


## Vaping: Seeing Through the Smoke

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- ### Objectives
- Look back the Origins of this Epidemic
  - Look into the devices and science of vaping
  - Discuss strategies for prevention and quitting
  - Review of what we know so far on Vaping Associated Lung Injury

- ### Lettuce vs. Tobacco
- |   |   |
|---|---|
| <p><b>E.Coli Related Deaths and Injury</b></p> <ul style="list-style-type: none"> <li>• 5 deaths</li> <li>• 200 people made ill</li> <li>• From Romaine lettuce in 2018</li> <li>• CDC/FDA response- Ban consumption and pull from shelves romaine lettuce</li> </ul> | <p><b>Vaping Related Lung injury</b></p> <ul style="list-style-type: none"> <li>• 26 deaths to date</li> <li>• More than 1000 cases of severe illness as of September 2019</li> <li>• CDC/FDA response- Stern warning to stop using bootleg vaping liquids</li> </ul> |
|---|---|



**juulistherusul • Fol**  
Nanna

juulistherusul Just an icon! #thesereallyfriends #hayes #juulgang #juulbods #juulo #juulstoretips #juuling #juulgang #juulgang #juulp I'm proud to say I did most the poster for my friend in r

123 likes  
1 DAY AGO

Add a comment...

**“Nicotine Addiction is a Pediatric Disease.”**  
90% of Adult smokers began smoking before the age of 18  
2018 Report- 27.5% of graduating Seniors report using Ecigs

- ### E Cig E Hookahs Mods Vape Pens Vaper Tank System Juul...
- Technology introduced in 1927 by Joseph Robinson to vaporize liquids for medicinal purposes
  - Herbert Gilbert patented the Smokeless Non tobacco Cigarette in 1966- but not popular because cigarettes were COOL
  - Hon Lik in China invented the modern e cig design
  - Arrived in US markets in 2006

**Sleek Technology**

A heating element attached to rechargeable battery with a tank to hold the liquid and wick to deliver liquid to heating element just add a mouth piece  
 Heat the liquid to more than 400 Degrees F to vaporize or aerosolize the liquid

### Are they all the Same?

<p><b>Vaping</b></p> <ul style="list-style-type: none"> <li>• Nicotine as free base in solution</li> <li>• Can burn the throat/harsh</li> <li>• Less concentrated</li> <li>• Can aerosolize other drugs or substances- THC</li> </ul>	<p><b>Juuling</b></p> <ul style="list-style-type: none"> <li>• Nicotine Salts</li> <li>• Protonated salts are less harsh</li> <li>• Allow user to inhale deeper, absorber more readily</li> <li>• Can be concentrated more</li> </ul>
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**Vape Pens**

**Juul**

**A new Generation of Pods**

### Why Juul Wins

- Juul pod contains the equivalent nicotine between 1-2 packs of cigarettes in 200 puffs
- 5% concentration of Nicotine in the US
- Europe and other countries limit the pod concentrations to less than 2%
- USB charging
- Small easily concealed
- Pleasant smell and taste



#### Juul (Big Tobacco Philip Morris) Hit the Scene in 2015

Focus and Targeted Teen Marketing on Social Media  
Instagram Influencers  
Launch Parties

### Exchange One Epidemic for Another

- JUUL has grown over 700% since 2015
- Now accounts for 70% of eCig market
- Removed Social Media Accounts in Nov 2018
- Hired a Pediatrician with expertise in Nicotine Addiction Spring 2019- Dr. Mark Rubinstein
- Stopped Marketing in US Sept 2019

### Why Do We Care

- Youth who use e-cigarettes are
  - more than 3.5 times more likely to use marijuana
  - More likely to use traditional cigarettes
  - Have increase in mood disorders
  - Gateway theory to other addictions

The TEEN Brain is more vulnerable to addiction:  
NEUROPLASTICITY

### Stopping the Train...

- Two parts: Preventing new users
  - » Helping those already addicted
- Legislation- changing the legal age to 21
  - Bans on Vaping, sales
- Grassroots efforts- in the schools, at home
  - Vapor detectors, cotinine screening

### Nicotine Addiction

- Nicotine Replacement treatments
- Nicotine Receptor Antagonist
  - Bupropion (Wellbutrin, Zyban)
- Nicotine Receptor Partial Agonist
  - Varenicline (Chantix)

### Vaping Related Lung Injury

- Lipoid Pneumonia- increased lipid laden macrophages on BAL
- Chemical Pneumonitis- from additives
  - Propylene glycol
  - Glycerin
  - Flavorings
  - Benzene
  - Formaldehyde
  - Nickel
  - Lead
  - Chromium
  - Vitamin E oil
  - Pesticide- myclobutanil converts to Hydrogen Cyanide at > 400°

### What It Looks Like

- Intractable Vomiting
- Chest Pain
- Shortness of Breath
- CXR- ground Glass appearance
- Elevated WBC
- 78% report using THC containing vaping liquid



### How and What to Report

3. If e-cigarette product use is suspected as a possible etiology of a patient's severe pulmonary disease, obtain a detailed history regarding:
  - Substance(s) used;
  - Substance source(s);
  - Device(s) used;
  - Where the product(s) were purchased;
  - Method of substance use; and
  - Sharing of e-cigarette products with others.
4. Determine if any remaining product, including devices and liquids, is available for testing.
5. The CDC encourages the public to report any unexpected tobacco or e-cigarette-related health or product issues to the FDA online Safety Reporting Portal, <http://www.safetyreporting.hhs.gov>. The CDC's health advisory also includes recommendations for public health officials and the public. The full detailed alert is available at <https://emergency.cdc.gov/han/han00421.asp>





**CLOUD TRICKS**

<https://youtu.be/zVXR7xttUeo>