

جامعة  
الملك سعود  
King Saud University



# Tobacco Consumption Problems and solutions



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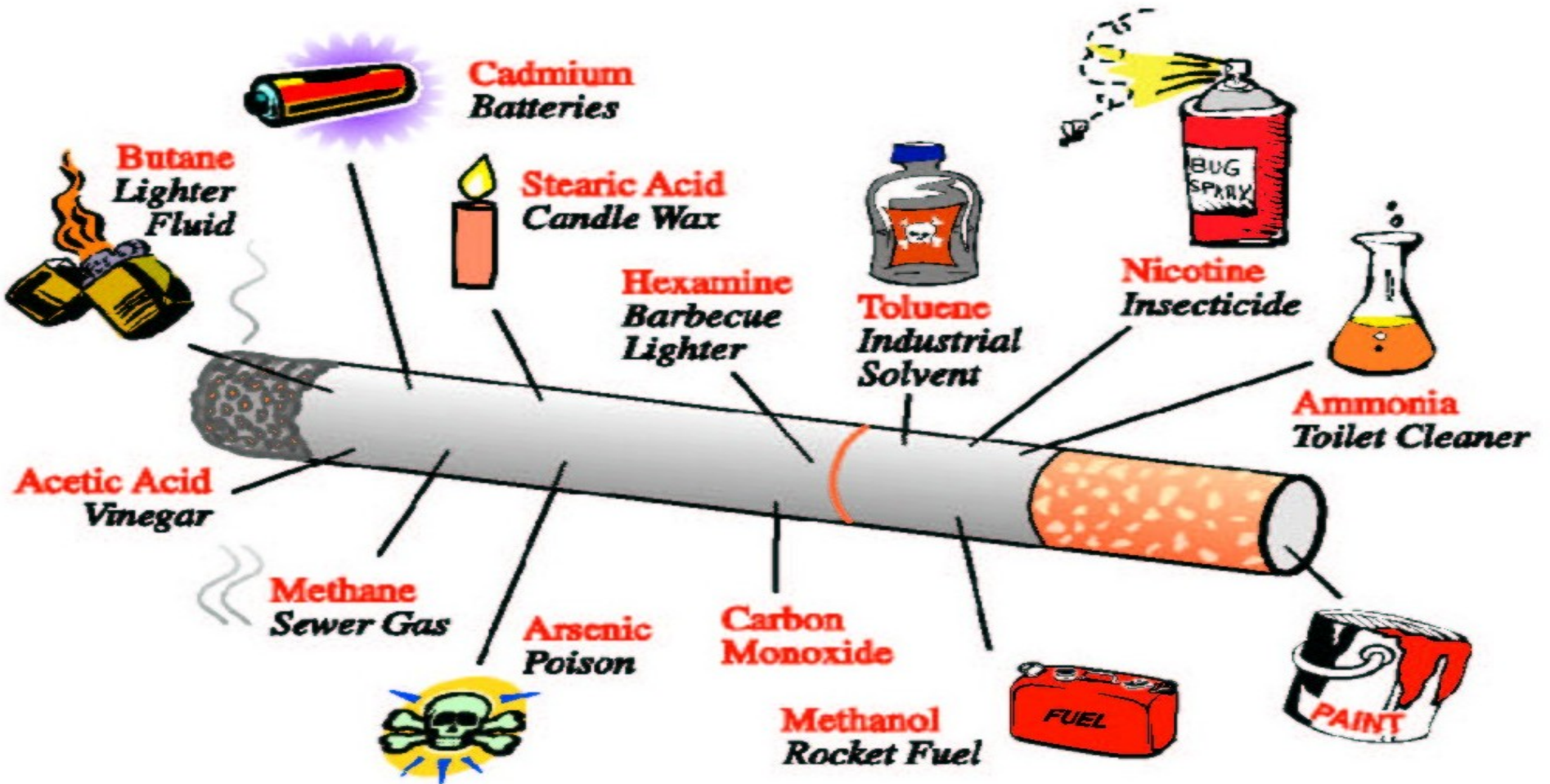
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# Objectives

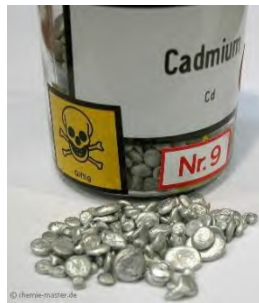
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- **Epidemiology of smoking in Saudi Arabia.**
- **Risks of smoking (Morbidity and Mortality).**
- **Effect of passive smoking on pregnancy, children ...**
- **How are you going to help the smoker to quit and how to overcome withdrawal symptoms.**
- **Update in pharmacological management, smoking cessation medication.**
- **Nicotine preparations, varenicline, bupropion ...**

# Content of Cigarette

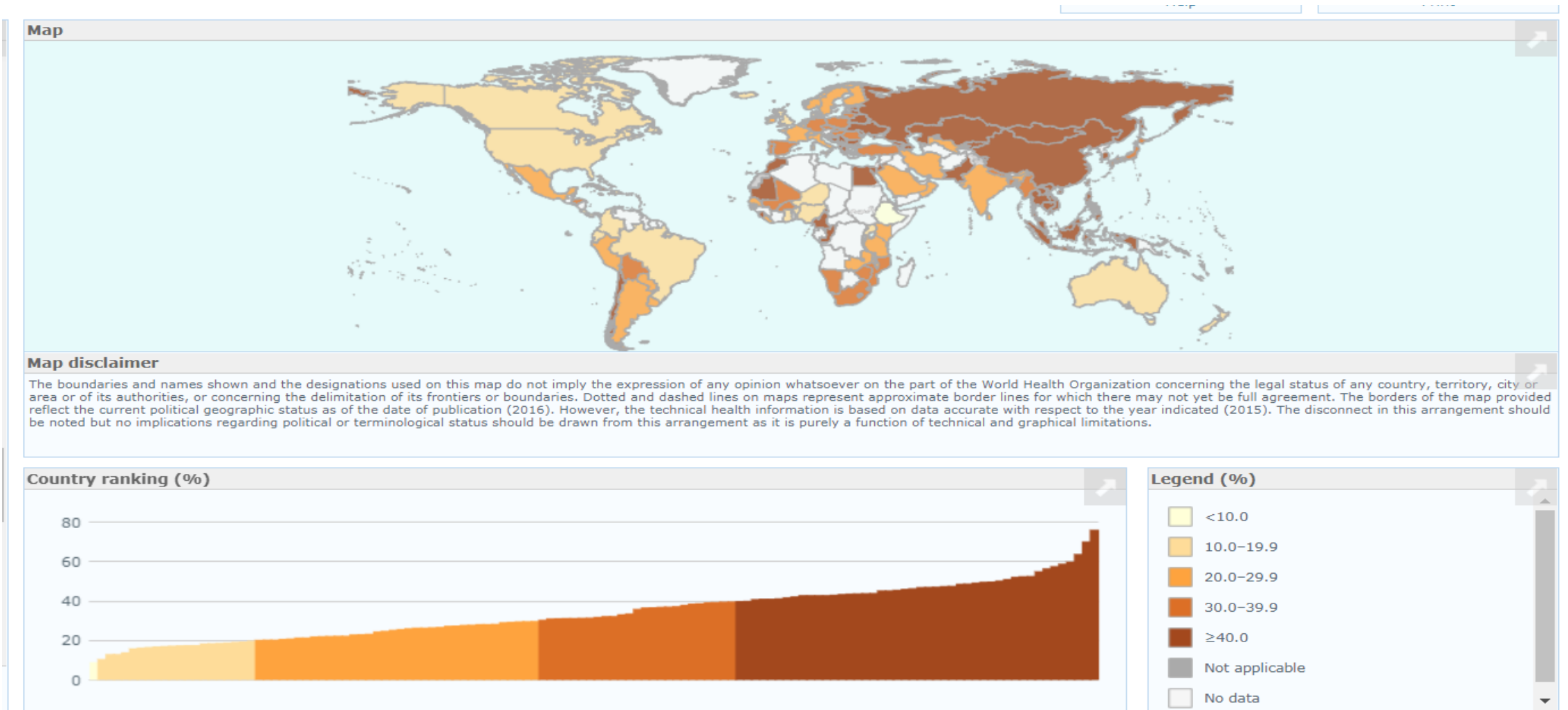


# What is in tobacco



- More than 4,000 substances, including:
- ★ **Tar:** black sticky substance used to pave roads
  - ★ **Nicotine:** Insecticide
  - ★ **Carbon Monoxide:** Car exhaust
  - ★  **$^{210}$  Polonium:** radio-active substance
  - ★ **Acetone:** Finger nail polish remover
  - ★ **Ammonia:** Toilet Cleaner
  - ★ **Cadmium:** used batteries
  - ★ **Ethanol:** Alcohol
  - ★ **Arsenic:** Rat poison
  - ★ **Butane:** Lighter Fluid

# Prevalence of Tobacco smoking among persons aged 15 years and above % (Male) – 2015 WHO “SA 27.9%”



## Prevalence of Tobacco Product Consumption and Exposure among Healthcare Students in King Saud University in Riyadh, Saudi Arabia (2017)

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- A total of **1207** healthcare students, (College of Medicine, College of Dentistry, College of Pharmacy, College of Nursing and College of Medical Applied Science)
- The prevalence of tobacco product smoking was **13.5%**.
- The highest in the college of nursery **19.23%**, and lowest in the college of pharmacy **10.11%**.
- The age group of 18-21 years old, the prevalence was only **9.54%**, while the age group of 22-25 was **19.25%**, and for 26 years old students or more was **33.33%**.
- The prevalence of smoking water pipe came to be **12.1%** and of small-pipe (Midwakh) **5.6%**.
- The prevalence of students with direct home exposure was **31.48%** and environment exposure such as hanging out with friends was **40.93%**.

**Amin HS**, Alomair ANA, Alhammad AHA, Altwijri FAA, Altaweel AAA, et al. (2017) Prevalence of Tobacco Product Consumption and Exposure among Healthcare Students in King Saud University in Riyadh, Saudi Arabia. J Community Med Health Educ 7: 567

# Risks of Smoking (Morbidity and Mortality)

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**Cigarette smoking causes more than 480,000 deaths each year in the United States.**

**This is about one in five deaths.**

Smoking causes more deaths each year than all of these combined:

- **Human immunodeficiency virus (HIV)**
- **Illegal drug use**
- **Alcohol use**
- **Motor vehicle injuries**
- **Firearm-related incidents**

# Risks of smoking (Morbidity and Mortality)

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**Smokers are more likely than nonsmokers to develop:  
Heart disease, Stroke, and Lung cancer.**

**Smoking is estimated to increase the risk of:**

- **Coronary heart disease by 2 to 4 times**
- **Stroke by 2 to 4 times**
- **Lung cancer by 25 times**



# Smoking and Cardiovascular System

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Smoking causes **stroke** and **coronary heart disease** —the leading causes of death in the United States.

Smoking damages **blood vessels**.

**Walls of Arteries** are thicken and lumen grow narrower (Atherosclerosis)

**The heart beat faster and blood pressure goes up.**

**Thrombosis** can also form and lead to; **IHD, Peripheral Vascular Disease and Stroke.**

**Even people who smoke fewer than five cigarettes a day can have early signs of cardiovascular disease.**

# Smoking and Respiratory System

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Lung diseases caused by smoking include:

**COPD**, which includes **emphysema** and **chronic bronchitis**.

Smoking can cause lung disease by damaging the airways and the alveoli.

In presence of **asthma**, tobacco smoke can trigger an attack or make an attack worse.

Smokers are **12 to 13 times** more likely to die from **COPD** than nonsmokers.

Cigarette smoking causes most cases of **lung cancer**.

# Smoking and Cancer

➤ **Smoking can cause cancer almost anywhere in your body:**

❑ **Trachea, bronchus, and lung**

❑ **Bladder**

❑ **Esophagus**

❑ **Larynx**

❑ **Oropharynx (includes parts of the throat, tongue, soft palate, and the tonsils)**

➤ **If nobody smoked, one of every three cancer deaths in the United States would not happen.**



# Risks from Smoking

Smoking can damage every part of the body

## Cancers

Head or Neck

Lung

Leukemia

Stomach

Kidney

Pancreas

Colon

Bladder

Cervix

## Chronic Diseases

Stroke

Blindness

Gum infection

Aortic rupture

Heart disease

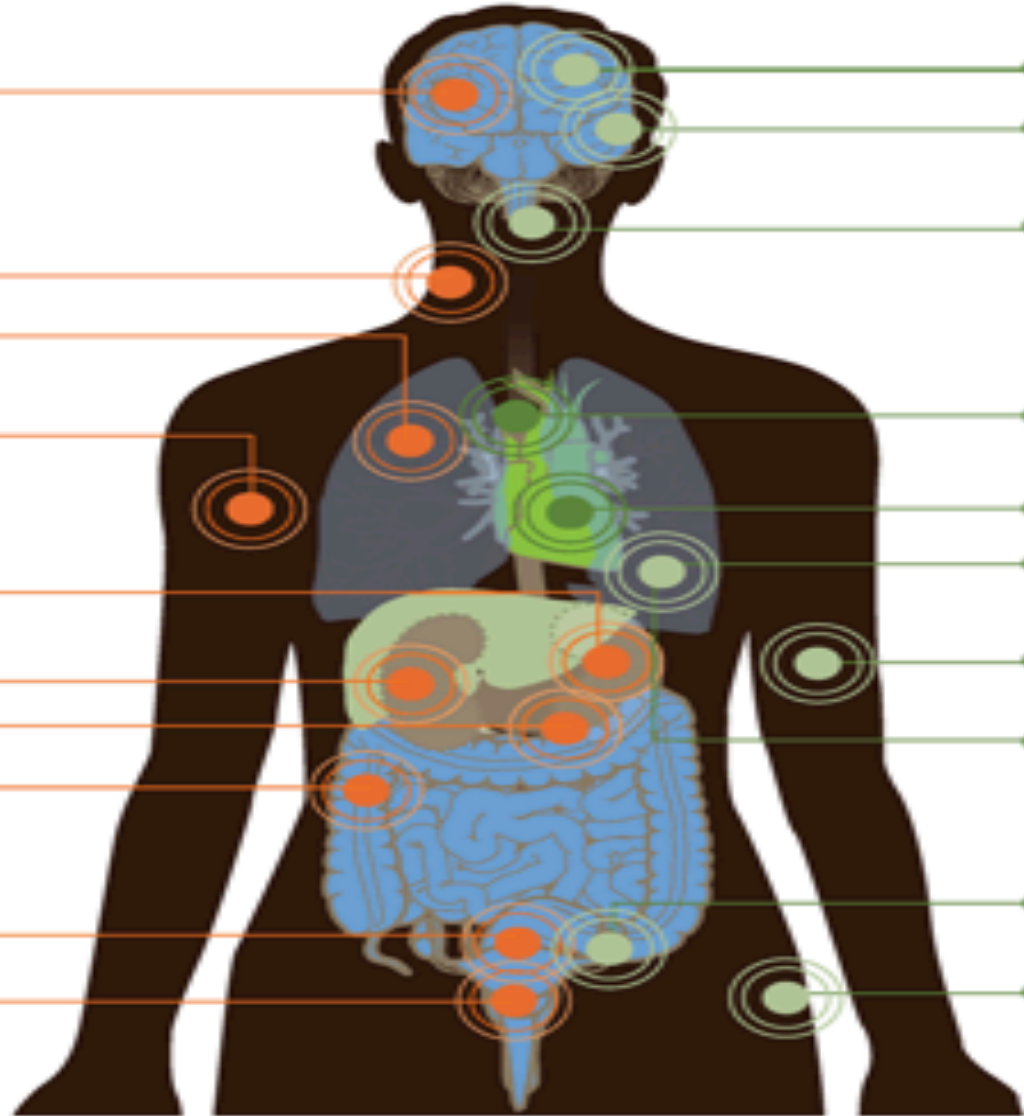
Pneumonia

Hardening of the arteries

Chronic lung disease & asthma

Reduced fertility

Hip fracture



# Types of Smoking

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## Conventional smoking



## Passive ( secondhand) smoking



# Third-hand smoke exposure — Third hand

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smoke exposure refers to exposure to smoke components and their metabolic by-products from contact with surfaces that have adsorbed smoke. The smoke leaves a residue of nicotine and other toxic substances in household dust and on surfaces. Although not yet well studied, there is concern that contact with third hand smoke will result in absorption of toxins through the skin or ingestion from contamination of the hands.



# Effect of Passive Smoking

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## What is passive smoking?

- ❑ Passive smoking means breathing in other people's tobacco smoke.
- ❑ Exhaled smoke is called **exhaled mainstream** smoke.
- ❑ The smoke drifting from a lit cigarette is called **sidestream smoke**.
- ❑ The combination of mainstream and sidestream smoke is called second-hand smoke (SHS).

# Effect of passive smoking on pregnancy and children





# Effect of Passive Smoking on Pregnancy and Children

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- Kids are particularly at risk for the effects of secondhand smoke because their bodies are still growing and they breathe at a faster rate than adults.
- Conditions have been linked to secondhand smoke exposure in children:
  - Sudden infant death syndrome (SIDS)
  - More respiratory infections (such as bronchitis and pneumonia)
  - More severe and frequent Asthma attacks
  - Ear infections
  - Chronic cough

# Children & Secondhand Smoke

- 38% of children aged 2 months to 5 years are exposed to **SHS** in the home.
- Up to 2,000,000 **ear infections** each year
- Nearly 530,000 doctor visits for **asthma**
- Up to 436,000 episodes of **bronchitis** in children under five
- Up to 190,000 cases of **pneumonia** in children under five

# Effect of Passive Smoking on Pregnancy and Children

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- **Smoking during pregnancy can lead to:**
  - ❑ **Premature delivery,**
  - ❑ **Low birth weight,**
  - ❑ **Sudden Infant Death Syndrome (SIDS),**
  - ❑ **Limited mental ability, trouble with learning.**



**The more cigarettes a mother-to-be smokes, the greater the danger to her baby causing **5 %** of infant deaths and **10 %** of preterm births.**

# Types of smoking



**Cigarettes:** Cigarettes are uniform in size and contain less than 1g of tobacco each. They are made from different blends of tobaccos, and wrapped with paper.



## Cigars

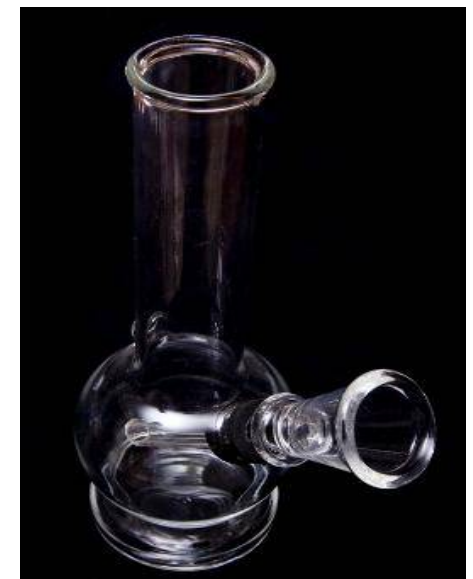
Most cigars are composed primarily of a single type of tobacco (air-cured and fermented), and they have a tobacco wrapper.

They can vary in size and shape and contain between 1 gram and 20 grams of tobacco.



# Water-Pipe: Sheesha

- Not safer than regular tobacco smoke.
- Causes the same diseases but more **Polycythemia** (↑ RBCs and Haemoglobin).
- Raises the risk of **lip cancer**, spreading infections like **Tuberculosis**.
- Users ingest about 100 times more lead from hookah (نرجيلة) smoke than from a cigarette.



المكون	السيجارة	الشيخة
1- الزفت (Tar)	22mg	802 mg
2- النيكوتين (nicotine)	1.7 mg	3.0 mg
3- اول أكسيد الكربون (co)	17 mg	143mg
4- الزرنيخ (Arsenic)	80 mg	165mg
5- البريليوم (Beryllium)	300 mg	65mg
6- الكروميوم chromium	37mg	1340 mg
7- الكوبالت (Cobalt)	o.17mg	70mg
8- الرصاص (Lead)	60mg	6870mg

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How are you going to help the smoker to **Quit**  
and how to overcome **withdrawal symptoms?**

**Management** of smoking cessation

**NO**  **SMOKING**



# Control Measures

- **Surveillance is the key**
- **Taxes**
- **Health education**
- **Picture warnings**
- **Tobacco users need help to quit**

## **Assess the Dependence first:**

- The time of the first cigarette at morning.**
- The number of cigarettes per day.**

# Why is it so hard to quit smoking?

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## Nicotine

Found naturally in tobacco, which is as **addictive** as heroin or cocaine.

Over time, a person becomes **physically dependent** on and **emotionally addicted** to nicotine.

- The **physical dependence** causes unpleasant withdrawal symptoms when you try to quit.
- The **mental dependence** (addiction) make it hard to stay away from nicotine after quit.

# Why quit smoking now?

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- No matter how old or how long a person's smoked, quitting can help live longer and be healthier.
- People who stop smoking before **age 50** cut their risk of dying in the **next 15 years** in **half** compared with those who keep smoking.
- **Ex-smokers** enjoy a higher quality of life – they have fewer illnesses.

# Why quit smoking now?

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## Immediate rewards of quitting smoking:

- ❖ Breath smells better
- ❖ Stained teeth get whiter
- ❖ Bad smell in clothes and hair go away
- ❖ Yellow fingers and fingernails disappear
- ❖ Food tastes better
- ❖ Sense of smell returns to normal
- ❖ Everyday activities (such as climbing stairs or light housework) no longer leave them out of breath
- ❖ They can be in smoke-free buildings without having to go outside to smoke.
- ❖ Reduce the Cost
- ❖ Social acceptance

# Getting help with the Mental and Physical Addiction

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Some people are able to quit on their own, without the help of others or the use of medicines. But for many smokers, it can be hard to break the social and emotional ties to smoking while getting over nicotine withdrawal symptoms at the same time.

## Quit-smoking programs:

- Tobacco Control Program; Ministry of Health (<http://www.sa-tcp.com>)
- Purity Organization; Ministry of Social Affairs (<http://naqa.org.sa/>)

## ➤ Support of family and friends:


- Increase rate of quitting

# 937KSA Tobacco Control Program

<http://www.tcpmoh.gov.sa/>



منتدى برنامج مكافحة التدخين

اتصل بنا :  

#هدفنا\_تقول\_بطلت



التدخين و المرأة



التدخين و الصحة



البرنامج الإلكتروني



حجز المواعيد في  
عيادات الإقلاع عن  
التدخين



اللجان الخليجية  
والاتفاقيات  
العالمية



اللجنة الوطنية



المسابقات



مشاركتي



الإهداءات



الأخبار



مكتبة الفيديو



مكتبة البرنامج



# خدمات عيادة الإقلاع عن التدخين

توفر "العيادة" مجموعة متكاملة من الخدمات تشمل

الخدمات العلاجية



الخدمات التوعوية



المتابعة ما بعد العلاج



الاستشارات الطبية



• حيث يدعم "العيادة" أيضاً مركز اتصال يقوم بالاتصال الدوري بالمراجعين، ومتابعة تطور حالتهم، وتوجيههم لكيفية استكمال البرنامج العلاجي والحصول عليه والرد على أي استفسار يرد من قبل المستفيدين من الخدمة.

• جميع الخدمات تقدمها وزارة الصحة مجاناً للمدخنين من الجنسين لمساعدتهم على الإقلاع.



وزارة الصحة  
Ministry of Health

## كيف أقلع سالم عن التدخين؟



# Smoking Cessation Clinic in KSU





# Withdrawal symptoms can include any of the following:

**(Peak: first to second week where the relapse rate is high)**

- Dizziness (which may last 1 to 2 days after quitting)

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- Feelings of frustration, impatience, and anger
- Depression, Anxiety, Tiredness and Irritability
- Sleep disturbances
- Trouble concentrating
- Restlessness or boredom
- Headaches
- Increased appetite and Weight gain
- Constipation and gas
- Cough, dry mouth, sore throat, and nasal drip
- Chest tightness

# Dealing with smoking withdrawal

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If someone's been smoking for any length of time, smoking has become linked with a lot of the things in daily life – waking up in the morning, eating, reading, watching TV, and drinking coffee, for example.

# Tips to overcome withdrawal symptoms

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**Avoid temptation.** Stay away from people and places that tempt you to smoke.

**Change your habits.** Switch to juices instead of coffee. Take a brisk walk instead.

**Choose other things for your mouth:** such as sugarless gum or hard candy, raw vegetables such as carrot.

**Get active with your hands:** Do something to reduce your stress like Exercise or keeps your hands busy.

# Tips to overcome withdrawal symptoms

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**Breathe deeply:** as you inhaled the smoke.

**Delay:** If you feel that you're about to light up, hold off. Tell yourself you must wait at least 10 minutes.

**Reward yourself.** Put the money you would have spent on tobacco in a jar every day and then buy yourself a gift.

# Five Major Steps to Quit (The "5 A's")

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**Ask** - about tobacco use for every patient at every visit.

**Advise** - every tobacco user to quit.

**Assess** - are you willing to quit smoking.

**Assist** - use counseling and pharmacotherapy to help him or her quit.

**Arrange** - Schedule follow up contact after the quit date.

# Electronic Cigarette

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An **electronic cigarette** or **electronic Nicotine delivery system (ENDS)** is a battery-powered vaporizer which has a similar feel to tobacco smoking.

Electronic cigarettes do not contain tobacco, although they do use nicotine from tobacco plants. They do not produce cigarette smoke but rather an aerosol, which is frequently but inaccurately referred to as vapor.

# E-cig in Smoking Cessation

As of 2014, research on the safety and efficacy of e-cigarette use for smoking cessation is limited.

Their benefit in helping people quit smoking is uncertain.

A 2014 Cochrane review found that **e-cigarettes** can help people quit, but was based on a small number of studies.

Two 2014 reviews found **no evidence** that e-cigarettes are more effective than existing nicotine replacement treatments for smoking cessation.



# مكونات السيجارة الالكترونية



البطارية  
وهي بطارية قابلة  
للتشحن تعطي  
الطاقة للاتومايزر  
ليقوم بتسخين  
النيكوتين.

محلول النيكوتين  
قد يحتوي على  
نكهات مختلفة  
لجعل التدخين جذابا.

إضاءة ( لمبة ) LED  
توجد في الطرف  
الأخر من السيجارة.  
وتضيء هذا الإضاءة  
عند اخذ نفس من  
السيجارة

الاتوميايزر (Atomizer)  
وهو عبارة عن غرفة  
إلكترونية متصلة من  
جهة بالبطارية ومن  
الجهة الأخرى بمحلول  
النيكوتين.  
تقوم بالدور الرئيسي  
في تسخين النيكوتين.

الخرطوم الخرطوش  
( Cartridge)  
ويحتوي على محلول  
النيكوتين .

## هل تعلم؟

أن السجائر الإلكترونية تسببت في العديد من الحوادث والحرائق نتيجة للإنفجار أثناء إستخدامها، وفي الولايات المتحدة الأمريكية سجلت ٢٥ حالة ما بين عام ٢٠٠٩ – ٢٠١٤



## Electronic Vaping: Is It Harmless or a Snake in the Grass?

The past few weeks witnessed the death of a few people who were smoking electronic cigarettes (ECs) in the United States.<sup>[1-4]</sup> Deaths included different age groups, including middle-aged individuals. One of them was a 50-year-old woman who had a history of health problems. She became seriously ill shortly after she started using EC and her symptoms progressed rapidly.<sup>[1]</sup> The US Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), and state health departments are investigating this outbreak; however, no definitive cause could be found.

Smoking ECs is also known as “vaping,” which may include the standard ECs, electronic shisha (hookah), electronic cigar, and electronic pipe.

Unfortunately, ECs have been promoted among conventional cigarette (CC) smokers as a useful tool that helps in stopping CC smoking and have become the most popular smoking-cessation aid in some countries like England.<sup>[5]</sup> In addition, ECs have been promoted, particularly, among

formaldehyde, particles, and metals such as cadmium, nickel and chromium, and flavors.<sup>[8]</sup> It is possible that the constituents and probably the toxicity of ECs aerosols differ significantly across different models of EC devices and liquids.

Short-term experimental human studies revealed acute cardiovascular changes of nicotine stimulant effects; nevertheless, there is still a lack of studies evaluating the long-term effects of ECs.<sup>[8]</sup>

A major notion among ECs users is that ECs help in smoking-cessation of CC. However, is there good evidence to support this notion? Previous studies that reported improvement in smoking-cessation were observational. Such a design has apparent limitations and cannot be used as strong evidence to rule out the effects of self-selection. A new task force report by the European Respiratory Society indicated that the evidence supporting the efficacy of ECs as a quitting tool is limited and further studies are needed, particularly, studies that compare ECs with licensed smoking cessation

*Bahammam AS. Electronic vaping: Is it harmless or a snake in the grass? J Nat Sci Med 2019;2:183-5.*

## السجائر الإلكترونية تحدي صحي كبير. وسوف نبذل جهدنا للحد من استخدامها وخطورتها.

Translate Tweet

أخبار عاجلة @News\_Brk24 · 28/09/2019

السلطات الصحية الأميركية تعلن تسجيل ارتفاع في الأشخاص المصابين بأمراض في الرئة بسبب تدخين السجارة الإلكترونية مع 12 وفاة وأكثر من 800 حالة إصابة مثبتة أو محتملة.



أ.د. أحمد بن سالم باهمام

من مقالتي الافتتاحية في مجلة كلية الطب العلمية بجامعة الملك سعود (يناير 2020): غردت على تويتر بعشرين تغريدة في ثريد، كما يظهر أدناه:

- 1) في المتوسط، تتكون جلسة تدخين الشيشة الواحدة من 171 استنشاق (كل منها حوالي 0.5 لتر) بمدة تعادل 2.6 ثانية مدة بتردد 2.8 استنشاق / دقيقة
- 2) تفيد التقارير أن تدخين الشيشة اخترع في الهند من قبل أحد الأطباء خلال فترة الإمبراطور أكبر (1556 - 1605 م)، حيث أعتقد الطبيب أن تمرير الدخان من خلال الماء سيجعله أقل ضرراً أو حتى غير ضار
- 3) للأسف، تناقل مستخدمو الشيشة هذه المعلومة الخاطئة، وهم يعتقدون خطأً أن ممارسة تدخين الشيشة آمنة نسبياً مقارنة بتدخين السجائر
- 4) أجرت دراسة حديثة تقيماً كمياً لتأثيرات ترشيح المياه لدخان الشيشة على مستويات عدة معادن سامة، وأفادت أن النسبة المئوية لفلتر المعادن كانت 3% من إجمالي المعادن فقط. من غير المرجح أن هذا النقص الصغير سيحمي المدخن من التعرض للمعادن السامة المحتملة
- 5) تظهر الأبحاث الحديثة في المملكة، أن هناك زيادة مقلقة في تدخين الشيشة بين الشباب رغم اللوائح الصارمة الحالية على مبيعات التبغ للشباب
- 6) كشفت دراسة حديثة ستُنشر في عدد يناير 2020، في مجلة كلية طب جامعة الملك سعود على عينتين من مدخني السجائر ومدخني الشيشة، أن المجموعتين كان لديهما نتائج مماثلة في عدد شرايين القلب المريضة، والحاجة للقسطرة أو عمليات القلب، وتكرار الأعراض، والوفيات
- 7) بينت دراسات علمية عدة وجود كميات كبيرة من أول أكسيد الكربون، الألدهيدات، متعدد الحلقات، الهيدروكربونات العطرية (جميعها سامة)، والجزيئات متناهية الصغر، وجسيمات قابلة للتنفس في دخان الشيشة المستعملة حتى في التدخين السلبي
- 8) تبين الأبحاث أنه قد يكون تدخين الشيشة السلبي أكثر خطورة من التدخين السلبي للسجائر لاحتوائه على سموم أكثر
- 9) وعلاوة على ذلك، بينت الأبحاث أن الانبعاثات المباشرة من المواد السامة من الشيشة الخالية من التبغ مماثلة لتلك الموجودة في الشيشة المدخنة مع التبغ
- 10) يروج مصنعو وتجار الشيشة أن هناك بعض الملحقات التي يُزعم أنها تقلل من الآثار الضارة للدخان، مثل أبواق الفم التي تحتوي على الفحم المنشط أو القطن، إضافات كيميائية إلى وعاء الماء، وتجهيزات شبكة بلاستيكية لخلق فقاعات أصغر
- 11) ولكن الحقيقة وضحتها منظمة الصحة العالمية من أنه لم يثبت فعالية أي من الملحقات المذكورة أعلاه في التقليل من المخاطر والمضاعفات المرتبطة بتدخين الشيشة

# Nicotine Replacement Therapy (NRT)

- ☐ Nicotine Patch
- ☐ Nicotine Gum
- ☐ Nicotine Inhaler  
(Deliver Nicotine Fast)
- ☐ Nicotine Nasal Spray



# Nicotine Replacement Therapy (NRT)

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The goal of nicotine replacement therapy (NRT) is to provide nicotine to a smoker without using tobacco, thereby **relieving nicotine withdrawal symptoms** as the smoker breaks the behavior of cigarette smoking.

**The initial dosing of most NRT products is based on the number of cigarettes smoked daily.**

# Nicotine Replacement Therapy (NRT)

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## Transdermal Nicotine Patch:

- ❑ The nicotine patch is the simplest NRT product for a smoker to use and provides the most continuous nicotine delivery of all NRT products.
- ❑ The patch has a long-acting, slow-onset pattern of nicotine delivery, producing relatively constant withdrawal relief over **24 hours**.
- ❑ Compliance with the patch is high.
- ❑ The patch is available over the counter.

# Nicotine Replacement Therapy (NRT)



- Starting on the quit day, patients who smoke **>10 cigarettes/day** use the highest dose of the nicotine patch (**21 mg/day**) for 4 to 6 weeks,
- followed by **14 mg/day** for two weeks,
- and finish with **7 mg/day** for two weeks.
- Smokers who weigh **less than 45 kg or smoke  $\leq 10$  cigarettes** per day are advised to begin with the **14 mg/day** strength for six weeks, followed by **7 mg/day** for two weeks.
- To use the nicotine patch, the smoker applies one patch each morning to any non-hairy skin site. It is removed and replaced with a new patch the next morning.

# Nicotine Replacement Therapy (NRT)

## Nicotine gum:

- ❑ Nicotine gum is one of the most commonly used **short-acting NRT**.
- ❑ Chewing the gum releases nicotine that is absorbed through the oral mucosa, resulting in a peak of blood nicotine levels 20 minutes after starting to chew.
- ❑ The **4 mg** dose of **gum is recommended for smokers who smoke  $\geq 20$  cigarettes per day, whereas the 2 mg** dose is recommended for lighter smokers.
- ❑ They can chew one piece of gum every **1 to 2** hours for six weeks, with a gradual reduction over a second six weeks, for a total duration of three months.
- ❑ Acidic beverages (e.g, coffee) should be avoided before and during gum use, as acidic beverages **lowers oral pH**, causing reducing nicotine absorption.



# Bupropion

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**Bupropion** inhibits the uptake of norepinephrine, serotonin, and dopamine → reduce the urge of smoking and improve the mood so good in cases of depression.

The quit date should be set for one to two weeks after bupropion therapy is initiated.

Bupropion therapy is usually continued for **eight to 12 weeks** after the patient has quit smoking.

## ➤ Contraindications:

- A history of seizure disorder
- The presence of eating disorders.
- Uncontrolled hypertension



# Varenicline (Champix / Chantix)

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## Varenicline:

- It blocks the nicotine in tobacco smoke from binding to the receptor, thereby reducing the rewarding aspects of cigarette smoking.
- It results in moderate levels of dopamine in the terminal synapse.
- It reduces the withdrawal symptoms.
- ❑ It increases the chances of a successful quit attempt **two- to three fold** compared with non pharmacologic assistance.
- ❑ Varenicline is **superior** to bupropion in promoting abstinence.
- ❑ There is increased risk of **coronary events** with varenicline



# References

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**THANK YOU**

