

E-cigarettes and
Electronic Nicotine Delivery Systems:
an emerging public health challenge

Electronic Cigarettes (E-cigarettes)

- ◉ Introduced around 2007 in the U.S.
- ◉ Battery-powered device that looks like a cigarette and delivers an aerosol to the user
- ◉ Most designed to mimic cigarettes

E-cigarettes

- ◉ Most claim to contain nicotine, and some claim to sell nicotine-free cartridges
- ◉ Come in a variety of flavors and nicotine levels
- ◉ Aerosol is inhaled by smokers when they draw on the device, as they would a regular cigarette

The Rise of E-cigarettes

- Reached the U.S. market in 2007
- Inhaled aerosol from e-cigarettes has brought about the term “*vaping*” for the use of e-cigarettes
- Users call themselves *vapers*
- A nationwide community of vapers has formed through online forums and even national vaping conventions

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Inhale Oxford's Word of the Year: 'Vape'

Slang terms "clickbait," "normcore," and "mansplain" lose to "vape" as Oxford Dictionaries Word of the Year, which proves electronic cigarettes might not be a drag.

by **Bonnie Burton** [@bonniegrll](#) / November 19, 2014 3:07 PM PST

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If you've ever used electronic cigarettes, you'll be happy to know your demographic is now celebrated by Oxford Dictionaries. "Vape" has been revealed as its Word of the Year.



'Vaper' Terminology

- ◉ E-liquid or Juice
- ◉ Atomizers (attys)
- ◉ Cartomizers (carts)
- ◉ Blanks
- ◉ Priming and switches
- ◉ Dripping
- ◉ PVs and mods
- ◉ Volts
- ◉ Low-resistance atomizers
- ◉ Pass through
- ◉ Goose necks

E-cigar



Vapor Pen



Hookah pen or E-hookah



E.N.D.S.

Glassomizer



PVs or Mods



E-pipe

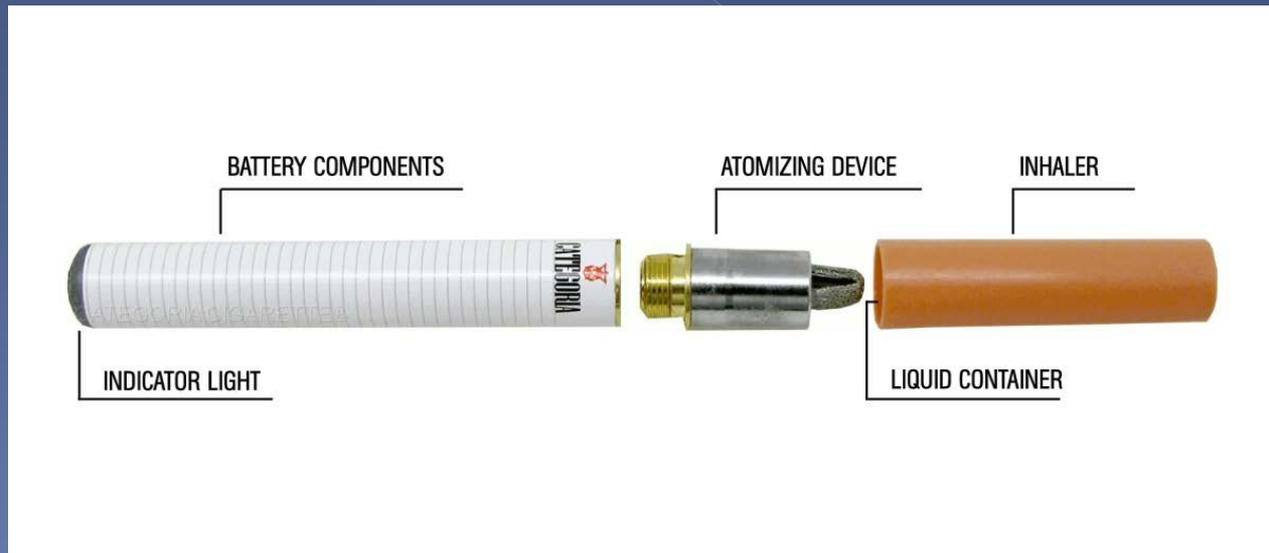


E-cigarette



E.N.D.S. components

- Battery
- Atomizing device (heating element)
- Liquid-filled cartridge



E.N.D.S.

- ◉ Tobacco products
- ◉ Aerosol contains nicotine and other potentially harmful constituents
- ◉ Unregulated
- ◉ ~ 466 brands
- ◉ Over 7,000 unique flavors
- ◉ Range of players
- ◉ 1.5 – 2 billion in annual sales

FDA Regulation

2009 Family Smoking Prevention and Tobacco Control Act (a.k.a. Tobacco Control Act)

- Gave the U.S. Food and Drug Administration (FDA) the authority to regulate tobacco products
- FDA launched the Center for Tobacco Products to oversee the implementation of the Tobacco Control Act

E-cigarettes: currently unregulated, however...

- **April, 2011:** FDA announced they would regulate e-cigarettes as tobacco products under the Tobacco Control Act, but so far this has not happened
- **May, 2014:** FDA releases proposed deeming rule to regulate additional tobacco products
- **May, 2016:** FDA finalized rule extending its authority to all tobacco products, effective 8/5/16

FDA Deeming Rule

- ⦿ Includes a set of automatic requirements for products containing nicotine or tobacco:
 - Registering manufacturers and providing product listings
 - Reporting ingredients, including harmful and potentially harmful constituents
 - Requiring premarket review and authorization of new products
 - Health warnings on product packages
 - Not selling modified risk products unless authorized

FDA Deeming Rule

- Missed opportunities:
 - › Flavored Tobacco Products
 - › Television Advertising
 - › Internet Sales
 - › Brand Name Sponsorship
 - › Self-Service Displays
 - › Minimum Package Size
 - › Child-Resistant Packaging

FDA concerns

- Clinical studies about the safety and efficacy of e-cigarettes have not been submitted to the FDA
- At present, consumers have no way of knowing:
 - The safety of the products
 - What types or concentrations of potentially harmful chemicals or what dose of nicotine they are inhaling when they use e-cigarettes

FDA preliminary analysis

2009: Preliminary analysis of ingredients in a sample of e-cigarettes:

- All but one cartridge marked as having no nicotine contained nicotine
- Cartridges marked as having low, medium, or high amounts of nicotine actually had varying amounts
- Found a toxic antifreeze ingredient, diethylene glycol
- The devices emitted "tobacco-specific nitrosamines" which are human carcinogens
- The devices emitted "tobacco-specific impurities suspected of being harmful to humans"

Marketing to Youth

- Nielsen data from 2011-2013, 12-17 and 18-24 year olds
- E-cigarette TV ad exposure has increased dramatically from 2011-2013
 - > Youth: 256% increase
 - > Young Adults: 321% increase
- 76% of all youth e-cigarette advertising exposure occurred on cable networks (e.g., Comedy Central, AMC, TV Land, WGN)
- 81.7% of youth ecig ad exposures were for Blu e-cigs

Marketing through Social Media



BEST IN CLASS ECIG MODS! | Best Mods of the Year | IndoorSmokers



IndoorSmokers

Subscribe 212,090

1,310,870

+ Add to Share ... More

4,603 391



My Top 5 Eliquids (Ejuice) List

by IndoorSmokers
470,357 views



NEW VAPECASE for iPhone 5 | MVP ENERGY GIVEAWAY! | PLUS WIN A KAMRY

by IndoorSmokers
921,491 views



Introduction to Vaping and E-Cigarettes

by Gear Obsession
502,515 views



How to get more vapor from your e-cig - 4 easy steps

by VapeStudio
1,236,716 views



Vapers Be Like...

by 101Films
1,831,188 views



Cloud Chasing 101 Part 1

by RiP Trippers
1,892,028 views



Cheapest Way to Start Vaping! | eGo & eGo Twist Blister Kits | IndoorSmokers

by IndoorSmokers
269,698 views



Marketing: Social Media

Facebook search results for 'ecig' showing various vape shops and groups:

- E-Cig Barn Vape Shop**: Bridgewater, Massachusetts · Retail and Consumer Merchandise · 2,688 like this
- E-Cig**: Product/Service · 21,383 like this
- Ecig.Xxx**: Health/Beauty · 17,305 like this
- VAPE eCig KUCHING (COD)**: Closed Group · 3,926 members
- eCig-HY**: Closed Group · 665 members
- Ecig News**: Closed Group · 2,579 members
- Glory Vapes Ecig Store**: 114 W Main St, Endicott, New York

facebook

twitter

Twitter profiles for various e-cigarette brands and forums:

- E-Cigarette Forum**: @ecigaretteforum. Vapers supporting vapers since 2007. The web's largest community of e-cigarette users and campaigners.
- Vapage E-Cigarettes**: @VapageEcig. Vapage Premium E-Cigarettes.
- Kik e-cigarettes**: @kikecigs. Kik e cigarettes, the UK vaping company that offers a range of e cigarettes and over 80 e liquid flavours with 100% Organic flavourings.
- E Cigarette Skins!**: @ecigarette_skin. Be the first to take your incredible e cigarette a step further Don't be afraid to show a little skin while your out!
- ROK e cigarettes**: @ROKunversaUK. Premium quality, smooth authentic taste and great value e cigarettes & ecigars. Established in 2009. Customer service driven. Tweet #ecig & #eiquid info &...

Instagram

Vine

Pinterest board featuring e-cigarette tips, dangers, and benefits:

- E-Cigarette Forum**: 7 repins 2 likes. Pinned by Smokenmist.com. Includes a photo of a hand holding a cigarette.
- Dangers of E-Cigarettes**: Pinned by Eating Disorder Hope. Includes a photo of a cigarette with a warning sign.
- Benefits and Drawbacks of E-cigarettes**: Pinned by Smokenmist.com. Includes a photo of a hand holding a cigarette.
- Virtual E-Cigarettes**: @VirtualECigs. We sell Decabs that let you know where... Includes a photo of a cigarette.
- Tips and Tutorials: e-cig Tanks & Atomizers**: Includes a list of tips and a photo of a cigarette.
- TJ's E-Cigarettes**: @TJECigs. A chain of vaping shops selling e... Includes a photo of a cigarette.
- Bloog E-Cigarettes**: @BloogLife. Bloog is an e-cigarette brand that... Includes a photo of a cigarette.

Pinterest

tumblr.

Marketing: Health Claims



Maple pancakes

Inhale Flavor
Curb Cravings
Lose Weight

Maple pancakes

~ 0 Calories ~

0 Calories | 50 Servings



Vanilla Cupcake

Inhale Flavor
Curb Cravings
Lose Weight

Vanilla Cupcake

~ 0 Calories ~

0 Calories | 50 Servings

How To Use...



Inhale Flavor



Curb Cravings



Lose Weight

Vaping Away



The Pounds?

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 - ✓ Tackle Those Late Night Munchies
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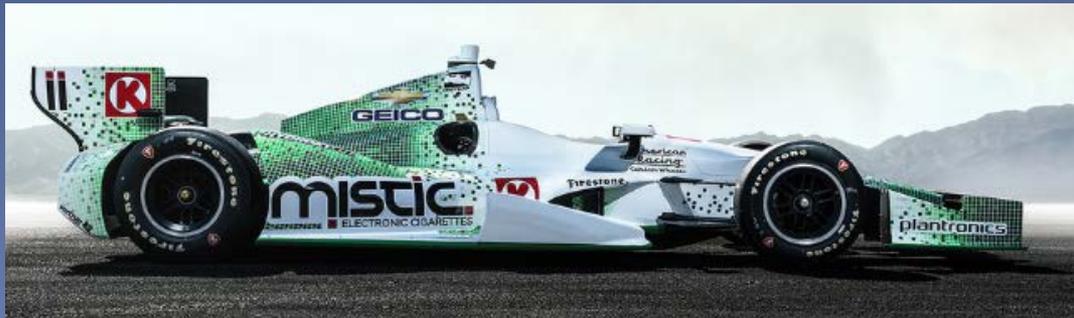
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Marketing: Celebrity Endorsements



Marketing: Sponsorships



Marketing Circumventing SF Air Laws

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NO TAR • NO ASHES • NO FLAME**

Smoke Anywhere - No Second-Hand Smoke!

With American Blue Tip, you can smoke when you want, where you want. Smoke in your house, apartment, office or car. "Light up" in a bar again... You can even smoke in bed! Indulge your desire to smoke whenever the mood hits you. The stylish leather carrying-case and powerful lithium battery ensure that your American Blue Tips will always be ready when you are.

Put out your cigarettes...

...start vaping.

**NO Tobacco Smoke!
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New high-tech atomizer converts water to a smoke-like vapor, generating a cigarette-like look and feel without the thousands of chemicals and nasty smell of cigarettes.

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Smoke without the tar, ashes & flame.

American Blue Tip™ Smokes are a healthier, convenient alternative to cigarettes. Enjoy all of the pleasures of smoking without the stigma. American Blue Tip is so effective as a substitute for cigarettes because it feels like the real thing, providing the authentic smoking experience: Feel the weight between your fingers. Inhale and exhale the smoke-like vapor. Feed the hand to mouth habit. Keep your social routines. Savor the rush. Try getting all that with a patch!

**SMOKE INDOORS • NO SMELLY ODOR
NO TAR • NO ASHES • NO FLAME**

Smoke Anywhere - No Second-Hand Smoke!

With American Blue Tip, you can smoke when you want, where you want. Smoke in your house, apartment, office or car. "Light up" in a bar again... You can even smoke in bed! Indulge your desire to smoke whenever the mood hits you. The stylish leather carrying-case and powerful lithium battery ensure that your American Blue Tips will always be ready when you are.

"The New Drag"

Let's face it, there are many reasons why people love to smoke - it's relaxing, social & therapeutic. More than anything else, smoking used to be fun. Smoking used to provide a certain energy, create a certain buzz. The devastating effects of cigarettes have robbed smokers of all of these benefits. With American Blue Tip smokes, you can have all that back.

Start Vaping, Satisfy Craving!

SAVE MONEY! American Blue Tip is available now. Evaluate the American Blue Tip experience for yourself with a 30-day risk-free trial. That's right, try it risk-free and see the benefits for yourself.

Finally, smoke without the health risks and guilt.

CALL NOW for your RISK-FREE trial!

1-800-790-2869

*Shipping & handling non-refundable. www.AmericanBlueTip.com

Web Forums

Vapers Forum - Windows Internet Explorer

http://www.vapersforum.com/forum.php?s=01f59945764465ec702062c03c2d6e03

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Favorites Business Lookup Tool Ho... CDC CDC MIS Google tpc partners ISDH Intranet WebCMS requests PeopleSoft HR QCEW Data Output STAT...

Vapers Forum

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Forum

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Vapers Forum

Welcome to the Vapers Forum.

Forum Rules	Threads / Posts	Last Post
Forum Rules (1 Viewing) Forum Rules	Threads: 4 Posts: 4	Vendor Rules by Bert 06-12-2013, 07:51 PM

News, Medical, Campaigning	Threads / Posts	Last Post
This area is for all ecig related news, medical and campaigning.		
News/Campaigning/Legal (3 Viewing) This area is considered a strictly troll-free zone, and will be maintained as such.	Threads: 1,910 Posts: 23,154	Time Magazine spread on Vaping by burnt_wick Today, 07:35 PM

New Forum Posts

my youtube is choppy tonight, gonna have to check...

What Are You Listening To Now?
Today, 08:06 PM

your call....was 20 posts enough to get you off?

Sad but true !!!
Today, 08:04 PM

Local intranet | Protected Mode: Off

9:05 PM 9/21/2013

National Conventions



Back to web results for indy area vape shops

Indy Vapor Shop
4.0 ★★★★★ (19)
Cigar Shop · Lafayette Rd
(317) 291-1087
Open until 6:00 pm

[Website](#) [Directions](#)

Pure Vape Indy LLC
4.1 ★★★★★ (20)
Vaporizer Store · W Washington St
(317) 244-8273
Open until 6:00 pm

[Directions](#)

World Of Vapor
4.5 ★★★★★ (29)
Tobacco Shop · E Washingt...
(317) 351-8273
Open until 6:00 pm

[Website](#) [Directions](#)

Indy E Cigs
4.6 ★★★★★ (24)
Tobacco Shop · Broad Rippl...
(317) 253-3244
Open until 9:00 pm

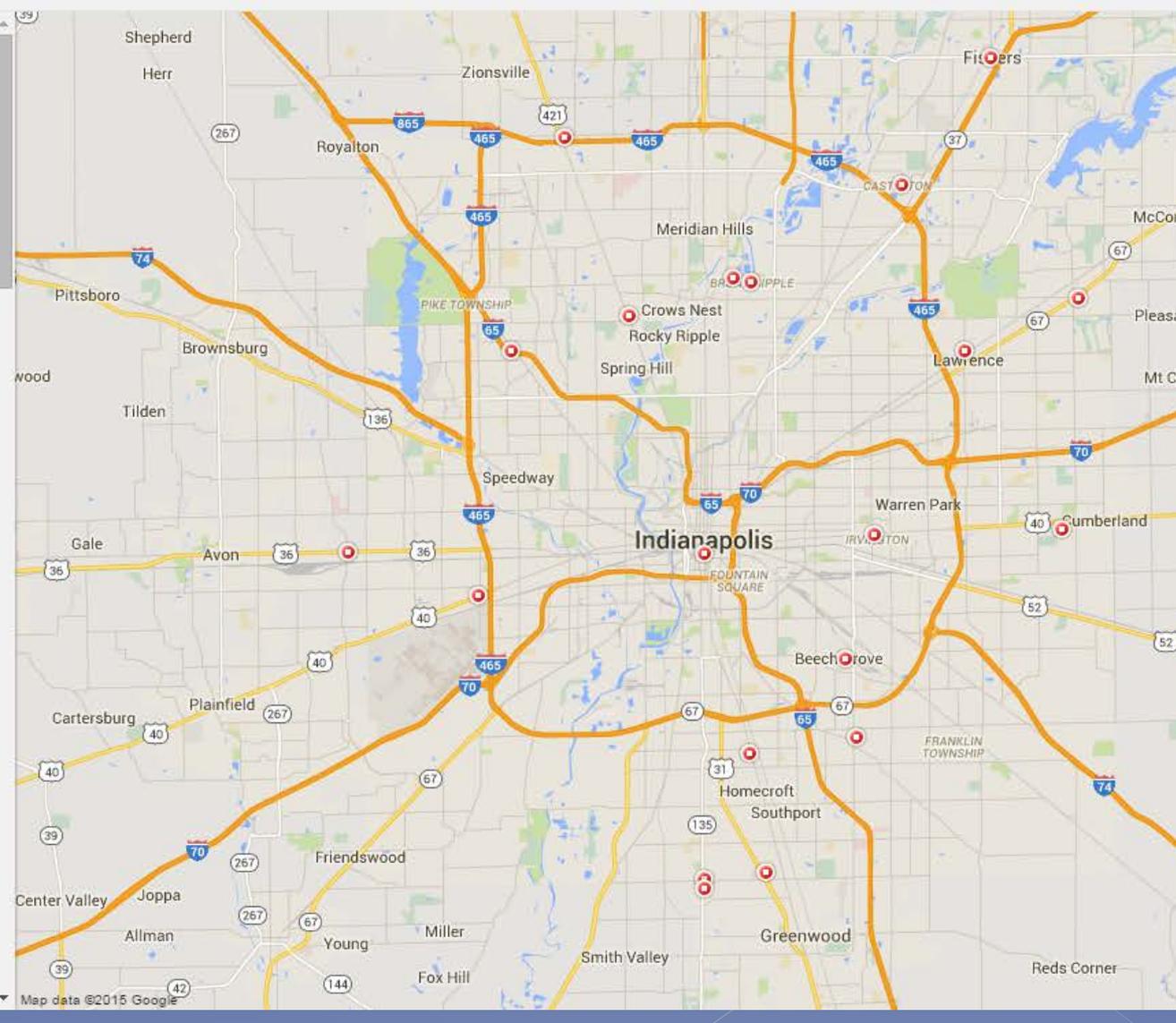
[Website](#) [Directions](#)

Indy E Cigs 96th and Michigan
No reviews
Tobacco Shop · W 96th St
(317) 757-5457
Open until 9:00 pm

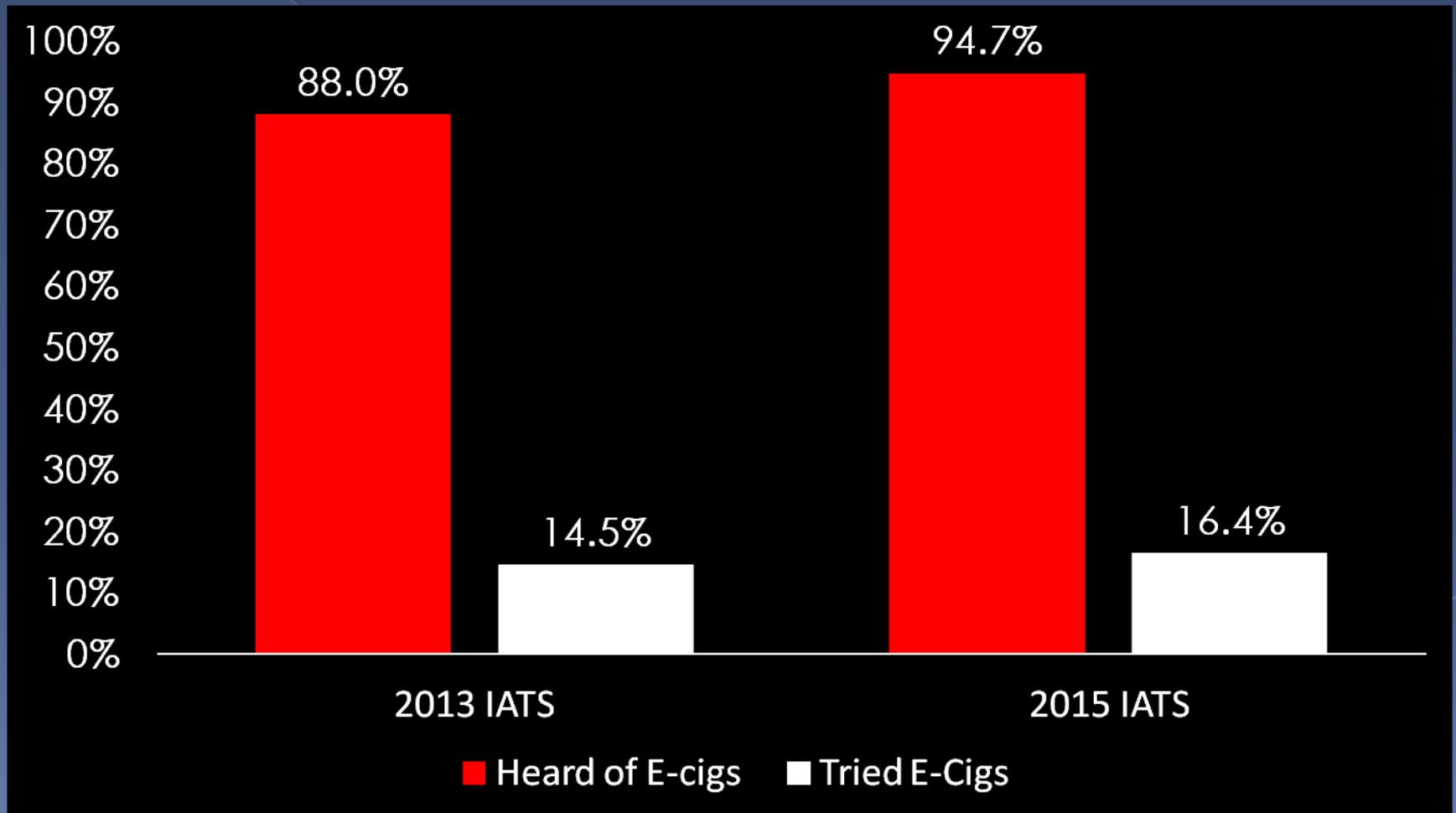
[Website](#) [Directions](#)

Indy E Cigs
4.8 ★★★★★ (6)
Vaporizer Store · Pendleton ...

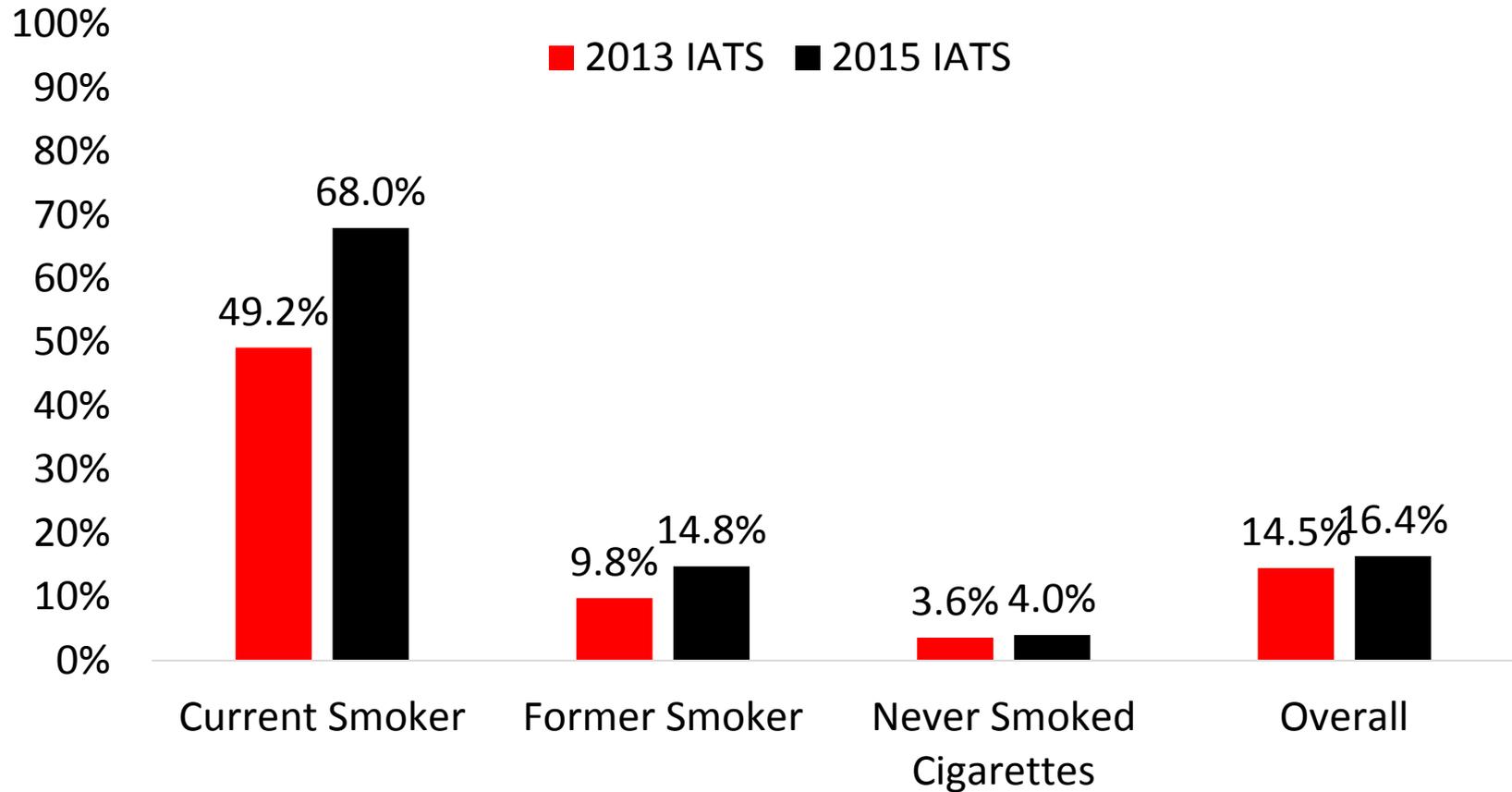
[Website](#) [Directions](#)



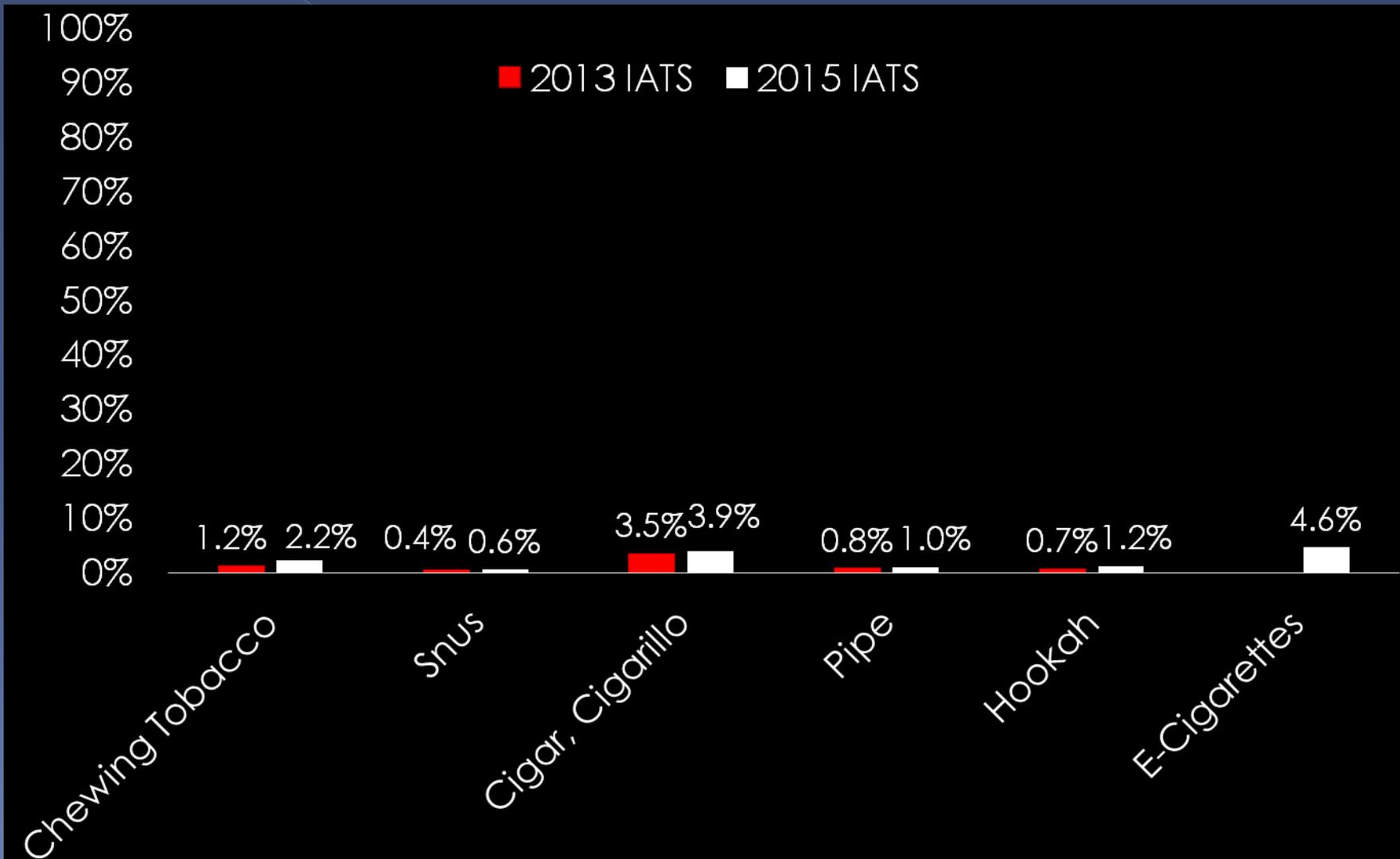
Changes in Awareness and Trial of E-Cigarettes among Indiana Adults, 2013 & 2015 ATS



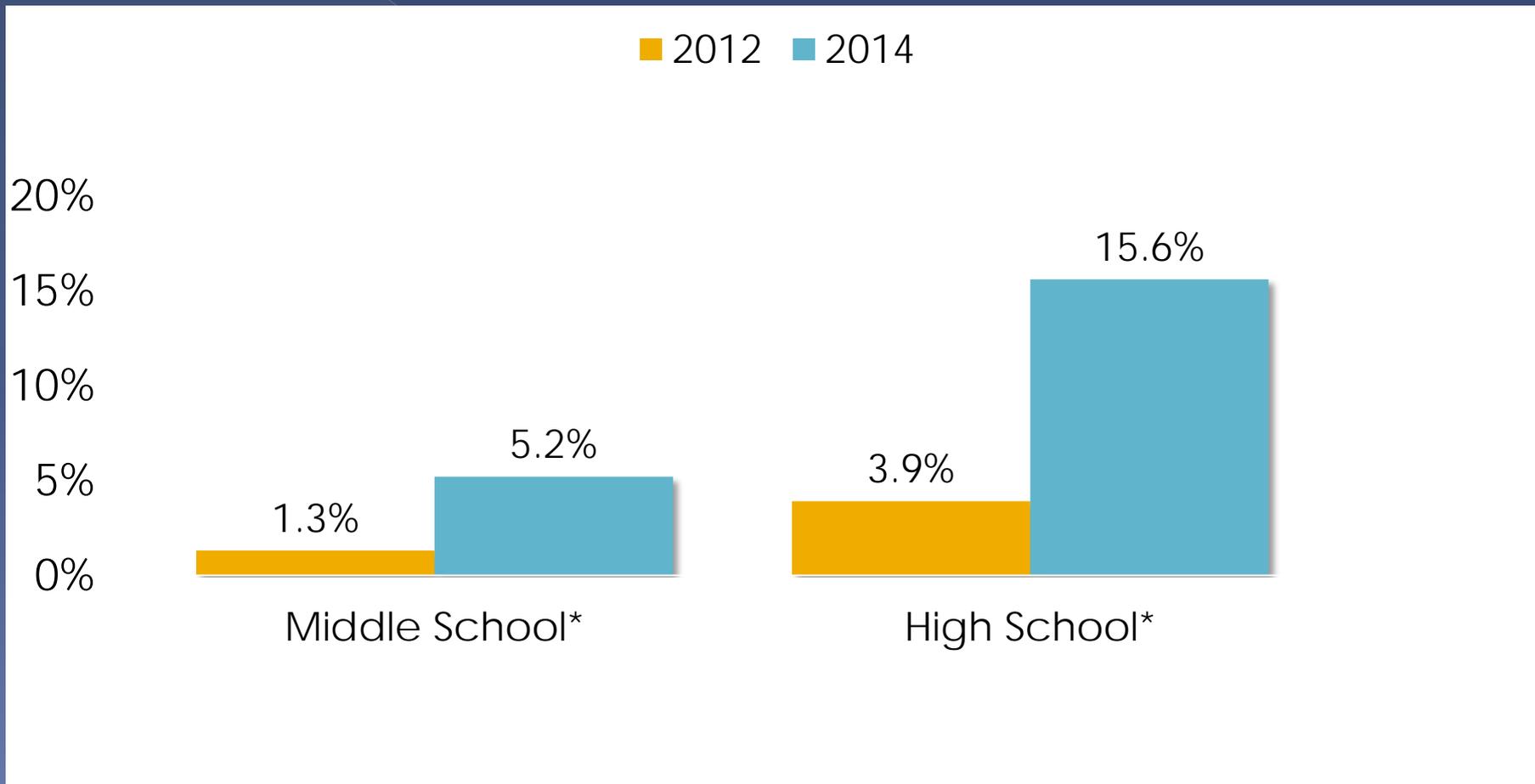
E-Cigarette Trial by Smoking Status, 2013 & 2015 ATS



Current Tobacco Use Prevalence among Indiana Adults, 2013 & 2015 ATS



Current Use of E-Cigarettes among Indiana Middle and High School Students, 2012-2014 IYTS



*Statistically significant increase between 2012 and 2014.

ENDS: Potential Health Risks

Nicotine

- Nicotine is highly addictive
- Nicotine may cause adverse cardiovascular effects (increased HR, BP) and may impair endothelial function
 - › Likely less harmful than nicotine delivered via combustion
- Accidental poisoning, especially in children
 - › E-cigarette liquid typically contains 6-36 mg nicotine per mL
 - Lethal adult oral dose (40-60 mg); in children, 6 mg may be life-threatening
 - › Calls to U.S. Poison Control Centers for e-cigarette liquid exposures increased 733% from 2012 to 2014¹

¹American Association of Poison Control Centers <https://aapcc.s3.amazonaws.com>

E-cigarette & Liquid Nicotine Reported Exposures to U.S. Poison Centers (2011-2015)



Source: American Association of Poison Control Centers
https://aapcc.s3.amazonaws.com/files/library/E-cig__Nicotine_Web_Data_through_11.2015_gJzwy6j.pdf

*Estimated

ENDS: Potential Health Risks Flavoring Agents

- In 2014, there were 466 distinct brands of ENDS and more than 7,764 unique flavors¹
- Flavors deemed by the Flavor & Extract Manufacturers Association (FEMA) “generally recognized as safe” for oral use **cannot** be deemed safe for inhalation²
- Diacetyl or acetyl propionyl (impart buttery/fruity/cocoa flavor) found in ~75% of sweet-flavored e-cigarette liquids—many samples exceeded NIOSH safety limits^{3,4}
- Diacetyl, while deemed safe for ingestion by FEMA and FDA, has been shown to cause bronchiolitis obliterans (“pop-corn lung”) when inhaled

¹ Zhu et al., *Tob Control* 2014;23(Suppl 3):iii3-iii9.

² Tierney et al., *Tob Control* 2015; April 15. [Epub ahead of print]

³ Farsalinos et al., *Nicotine Tob Res* 2015;17:168–174.

⁴ Allen et al., *Environ Health Perspect* 2015; Dec 8. [Epub ahead of print]

ENDS: Potential Health Risks

Carcinogens¹⁻³

- ⦿ E-cigarette liquids contain small amounts of nitrosamines
- ⦿ E-cigarette aerosols contain the following carcinogens
 - > Formaldehyde
 - Chromium
 - Nickel
 - > Acetaldehyde
 - > Acrolein
- ⦿ Levels of most substances lower than found in tobacco smoke
- ⦿ No safe level of exposure has been determined
- ⦿ With intense heating (tank models with increased voltage), higher amounts of formaldehyde and acetaldehyde are generated—similar to concentrations in tobacco smoke³

¹ Bhatnagar et al., *Circulation* 2014;130:1418–1436.

² Goniewicz et al., *Tob Control* 2014;23:133–139.

³ Kosmider et al., *Nicotine Tob Res* 2014;16:1319–1326.

Secondhand Aerosol

- Detected in Secondhand E-cigarette Aerosol :
 - > Nicotine
 - > Ultrafine particles
 - > Low levels of toxins, some that are known carcinogens, including: Acetaldehyde (MS), Benzene (SS), Cadmium (MS), Formaldehyde (MS,SS), Isoprene (SS), Lead (MS), Nickel (MS), Nicotine (MS, SS), N-Nitrosonornicotine (MS, SS), Toluene (MS, SS)

¹ Bhatnagar et al., Circulation 2014;130:1418–1436.

² Schober et al., Int J Hyg Environ Health 2014;217:628-637.

Secondhand and Thirdhand Aerosol

- Bystanders exposed to exhaled aerosol can be exposed to nicotine – have cotinine (nicotine byproduct) in their blood
- Thirdhand exposure to nicotine
 - › Result from interactions with air and chemicals in the air
 - › Heaviest presence on floor
 - › Potential exposure for children - often on the floor or touching surfaces and putting hands in their mouths

Malfunction

Man killed when a charging e-cigarette explodes and ignited oxygen equipment he was believe to have been using (UK; Aug 8, 2014)

RAMONA, CA: A man was hospitalized and in critical condition with burns to his face after an electronic cigarette exploded (Feb 9, 2015)

"E-cigarette blast nearly blew my legs off" after e-cigarette EXPLODES 'like a grenade' (UK; Oct 13, 2014)

MIAMI, FL: A Naples area man is in a medically induced coma at a Miami hospital after an e-cigarette blew up in his face (Oct 27, 2015)

E-cigarette explodes in Bentonville, Arkansas man's face (Nov 10, 2015)

"Blood just pouring down," E-cig explodes in Oklahoma man's face (Dec 8, 2015)

Grand Rapids, MI: "I'd rather have lung cancer": E-cigarette battery explodes in man's pocket and leaves him with 2nd and 3rd degree burns on his leg (Dec 9, 2015)

Malware

"Health warning: Now e-cigarettes can give you malware. Better for your lungs, worse for your hard drives, e-cigarettes can potentially infect a computer if plugged into charge" (Nov 21, 2014)

"E-cigarettes have become the latest vector for hackers to distribute malicious software. ***E-cigarettes manufactured in China*** are reportedly being used to ***spread malware via a USB port*** to computers when users plug in for charging."



Proven Cessation Interventions

Public Health Service Clinical Practice Guideline: *Treating Tobacco Use and Dependence*

Key recommendations:

- encourage all patients to quit
- individual, group and telephone counseling
- practical counseling and social support
- ensure access to Quitline
- prescribe 7 first line medications

Other Proven Cessation Interventions

- ◎ Comprehensive smoke-free air policies
 - › Cover all workplaces and public places, including restaurants, bars, private and fraternal clubs, and gaming areas
 - › Offer full protection from secondhand smoke
- ◎ Raising tobacco prices
 - › Raise the price on cigarettes and other tobacco products equally
 - › Match cigarette and other tobacco product prices

Other Proven Cessation Interventions

- Fund state tobacco control programs in accordance with the 2014 CDC Best Practices for Comprehensive Tobacco Control
 - › Use tobacco industry settlement payments
 - › Dedicate a small portion of what states collect in tobacco tax revenue
 - › Use a combination of both

NIOSH report – April 2015

Current Intelligence Bulletin 67: [Promoting Health and Preventing Disease and Injury Through Workplace Tobacco Policies](#)

NIOSH published a report last month recommending that all workplaces become tobacco-free and employers make tobacco cessation programs available to workers.

This report also includes e-cigarettes and is aimed at protecting workers from the occupational hazards of tobacco, secondhand smoke, and emissions from e-cigs.

http://facilityexecutive.com/2015/04/new-niosh-report-rec

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New NIOSH Report Recommends All Workplaces Be Tobacco Free | Includes E-Cigarettes In Suggested Smoking Ban

Posted on: April 7th, 2015

Like 13 Tweet 26 +1 1 Share 19 Pin It

Posted by Heidi Schwartz

What can be done?

What can health care providers do?

- Provide proven NRT and other tobacco cessation treatments
 - › Public Health Service Clinical Practice Guideline: *Treating Tobacco Use and Dependence*
- Ask, advise and refer (refer patients to the Indiana Tobacco Quitline)

What can be done?

What can health care providers do?

- ◉ Join the Quit Now Preferred Provider Network
 - > Gives health care providers proven, professional resources to help patients/clients quit tobacco use
 - > Fax refer patients to the Quitline and receive status reports
 - > Receive ongoing communication on the latest research and tobacco news in Indiana
 - > Direct access to cessation specialists

Indiana Tobacco Quitline

Indiana's Most Significant Health Savings Opportunity:



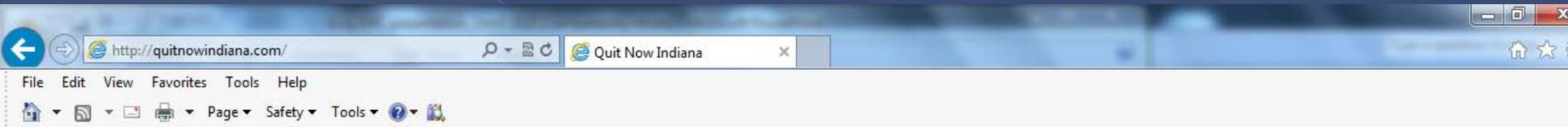
1,067,735 current smokers = 21.9% of the population

Annual cost to Indiana society:
between \$3.6 and \$6.2 Billion

(incl. medical expenses, lost productivity and years of potential life lost)

What can be done?

Visit www.quitnowindiana.com for more information



QUIT NOW INDIANA

HOME

QUITTING

SECONDHAND SMOKE

REAL LIFE



CONTACT A
**QUIT
COACH**



PREFERRED
EMPLOYER



PREFERRED
**HEALTH
PROVIDER**

BECOME A
**QUIT
BUDDY**

Laws Limiting Use

- Over 200 state and local laws restrict e-cigarette use
- In Indiana: **Greenwood, Hancock County, Indianapolis and South Bend*** smoke-free air laws also prohibit e-cigarette use
 - More info on local laws in Indiana on our website: www.isdh.in.gov/tpc

*South Bend law goes into effect January 2, 2017.

2013: Indiana Amended the Youth Access Law

- House Enrolled Act 1225 (Sale of e-cigarettes to minors):
 - Prohibits the sale of e-cigarettes to youth (less than 18 years of age)
 - Regulates display of e-cigarettes in vending machines
 - Prohibits self-service display of e-cigarettes in areas where youth are permitted
 - Prohibits possession and use of e-cigarettes for youth (less than 18 yrs)

2015: Additional regulatory measure

- ◎ Senate Enrolled Act 463
 - › Requires e-cigarette retailers to obtain a tobacco retail license
 - › Establishes manufacturing standards
 - › Requires childproof caps and tamper evident packaging



E.N.D.S. : The Bottom Line

- ⦿ The FDA and other national health organizations have warned about the potential health risks
- ⦿ ENDS are not currently regulated
- ⦿ The safety of these products is virtually unknown
- ⦿ ENDS are not proven smoking cessation aids
- ⦿ Proven cessation treatments include proactive tobacco quitlines and the seven first line medications approved by the FDA
- ⦿ More research on the safety and efficacy of these products is needed

Thank you

Katelin Ryan

Director of Program Evaluation

ISDH Tobacco Prevention and Cessation

Commission

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317-234-1783