48 h	10
Sleep disturbance	<1 wk	25
Poor concentration	<2 wk	60
Craving	<2 wk	70
Irritability or aggressiveness	<4 wk	50
Depression	<4 wk	60
Restlessness	<4 wk	60
Increased appetite	<10 wk	70

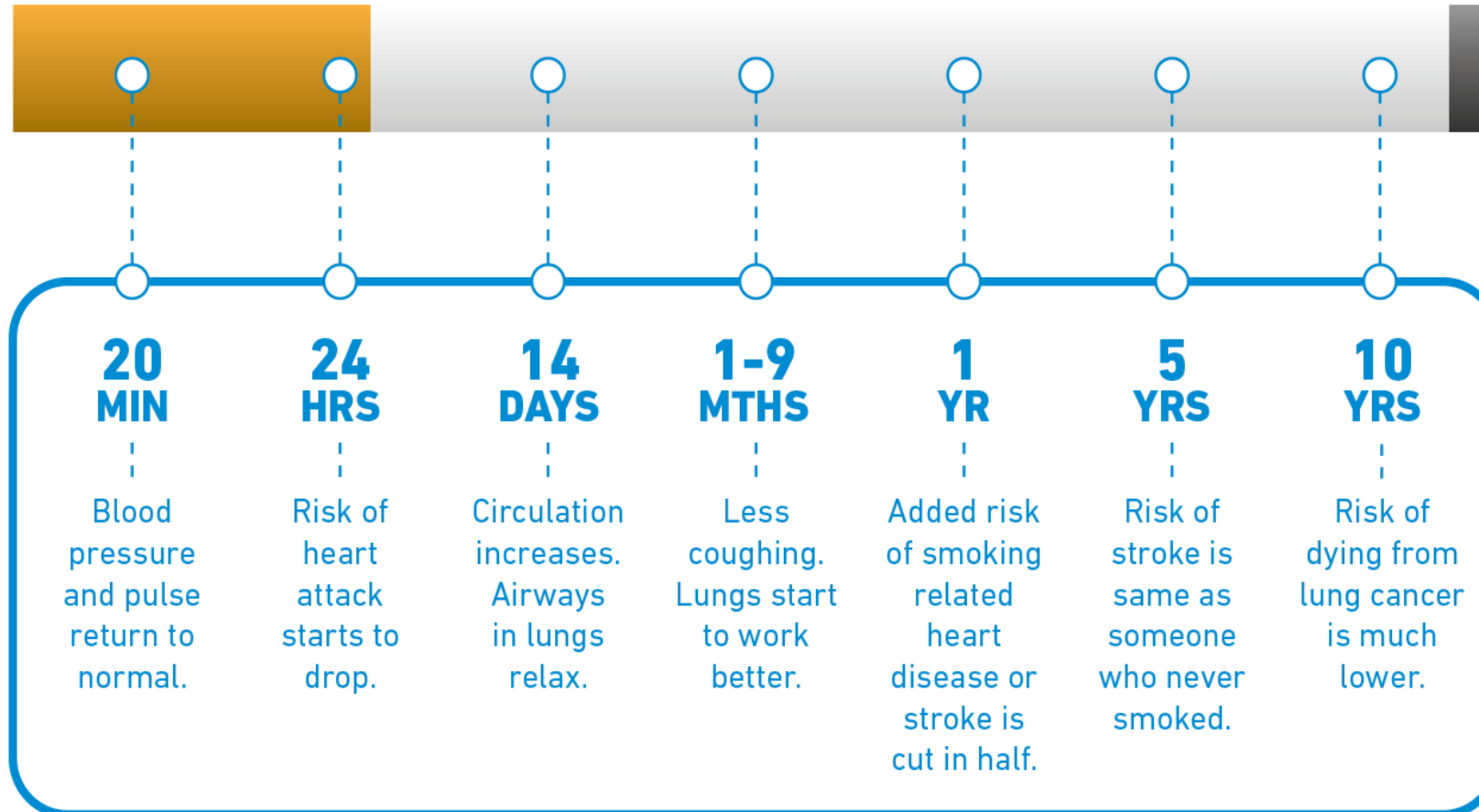
Smoking Cessation

The 5R Approach

Relevance	why quitting is important to them
Risks	negative consequences of ongoing habit
Rewards	benefits of tobacco cessation
Roadblocks	identify impediments to quitting
Repetition	repeat every time the pt. comes to the clinic

Smoking Cessation

Timeline Benefits



Smoking Cessation

WHO STAR Acronym

S	Set a quit date, ideally <2 weeks away
T	Tell family and friends about quitting
A	Anticipate challenges to the upcoming quit attempt
R	Remove tobacco products from environment

Smoking Cessation

Non-Pharmacological Therapy

- ④ Patient counseling (e.g. individual, group or telephone)
- ④ Web- and computer-based smoking cessation programs
- ④ Tailored self-help materials
- ④ Motivation interview
- ④ Behavioral therapy
- ④ Acupuncture
- ④ Mind-body intervention
- ④ Hypnotherapy

Smoking Cessation

Pharmacological Treatments

Labeled

- ⑩ Nicotine replacement therapy (NRT)
- ⑩ Bupropion SR
- ⑩ Varenicline

Off-label

- ⑩ Nortriptyline
- ⑩ Clonidine
- ⑩ Cytisine

Smoking Cessation

Pharmacological Treatments

Monotherapy

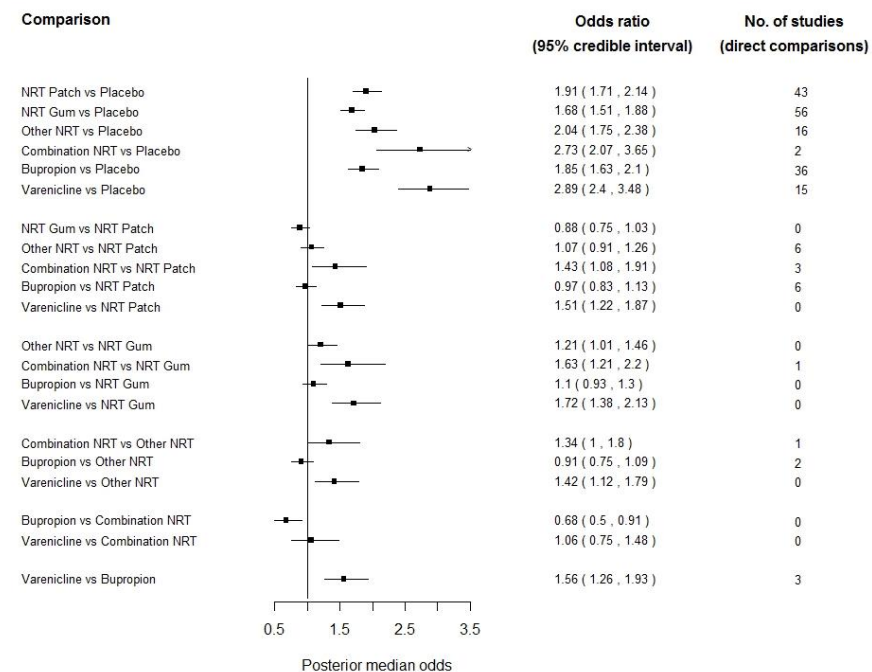
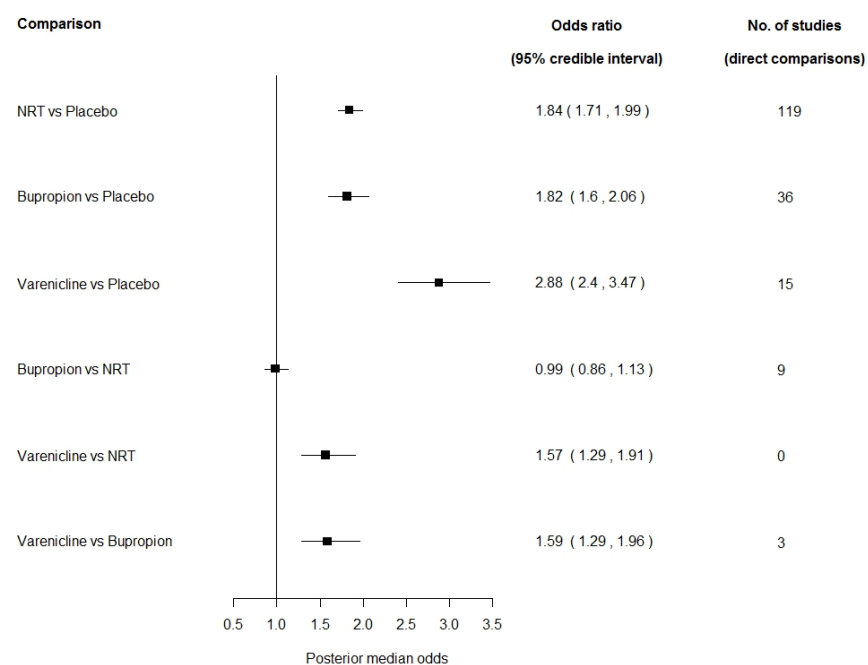
- ⑩ NRT
- ⑩ Bupropion SR
- ⑩ Varenicline
- ⑩ Nortriptyline
- ⑩ Clonidine

Combination Therapy

- ⑩ Combination NRT
- ⑩ Varenicline + NRT
- ⑩ Bupropion SR + NRT
- ⑩ Nortriptyline + NRT

Smoking Cessation

Pharmacological Treatment for Smoking Cessation



Smoking Cessation

Nicotine Replacement Therapy

- ☒ Gum
- ☒ Lozenges
- ☒ Transdermal patch
- ☒ Nasal spray
- ☒ Oral inhaler

Nicotine Gum



Nicotine Patches



Microtabs



Lozenges



Inhalators



Nasal Sprays



Hand-to-Mouth Ritual

Smoking Cessation

Interesting Points About NRT

- 🚭 Reducing the number of cigarettes
- 🚭 Combination therapy
- 🚭 Pre-quit NRT - “Nicotine Preloading”
- 🚭 Long-term NRT



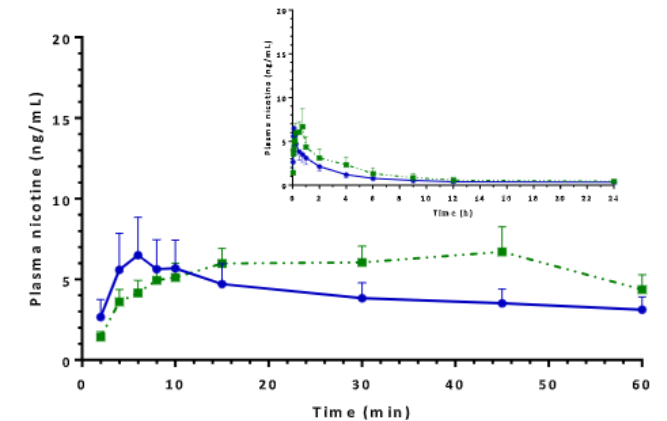
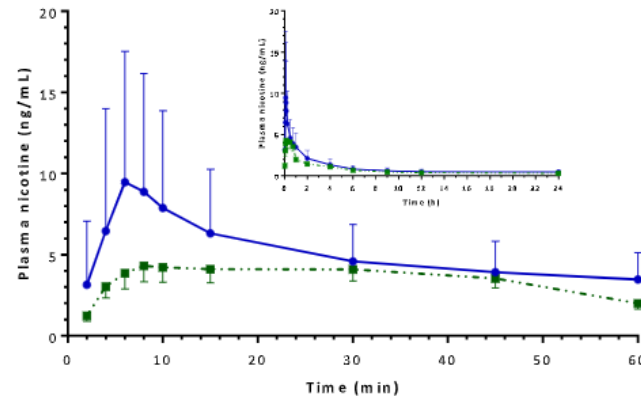
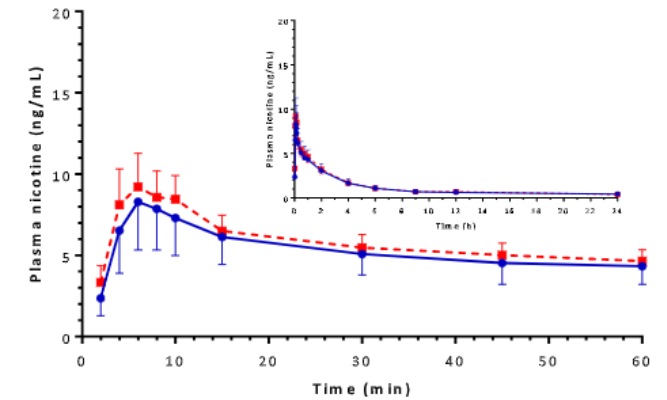
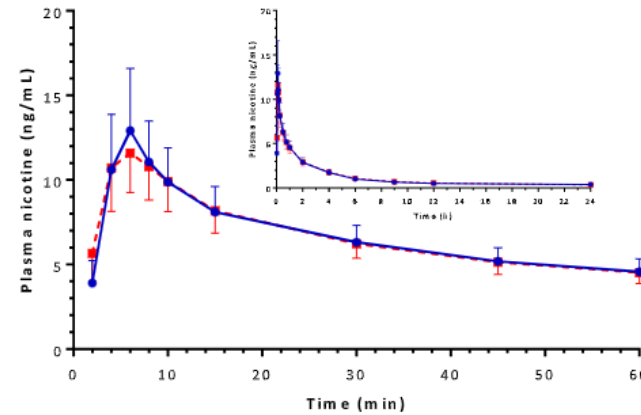
Smoking Cessation

Cigarette VS NRT

Blue - tobacco heat system

Red - cigarette

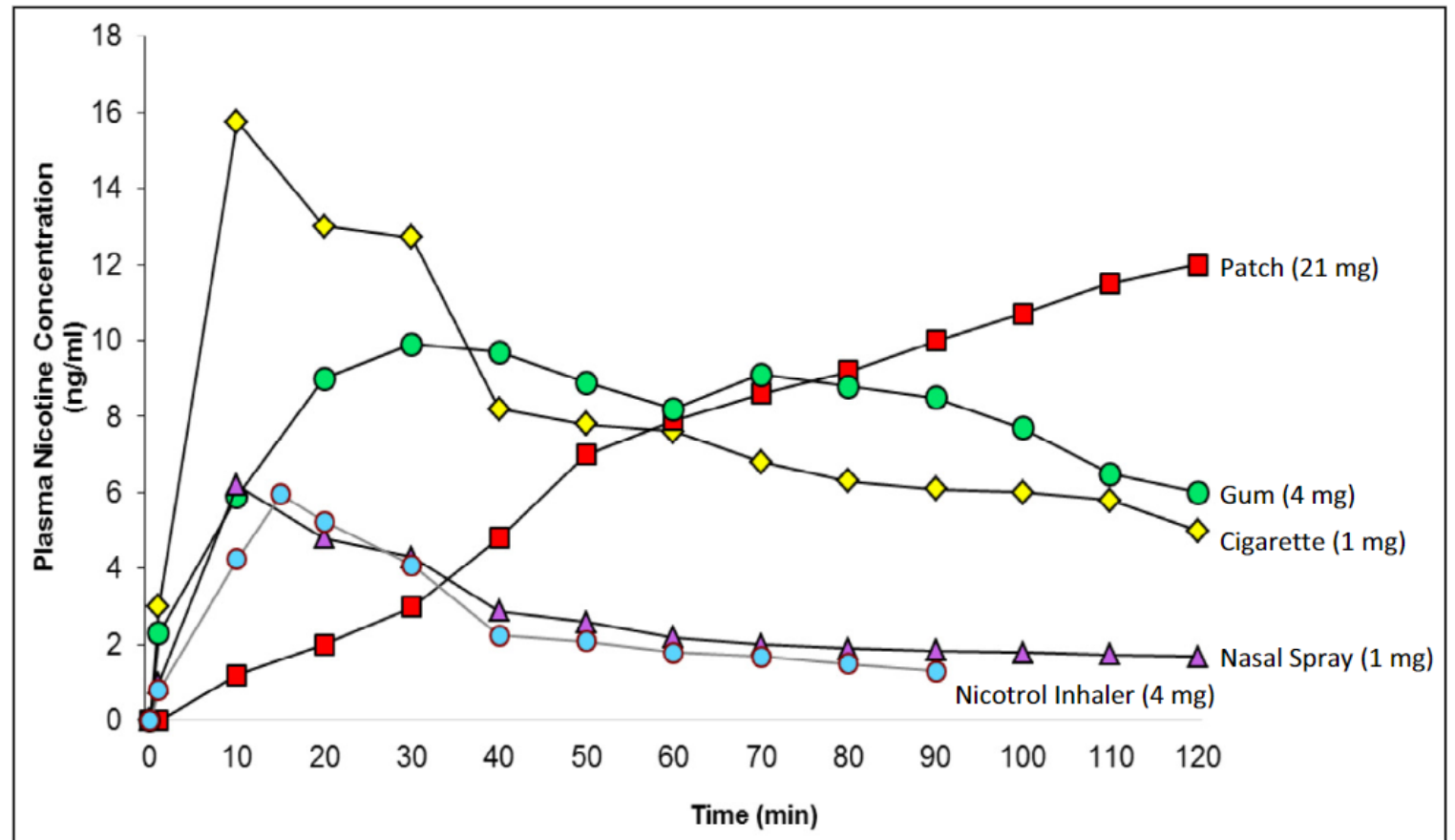
Green - nicotine gum



Smoking Cessation

Pharmacokinetics of NRT

- ☹ Rescue NRT
(Reliever NRT)
- ☹ Controller NRT



Smoking Cessation

Nicotine Gum

Dosage

- ⊗ 2 mg [if first cigarette >30 min after waking]; ≤ 25 (20) cigarettes/day
- ⊗ 4 mg [if first cigarette <30 min after waking]; >25 (20) cigarettes/day



Smoking Cessation

Nicotine Gum

Cautions and ADR

- ⊗ Pregnancy, breastfeeding, adolescent (<18 years)
- ⊗ Eating or drinking before and during chewing
- ⊗ Recent MI, arrhythmia, angina pectoris, TMJ disease
- ⊗ Mouth soreness, jaw ache, hiccups, dyspepsia, and heartburn

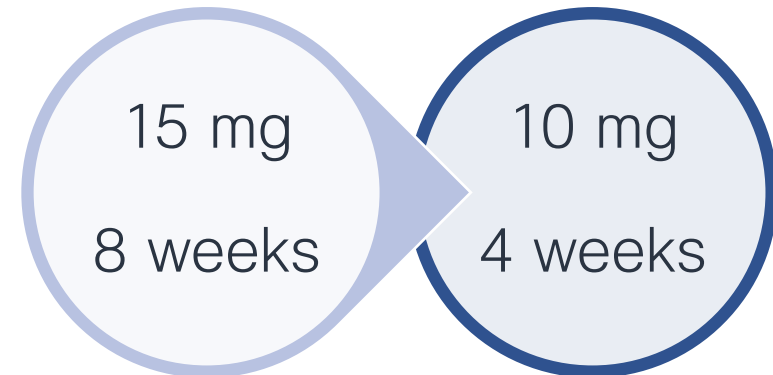
Smoking Cessation

Nicotine Transdermal Patch - Patch 24 h VS 16 h

Dosage

🚭 >20 cigarettes/day

🚭 ≤20 cigarettes/day



Smoking Cessation

Nicotine Transdermal Patch

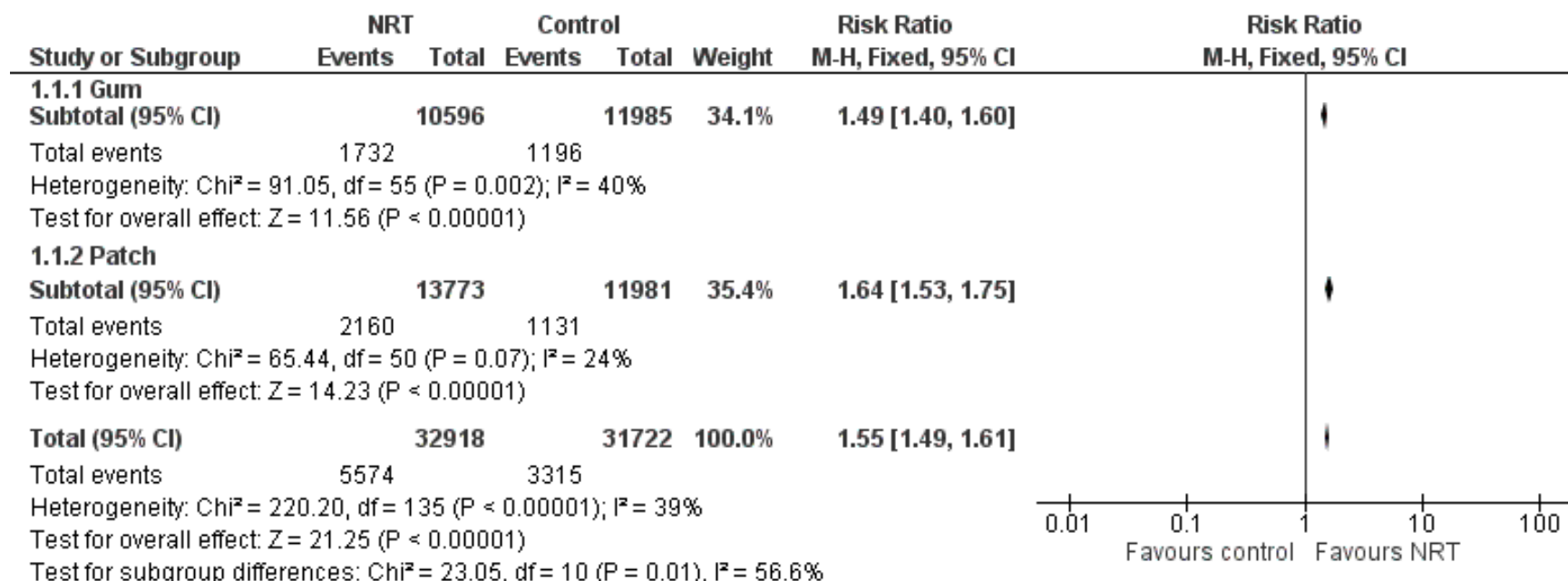
Cautions and ADR

- ⊗ Pregnancy, breastfeeding, adolescent (<18 years)
- ⊗ Skin area
- ⊗ Timing of application
- ⊗ Heavy sweat activities
- ⊗ Local skin reaction (e.g. erythema, pruritus, burning), sleep disturbances
- ⊗ Recent MI, arrhythmia, angina pectoris

Smoking Cessation

NRT Appears Effective for Smoking Cessation

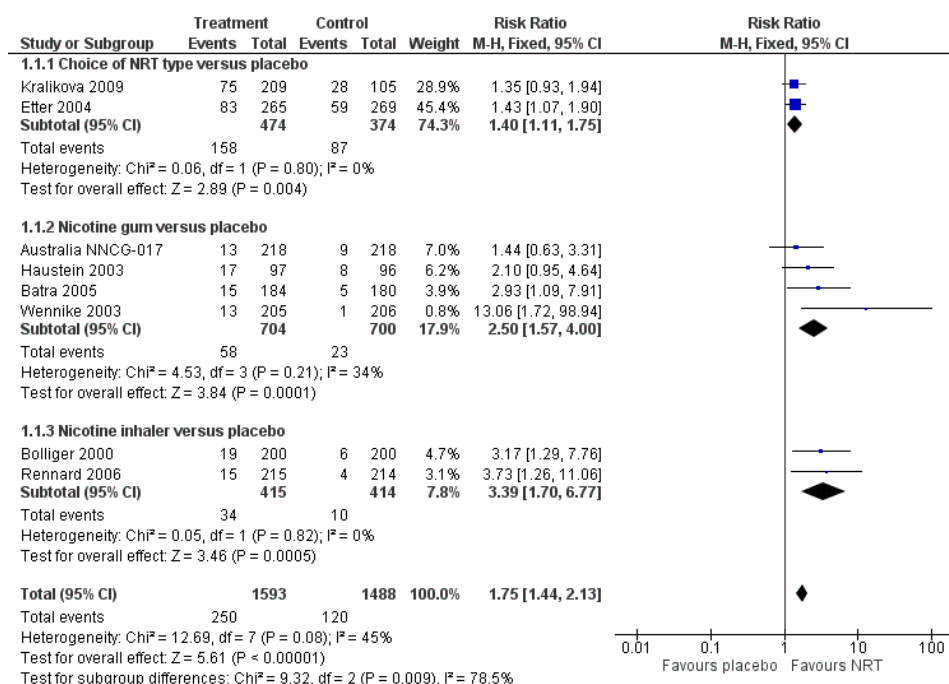
- ⊗ 133 RCTs (64,460 patients) comparing NRT VS placebo or no NRT



Smoking Cessation

NRT May Increase Smoking Cessation in Patients Interested in Reducing Tobacco Consumption without Quitting

⊗ 8 RCTs (3,081 patients) comparing NRT VS placebo



Smoking Cessation

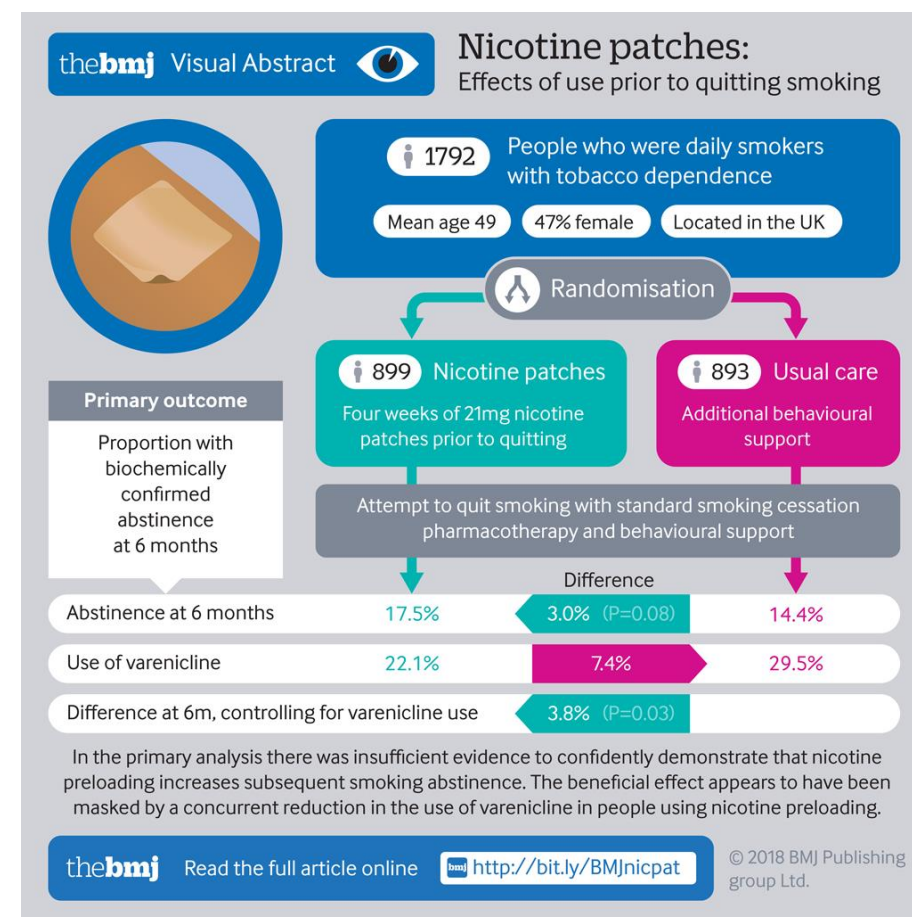
Combination NRT Increases Smoking Cessation Compared to Single NRT

- ④ 14 RCTs (11,356 patients) comparing combination NRT VS single NRT
 - ④ Compared to single NRT; RR 1.25 (1.15-1.36), $I^2 = 4\%$
 - ④ Compared to patch; RR 1.23 (1.12-1.36), $I^2 = 32\%$
 - ④ Compared to fast-acting NRT; RR 1.3 (1.09-1.54), $I^2 = 0\%$

Smoking Cessation

Nicotine Patch 4 Weeks Prior to Quit Date

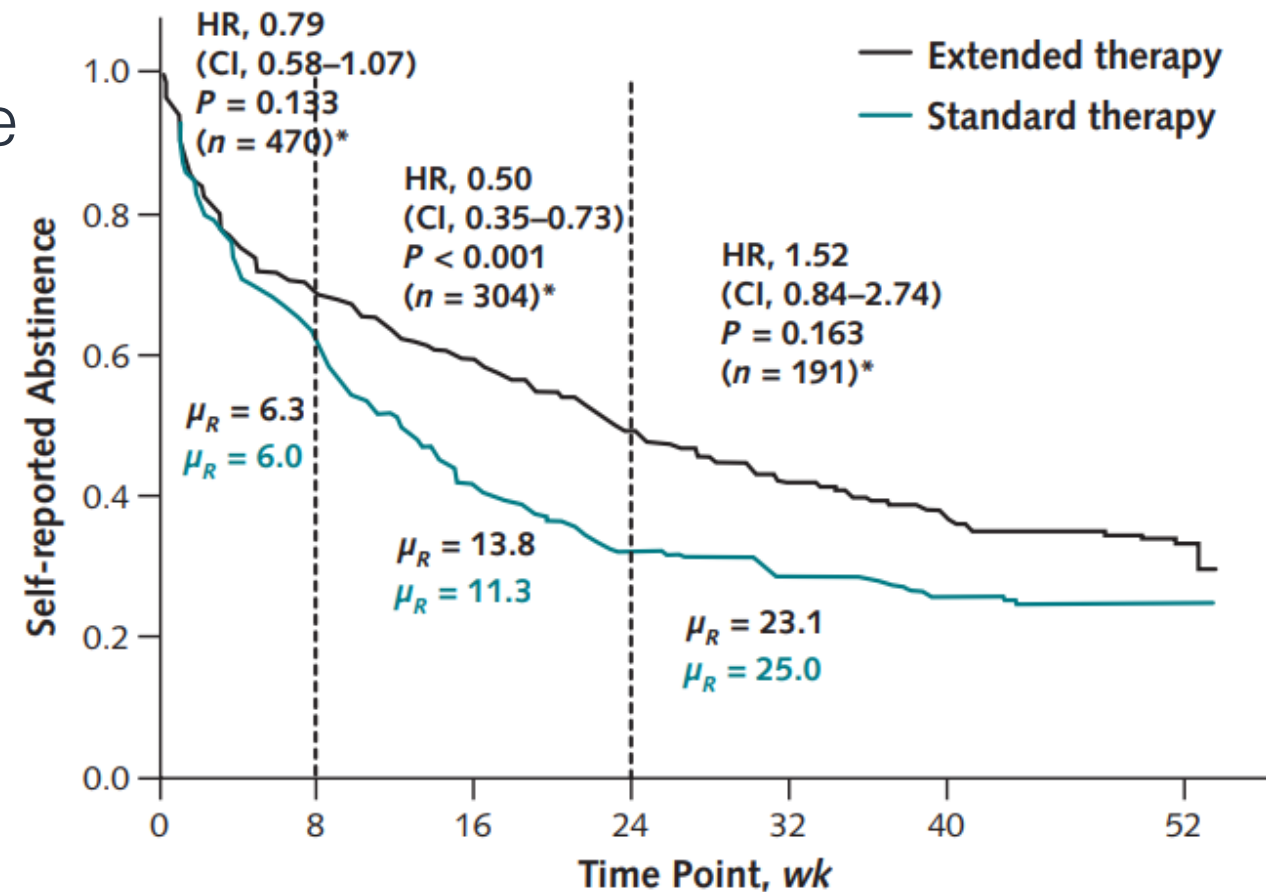
- 🚭 @ 6 months; OR 1.34 (1.03-1.73)
- 🚭 @ 12 months; OR 1.36 (1.02-1.80)



Smoking Cessation

Extended-Duration of Transdermal Nicotine Therapy

- ⑧ 8 weeks VS 24 weeks
- ⑧ Point-prevalence abstinence
 - ⑧ OR 1.81 (1.23-2.66)
- ⑧ Prolonged abstinence
 - ⑧ OR 1.64 (1.38-2.82)
- ⑧ Continuous abstinence
 - ⑧ OR 1.64 (1.04-2.60)

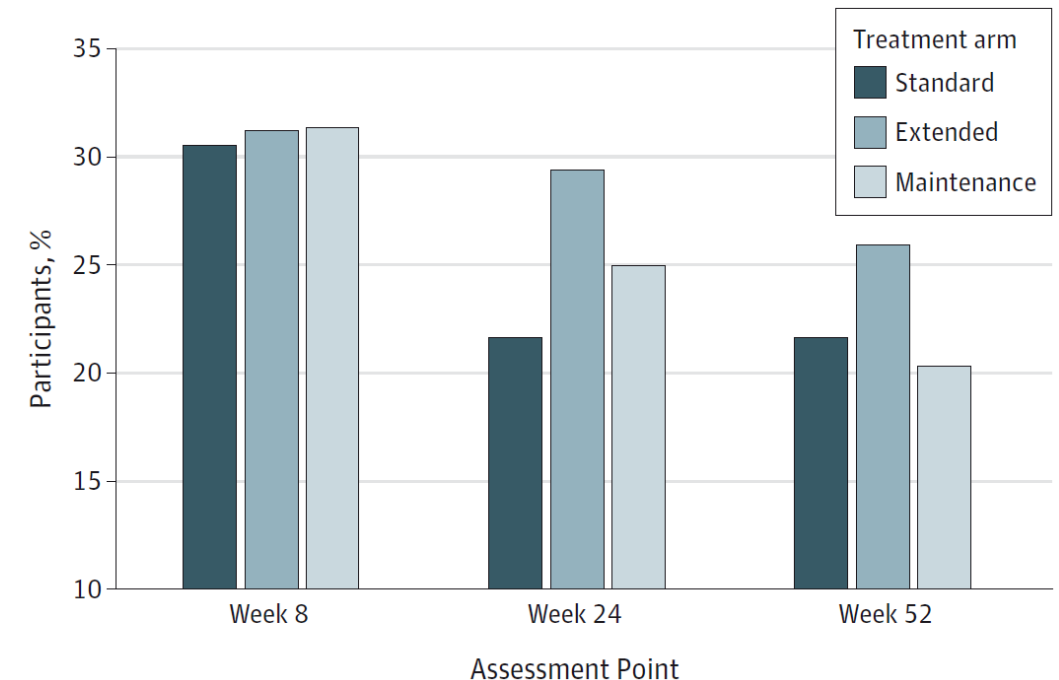


Smoking Cessation

Extended-Duration of Transdermal Nicotine Therapy

- ⑧ 8 weeks VS 24 weeks VS 52 weeks
- ⑧ Point-prevalence abstinence
 - ⑧ @24 wk; OR 1.70 (1.03-2.81)
 - ⑧ @52 wk; OR 1.17 (0.69-1.68)

Figure 2. Seven-Day Point Prevalence Abstinence Rates by Treatment Arm and Assessment Point



Smoking Cessation

Choice of Formulation

- ⊗ Past successful experience
- ⊗ Likelihood of adherence
- ⊗ Dentures
- ⊗ Dermatitis
- ⊗ Cost



Smoking Cessation

Dispensing NRT

- ⊗ Explain the rationale for NRT
- ⊗ Emphasis that nicotine is safe, effective and has a low risk of addiction
- ⊗ Start the nicotine patch 2 weeks before quit day
- ⊗ Give detailed instructions on the correct use
- ⊗ Emphasis the importance of using an adequate dose of oral forms - number of pieces per day

Smoking Cessation

Dispensing NRT

- ④ Choose combination therapy for most smokers, especially if cravings or withdrawal symptoms persist with monotherapy
- ④ Discuss possible side effects
- ④ Encourage a full course of treatment - at least 8 weeks
- ④ Continue the nicotine patch if a lapse occurs
- ④ Arrange follow up visits










Smoking Cessation

Factors Associated with Increased Compliance

- ⊗ Prior experience with specific cessation treatment
- ⊗ Past attempt to quit
- ⊗ Greater number of past quit attempts
- ⊗ Male
- ⊗ Older age
- ⊗ Greater educational attainment
- ⊗ White ethnicity









Smoking Cessation

Risk Factors for Relapse

-  Greater nicotine dependence
-  Greater frequency of smoking
-  Higher baseline biochemical measures of nicotine exposure
-  Other smokers in the home
-  Alcohol or substance abuse
-  Depression or other psychiatric disorder
-  High levels of stress
-  Low socioeconomic status
-  Current unemployment

Smoking Cessation

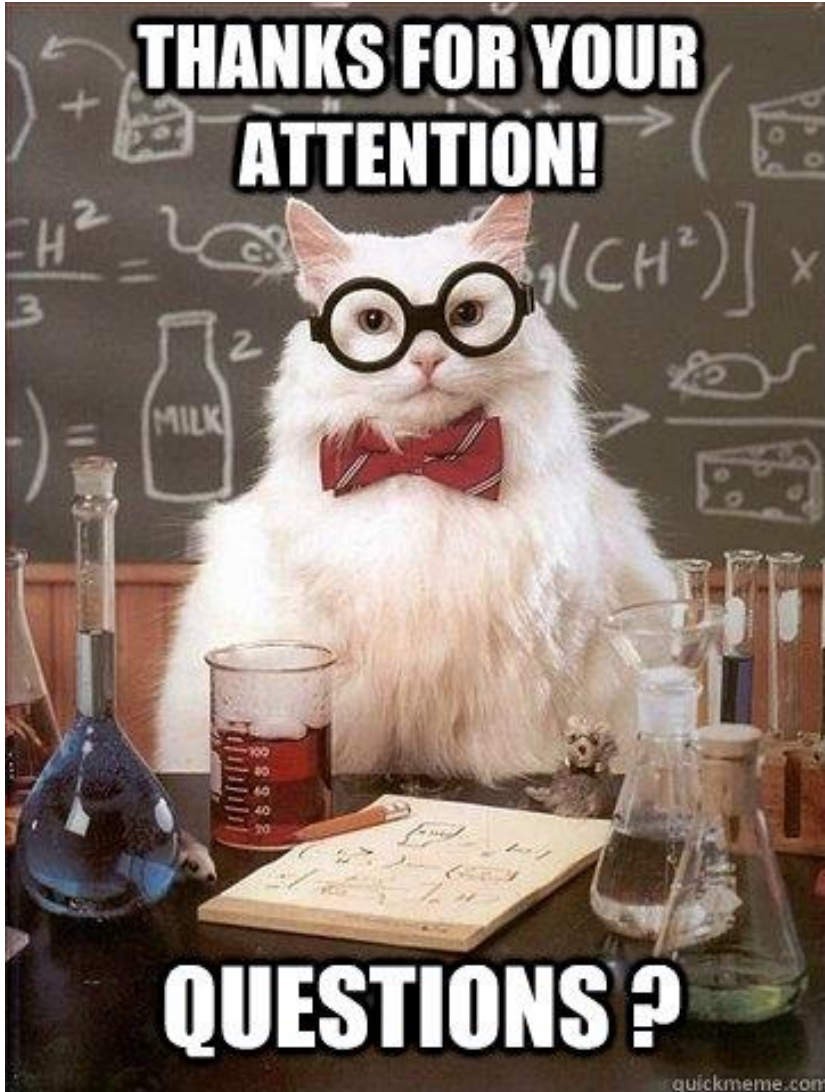
Noncompliance

-  Concern about safety
-  Concern about addictiveness of NRT
-  Lack of confidence in efficacy
-  Stopping too early
-  Side effects
-  Cost
-  Relapse
-  “Should be able to quit on my own”

Misinformation

Lack of information

Lack of understanding



Bovornpat Suriyapakorn, PharmD, BCPS

Department of Pharmacy Practice
Faculty of Pharmaceutical Sciences
Chulalongkorn University
E-mail: bovornpat.s@pharm.chula.ac.th

Smoking Cessation

Practical Strategies

First thing in the morning	<ul style="list-style-type: none">• Change order of morning routine (e.g., shower/get dressed before having cigarette)• Avoid places where you typically smoke• Wake up 15 min later to eliminate time to smoke
With morning coffee	<ul style="list-style-type: none">• Eat a breakfast or snack with coffee• Drink coffee somewhere you cannot smoke (e.g., in the house, the car, or a coffee shop)• Change coffee to tea or another beverage• Identify other means of waking yourself up (e.g., shower, morning exercise)
After meals	<ul style="list-style-type: none">• Replace cigarette with new post-meal “treat” (e.g., mint, candy, small dessert)• Brush teeth or suck on lemon immediately after meal (some report these tastes reduce enjoyment of cigarettes)• Linger at table/avoid going outside• Clean table/kitchen as a distraction• Go for a walk after meals (will also help reduce weight gain)
When stressed	<ul style="list-style-type: none">• Explain to patient that stress relief from smoking is largely because of removing oneself from stressful situations and deep breathing on cigarette for several minutes, so going outside and performing deep breathing exercises for <u>several minutes</u> may have similar effects• Identify other ways to de-stress (e.g., exercise, meditation or mindfulness, art/coloring books, music, bubble bath, positive self-talk or positive mental imagery, spending time with loved ones or pets)• Identify key stressors and avoid them, when possible• Eat well, exercise, and get plenty of sleep to prevent stress

Smoking Cessation

Practical Strategies

When bored

- Resume past or develop new hobbies
- Always have a means of distraction handy (e.g., a go-to game on cellphone or book of word puzzles)
- Start new project that will require an extended period of work (e.g., clean, redecorate or renovate house, fix an old car, sew a blanket)
- Fill extended periods at home with new activities in public (e.g., volunteering, socializing)

With alcohol

- Avoid/reduce alcohol consumption during first 2–4 weeks of quit attempt
- Do not drink in places that allow smoking or with people who smoke
- Remind patients that the more inebriated they become, the more difficult it will be to maintain their resolve not to smoke

Around others smoking

- Ask others not to smoke around you
- Avoid places where others are smoking or remove yourself when they start smoking
- If you live with other smokers, chances of success are much greater if you try to quit together

Smoking Cessation

Practical Strategies

When driving

- Remove triggers (e.g., cigarette butts, cigarette smell)
- Place cigarettes in trunk of car while driving
- Change driving route to avoid subconscious triggers and require additional concentration
- Sing to music, listen to books on tape

When on the telephone

- Do not go outside
- Do not have cigarettes near

When taking a break from work

- Find other means of relaxation (e.g., close your eyes, have a snack, go for a walk)
- Remain inside in an area where you cannot smoke

Before bed

- If patients are taking cessation drugs, remind them that there is less need to smoke before bed to reduce morning withdrawal
- Find other means of relaxation (e.g., read, listen to music, drink tea)