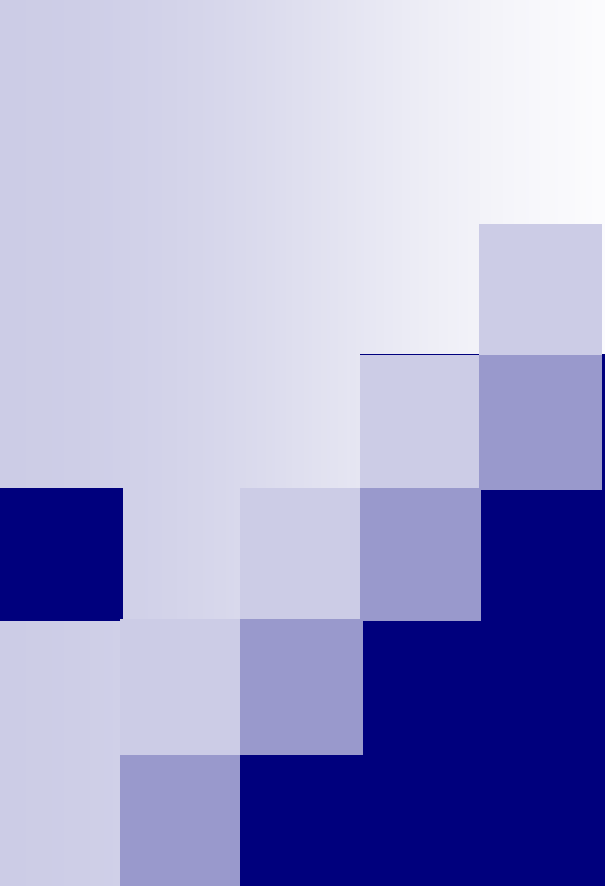




Nicotine addiction and replacement therapies

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Effects of smoking on your body

Smoking causes or increases your risk of:

- Macular degeneration.
- Cataracts.
- Vision loss.

- Reduced taste and smell.
- Tooth staining.
- Tooth decay.
- Gum disease.

- Frequent infections.
- COPD.

- Erectile dysfunction.
- Infertility.



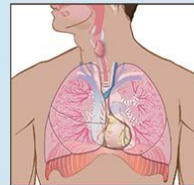
- Miscarriage.
- Birth defects.
- Developmental delays.

- Anxiety.
- Depression.
- Irritability.

- Blood clots.
- Heart attack.
- Stroke.

- Bone fractures.
- Osteoporosis.

- Premature aging.
- Yellow nails.
- Wrinkles.



- Lung, oral, laryngeal and other cancers.



Vape and Electronic cigarettes risks:

EVALI (E-cigarette, or Vaping, Product Use-Associated Lung Injury)

- **What it is:** A serious and sometimes fatal acute or subacute respiratory illness.
- **Symptoms:** Shortness of breath, cough, fever, vomiting, diarrhea, headache, dizziness, rapid heart rate, and chest pain.
- **Cause:** While EVALI was initially strongly linked to vitamin E acetate in illicit THC-containing products, the term is used to describe a spectrum of lung injuries from vaping.
- **Diagnosis:** There is no single test; diagnosis is made by ruling out other conditions and is based on the presence of lung infiltrates on a chest X-ray or CT scan, occurring within 90 days of vaping.



Vape and Electronic cigarettes risks:

Other vaping-related lung conditions

- **Bronchiolitis obliterans:** More commonly known as "popcorn lung," this is a condition where the small airways in the lungs become inflamed and damaged.
- **Inflammation and irritation:** Vaping can cause inflammation and irritation in the lungs and airways.
- **Lung scarring:** There is evidence that vaping can lead to long-term lung scarring.

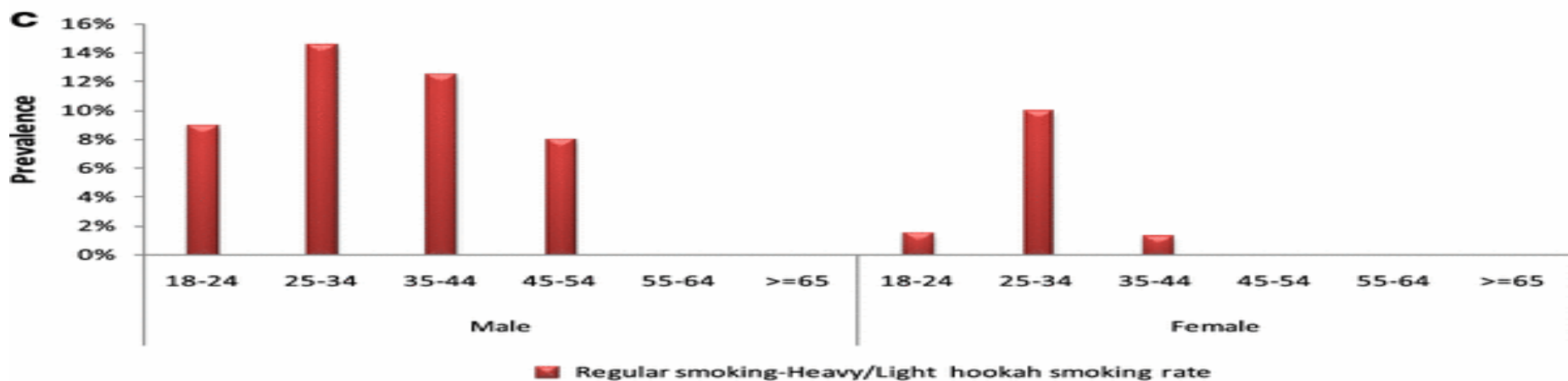
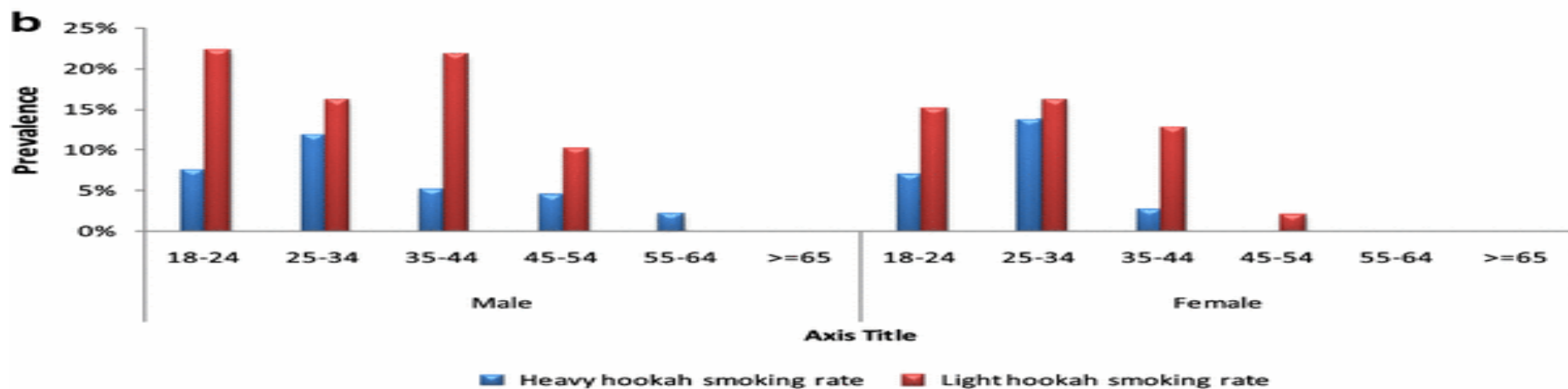
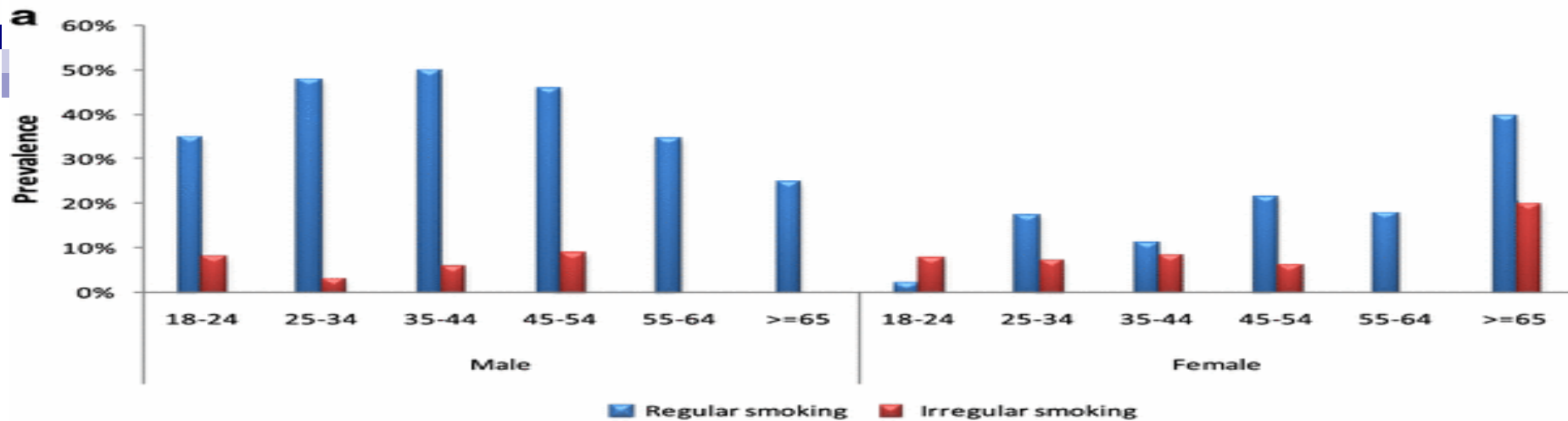


Smoking and Brain Development

- Smoking while the brain is still developing until about age 25 can disrupt brain maturation, leading to long-term issues with attention, impulse control, learning, and memory.
- Nicotine alters brain structure and function, potentially causing permanent changes and increasing the risk of addiction to other drugs

National Smoking epidemiology study

- This cross-sectional study was conducted in five regional governorates of Jordan through face-to-face interviews on a random sample of adult population aged 18–79 years.
- Data was collected using a piloted questionnaire based on the Global Adult Tobacco Questionnaire.
- A total of 874 participants with mean age of 33.9 ± 13.3
- The prevalence of regular cigarette smoking was 51.9 % amongst males and 14.1 % amongst females, while the prevalence of irregular cigarette smoking was 7.2 % amongst males and 9.2 % amongst females.



Frequency and reasons for smoking cigarettes or waterpipe

Question	Category	Cigarette smokers				Waterpipe smokers			
		Daily	Percent	Irregular	Percent	Heavy	Percent	Light	Percent
Mean duration of smoking	Mean	15.59		7.85		8.10		6.00	
	SD	10.95		8.38		7.80		7.27	
Mean age at smoking initiation	Mean	19.78		22.44		20.71		22.71	
	SD	6.76		10.16		8.32		7.94	
Mean cost of smoking per month	Mean	66.78		19.18		32.48		16.70	
	SD	48.08		21.84		26.81		19.67	
Reason for smoking	Expression of masculinity and femininity	6	2.6 %	0	0.0 %	1	1.7 %	1	0.8 %
	Imitation	75	33.0 %	10	30.3 %	45	77.6 %	102	80.3 %
	Leisure	125	55.1 %	22	66.7 %	5	8.6 %	14	11.0 %
	Other	21	9.3 %	1	3.0 %	7	12.1 %	10	7.9 %
Time to start smoking after wake-up	31–60 min	54	21.8 %	1	3.3 %				
	6–30 min	69	27.8 %	3	10.0 %				
	In 5 min	70	28.2 %	2	6.7 %				
	More than 60 min	49	19.8 %	21	70.0 %				
	No answer	6	2.4 %	3	10.0 %				



Table 2: Health advice and support to smokers:

Question	Category	Cigarette Smokers				Waterpipe Smokers			
		Daily	Percent	Irregular	Percent	Heavy	Percent	Light	Percent
Medical advice, counseling	No	147	91.9%	17	89.5%	35	92.1%	90	91.8%
	No answer	1	0.6%	0	0.0%	2	5.3%	0	0.0%
	Yes	12	7.5%	2	10.5%	1	2.6%	8	8.2%
Nicotine alternative	No	131	83.4%	16	80.0%	33	89.2%	86	90.5%
	No answer	2	1.3%	0	0.0%	2	5.4%	1	1.1%
	Yes	24	15.3%	4	20.0%	2	5.4%	8	8.4%
Other prescribed drugs	No	149	96.8%	18	100.0%	31	91.2%	87	94.6%
	No answer	2	1.3%	0	0.0%	2	5.9%	3	3.3%
	Yes	3	1.9%	0	0.0%	1	2.9%	2	2.2%
Anything else	No	132	87.4%	16	84.2%	27	90.0%	84	94.4%
	No answer	1	0.7%	0	0.0%	2	6.7%	2	2.2%
	Yes	18	11.9%	3	15.8%	1	3.3%	3	3.4%
Aware of quitting centers	No	130	53.1%	11	33.3%	27	54.0%	71	58.7%
	Yes	115	46.9%	22	66.7%	23	46.0%	50	41.3%
If yes, will you go?	No	136	56.9%	26	78.8%	38	79.2%	81	68.1%
	Yes	103	43.1%	7	21.2%	10	20.8%	38	31.9%
Know medications to quit	No	180	73.9%	29	96.7%				
	Yes	63	26.1%	1	3.3%				
Mention medications	Champex	3	6.1%	0	0.0%				
	Electronic Cigarette	20	45.1%	1	100.0%				
	Gum	23	30.4%	0	0.0%				
	Nicotine patches	5	10.1%	0	0.0%				
	No I do not know the names of these drugs	4	8.2%	0	0.0%				
Did you use it	No	50	75.8%	3	100.0%				
	Yes	16	24.2%	0	0.0%				
Got medical advice	No	144	62.3%	19	57.6%				
	Yes	87	37.7%	14	42.4%				
If yes, for how long	<2 min	19	21.1%	4	26.7%				
	>10 min	22	24.4%	2	13.3%				
	2-5 min	35	38.9%	8	53.3%				
	6-10 min	14	15.6%	1	6.7%				
Smoking quit line	No	154	97.5%	19	95.0%	27	79.4%	89	97.8%
	No answer	1	0.6%	0	0.0%	2	5.9%	1	1.1%
	Yes	3	1.9%	1	5.0%	5	14.7%	1	1.1%



What is next:

- National Smoking epidemiology study targeting all Jordanians 15+
- Smoking epidemiology at University students in Jordan
- Smoking epidemiology and disease control for patients with chronic cardiac and pulmonary diseases
- Hopefully a clinical trial for cigarettes, waterpipe and vape.

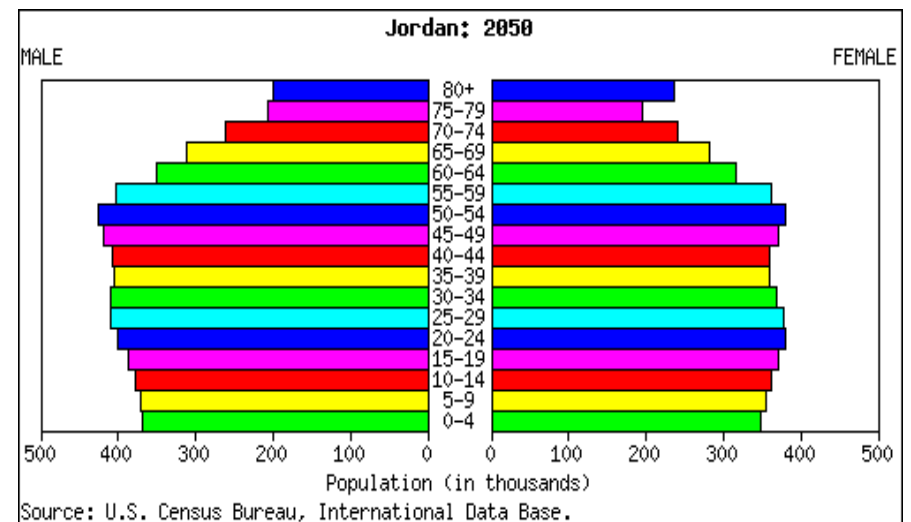
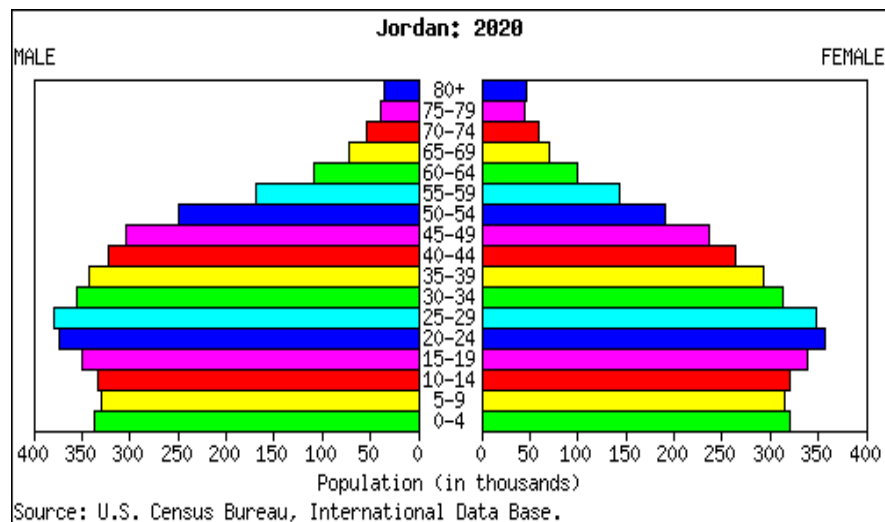
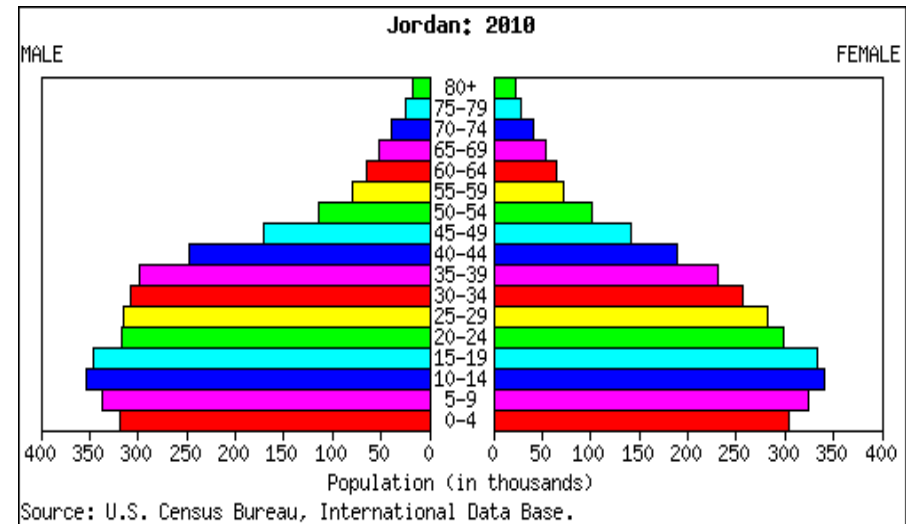
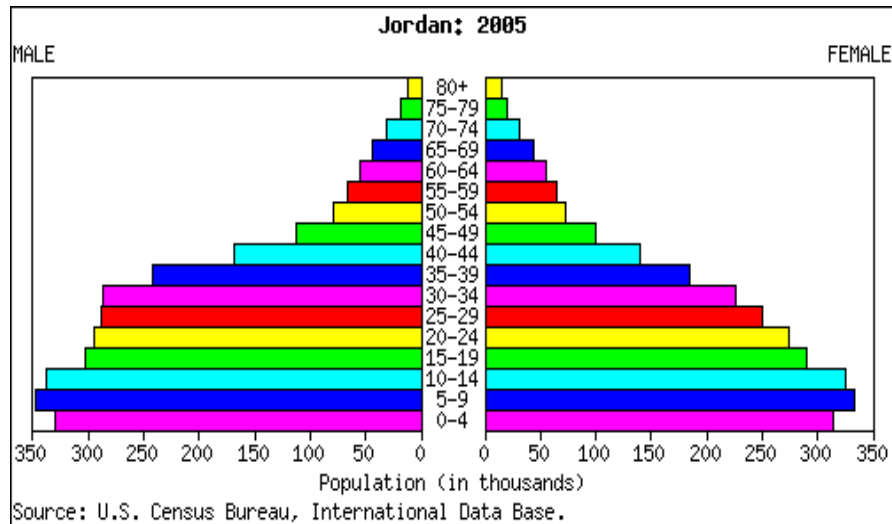
Ten most common cancers among Jordanians, Males, 2017.

No	Site	Freq	%
1	Colorectal	371	12.4
2	Trachea, Bronchus, Lung	366	12.2
3	Prostate	236	7.9
4	Bladder	215	7.2
5	Non-Hodgkin lymphoma	159	5.3
6	Leukemia	158	5.3
7	Stomach	127	4.2
8	Kidney	117	3.9
9	Brain, Nervous system	102	3.4
10	Hodgkin disease	97	3.2

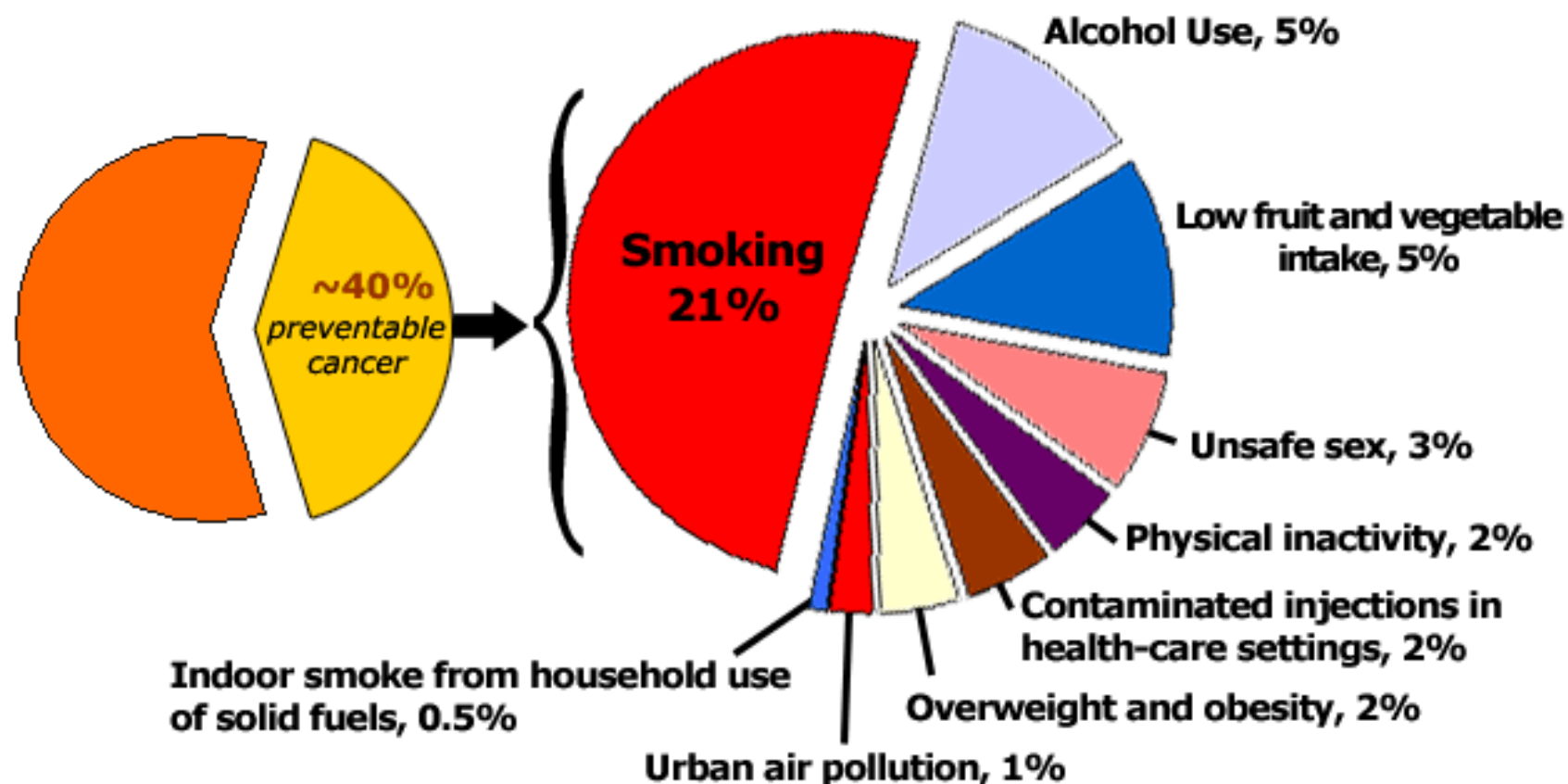
Ten most common cancers among Jordanian Females, 2017.

No	Site	Freq	%
1	Breast	1292	38.4
2	Colorectal	307	9.1
3	Thyroid	223	6.6
4	Corpus Uteri	148	4.4
5	Non-Hodgkin lymphoma	136	4.0
6	Ovary	109	3.2
7	Trachea, Bronchus, Lung	107	3.2
8	Hodgkin disease	93	2.8
9	Brain, Nervous system	84	2.5
10	Stomach	83	2.5

Population pyramids- Jordan



Estimated proportion of preventable cancer associated with 9 leading modifiable risk factors

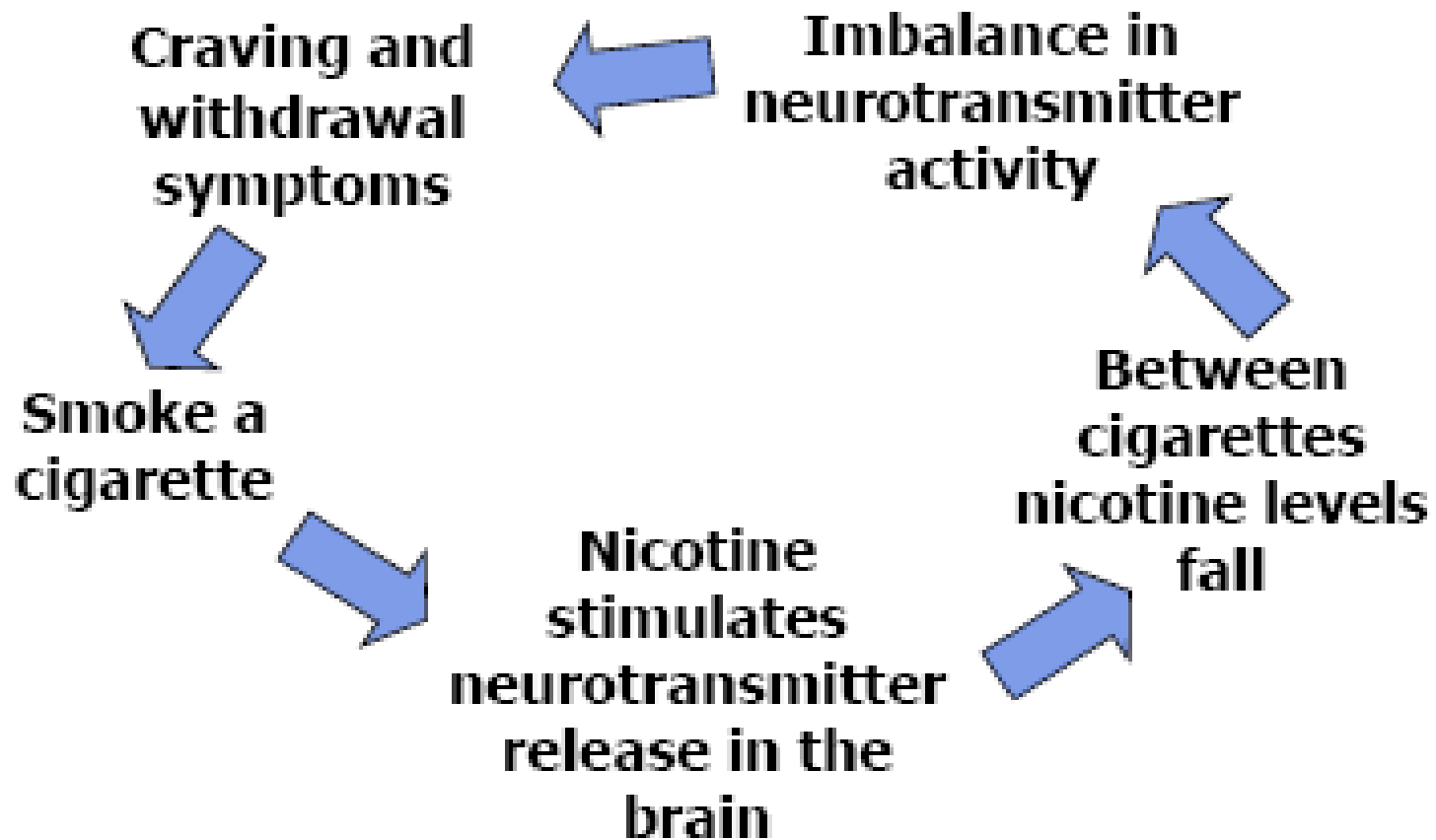
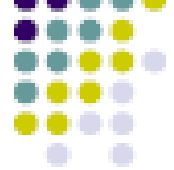


Danaei G, Vander Hoorn S, Lopez AD, Murray CJ, Ezzati M. Causes of cancer in the world: comparative risk assessment of nine behavioural and environmental risk factors *The Lancet*, 2005, 366:1784-1793

Addiction to nicotine

- An understanding of how nicotine produces addiction and influences smoking behavior provides a necessary basis for smoking cessation therapies.
- Chronic nicotine exposure results in neuroadaptation, that is, the development of tolerance.
- Neuroadaptation is associated with an increased number of brain nicotinic cholinergic receptors.
- Chronic exposure to nicotine also results in changes in gene expression and neural plasticity; which is defined as “ability of the brain to reorganize neural pathways based on new experiences”

Nicotine Addiction



BIOLOGY of NICOTINE ADDICTION: ROLE of DOPAMINE

Nicotine
stimulates
dopamine release

Pleasurable feelings

Repeat administration

Tolerance develops

Nicotine addiction
is ***not*** just a bad habit.

*Discontinuation leads to
withdrawal symptoms.*

DOPAMINE REWARD PATHWAY

Prefrontal
cortex

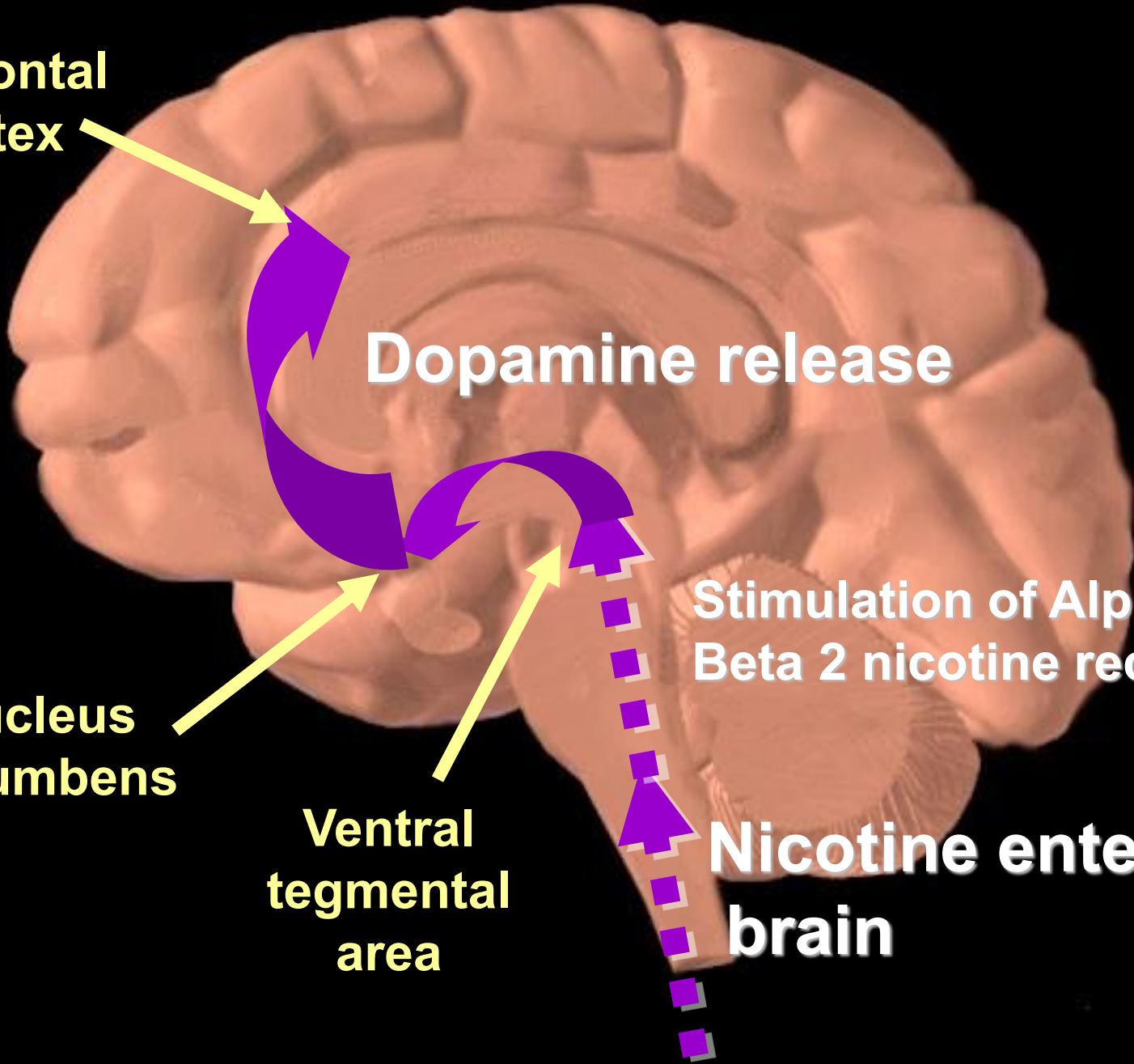
Dopamine release

Nucleus
accumbens

Ventral
tegmental
area

Stimulation of Alpha 4
Beta 2 nicotine receptors

Nicotine enters
brain





Dopamine

- **Dopamine induces feelings of euphoria and pleasure and is responsible for activating the dopamine reward pathway**
- The dopamine reward pathway, as depicted in this simplified diagram, is a network of nervous tissue in the middle of the brain that elicits feelings of pleasure in response to certain stimuli.



Addiction to nicotine

- **Addiction to tobacco is multifactorial:**
- It includes a desire for the direct pharmacologic actions of nicotine, relief of withdrawal symptoms, and learned associations.
- Smokers usually provide different reasons for smoking that could include pleasure, arousal, enhanced vigilance, improved performance, relief of anxiety or depression, reduced hunger, and control of body weight



Addiction to nicotine

- The absence of nicotine due to smoking cessation results in subnormal release of dopamine and other neurotransmitters.
- Nicotine withdrawal results in the state of deficient dopamine responses
- This leads to development of nicotine withdrawal symptoms.

NICOTINE PHARMACODYNAMICS: WITHDRAWAL EFFECTS

- Depression
- Insomnia
- Irritability/frustration/anger
- Anxiety
- Difficulty concentrating
- Restlessness
- Increased appetite/weight gain
- Decreased heart rate
- Cravings*

Most symptoms
peak 24–48 hr
after quitting and
subside within
2–4 weeks.



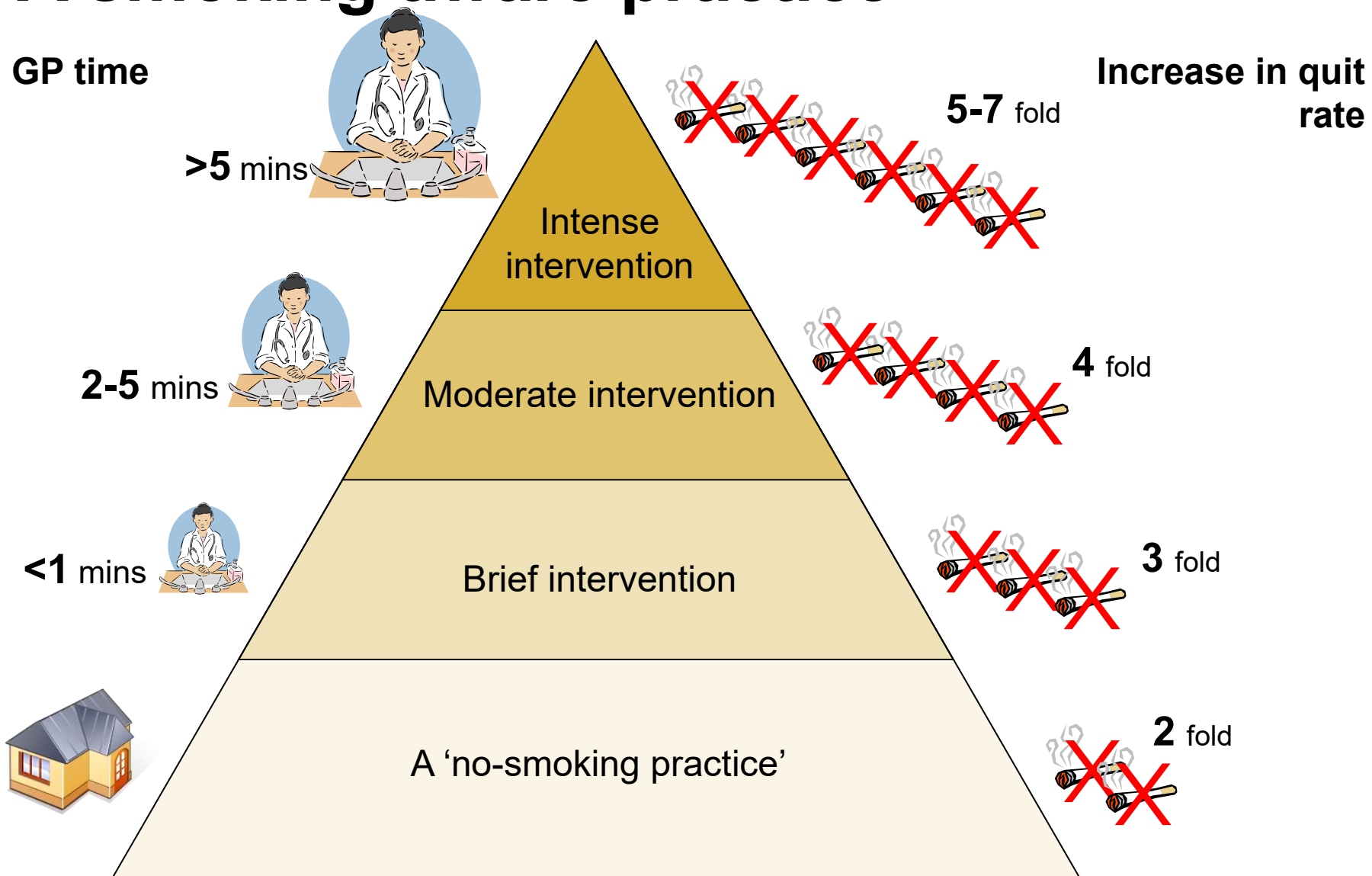
What are the benefits of stopping smoking?

- **It is never too late to stop smoking to gain health benefits.**
- **For example if the smoker already has a COPD or a heart disease, there would be great improvement in prognosis upon giving up smoking.**
- **Smoking cessation for smokers with history of ischaemic heart disease is expected to reduce risk of a subsequent fatal heart attack by 25 per cent.**

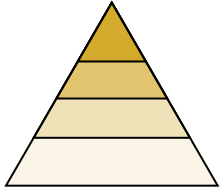
Timeline of health benefits after stopping smoking

Time line (After ...)	Health Benefit
8 hours	Nicotine and CO in blood drop by 50%
After 24 hours	Lung starts to clear debris
After 48 hours	Smell and taste improve
72 hours	Breathing becomes easier. Bronchial tubes begin to relax and energy levels increase.
1 month	Skin appearance improves, owing to improved skin perfusion.
3-9 months	Cough, wheezing, and breathing problems improve and lung function increases by up to 10%.
1 year	Risk of a heart attack falls to about half that of a smoker.
10 years	Risk of lung cancer falls to about half that of a smoker.
15 years	Risk of heart attack falls to the same level as someone who has never smoked.

A smoking aware practice



A smoking aware practice



Intense intervention

- Ask about smoking status at all opportunities
- Assess desire to quit, dependence and barriers to quitting,
- Discuss high risk situations, explore confidence
- Advise on strategies to overcome barriers.
- Address dependence, habit, triggers, negative emotions.
- Brainstorm solutions and develop a quit plan.
- Assist by offering pharmacotherapy
- Arrange follow-up consultation



... five times the quit rate



Modified Fagerstorm Scoring:

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

Waterpipe Tolerance Questionnaire (WTQ)

Question	Response	Scoring
How many times a day (if at all) do you smoke waterpipe?	less than ½ head or none	0
	Half head to one head/day	1
	More than one head /day	2
If you smoke waterpipe, do you inhale when you smoke?	Never	0
	Seldom or quite often	1
	Always	2
How soon after you wake up do you smoke your first waterpipe?	More than 30 minutes after waking	0
	Within the first 30 minutes	1
Do you find it difficult to refrain from using tobacco in places where it is forbidden (e.g. Mosque, Church, library, school, movies)?	No	0
	Yes	1
Do you use tobacco more frequently during the first hours after waking up than you do during the rest of the day?	No	0
	Yes	1
Do you use tobacco more during the first 2 hours after waking up than during the rest of the day?	No	0
	Yes	1

low (score 0-1), moderate (score 2-3) and high (score 4-8) dependence levels



The E-cigarette Fagerström Test of Cigarette Dependence

Tool taken from: Piper, M.E., Baker, T.B., Benowitz, N.L., Smith, S.S., & Jorenby, D.E. (2020).

1. How many times per day do you usually use your electronic cigarette? (Assume that one “time” consists of around 15 puffs or lasts around 10 minutes.)

☐ 0-4 times/day (0)

☐ 5-9 (0)

☐ 10-14 (1)

☐ 15-19 (1)

☐ 20-29 (2)

☐ 30+ (3)

2. Do you find it difficult to refrain from vaping in places where it is forbidden (e.g. in church, at the library, in the cinema)?

☐ Yes (1)

☐ No (0)

3. When would you hate most to give up e-cigarette use?

☐ In the morning (1)

☐ During or after meals (0)

☐ During or after stressful situations (0)

☐ None of the above (0)

4. On days that you can use your electronic cigarette freely, how soon after you wake up do you first use your electronic cigarette?

☐ 0-5 mins (3)

☐ 6-15 (2)

☐ 16-30 (2)

☐ 31-60 (1)

☐ 61-120 (0)

☐ 121+ (0)

5. Do you use your e-cigarette more frequently during the first two hours of the day than during the rest of the day?

☐ Yes (1)

☐ No (0)

6. Do you use your e-cigarette when you are so ill that you are in bed most of the day?

☐ Yes (1)

☐ No (0)

Scoring eFTND: Sum the items. Total score: 0-2 = low dependence, 3-4 = low to moderate dependence, 5-7 = moderate dependence, 8+ = high dependence



Pack-Year

- A pack-year is a clinical quantification of cigarette smoking used to measure a person's exposure to tobacco.
- Used for risk assessment
- Definition
- The pack-year is a unit for measuring the amount a person has smoked over a long period of time. It is calculated by multiplying the number of packs of cigarettes smoked per day by the number of years the person has smoked.
- For example, 1 pack-year is equal to smoking 20 cigarettes (1 pack) per day for 1 year
- One pack-year is the equivalent of 365 packs of cigarettes or 7,300 cigarettes, in a year as smoker.

Pack-Year

Calculation

- Number of pack-years = (packs smoked per day) $\times$ (years as a smoker)
- or
- Number of pack-years = (number of cigarettes smoked per day/20) $\times$ number of years smoked. (1 pack has 20 cigarettes in some countries)
- Note that despite the unit being called a "pack-year," the actual unit is simply a number of packs (as noted above).
- 1 pack-year = 1 packday $\cdot$ 1 year = 1 packday $\cdot$ 365 days = 365 packs = 365 packs $\cdot$ 20 cigarettes/pack = 7,300 cigarettes

Pack-Year Calculations

- One pack-year is smoking 20 cigarettes a day for one year.
- A person who has smoked 15 cigarettes a day for 40 years has a $(15/20) \times 40 = 30$ pack-year smoking history.
- If someone has smoked 10 cigarettes a day for 6 years they would have a 3 pack-year history.
- Someone who has smoked 40 cigarettes (2 packs) daily for 20 years has a 40 pack-year history.

Pack-Year

- Quantification of pack-years smoked is important in clinical care, where degree of tobacco exposure is correlated to risk of disease such as lung cancer and heart disease.
- Lung cancer: Using multivariate model controlling for age and sex, the hazard ratio (relative to never smokers) was
 - 29.9 (95% CI = 23.8 to 37.7) for current smokers with 30+ pack-years,
 - 17.8 (95% CI = 12.2 to 26.0) for current smokers with 20 to 29 pack-years.

Management plan:

- In the first visit:
- Medical and drug history, smoking pattern and history, nicotine dependence using Fagerstrom Tolerance Questionnaire.
- Counselling on smoking: Motivational interviewing strategies and the “5R’s” for enhancing motivation approaches will be used.
- The first approach is based on the following components: express empathy, develop discrepancy, roll with resistance, support self-efficacy. While the “5R’s” for enhancing motivation includes: Relevance, Risks, Rewards, Roadblocks, Repetition.
- Smokers, who are willing to receive smoking cessation medical therapy, would receive further assessment in order to determine the treatment of choice for their particular condition and to exclude any contraindications for the selected treatments.

Selected Medication Options: Monotherapy and Combination Therapy

Medication	Number of arms	Estimated odds ratio (95% C.I.)	Estimated abstinence rate (95% C.I.)
Nicotine Patch	32	1.9 (1.7 - 2.2)	23.4% (21.3 – 25.8)
Bupropion SR	26	2.0 (1.8 – 2.2)	24.2% (22.2 – 26.4)
Varenicline	5	3.1 (2.5 – 3.8)	33.2% (28.9 - 37.8)
Patch (>14 wks) + NRT (gum or spray)	3	3.6 (2.5 – 5.2)	36.5% (28.6 – 45.3)
Patch + Bupropion SR	3	2.5 (1.9 – 3.4)	28.9% (23.5 – 35.1)

Varenicline combined with nicotine gum is current first line for smoking cessation. This combination is more effective for smoking cessation than varenicline alone, showing higher abstinence rates at 12 weeks (55%) and 24 weeks (49%)



Best available interventions

- **Higher abstinence rates:** Combining varenicline and nicotine gum is associated with higher rates of continuous abstinence at 12 weeks (55.4% vs. 40.9%) and 24 weeks (49.0% vs. 32.6%) compared to varenicline alone.
- **Improved long-term results:** A meta-analysis of studies showed that the combination therapy is superior to varenicline alone in achieving abstinence at both 3 and 6 month

Guideline: management of smoking using nicotine replacement therapies

Smokes 20 cigarettes or more		: start with Varenicline (VA) with Nicotine gum/Lozenge 2mg. VA 0.5mg once daily for 3 days, then 0.5mg twice daily. From week 2, 1mg twice daily		
	A. high dependency	For smokers with contraindications for Varenicline 24-hour patches 21mg or 24mg for 4-8 weeks plus nicotine gum when craving ↓ 14mg patch for 2 weeks ↓ 7mg patch for 2 weeks	Assess if tolerated or not after 2 weeks Assess after one week and asses sleep pattern	Continue with 24 hour patch if no or minor insomnia If moderate to severe insomnia, discontinue 24 hour patches and start with medium dependency plus 2mg nicotine gum at the time of the first cigarette in the morning
	B. Medium dependency	24-hour 21mg or 24 mg patches plus 2mg nicotine gum/Lozenge when craving for 8weeks ↓ 2weeks 14mg then 2 weeks on 7mg If failed, shift to Varenicline plus Nicotine gum 2mg	B or C	If failed, Switch to Varenicline
	C. low dependency	Start with Nicotine 2mg gum/Lozenge, if failed follow Plan B above.		
10-19 cigarettes	A. High or Medium dependency	Follow Plan B above	If failed Switch to Varenicline please Nicotine gum 2mg	
	B. Low dependency	Start with Nicotine 2mg gum/Lozenge, if failed follow Plan B above.		
10 cigarettes or less	Counselling only, if failed, 2mg Nicotine Gum			



Nicotine replacement therapy (NRT)

- Provides smoker with nicotine without using tobacco, thereby relieving nicotine withdrawal symptoms.
- NRT products differ in the route of delivering nicotine to the circulation.
- Nicotine is absorbed transdermally with the nicotine skin patch, through the nasal mucosa by the nasal spray, or through the oral mucosa with the nicotine chewing gum, nicotine lozenge, or nicotine inhaler.
- Nicotine patches are more tolerated than nasal spray and provides the most continuous delivery of nicotine of nicotine replacement therapies.



Nicotine replacement therapy (NRT)

■ Principle:

Many of the difficulties in smoking cessation stems from problems posed by nicotine withdrawal.



Nicotine Replacement Therapy (NRT)

- Reliably attenuates severity of withdrawal, making it easier for would-be ex-smokers to cope with abstinence while unlearning the deeply ingrained habit elements of smoking

Nicotine Replacement Therapy

- Indicated for all smokers trying to quit, except in the presence of special circumstances (those with medical contraindications, pregnant and adolescent smokers)



NRT - Therapeutic Effect

- The primary therapeutic effect of NRT is to reduce the severity of symptoms associated with smoking cessation.
- NRT provides steady levels of nicotine and may reduce the pleasurable effects of tobacco desired by smokers.
- NRT makes it easier to cope in difficult situations.

Nicotine patches

- Transdermal patch (waterproof)
- Nicotine Replacement Therapy (NRT)
- To overcome withdrawal symptoms
- 24-hour patch to deliver constant nicotine levels
- 12 week weaning program that reduces and eliminates body's dependence for nicotine
- Clinically-proven to be better than willpower alone
- 2-4 times the success rate of placebo patches

Hajek P, West R, Foulds J, Nilsson F, Burrows S, Meadow A. Randomized comparative trial of nicotine polacrilex, a transdermal patch, nasal spray, and an inhaler. *Arch Intern Med.* 1999;159:2033-2038.

Nicotine patches

21 or 24mg/24hrs, 14mg/24hrs, 7mg/24hrs

21 or 24mg/16hrs, 14mg/16hrs, 7mg/16hrs

15mg/24hrs, 10mg/24hrs, 5mg/24hrs

21 mg/day



14 mg/day



7 mg/day



Precautions

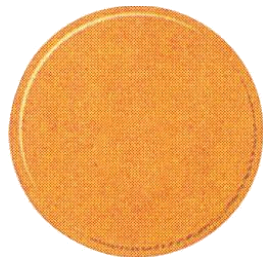
- ❑ women who are pregnant or breast feeding
- ❑ smokers with cardiovascular conditions

Doctors should weigh risks/vs benefits when prescribing NRT to pregnant women or smokers with cardiovascular conditions.

- ❑ smokers using other nicotine replacement products
- ❑ children
- ❑ non-smokers
- ❑ smokers of fewer than 10 cigarettes a day

Nicotine patches– Application

- ❑ Apply to non-hairy, clean, dry skin
- Rotate between sites (this helps to reduce the risk of skin irritation)
- Choose a flat surface
- Avoid joints or skin folds
- Replace the same time everyday



**DO NOT SMOKE WHILE
USING THE PATCH**

Why a 24-hour patch ?

- ▶ Many of the dependent smokers
 - Either smoke just before to go to bed,
 - Or wake up at night for smoking
 - Or wake up early in the morning to have a cigarette

Night smoking is a criteria for strong addiction to nicotine

Aubin, H. J. Comparison of the effects of a 24-hour nicotine patch and a 16-hour nicotine patch on smoking urges and sleep. *Nicotine.Tob.Res.* 8.2 (2006): 193-201.

Success rates of nicotine patches as a first line monotherapy

- **Success rate of nicotine patch**
Many studies have been completed on the success rate of nicotine patches.
- **These have found that six weeks after initiating treatment between 23% and 61% of smokers were successful in quitting, while one year after quitting rates ranged from 17%-24 for monotherapy to 28%-34% for combination therapy**
- The difference in success rates depends largely on the level of motivation and dependency level.

Nicotine Lozenges

- Nicotine Lozenges are new products that have similar efficacy to nicotine gum but it is easier to use and does not require special technique for optimal use.
- It also delivers more nicotine than equivalent dose of the gum.
- Unlike nicotine gum, smokers with dentures or poor dentition can use Lozenges.



High level of smoking addiction

Combination of varenicline plus Nicotine gum with behavioural therapy

If Varenicloine is contraindicated:

Combination of behavioural therapy with nicotine patches and nicotine lozenges (used for cravings)



For patients with ischaemic heart disease with moderate or high level of addiction:

The best approach is to start with
behavioural therapy

If failed, you can start with nicotine patches

Varenicline (Chantix, Chantix)

- a partial agonist at the $\alpha 4 \beta 2$ subunit of the nicotinic acetylcholine receptor.
- This drug binds to nicotinic receptors leading to reduction of withdrawal symptoms and decrease rate of cigarettes' nicotine binding to these receptors.

Varenicline (Chantix, Champix)

- This medication has shown a good abstinence rate when compared to nicotine patches, but the difference is small when compared to combined nicotine patches with gum or lozenges.
- The best scientific evidence supports combination of Varenicline with Nicotine gum.
- Combining varenicline and nicotine gum is associated with higher rates of continuous abstinence at 12 weeks (55.4% vs. 40.9%) and 24 weeks (49.0% vs. 32.6%) compared to varenicline alone.



Varenicline (Champix, Chantix)

- Week 1: Starting dose: 0.5mg once daily for three days, then 0.5mg twice daily for four days.

Smokers have to decide on quit day during this week.

- Then
1mg twice daily for 8-12 weeks.

Contraindications

- Varenicline has not been studied in children and should not be taken by young people who are under 18 years of age.
- Breast feeding. Varenicline may pass into breast milk.

Either use an alternative therapy or follow other ways of feeding the baby may be appropriate if she is currently taking the drug.



Precautions for varenicline use

- kidney problems or on dialysis.
- Pregnancy. The effects of Varenicline on the foetus are not known and it would be better to initiate an alternative therapy if behavioural intervention is not successful.



Precautions for varenicline use

- Depression or any psychiatric illnesses



Varenicline: Side effects

- Vomiting and nausea
- Headaches
- Sleep disturbances and atypical dreams
- Gas (wind)
- Changes in the way food tastes
(Dysgeusia)
- Constipation
- Suicidal thoughts



Bupropion (Zyban)

- Available as an antidepressant in the United States since 1989, is believed to act by enhancing central nervous system noradrenergic and dopaminergic release.
- A sustained-release formulation of the drug is licensed as an aid to smoking cessation (Zyban); it is identical to the antidepressant Wellbutrin SR and is available as a generic drug.



Bupropion (Zyban)

- A meta-analysis of 31 randomized trials of bupropion monotherapy concluded that bupropion SR doubles the likelihood of smoking cessation



Bupropion (Zyban)

- As an example, one multicenter, randomized, double blind trial of 615 patients compared sustained-release bupropion (150 mg twice daily) with placebo among patients who wished to stop smoking.
- The rates of smoking cessation (confirmed by exhaled carbon monoxide measurements) were significantly greater at the end of a seven-week course of treatment among patients who received bupropion (44 versus 19 percent).



Bupropion (Zyban)

- **Safety** — The most common side effects of bupropion are insomnia, agitation, dry mouth, and headache.
- A more serious side effect is seizure, which can occur because bupropion reduces the seizure threshold.
- In clinical trials, the risk of seizure was 0.1 percent, and **the drug is contraindicated in patients with a seizure disorder or predisposition to seizure.**



Elements of a Counseling Intervention

- Discuss previous quit experiences
- Anticipate challenges
- Assess patient's household environment
- Provide patient with options for dealing with nicotine withdrawal
- Suggest abstaining from alcohol during quit attempt

Strategies to Cope with Nicotine Withdrawal

Symptom	Strategy
Cravings/Urges	• Distract self • Postpone cigarette • Breathe deeply • Call supportive person
Irritability	• Engage in pleasurable activity • Take hot bath • Breathe deeply
Hunger	• Select oral substitute • Drink water or low-calorie drinks

Coping with Nicotine Withdrawal (cont)

Symptom	Strategy
Difficulty concentrating	•Take brisk walk •Simplify schedule •Take a break
Depression	•Schedule pleasurable events •Talk to supportive friend/family •Get ample rest •Reward self for working hard to quit
Sleep disturbance	•Pace self •Ask for help

■ **HOW TO OVERCOME WITHDRAWAL SYMPTOMS**

- Wake up Cigarette
 - ❖ Drink glass of fruit juice immediately on waking—try orange juice—many people find that smoke and orange juice do not mix well.
 - ❖ Brush teeth with mint-flavored toothpaste
 - ❖ Arrange for a morning paper and read it.
 - ❖ Try something special for breakfast
- **Coffee Cigarette**
 - ❖ Switch to juice
 - ❖ Try flavoring coffee a different way (Mocha)
 - ❖ Nibble on a low-cal treat that appeals to you.
- **After Breakfast Cigarette**
 - ❖ Try reading, shave, a short walk etc

- **Driver's Cigarette**

- Sing with the car radio
- See non-smoking riders
- Chew mint gum or eat hard candy
- Remove cigarette lighter
- Remove ashtray

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- **Waiting Cigarette (e.g., standing in line)**

- Read a paperback
- Watch people, notice hairstyles, clothes, shoes, etc.
- Eat hard candy or gum

- **Midmorning Cigarette**

- Take a brief walk
- Deep breathing exercises
- Drink a glass of juice or water
- Call a friend
- A low caloric snack

- **Telephone Cigarette**

- ❖ Doodle
- ❖ Change your normal telephoning position
- ❖ Find a toy

-

- **Before Lunch Cigarette**

- Change lunch routines
- Drink glass of water or juice
- Talk with friend



- **After Lunch Cigarette**

- ❖ Alter routine
- ❖ Eat slower
- ❖ Take a brief walk
- ❖ Visit someone in another department
- ❖ Read
- ❖ Deep breathing exercises



- **The Pause-to-think cigarette**

- ❖ Look out window
- ❖ Doodle
- ❖ Get a drink of water or juice



- **Mid-afternoon Cigarette**

- Drink a glass of juice or diet soda
- Eat a carrot or celery stick
- Stand up and stretch—breathe deeply





■ **After Dinner Cigarette**

- ❖ Leave table promptly
- ❖ Wash dishes by hand
- ❖ Get a hobby
- ❖ Read a newspaper or book
- ❖ Go to a movie
- ❖ Go for a walk—take the dog



■ **Nightcap Cigarette**

- Brush your teeth with mint-flavored toothpaste and use mouthwash
- Do your evening reading in bed (not in chair) when you feel drowsy, go to sleep

Smoking cessation programs

- Include other types of smoking such as Narjeela in calculation of tobacco smoking rates
- Evaluate current and past programs
- Focus on:
 1. Prevention of smoking amongst teenagers
 2. Increase taxes on tobacco products and use the money for prevention programs
 3. Providing free smoking cessation services : medical and behavioural interventions
 4. Free helplines for smokers
 5. Your team should be well-trained
 6. Compare respondents with non-respondents, Success Vs failed



Thank you!