

Tobacco Dependence Treatment - What the
Provider Needs To Know!”
Pennsylvania Society for Respiratory Care Webinar
Wednesday, April 28, 2021.

Your presentation is scheduled from 1:00-2:00pm EST.

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Disclosures

- Member of American College of Chest Physicians Tobacco Dependence Treatment Toolkit Committee
- Co-Chair of committee to develop American Thoracic Society Clinical Practice Guideline: Initiating Pharmacotherapy of Tobacco Dependence
- Previous Chair of American Thoracic Society Tobacco Action Committee
- Previous Executive Committee Member and Policy Chair for American Academy of Pediatrics Section on Tobacco Control

Tobacco history

30-DAY TEST REVEALED

"Not one single case of throat irritation due to smoking Camels!"



Yes, that's what throat specialists reported after making weekly examinations of the throats of hundreds of men and women from coast to coast who smoked Camels, and only Camels, for 30 consecutive days.

According to a Nationwide survey:

More Doctors smoke Camels than any other cigarette

When three leading independent research organizations asked 112,507 doctors what cigarette they smoked, the brand named most was Camel!



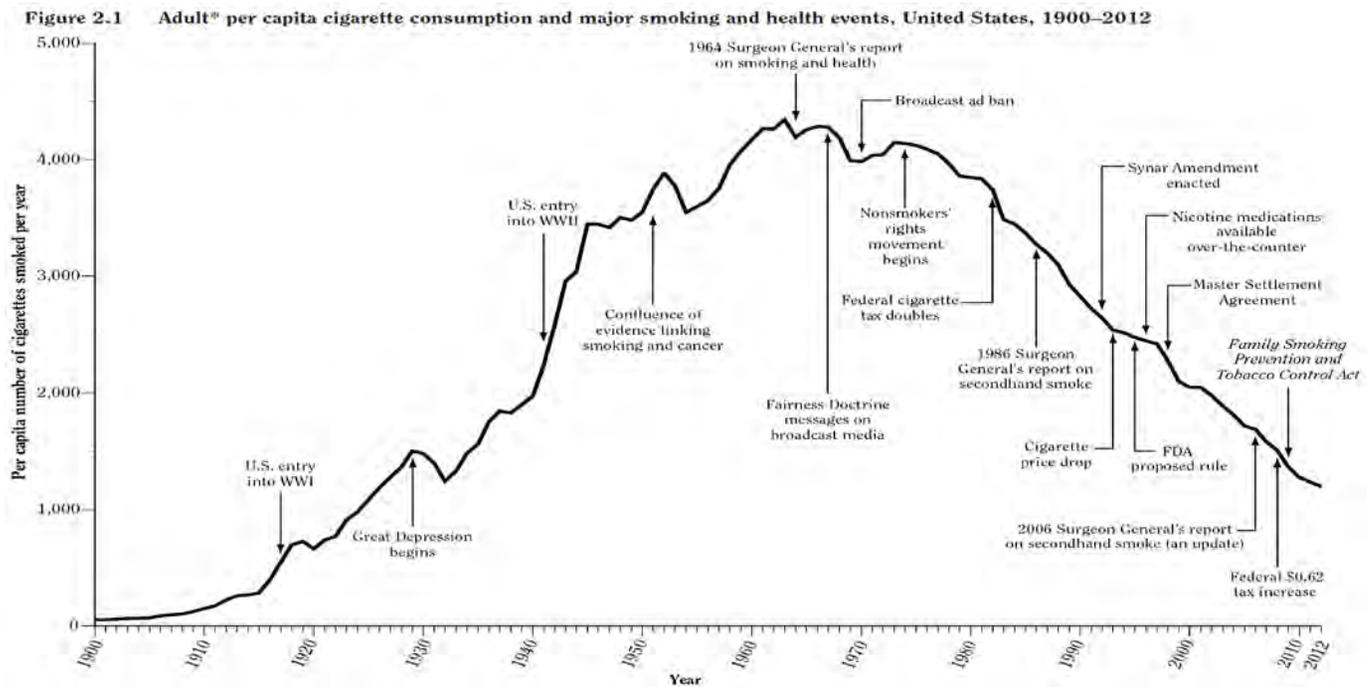
The figures quoted have been checked and verified by LYLAND, HAYS, BENT AND WATSON, INC., Advertising and Publicity.

20,679* Physicians say "**LUCKIES** are *less irritating*"

"It's toasted"

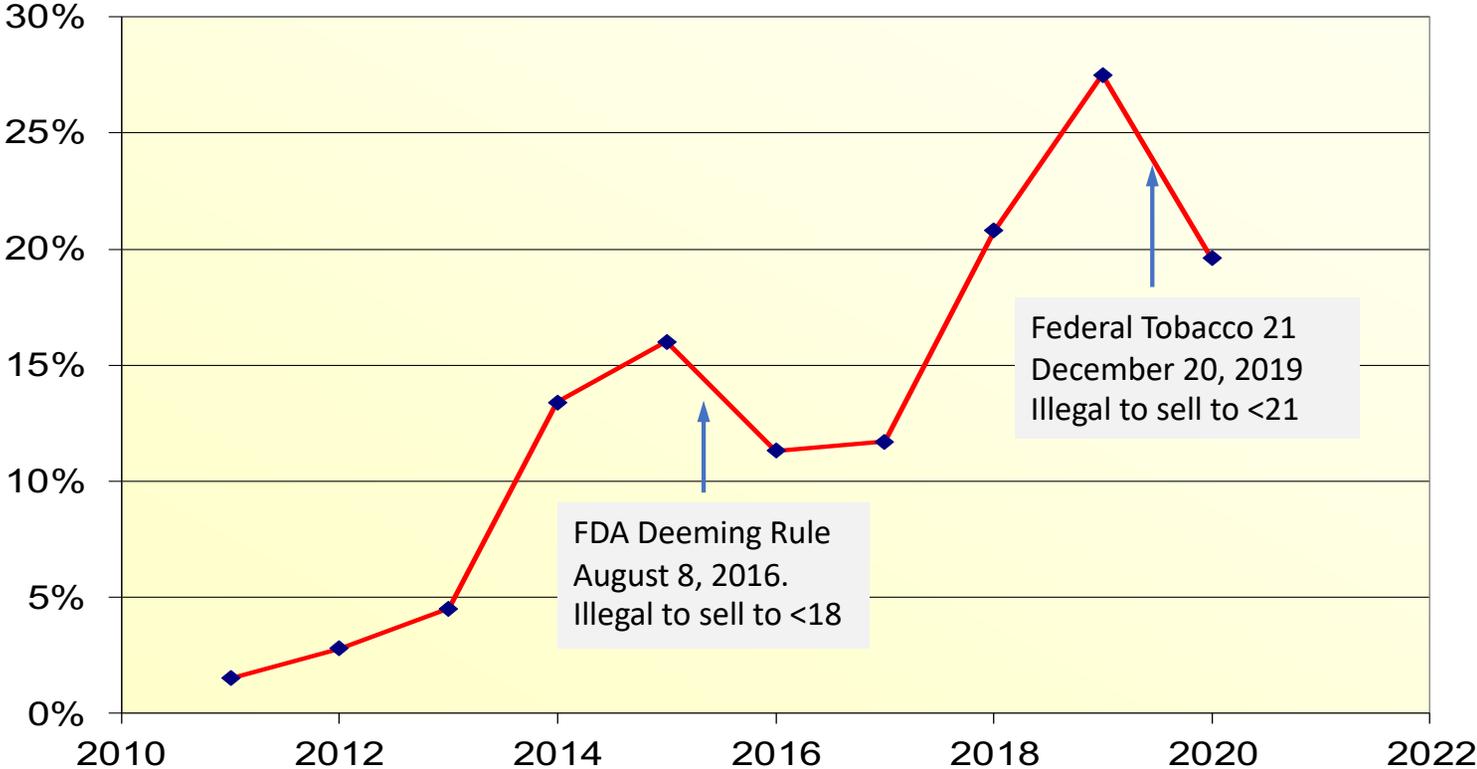
Your Throat Protection against irritation against cough

The Tobacco Epidemic



U.S. Department of Health and Human Services. *The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

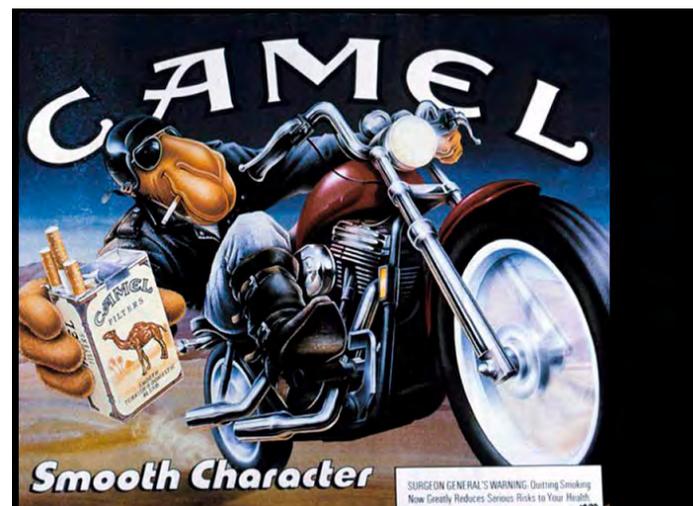
Electronic Cigarette Use in High School Students (US)



“During the past 30 days, on how many days did you use ...?”
(US National Youth Tobacco Survey)

The Tobacco Industry Targets Youth

- “Younger adults are the only source of replacement smokers”
- “If younger adults turn away from smoking the industry must decline”
- “A Brand which is strong among 18 year olds can have net switching losses and still hold/gain share”



RJR Confidential Document: The Importance of Younger Adults
<https://www.industrydocumentslibrary.ucsf.edu/tobacco/docs/#id=qyvf0092>.

<https://www.tobaccofreekids.org/microsites/camel/slide20.html>

Why do e-cigs attract youth?

- Focus group of teens in UK:
 - ‘great flavourings’
 - ‘bright colours’
 - ‘fun tricks’
 - ‘fitting in’
 - ‘looking cool’

#1 Flavor Selection with 19 Flavors!



Hilton S, Weishaar H, Sweeting H, et. al. E-cigarettes, a safer alternative for teenagers? A UK focus group study of teenagers' views. *BMJ Open*. 2016 Nov 16;6(11):e013271.



“Wellness Vapes”

- Ripple: “Puff on plants with ripple’s vape pens featuring botanical blends and zero-nicotine formulas that are a non-addictive, vegan alternative to smoking. Available in four flavors for your mood”
 - - Ingredients: Vegetable Glycerin, Propylene Glycol, Natural Extract, Natural Flavorings



- MONQ: “Experience the benefits of 100% Therapeutic Air® in one simple breath, anytime, anywhere”

“Indulge in passionate luxury with each breath of this blend designed to set all of your senses on fire.”

“Cinnamon’s warming properties may relax tense muscles”

“After decades in the (orthopedic) surgical theater, MONQ’s founder, Eric Fishman, M.D ...



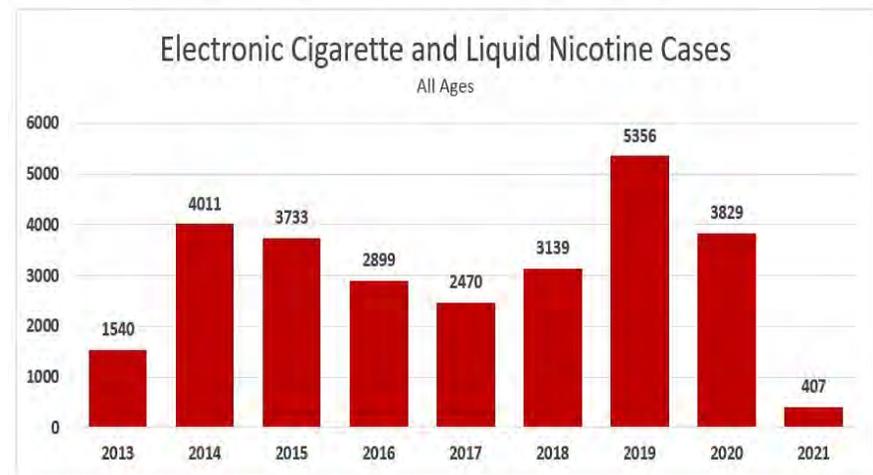
What do we know about harms of e-cigs?

- Product Explosions



N Engl J Med 2019;380(25)
DOI:.10.1056/NEJMicm1813769

- Nicotine Poisoning



US Poison Control Center Calls for E-cig and nicotine poisoning

<https://aapcc.org/track/ecigarettes-liquid-nicotine>

Severe Acute Lung Diseases

- Eosinophilic pneumonia
- Diffuse alveolar hemorrhage
- Hypersensitivity pneumonitis
- Organizing pneumonia
- Lipoid pneumonia
- Severe asthma
- EVALI (*e-cigarette, or vaping, product use associated lung injury*)
 - Feb 18, 2020
 - 2,807 cases (hospitalized and/or death)
 - 68 deaths
 - 82% reported use of THC containing products
 - 14% report exclusive use of nicotine containing e-cigarette products

Popcorn Lung?

Alpha Diketones – buttery flavor

- Diacetyl
- 2,3 pentanedione
- Known cause of bronchiolitis obliterans with occupational exposure
- Commonly found in e-cig flavors

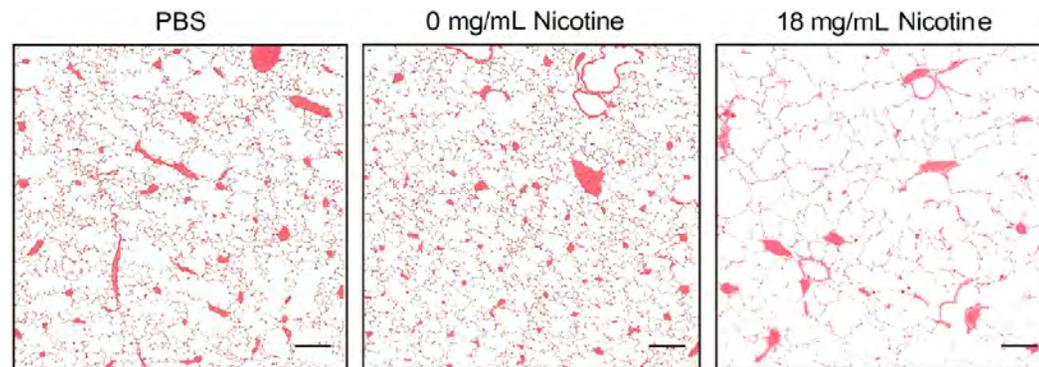


Respiratory Impacts: Population Health Studies

- California Children's Health Study:
 - Increased cough, congestion, phlegm in e-cig users
 - OR 1.70, 95% CI 1.11-2.59)
- Population Assessment of Tobacco and Health Study
 - Current and former e-cig use is associated with incident respiratory disease
 - Chronic Bronchitis
 - Asthma
 - Emphysema

Respiratory Impacts: Laboratory Studies

- Mice develop changes of emphysema (increased mucus, apoptosis, airspace enlargement) after 4 months of nicotine containing e-cig aerosol exposure.

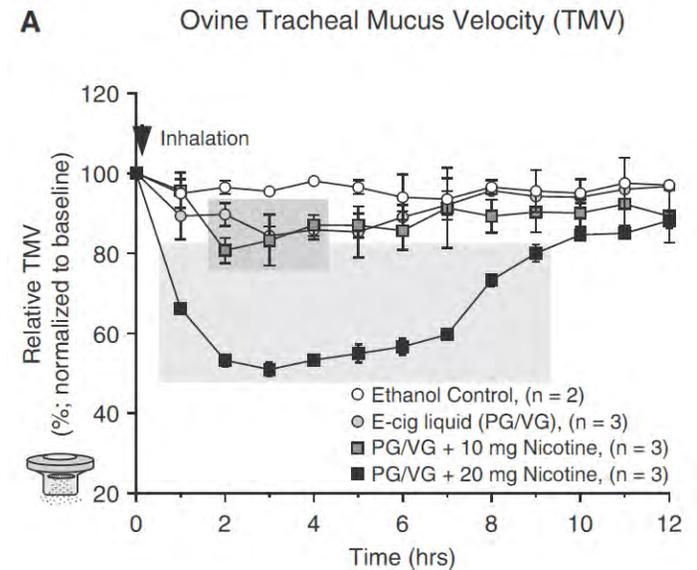


Itsaso Garcia-Arcos et al.
Thorax 2016;71:1119-1129

Mice were exposed daily to inhaled phosphate-buffered saline PBS, nicotine-free (EC vehicle, 0 mg/mL) or nicotine-containing (EC vehicle, 18 mg/mL) e-cigarette fluid for 4 months

Respiratory Impacts: Laboratory Studies

- Decreased tracheal mucus velocity in sheep after PG/VG aerosol
- Cell culture studies: increased inflammatory cytokines and decreased cell viability from PG/VG, addition of flavoring agents increases cytotoxicity



Cardiovascular Impacts:

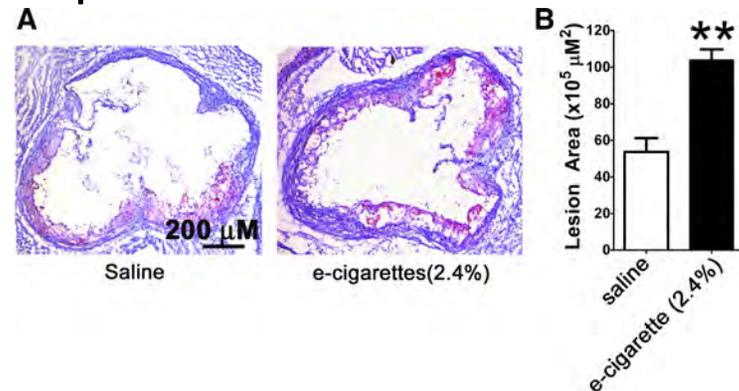
Population Health Studies

- National Health Interview Study
 - Daily e-cig use associated with increased odds of Myocardial Infarction
 - aOR 1.79, 95% CI 1.20-2.66

Am J Prev Med . 2018 Oct;55(4):455-461. doi: 10.1016/j.amepre.2018.05.004.

Laboratory Studies

- Increased atherosclerotic plaque after 12 week e-cig vapor exposure in mice



Am J Physiol Heart Circ Physiol . 2019 Aug 1;317(2):H445-H459. doi: 10.1152/ajpheart.00738.2018.

Cancer

Human Studies:

- Carcinogenic substances linked to bladder cancer accumulate in urine of e-cig users

- Laboratory studies
- Mice exposed to e-cig emissions 4 hrs/day x 54 weeks found
 - Increased lung adenocarcinoma
 - 9/40 exposed vs 1/40 unexposed (p=0.02)
- In e-cig exposed mice:
 - Increased DNA adducts
 - Decreased nucleotide excision repair and base excision repair

Infections

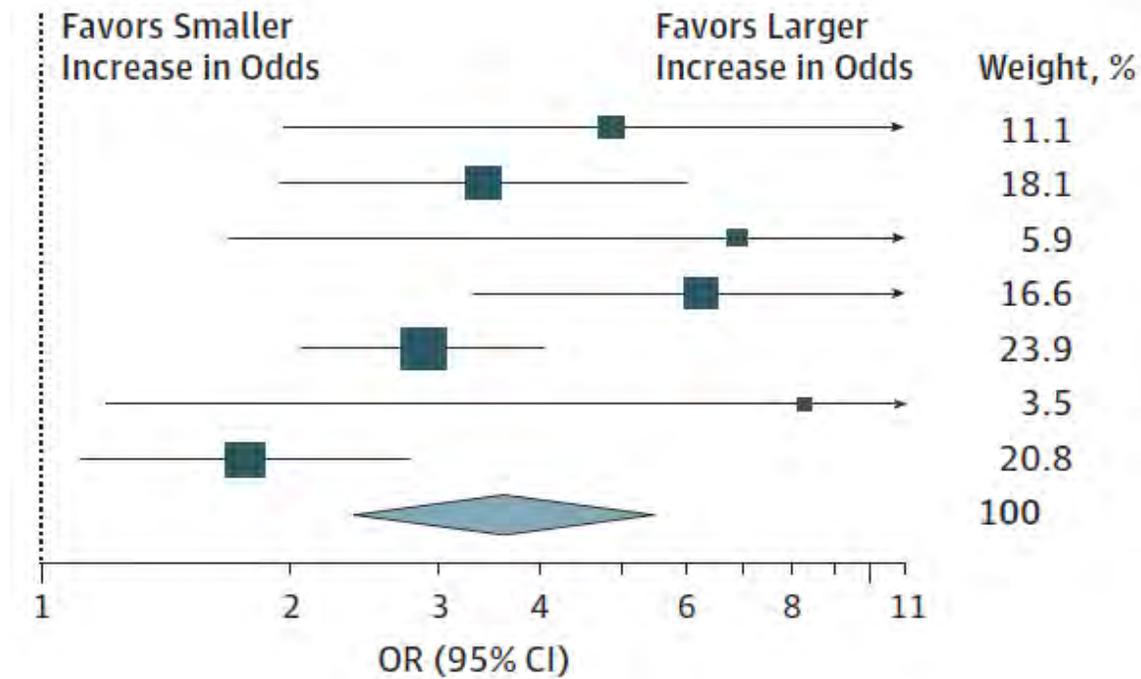
- A national cross-sectional online survey of 4,351 adolescents and young adults age 13-24 years, May 2020
 - Hx of COVID 19 diagnosis (compared to never users of tobacco products)
 - Ever e-cig users: OR 5.05 (95% CI 1.82-13.96)
 - Ever dual users: OR 6.97 (95% CI 1.98-24.55)
- Is this an effect of e-cig use or is e-cig use a marker for risk taking behavior?
- Laboratory Studies
 - Mice exposed to nicotine containing e-cig emissions:
 - Intranasal inoculation of *Streptococcus pneumoniae*
 - E-cig exposed mice had increased intrapulmonary bacterial burden and decreased bacterial phagocytosis
 - Inoculation with mouse adapted H1N1 influenza virus
 - E-cig exposed mice had increased viral titers and increased mortality

Dual Use

Are two tobacco products worse than one?

- PATH Study 2013-2016
- Higher rate of incident respiratory disease among dual users of tobacco and e-cigarettes
 - (OR 2.56, 95% CI 1.92-3.41)
- Behavior Risk Factor Surveillance System:
- Dual users had greater odds of stroke compared to cigarette only users
 - (aOR 1.83 (95% CI 1.06-3.17))

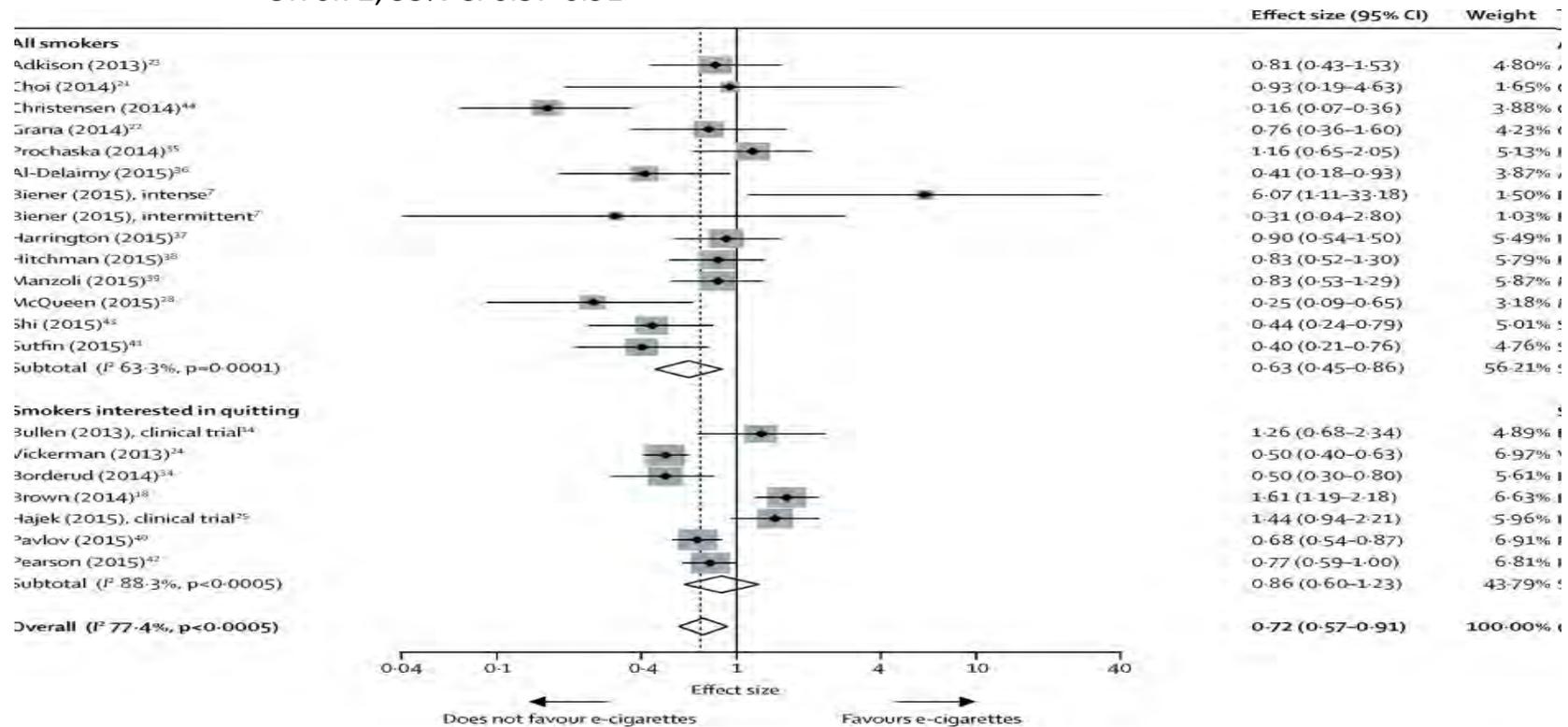
E-cigarette use INCREASES rates of smoking initiation



Meta analysis of e-cig use on starting smoking
(never smokers at baseline, age 12-30 yrs)

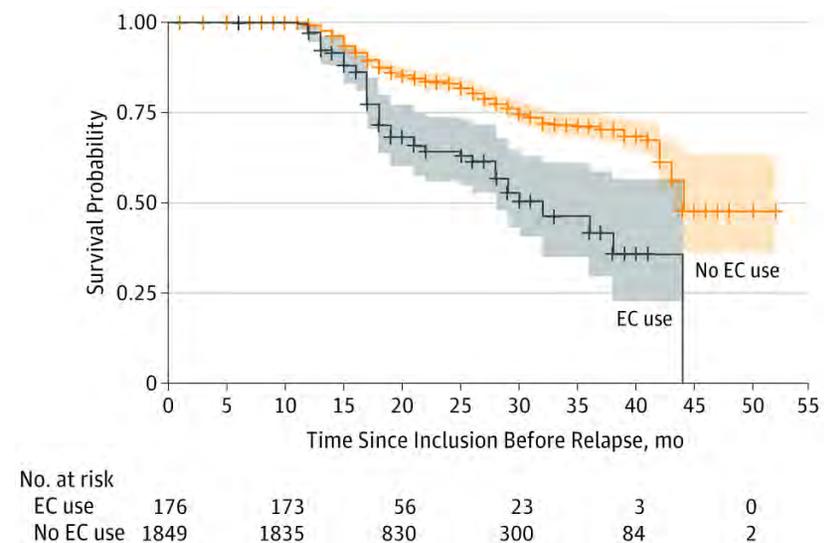
Lower rates of smoking cessation with E-cigs

- Meta-analysis of 20 studies
 - 15 cohort studies, 3 cross sectional studies, 2 clinical trials
 - **Odds of smoking cessation 28% lower if used e-cigs**
 - OR 0.72, 95% CI 0.57-0.91



Higher rates of smoking relapse with e-cigs

- CONSTANCES (Consultants des Centres d'Examens de Santé) study in France
- 2,025 former smokers (mean follow-up of 22.1 months) at baseline who quit smoking in 2010 or later
- E-cig use was associated with an increase in smoking relapse among former smokers (adjusted hazard ratio, 1.70; 95% CI, 1.25-2.30).



Time to Smoking Relapse According to Current Regular Electronic Cigarette Use Among Former Smokers (n = 2025), CONSTANCES Cohort Study, 2012-2017

Tobacco Harm Reduction – reality or delusion?

- European Respiratory Society Statement on Tobacco Harm Reduction
 - The tobacco harm reduction strategy is based on incorrect claims that smokers cannot or will not quit smoking
 - The tobacco harm reduction strategy is based on undocumented assumptions that alternative nicotine delivery products are generally harmless

Tobacco Harm Reduction – reality or delusion?

- European Respiratory Society Statement on Tobacco Harm Reduction
 - The tobacco harm reduction strategy is based on incorrect claims that we cannot curb the tobacco epidemic
 - The human lungs are created to breathe clean air, not “reduced levels of toxins and carcinogens”, and the human body is not meant to be dependent on addictive drugs

*How should we approach tobacco
and nicotine dependence?*

Talking about tobacco dependence

Ask Permission

- ***An important part of the health of you/your family is the treatment of your tobacco dependence***
- ***Is it okay if we talk about it?***

The New Zealand Guidelines for Helping People to Stop Smoking
<https://www.health.govt.nz/system/files/documents/publications/nz-guidelines-helping-people-stop-smoking-jun14.pdf>



**ASK ABOUT THE
ELEPHANT**

Nicotine addiction is a chronic brain disorder

- Nicotine tolerance
 - Neuroadaptation
 - Desensitization of receptors
 - Increase in binding sites
 - Without nicotine, neurotransmitter release is altered.

Compulsion to use tobacco

- **Wanting**

- mild desire to smoke that is short lived and easily ignored

- **Craving**

- Stronger urge to smoke that is more persistent and difficult to ignore

- **Needing**

- An intense and urgent desire to smoke that is unpleasant and unremitting

DiFranza J. New Insights into the Development of Tobacco Dependence. *Pediatric Allergy, Immunology, and Pulmonology* 2012;25(2):76-9

DiFranza JR, Huang W, King J. Neuroadaptation in nicotine addiction: update on the sensitization-homeostasis model. *Brain Sci.* 2012 Oct 17;2(4):523-52

Nicotine withdrawal symptoms

- Irritability, frustration, anger
- Increased appetite
- Tremors
- Depression
- Insomnia
- Anxiety
- Difficulty concentrating
- Difficulty feeling pleasure

2 paths to stop smoking

Cope with
withdrawal

Treat
withdrawal



Pharmacotherapy...

- Goal of Pharmacotherapy
 - Control withdrawal symptoms
 - Feel comfortable when not using tobacco products

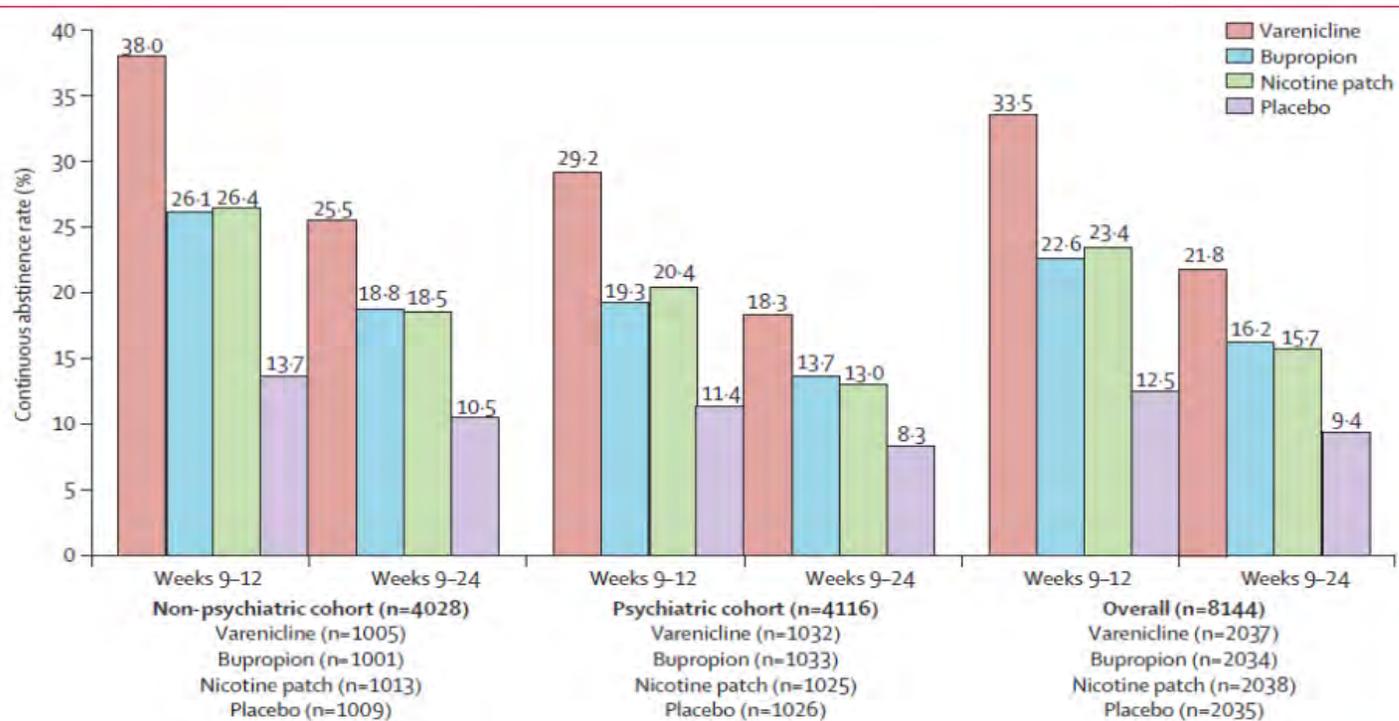
Using pharmacotherapy

- Varenicline is the most effective single FDA approved medication for tobacco dependence.

EAGLES Trial

Varenicline > bupropion = nicotine patch > placebo

No increase in neuropsychiatric adverse events



Lancet. 2016 Jun 18;387(10037):2507-20

Concern about neuropsychiatric adverse effects

- FDA approved pharmacotherapies do not increase risk for neuropsychiatric adverse effects over placebo
- **INADEQUATELY CONTROLLED NICOTINE WITHDRAWAL CAN LEAD TO NEUROPSYCHIATRIC ADVERSE EFFECTS**

Using pharmacotherapy

- Varenicline is the most effective single FDA approved medication for tobacco dependence.
- Combination of varenicline + nicotine replacement therapy is more effective than varenicline alone

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- Longer courses of treatment (more than 12 weeks) are more effective than standard (12 week course)

Using pharmacotherapy

- Varenicline is the most effective single FDA approved medication for tobacco dependence.
- Combination of varenicline + nicotine replacement therapy is more effective than varenicline alone
- Longer courses of treatment (more than 12 weeks) are more effective than standard (12 week course)
- Medication can be started even before a person is ready to stop tobacco product use

If patient does not want to use varenicline

- Other FDA approved medications are effective.
 - If OTC medications preferred
 - Slower release nicotine products are easier to get off of than cigarettes or e-cigs
 - Some patients may prefer OTC NRT products as it does not give them a drug that they are not already taking
 - Nicotine patch in combination with nicotine gum/lozenge is more effective than either alone

Special populations

- Patients with psychiatric co-morbidities
 - Tobacco dependence is a common cause of premature death
 - Often have less ability to manage withdrawal symptoms
 - More intensive pharmacotherapy is often needed
- Other substance abuse comorbidities
 - Tobacco dependence commonly complicates other substance abuse
 - Adequate treatment of tobacco dependence can make cessation of other substance abuse easier.

Special populations

- Adolescents
 - Non-adherence to pharmacotherapy is common
 - Other drug abuse often complicates treatment
 - Psychiatric co-morbidities are common
 - Social factors contribute to continued tobacco product use

Special populations

- Pregnant women

- Continued tobacco product use has definite and well documented harms to the fetus and increases risk for complications of pregnancy.
- Second hand tobacco smoke harms the fetus
- Some (not all) of the harms of tobacco are due to nicotine.
- Relapse after giving birth is very common
- Stopping tobacco use without medications is best
 - If the woman can't do that, pharmacotherapy can be considered as a harm reduction measure
 - Per ACOG varenicline or bupropion are preferred over NRT.

Coping with withdrawal

- Telephonic counseling (1 800 QUIT NOW)
- Text messaging reinforcement (smokefree.txt)
- Support from friends/family
- Distraction
- Exercise
- Mindfulness meditation
- Avoid alcohol

Coping with withdrawal

- Cigarette logs
- Create unpleasant associations with smoking (cigarette butt jar)
 - Deposit the remainders of the smoked tobacco products (cigarette butts & ashes) in a clean jar with a screw-top filled about a third with water.
 - Unscrew the top and inhale the odor deeply.
 - The foul smell can help in breaking positive associations with tobacco.

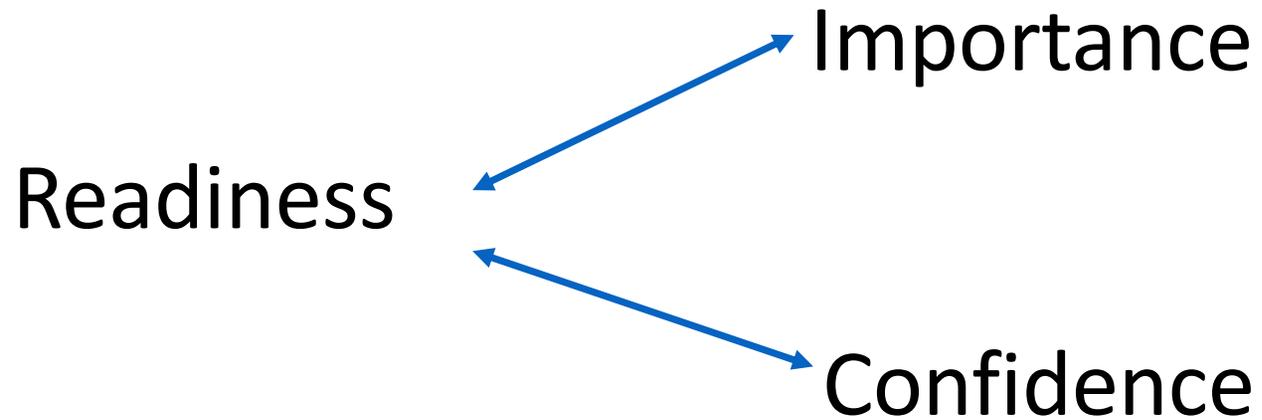
Just released from American College of Chest Physicians

- **Smoke Out: Tobacco Pirates**

- Game designed to aid in any fight against tobacco addiction!
- Learn more about tobacco addiction as you traverse the seven levels of adventure.
- Become more conscious of your tobacco use through our tobacco log system.
- Defeat all the pirate bosses to rule the seven seas!
- Available from free download from [Apple app store](#) and from [Google Play](#)



The ingredients of change



Health Belief Model

- I am **susceptible** to this health problem
- The threat to my health is **serious**
- The **benefits** of the recommended action outweigh the **costs**
- I am **confident** that I can carry out the recommended actions successfully

Assessing Importance

**Not at all
important**

**Extremely
important**

0 1 2 3 4 5 6 7 8 9 10

- “On a scale of 0 to 10, how is important is it to you to _____ (make this change)?

Exploring Importance

Current Behavior	Change in Behavior
<p><u>Pros</u></p> <p><i>“What are some of the good things about (current behavior)?”</i></p>	<p><u>Pros</u></p> <p><i>“What are some of the good things about (changing behavior)?”</i></p>
<p><u>Cons</u></p> <p><i>“What are the not so good things about (current behavior)?”</i></p>	<p><u>Cons</u></p> <p><i>“What are some of the not so good things about (changing behavior)?”</i></p>

Assessing Confidence

**Not confident
at all**

**Extremely
confident**

0 1 2 3 4 5 6 7 8 9 10

- “On a scale of 0 to 10, how confident are you about _____ (making this change)?

How can we help the patient to turn interest into **action**?

- Choose a step that is not too difficult
- Success is more likely if they come up with the options rather than you
 - You can prime the pump if they are stuck
- Convey optimism
- Write it down

Enhancing Confidence

- Recall times in the past when the patient has been successful making changes
- Break it down
 - Define small, realistic, and achievable steps
- Identify specific barriers and problem-solve
 - “What might get in the way?”
 - “What might help you get past that?”
 - “Here’s what others have done.”

Conclusions:

- E-cigarettes should not be recommended by health care providers
 - E-cigarettes have substantial harms
 - Dual use is more harmful than continued smoking alone
 - E-cigarettes continue nicotine dependence, they do not treat it
 - Population studies show greater rates of smoking initiation, lower rates of cessation, and higher rates of relapse among e-cigarette users.

Conclusions:

- Tobacco dependence is a treatable severe chronic illness
 - Treatment strategies include coping with withdrawal and pharmacotherapy to control withdrawal.
 - Varenicline is the best single medication for tobacco dependence treatment
 - Combination Varenicline + NRT is more effective than varenicline alone
 - Longer courses of treatment are more effective than standard (12 week) treatment
 - Can start medication before a person is ready to stop smoking.
 - Use of motivational interviewing strategies are important in counseling about tobacco dependence.

Questions?



Skull of a Skeleton with Burning Cigarette
Vincent van Gogh, 1886
Van Gogh Museum, Amsterdam