

## Vaping in Adolescents Fire, Stupid or Boujee?



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# Title and Affiliation

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# Disclosure

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- Nothing to disclose

# Learning Objectives

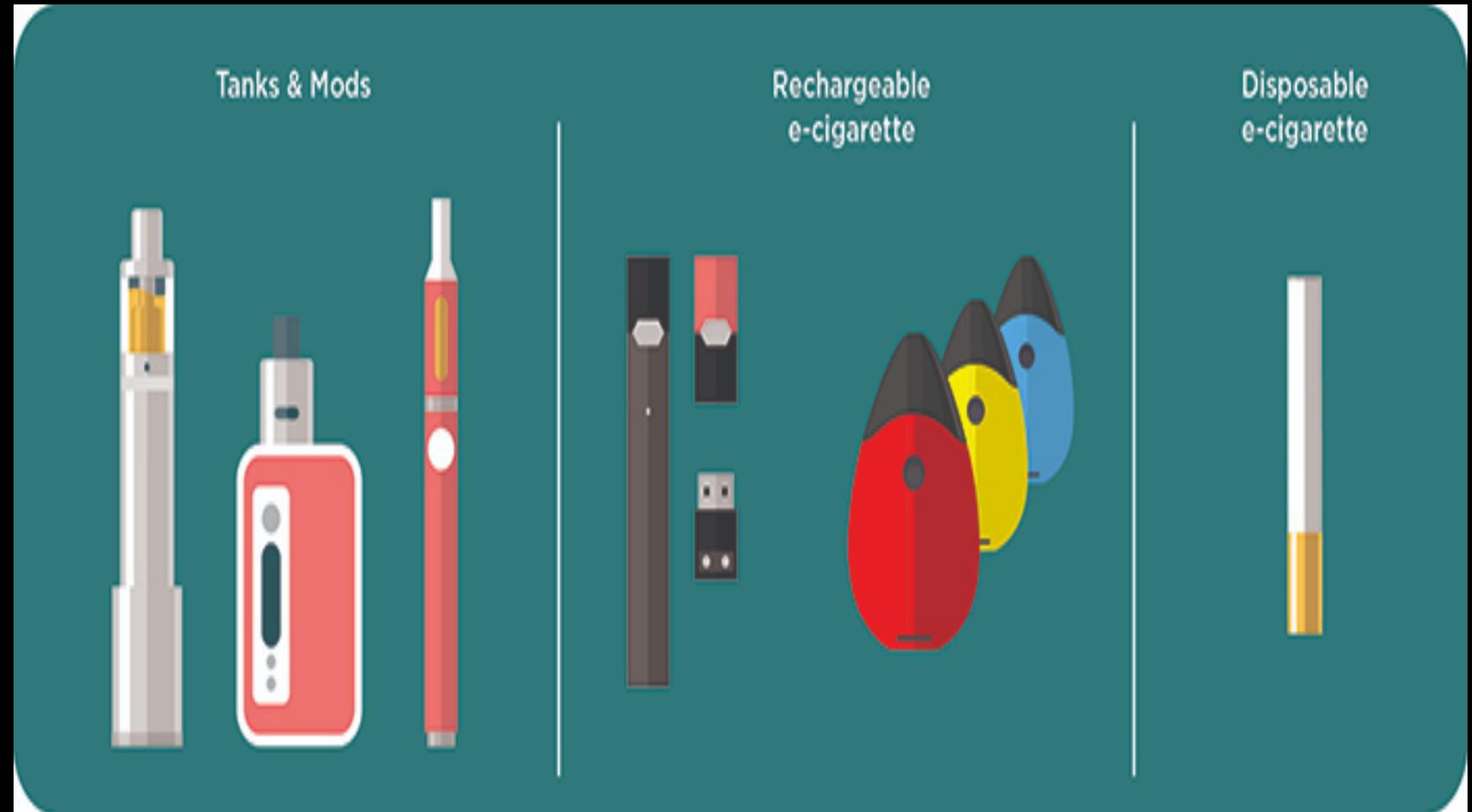
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- Define vaping in adolescents
- Discuss effects on physical health
- Describe effects on mental health
- Review how to talk to an adolescent and still sound fly-AKA Stages of Change and Motivational Interviewing (MI)
- Define how MI and Mindfulness can be used for the chronic pain population

# Common street Names

- E-cigs
- E-Hookahs
- Mods
- Vape Pens
- Vapes
- Juuls
- Juuling



# Social Media and Vaping

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Juul was first major E-cig brand to use social media as part of marketing strategy

#Juul

#deliverypods

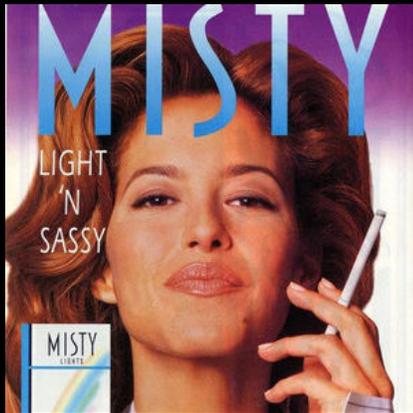
#juuling

#Juulmango

**#More flavor, More buzz**

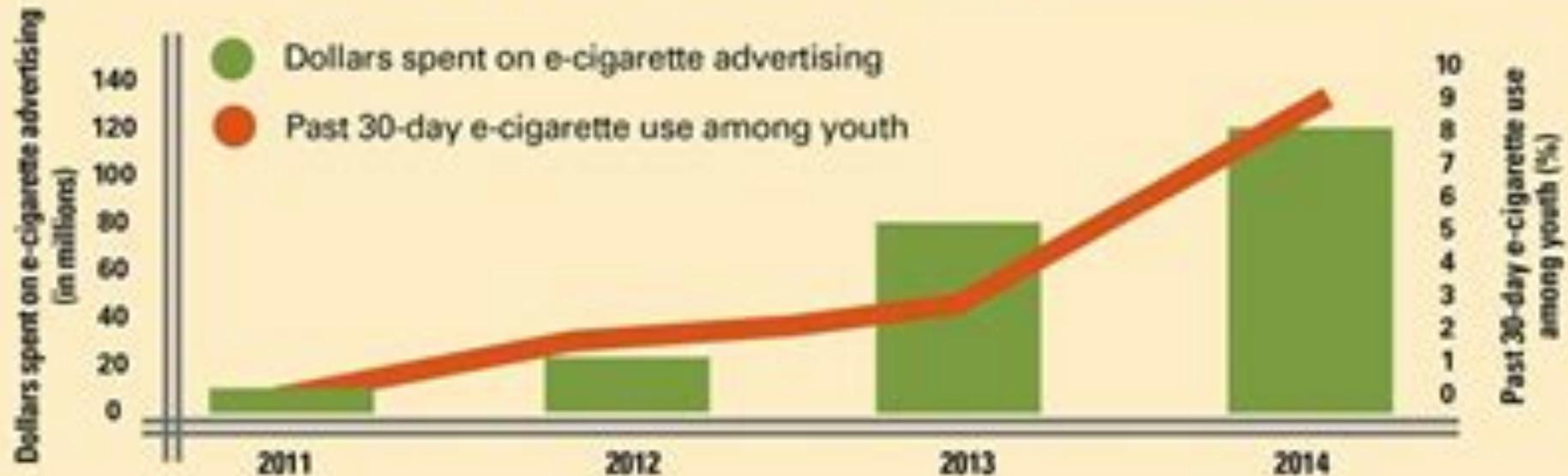
WILLETT, JEFFREY G., ET AL. "RECOGNITION, USE AND PERCEPTIONS OF JUUL AMONG YOUTH AND YOUNG ADULTS." *TOBACCO CONTROL* 28.1 (2019): 115-116.

# Vaping Industry copying Big Tobacco strategy



# What's the Impact from Advertising?

## E-cigarette use among youth is rising as e-cigarette advertising grows

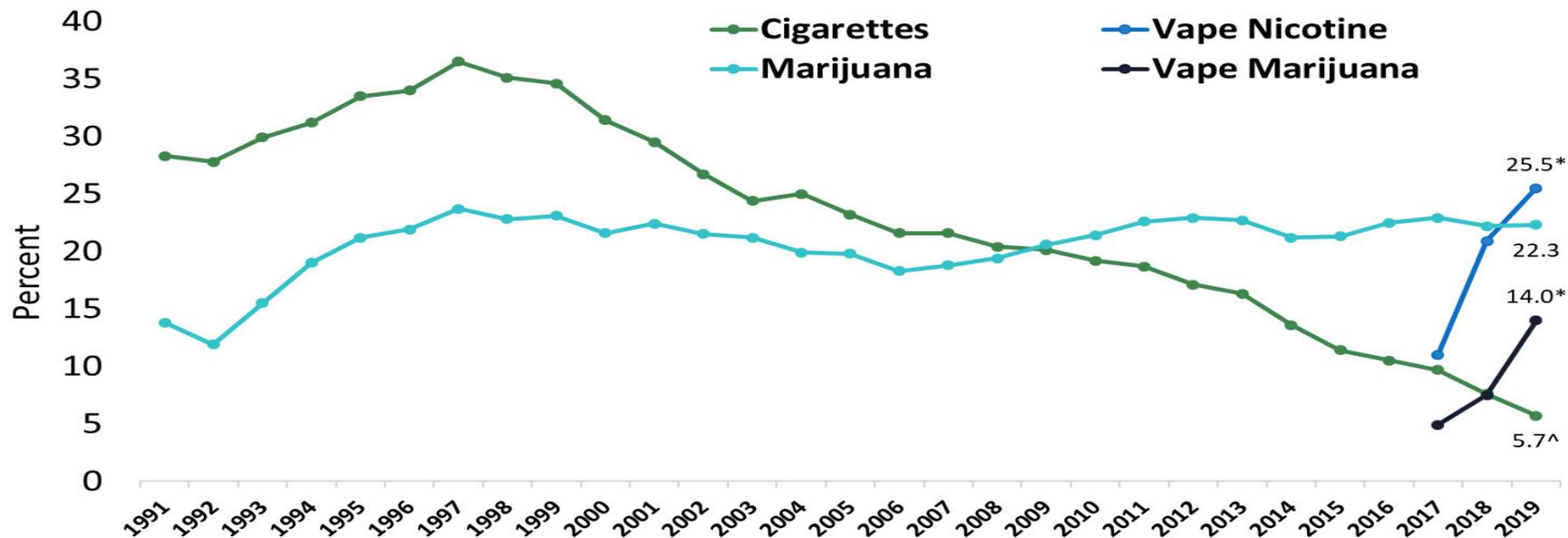


SOURCE: National Youth Tobacco Survey 2011-2014; Kim et al (2014); Truth Initiative (2015).

Noland, Melody, et al. "Current use of e-cigarettes and conventional cigarettes among US high school students in urban and rural locations: 2014 National Youth Tobacco Survey." *American Journal of Health Promotion* 32.5 (2018): 1239-1247.

# Monitoring The Future: 2019

## Percent of Students Reporting Marijuana, Cigarette, Vape Use in Past Month, 12<sup>th</sup> Grade



\*Significant increase or <sup>^</sup>significant decline compared to the 2018 MTF Survey.

# Adolescents, Covid 19, and Vaping

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- Evidence shows vaping can weaken the lungs and normal respiratory functions as well as causes airway and lung inflammation
- E-cig use in adolescents and young adults has a 5 times more likely risk of contracting Covid 19 based on a Stanford study done June 2020.
  - High correlation among dual use, e-cig use and Covid 19 testing and diagnosis
  - Damage to lungs, both from combustible and e-cig use
  - Sharing devices, touching face, mouth frequently

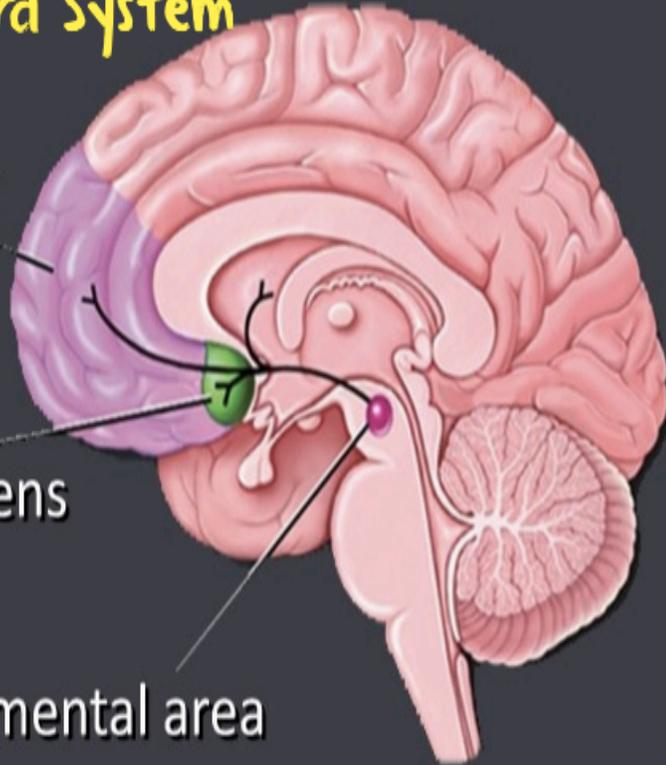
# Brain Development of Adolescents

## The Brain's Reward System

Prefrontal cortex

Nucleus accumbens

Ventral tegmental area



Still developing until mid twenties  
Addiction centers particularly vulnerable due to pruning, myelination  
Prefrontal Cortex under construction, can lead to more impulsivity

# Mental Health and Addiction Risks

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- THC has potential to trigger psychosis, sometimes persistently, in genetically predisposed adolescents
- Cannabis oil in vape pens carries risks for mental health, due to delivery system of e-cigs/vaping
- Vaporized cannabis found to produce greater pharmacodynamic effects and higher concentrations of THC in blood compared with equal doses of smoked cannabis.
- Teens show higher risks for use of combustible tobacco products: National Academy of Medicine Report 2018, shows e-cigs have potential to increase future combustible tobacco use in teens and adolescents
- Cannabis use linked to increased risks for other addictions in vulnerable populations

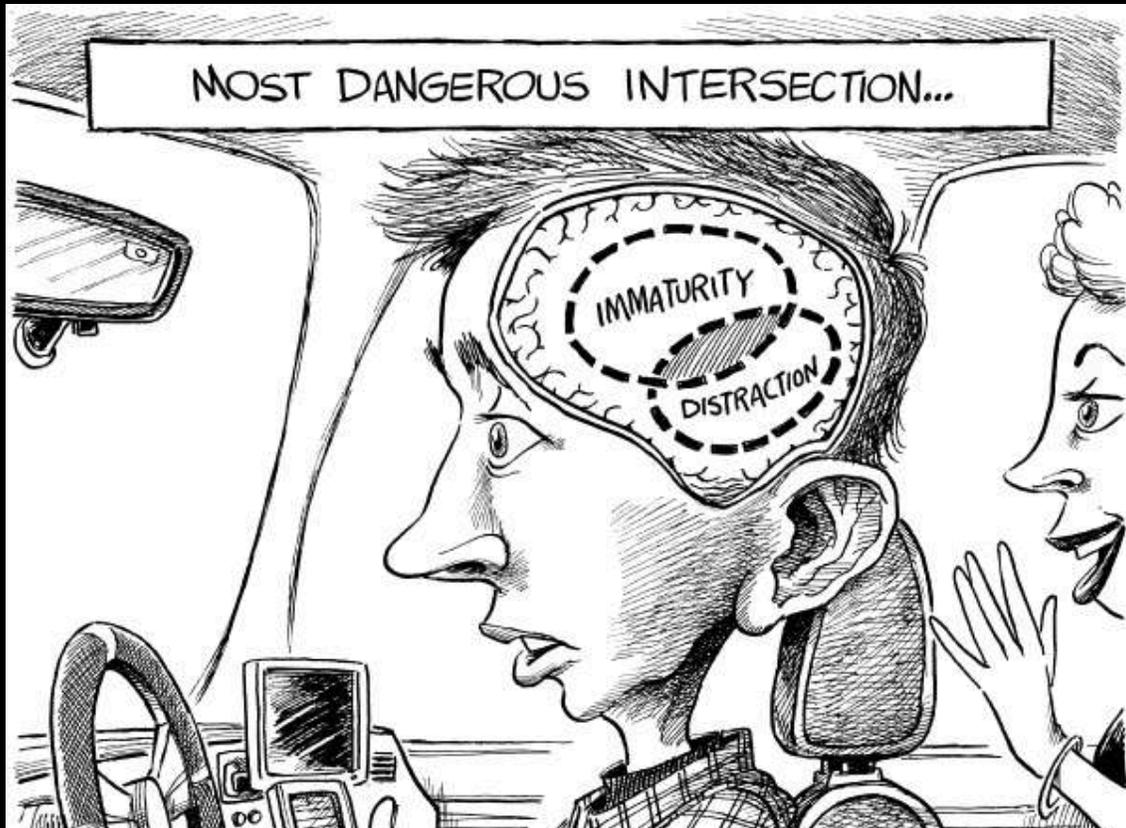
■Miech, Richard, et al. "Trends in adolescent vaping, 2017–2019." *New England Journal of Medicine* 381.15 (2019): 1490-1491.

■Knapp, Ashley A., et al. "Emerging trends in cannabis administration among adolescent cannabis users." *Journal of Adolescent Health* 64.4 (2019): 487-493.

■Spindle, TR, Cone, EJ, Schlienz, NJ, et al. (2018) Acute effects of smoked and vaporized cannabis in healthy adults who infrequently use cannabis: A crossover trial. *JAMA Network Open* 1(7): e184841.

■Noble, MJ, Hedberg, K, Hendrickson, RG (2019) Acute cannabis toxicity. *Clinical Toxicology (Philadelphia, Pa)* 57(8): 735–742.

# Learning, Working Memory, and Attention



Nicotine in the developing brain has been associated with:

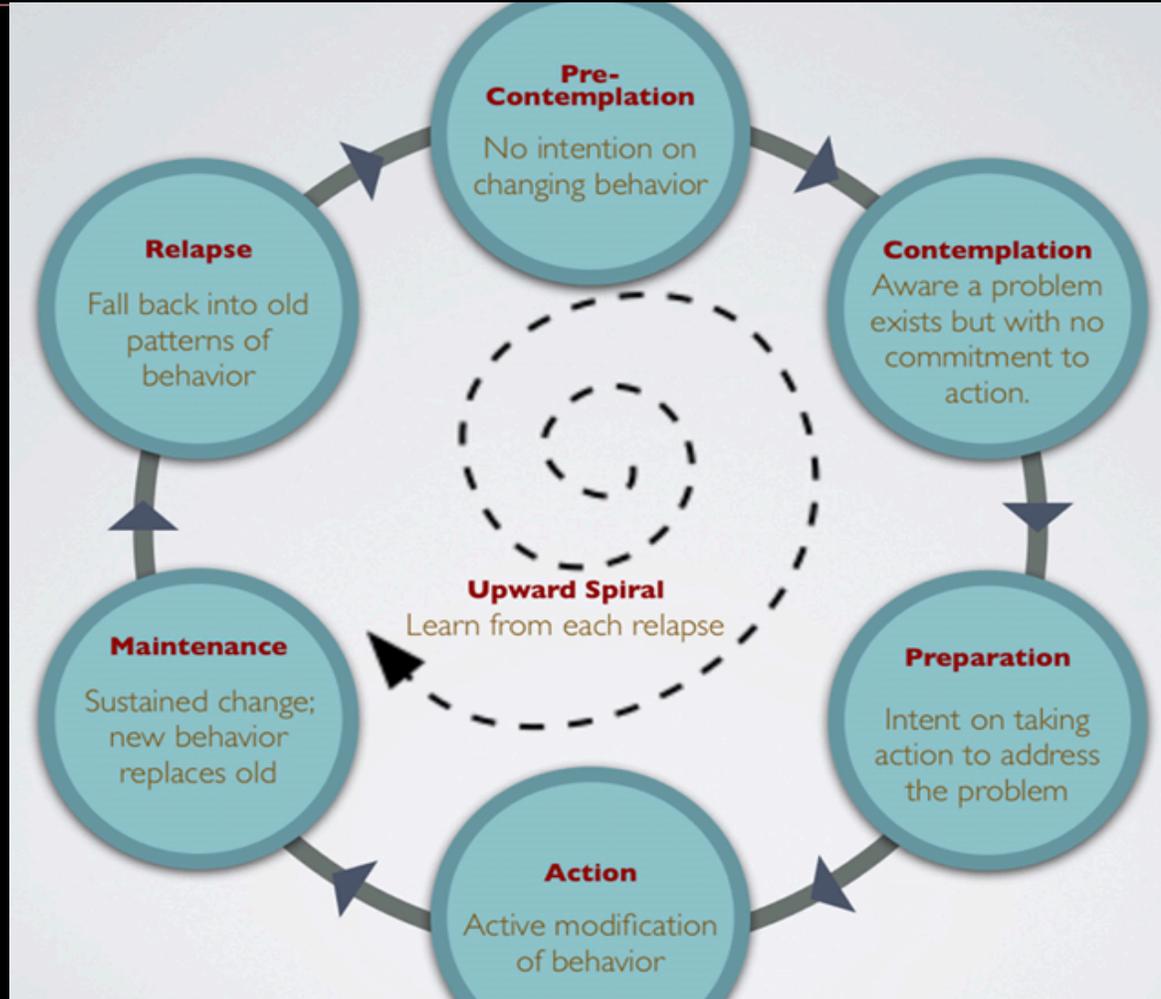
- Poor learning
- Lower academic performance
- Increased aggressive and impulsive behavior
- Poor sleep quality
- Attention deficits, impaired memory, and cognition
- Potential increased depression and suicidal ideation

Gaiha, Shivani Mathur, Jing Cheng, and Bonnie Halpern-Felsher. "Association Between Youth Smoking, Electronic Cigarette Use, and Coronavirus Disease 2019." *Journal of Adolescent Health* (2020).

# How do I talk to a millennial about vaping?



# Prochaska and DiClemente: Stages of Change



# Motivational Interviewing

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- Patient centered
- Focused on patient's goals and motivations
- Addresses resistance, enhances 'change talk'
- Identifies commitment and confidence to make change
- Applicable to many fields and situations

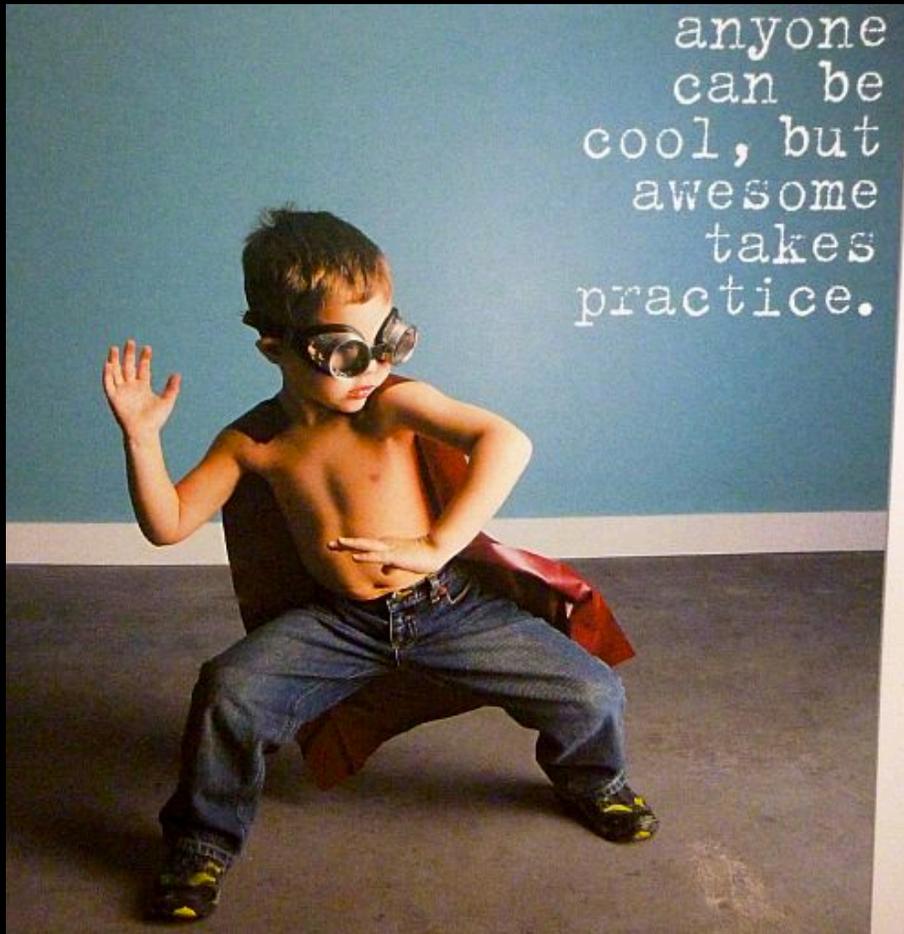
# MI principles

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- Embrace the spirit of MI
- Reflexive listening
- Affirmations
- Ask, Tell, Ask
- Evoke and Sustain Change Talk
- Planning with SMART goals

# Rule # 1: Be Cool!

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- Don't lecture or scold
- Compassion, acceptance, partnership
- Know your facts
- Reflect:
  - I think I should quit the vape.
  - You want to quit vaping
- Affirmations: Appreciate efforts and strengths

## Rule #2 Find your moment!

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## Rule #3: Work on your Street Cred

- According to the National Youth Tobacco Survey 2016, the number one reason for youth and young adults to vape is that a friend or family member does: 39%



## Rule #4: Speak your truth

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- Ask Tell Ask
- Tell: Educate on risks
- Correct the misinformation:
  - E-cigs are not safer than combustible tobacco
  - E-cigs can increase risks for mental health, harder drugs, learning problems
- Plan with SMART goals and close with a commitment

# Motivational Interviewing is Powerful Tool for other venues

- MI shown effective to manage chronic pain in elderly population
- Females with fibromyalgia showed improvements in pain levels and QOL
- Use of MI in a patient population on opioids reduced risks of opioid misuse significantly



Tse, Mimi MY, Sinfia KS Vong, and Shuk Kwan Tang. "Motivational interviewing and exercise programme for community-dwelling older persons with chronic pain: a randomised controlled study." *Journal of clinical nursing* 22.13-14 (2013): 1843-1856.

Ang, Dennis, et al. "Exercise-based motivational interviewing for female patients with fibromyalgia: a case series." *Clinical rheumatology* 26.11 (2007): 1843-1849.

Chang, Yu-Ping, et al. "The effect of motivational interviewing on prescription opioid adherence among older adults with chronic pain." *Perspectives in psychiatric care* 51.3 (2015): 211-219.

# MI powerful tool for use in Primary Care Settings

- Can be used to motivate patients for change:
- Weight
- Blood Pressure
- Activity levels
- Improved self efficacy
- ‘Dose dependent’
- Effective in disadvantaged populations.

## ■ Aerobics in Hell



# What about Mindfulness?

## Is there utility for substance and pain management?



Manteo Mitchell

SUMMER OLYMPICS 2012



# Mindfulness Based Stress Reduction

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- Jon Kabat-Zinn developed MBSR
- Study in JAMA 2016 showed MBSR along with CBT (Cognitive Behavioral Therapy) reduced chronic low back pain and improved functional limitations statistically over 'care as usual'
- MBSR: learning to 'feel' the body: size, weight, temperature, space, connectedness of limbs to rest of body
- Body Maps or Body Scans have shown a reduction in chronic pain levels

2015 NIDA study on Mindfulness with chronic pain:

Treated chronic pain patients at risk for opioid misuse with either

- 1 Support group
- 2 Mindfulness training

Results suggest that teaching people who misuse opioids to mindfully attend to positive aspects of their life may increase the perceived value of natural rewards

Kabat-Zinn, Jon. "Mindfulness-based stress reduction (MBSR)." *Constructivism in the Human Sciences* 8.2 (2003): 73.

Cherkin, Daniel C., et al. "Effect of mindfulness-based stress reduction vs cognitive behavioral therapy or usual care on back pain and functional limitations in adults with chronic low back pain: a randomized clinical trial." *Jama* 315.12 (2016): 1240-1249.

# MINDFULNESS BODY SCAN EXERCISE

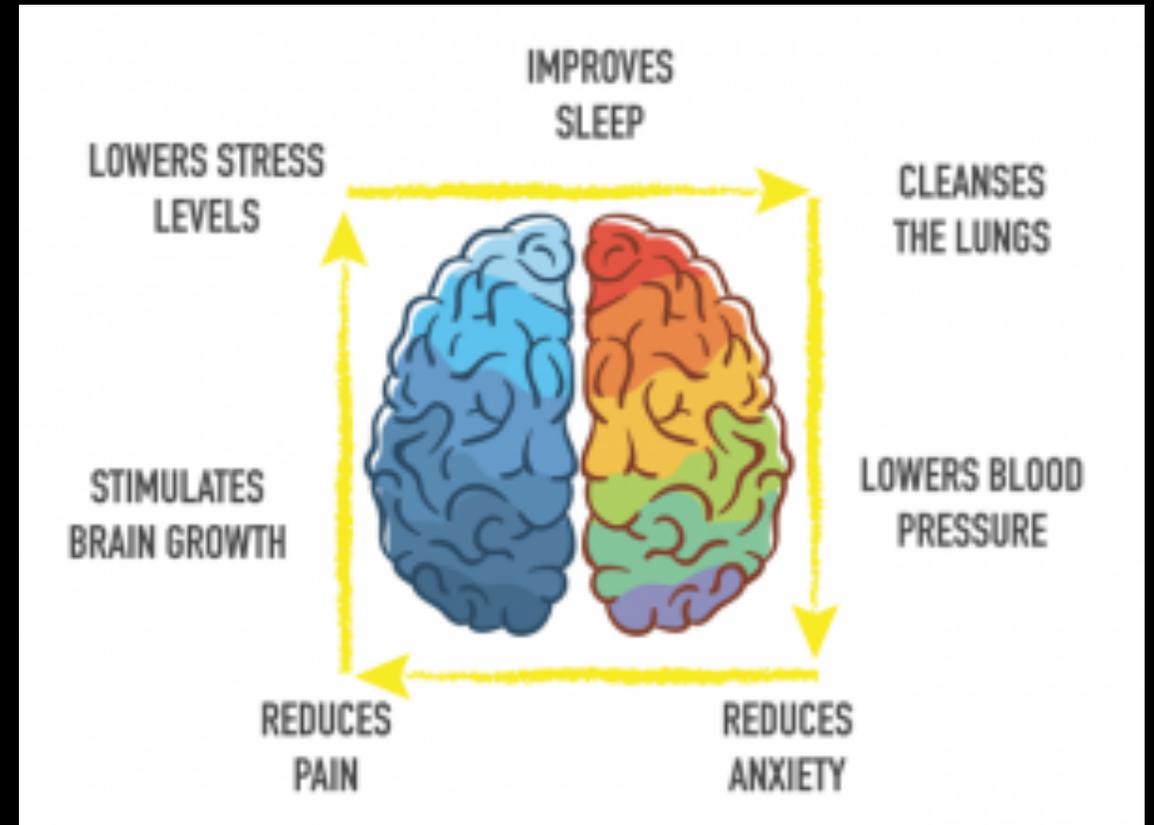
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- Belly
- Feet
- Left versus right
- Weight
- Words to describe should be simple, rooted in five senses

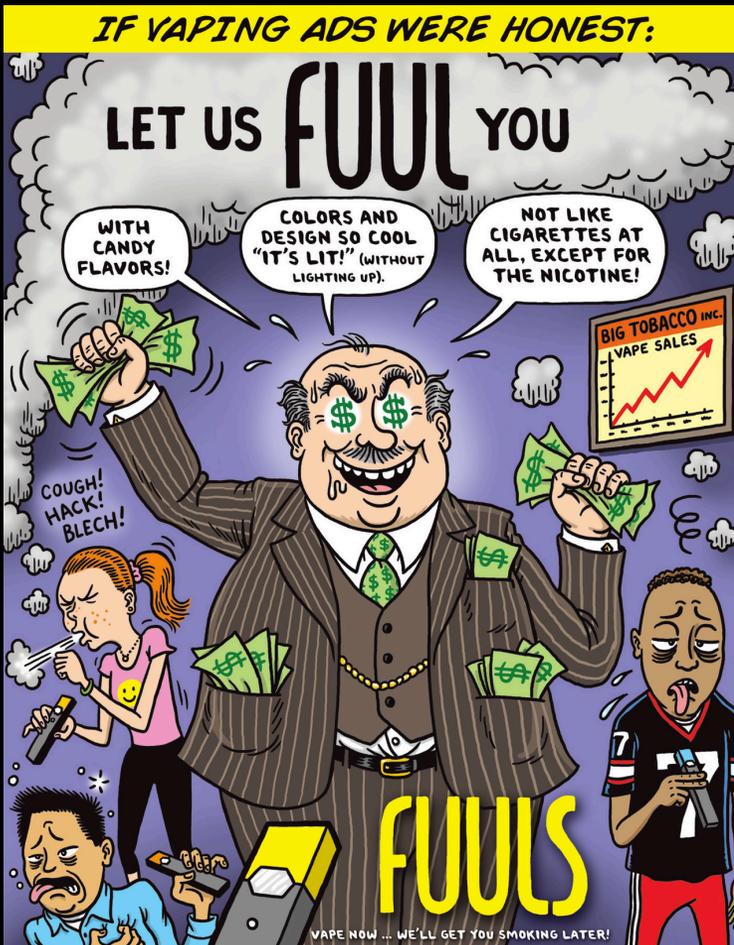
Ussher, Michael, et al. "Immediate effects of a brief mindfulness-based body scan on patients with chronic pain." *Journal of behavioral medicine* 37.1 (2014): 127-134.

# NAVY SEAL BOX BREATHING

- Inhale for 4 seconds
- Hold breath for 4 seconds
- Release over 4 seconds
- Hold lungs empty for 4 seconds



# Final thoughts



- Vaping=New Big Tobacco
- Adolescent vaping on the rise
- Vaping carries physical, mental health, addiction risks unique for adolescents
- MI a useful tool that can make you look cool
- MI and MSBR have utility in managing chronic pain and other conditions

# Post Test!

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Q1: According to Monitoring the Future Study 2019, what percentage of 12th graders have vaped anything (nicotine, marijuana) in the last year?

- a. 10%
- b. 0% (teenagers are not allowed to vape)
- c. 40%
- d. 65%

Q2 Readiness to Change includes the following EXCEPT

- a. Pre contemplative
- b. Contemplative
- c. Preparation
- d. Confrontation

Q3: A 17-year-old male is caught by his astute English teacher vaping in class. He has been using what looks to be a USB flash drive but is really a vape pen. After confrontation from mom, he admits to 'juuling' for the last 3 months. What should the mother's next move be?

- a. Scold and lecture
- b. Quit smoking herself
- c. Talk with his youth pastor
- d. Buy him THC oil to use instead of vape juice