



ADOLESCENT TOBACCO AND NICOTINE PRODUCT USE: AN UPDATE ON DEVICES, TRENDS, PREVENTION, AND TREATMENT.

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on Drug Abuse: K08DA058058

GOALS

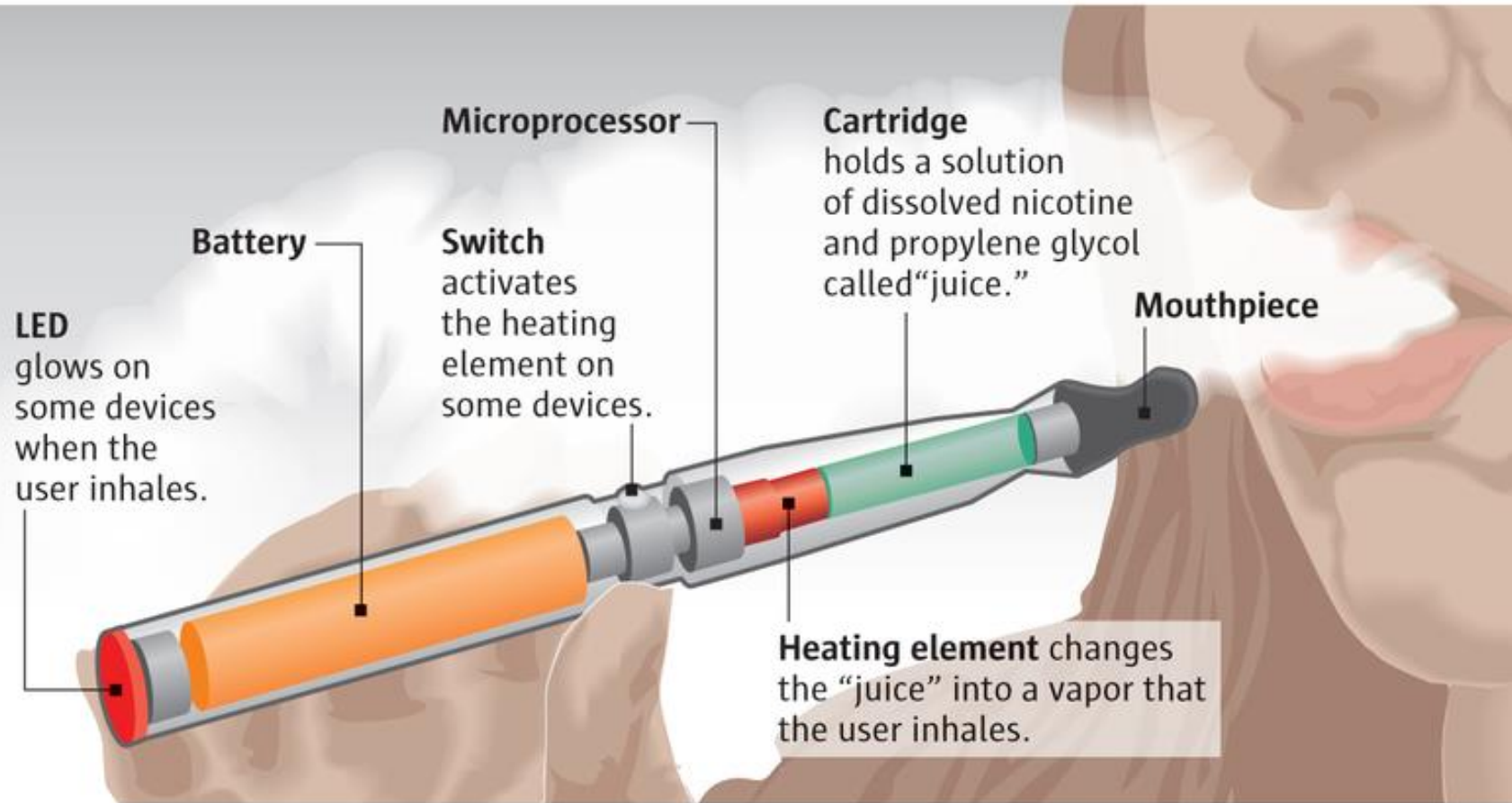
1. Quick Review on E-cigarettes and concerns with adolescent use
2. Explore the current trends in use and factors affecting use
3. Device Evolution and Legal Standing
4. Briefly cover nicotine pouches
5. Prevention and Treatment Strategies

E-CIGARETTES/VAPES: HOW THEY WORK

1. **Battery** Heats a Coil
2. Heated **Coil** contacts Liquid "**E-juice**" creating an Aerosol
3. Aerosol or "**Vapor**" Inhaled by User

How an e-cigarette works

Electronic cigarettes have been touted as a safer way to quit or cut down on smoking, but doctors say the battery-powered devices are sometimes exploding, causing severe injuries.



Source: U.S. Fire Administration

MARK NOWLIN / THE SEATTLE TIMES

Image from: <https://dailygazette.com>

E-CIGARETTES: WHY WE CARE ABOUT TEEN USE



E-CIGARETTE AEROSOLS: THE TOXINS

- Aerosol:
 - Formaldehyde, Acetaldehyde, Toluene, Nitrosamines
 - Cadmium, Nickel, Lead
 - Elevated VOC's: Acrylonitrile, Acrolein, Propylene Oxide, Acrylamide, Crotonaldehyde
 - Particulate Matter
 - We **LACK Long-Term Data** on E-Cig Use
-

Traditional Cigarettes:

- **~7000 Chemicals** Identified in Cigarette Smoke
- **~50 Carcinogens**
- Hydrogen Cyanide, Carbon Monoxide, Arsenic, Benzene, Lead, Ammonia, Cadmium



E-CIGARETTE AEROSOLS: NICOTINE

- Prefrontal Cortex still developing through Age 25
 - Decision-making, Impulse Control, Executive Functioning
- nACh-r Highly active in brain development
 - Addiction occurs more easily and at smaller nicotine doses
- Neural Remodeling or “Re-Wiring” when exposed to nicotine
- Nicotine Exposure in Adolescence Leads to: Cognitive and Behavioral Effects
 - Mood disorders, difficulty with attention
- **90% of Adult Smokers began smoking before age 18**

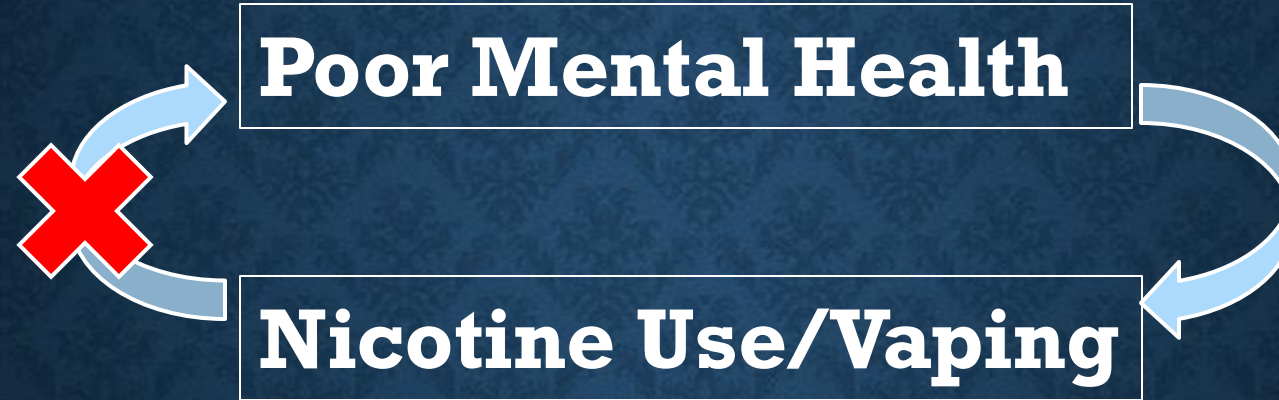
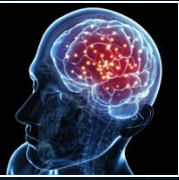


Image available at
<http://www.dunlaplibrary.org/dev/wp-content/uploads/2016/08/brain.png>

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. Printed with corrections, January 2014.

U.S. Department of Health and Human Services. *E-Cigarette Use Among Youth and Young Adults. 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, 2016.

NICOTINE AND MENTAL HEALTH



Poor Mental Health Increases Risk of Vaping

- Individuals with mental health conditions (Anxiety/Depression) nearly twice as likely to use E-cigarettes (Hackworth et al.)

Nicotine Use can WORSEN mental health symptoms

- Individuals with sustained e-cigarette use had higher depressive symptoms after 1 year of follow-up (Lechner et al.)

Quitting can Help

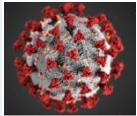
- 90% of adolescents who quit report feeling less stressed, anxious, or depressed (Truth Initiative)

E-CIGARETTES: THE BOTTOM LINE

Takeaway #1:

Young people should not be using any tobacco or nicotine product.

TEEN TOBACCO USE: A TIMELINE

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cigarettes	9.2%	9.3%	8.0%	7.6%	8.1%	5.8%	4.6%	1.9%	2.0%	1.9%	1.7%
											
E-Cigarettes	13.4%	16.0%	11.3%	11.7%	20.8%	27.5%	19.6%	11.3%	14.1%	10.0%	7.8%
											
											
											
											
											
											
											
											
											
											
											
											

HIGH SCHOOL TOBACCO USE (PAST 30D)

	2021	2022	2023	2024
E-Cigarettes	11.3%	14.1%	10.0%	7.8%
Cigarettes	1.9%	2.0%	1.9%	1.7%
Cigars	2.1%	2.8%	1.8%	1.5%
Smokeless Tobacco	1.2%	1.6%	1.5%	1.5%
Hookah	1.2%	1.5%	1.1%	0.8%
Nicotine Pouches	1.1%	1.4%	1.7%	2.4%
Heated Products	0.8%	1.1%	1.0%	0.9%
Pipe Tobacco	0.4%	0.7%	0.6%	0.5%
Any Combustible	4.4%	5.2%	3.9%	3.3%
>1 Product	3.8%	5.0%	3.9%	3.7%

Source: National Youth Tobacco Survey

E-CIGARETTES: THE BOTTOM LINE

Takeaway #1:

Young people should not be using any tobacco or nicotine product.

Takeaway #2:

Youth e-cigarette use is on the decline.
Pouch use is increasing, albeit slowly.

THE PLAYBOOK TO HOOK

1. Make Tobacco/Nicotine Products
Appealing

2. Make it Easy to access

E-CIGS MAKE THEM APPEALING

JUUL

JUUL @JUULvapor · 4 Jun 2015

Having way too much fun at the #JUUL launch party #LightsCameraVapor #NYC



christinazayas • Follow
New York, New York

christinazayas When smoking cigarettes is not an option, I've turned to @juulvapor. Read why, via the link in my bio! #JUULmoment #ad

View all 47 comments

theparisianman Enjoy the moment babe 🍷👉👈

irinaliakh Ohhh I need it in my life 🥰🥰

cpwears Damn girl you look like "it was all a dream" - Nelly



1,507 likes

NOVEMBER 13, 2017

Add a comment...

GET READY FOR
LABOR DAY WEEKEND

Order by tonight, for free delivery
by Saturday.

SHOP JUUL



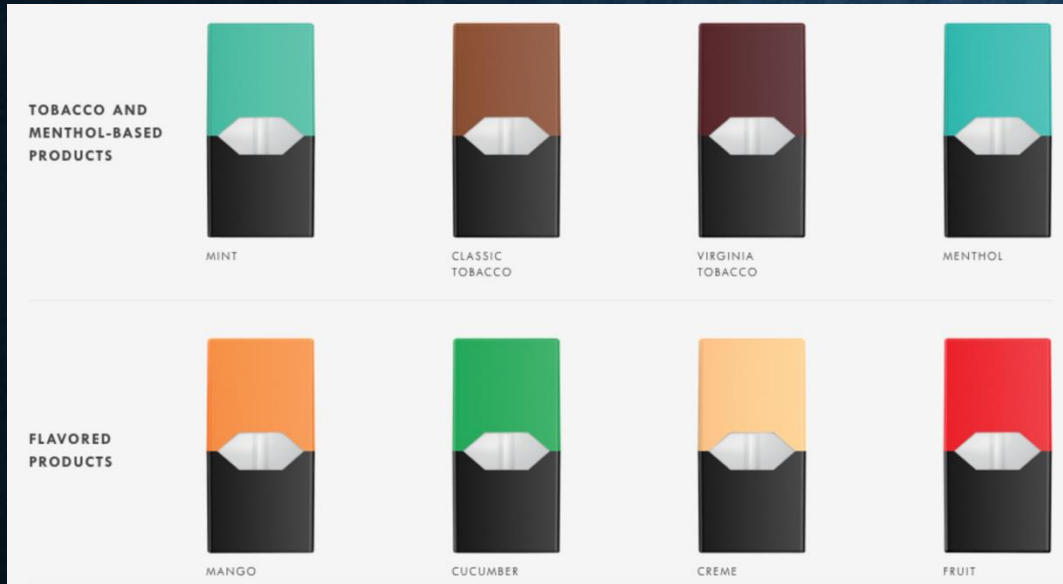
VAPORIZED



JUUL @JUULvapor · 4 Jun 2015
Vapor love #JUUL #LightsCameraVapor #Vaporized



E-CIGS MAKE THEM APPEALING



E-CIGS MAKE THEM EASY TO ACCESS



You must be 21 or older to visit this website.

LEAVE SITE

I AM 21+



Youth Vape Sources

- Social Network
- Vape Shops
- Retail stores
- Online

E-CIGARETTES: MAKE THEM APPEALING

Cigalikes



Vape Pens



Mods



Pod Mods



E-CIGARETTES: MAKE THEM APPEALING

What do teens love..... **SCREENS!!!!**

**GEEK BAR PULSE 15000
Disposable**



**GEEK BAR PULSE 25000
Disposable**



**RAZ DC25000
Disposable**



E-CIGARETTES: NATIONAL SALES DATA

Top 10 Selling E-Cigarette Brands '24

1. Vuse
2. JUUL
3. Geek Bar Pulse
4. Breeze Smoke
5. RAZ
6. NJOY
7. HQD
8. Breeze Prime
9. Loon Maxx
10. Mr Fog

SMART VAPES: UH OH?



SMART VAPES: EXTRA UH OH?

Halo Vapor Synix 30K Disposable Vape

Myvpro.com



Key Features

- Bluetooth Connection, Time
- AI Chat Feature
- Photo Taking
- Calls/Text Notifications
- Music Player, Calculator, Time, Weather
- Find Your Device Function
- Three Classic Games
- Pre-filled 28ml E-Juice
- Built-In 1000mAh Rechargeable Battery

SMART VAPES: EXTRA EXTRA UH OH?

Craftbox V-Play 20K Disposable Vape



Key Features

- 1.77-Inches Colorful HD Display Screen
- 2 Operational Modes: Regular And Boost
- 25ML E-Liquid
- Three Built-In Retro Games:
 - Fighter Jet Game, Pac-Man like game, Tetris Type Game

THE PLAYBOOK TO HOOK

1. Make it Appealing

2. Make it Easy to access

Please google “buy smart vape”

SMART VAPES: ARE THEY LEGAL?

Pre-Market Tobacco Product Applications (PMTA)

- **2009: Family Smoking Prevention and Tobacco Control Act**
 - Gives FDA regulatory authority over Tobacco Products
 - Created Center for Tobacco Products within FDA
 - Required FDA approval of any new tobacco products.
- **Sep 9, 2020: PMTA Applications Due (earned 1 year grace to keep pro**
 - Applications for >6 millions individual Products submitted!!!
 - FDA (had) 1 year to review all applications

PMTA APPROVAL = Tobacco Product can be sold in the US

FDA Considers the Following Criteria

- Risks and benefits to the population as a whole
- Whether current tobacco users would be more or less likely to stop using their current tobacco product if the new product were available
- Whether people who do NOT use any tobacco product would be more or less likely to begin using tobacco products if new product were available
- The methods, facilities, and controls used to manufacture, process, and pack the new products

PMTA APPROVAL $\neq$ FDA Approved Cessation device

PMTA APPROVED PRODUCTS

Heated Tobacco Products

- Marlboro Heatsticks ('19, '23)
- Moonlight Menthol ('19): low nicotine cigarette
- IQOS ('19)

E-Cigarettes

- Vuse ('21, '22, '24)
- NJOY ('22, 24)
- Logic ('22)

Nicotine Mints

- Verve Mints ('21)

Nicotine Pouches

- Zyn ('25)

That's All Folks!*

*Juul allowed to stay on market while under review

86% of e-cigarettes on the market are illegal!

Source: <https://truthinitiative.org/research-resources/tobacco-industry-marketing/us-retail-sales-data-show-86-e-cigarette-sales-are>

Source: <https://www.accessdata.fda.gov/scripts/searchtobacco/>



This doesn't make any sense!!!

E-CIGARETTES: THE BOTTOM LINE

Takeaway #1:

Young people should not be using any tobacco or nicotine product.

Takeaway #2:

Youth e-cigarette use is on the decline

Pouch use increasing, albeit slowly

Takeaway #3:

Illegal 'Smart Vapes' are beginning to flood the market

NICOTINE POUCHES: WHAT ARE THEY?



Pouches

1. Synthetic Nicotine (2-8mg/pouch)
2. Place in Gums for 15-45 minutes
3. Variety of Flavors
4. Variety of Strength of Nicotine



NICOTINE POUCHES: WHAT ARE THEY?



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NICOTINE POUCHES: WHAT ARE THE HARMS?



Other Consequences

Cardiovascular Effects

Effects in Pregnancy

Oral Health?

GI symptoms?

NICOTINE POUCHES: ZYN

FDA NEWS RELEASE

FDA Authorizes Marketing of 20 ZYN Nicotine Pouch Products after Extensive Scientific Review

Agency Will Closely Monitor Youth Use and Company's Compliance with Marketing Restrictions

NICOTINE POUCHES: DATA ON USE

	2021	2022	2023	2024
E-Cigarettes	11.3%	14.1%	10.0%	7.8%
Cigarettes	1.9%	2.0%	1.9%	1.7%
Cigars	2.1%	2.8%	1.8%	1.5%
Smokeless Tobacco	1.2%	1.6%	1.5%	1.5%
Hookah	1.2%	1.5%	1.1%	0.8%
Nicotine Pouches	1.1%	1.4%	1.7%	2.4%
Heated Products	0.8%	1.1%	1.0%	0.9%
Pipe Tobacco	0.4%	0.7%	0.6%	0.5%
Any Combustible	4.4%	5.2%	3.9%	3.3%
>1 Product	3.8%	5.0%	3.9%	3.7%

NICOTINE POUCHES: SALES DATA

<u>Year</u>	<u>US Sales</u>
Sept 2021	~\$80 million
Sept 2022	~\$110 million
Sept 2023	~\$210 million
Sept 2024	~\$350 million

HEALTH CONCERNS

“Compared with older adults, the brain of youth and young adults is more vulnerable to the negative consequences of nicotine exposure. The effects include addiction, priming for use of other addictive substances, reduced impulse control, deficits in attention and cognition, and mood disorders.”

–Vivek Murthy, MD

NICOTINE/TOBACCO: OVERALL TREND

Youth Initiation/
Addiction

Adult Smoking
Cessation/Harm Reduction



SUMMARY OF ADOLESCENT TOBACCO USE

- **Teen Use is Dynamic**

- Products, Delivery, Concentrations are CHANGING!
- Social, Legislative, and evidence on health effects all impact rates of use
- ~8% of High School Students Reported Using E-Cigs in 2024
- Pouches are SECOND most common nicotine product used by adolescents

- **Concerns with Teen Use**

- Nicotine Addiction (withdrawal)
- Toxin Exposure
 - Carcinogens, fine particulate matter, heavy metals

COMMUNICATING WITH TEENS

HOW CAN WE HELP TEENAGERS

- PREVENT INITIATION
- HELP THEM QUIT

WHAT ARE TEENS TELLING US?

WHY NOT USE

- Health Effects
- FEAR of Addiction
- Cost

WHY USE?

- Social Influences/Peer Pressure
- Manage Stress/Anxiety
- Flavors, Tricks
- Invincibility, Socially accepted

WHY QUIT

- Health Concerns
- Addiction
- Difficult Access to E-cigarettes

WHAT ARE TEENS TELLING US?

Table 2: Factors that Motivate Vaping

Motivations for <i>Initiation</i> Amongst Ever Users		Motivations for <i>Continued Use</i> Amongst Current Users	
Friend use	75.9%	Feeling anxious, stressed, or depressed	39.3%
Curiosity	55.6%	Friend use	35.7%
Family member use	25.9%	Able to use unnoticed at home or school	28.6%
Flavor availability	20.4%	To get high or a buzz from nicotine	25.0%
Feeling anxious, stressed, or depressed	16.7%	Flavor availability	25.0%
Able to use unnoticed at home or school	16.7%	Addiction	21.4%
Use them to do tricks	14.8%	Use them to do tricks	21.4%
Use seen on TV, online, or in movies	14.8%	Cost less and easier to get than cigarettes	10.7%

ADOLESCENTS AND QUITTING VAPING

Quit Attempt Methods

64%: Did not use any resources (unassisted quitting)

14%: Peer support (14.2%)

6%: Help on the Internet

6%: A mobile app or text messaging

6%: Parent support

ADOLESCENTS AND QUITTING VAPING

AAP ACT Model

- **Ask**

- “Do you use any tobacco or vaping products like cigarettes, e-cigarettes, or dip?”

- **Counsel**

- Nicotine harms, benefits of quitting, assessing interest in quitting

- **Treat**

- Quit Programs

- NRT

- Based on addiction severity

CESSATION AND TREATMENT RESOURCES

**UW-CTRI OUTREACH
SERVICES**

WISCONSIN TOBACCO QUIT LINE

Free confidential, tailored counseling and support

Available to anyone **13 years and older** to address cigarettes, e-cigarettes, or smokeless tobacco use

Available 24/7

1-800-QUIT-NOW

1-877-2NOFUME

Text READY to 34191

www.WIQuitline.org

**Provider direct referrals
(fax or e-referral)**



WISCONSIN TOBACCO QUIT LINE SERVICES



Adults (18yo+)

Coaching via:

- Phone
- Text
- Live online chat
- Group sessions

Nicotine Replacement
Therapy medications:

- 2 week starter kit
- Patch, gum, or lozenge

Youth (13-17yo)

Fully digital services

- Youth-specific online content
- Connect with coaches via live chat
- Access to Live Vape Free texting program

American Indian Program

1-888-7AI-QUIT

- Culturally tailored support and increased calls/medications

LIVE VAPE FREE



Youth, Young Adults

Free, texting program for 13-26 year olds to quit vaping

- One-on-one support from a trained coach who provides tips and motivations
- Individualized road map for quit journey
- Interactive videos, games, quizzes, podcasts
- Text "VAPEFREE" to 873373

Parents, Educators

Free resources for anyone who wants to help young people who vape

- One-on-one support from trained coaches
- Practical advice for talking about vaping
- Tools to help young people
- Downloadable toolkit with resources

livevapefree.com



TRUTH INITIATIVE'S EX PROGRAM



Free, anonymous texting program and online quit community to help anyone quit any nicotine product

- Receive one text message per day for support and tips
 - Additional support with keywords like COPE or STRESS
- Online community for advice and inspiration
- Text "EXPROGRAM" to 88709
- Effective at promoting e-cigarette and dual use abstinence

truthinitiative.org/exprogram

SMOKEFREE TEEN

smokefree**teen**

- Online tools, resources, tips for quitting
- SmokefreeTXT for Teens – texting program for 13-17 year olds who are ready to quit smoking
 - Text QUIT to 47848
- quitSTART smartphone app

teen.smokefree.gov

ADDITIONAL RESOURCES FOR PROVIDERS/ADVOCATES

- American Academy of Pediatrics: aap.org



- WI DHS: tobaccoischanging.com



- Campaign for Tobacco Free Kids: tobaccofreekids.org



- The Real Cost campaign: therealcost.gov



UW-CTRI OUTREACH PROGRAM

Resource to bring evidence-based tobacco cessation treatment to all corners of Wisconsin

- Free training and technical assistance to integrate treatment for tobacco use and dependence:
 - How to provide brief counseling
 - Use of cessation medications
 - Wisconsin Tobacco Quit Line services and programs
 - Enhancing tobacco use screening protocols
 - Establish or tailor a tobacco treatment workflow, & more!
- Connect you with the latest resources for providers and patients
- Supported by the WI Department of Health Services

ctri.wisc.edu/providers

UW-CTRI OUTREACH SPECIALISTS



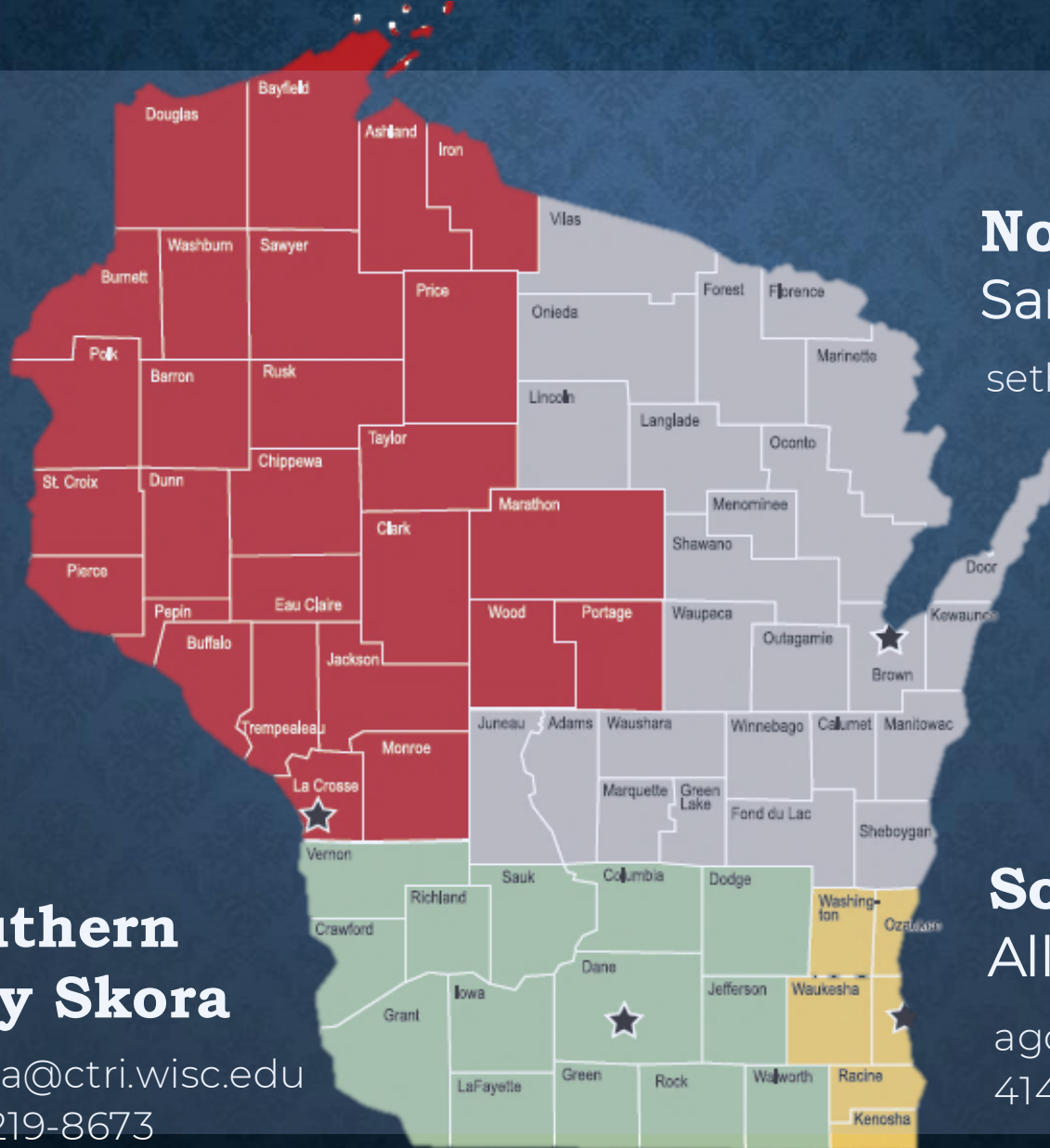
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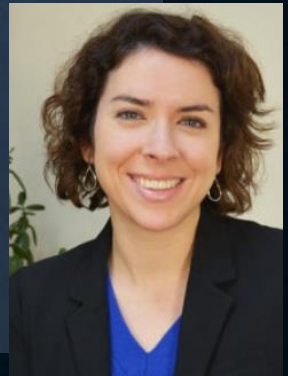
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RESOURCES FOR PROVIDERS:

UW-Center for Tobacco Research and Intervention

The screenshot displays the UW-CTRI website. The header includes the UW-CTRI logo, the URL *ctri.wisc.edu*, and a search bar. A red navigation bar contains links: Home, About, Quit Line, Smokers, Vaping, Researchers, Clinicians, Employers, Policy, and Español. The main content area features two large images: a hand holding a vape pen and a hand holding a cigarette. A sidebar menu on the right lists various resources for clinicians, including Overview, Medications, Guideline, Clinician Training, Education, Webinars, Videos for Clinicians, Info by Specialty, Tobacco Disparities, Behavioral Health, E-cigs, Vaping, Youth, Medicaid, Materials, Wisconsin Programs, Smokeless, Billing Codes, Health Reform & EHR, and Apps. A news section at the bottom highlights a study titled "Study: Is Substituting Vapes for Cigs Sustainable?" with a "Click here" link.

UW-CTRI
UW Center for Tobacco Research and Intervention

ctri.wisc.edu

Search

Home About Quit Line Smokers Vaping Researchers Clinicians Employers Policy Español

Clinicians Overview
Medications
Guideline
Clinician Training
Education
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Videos for Clinicians
Info by Specialty
Tobacco Disparities
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E-cigs, Vaping
Youth
Medicaid
Materials
Wisconsin Programs
Smokeless
Billing Codes
Health Reform & EHR
Apps

Study: Is Substituting Vapes for Cigs Sustainable?
Click here »

News
Novel Research Techniques Used to Figure Out What Helps People Quit
Before attempting to quit, many people who smoke aren't sure what they can do

10th Anniversary »

QUESTIONS?