

ELECTRONIC SMOKING DEVICES/VAPING

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County of San Diego, Health & Human Services Agency-Public Health Services

2/23/17



LIVE WELL
SAN DIEGO



LIVE WELL SAN DIEGO

Building
Better
Health

Living
Safely

Thriving



LIVE WELL SAN DIEGO

3 Lead to

BEHAVIORS

No Physical Activity
Poor Diet
Tobacco Use

4 Result in

DISEASES

Cancer
Heart Disease & Stroke
Type 2 Diabetes
Lung Disease

OVER **50**

PERCENT

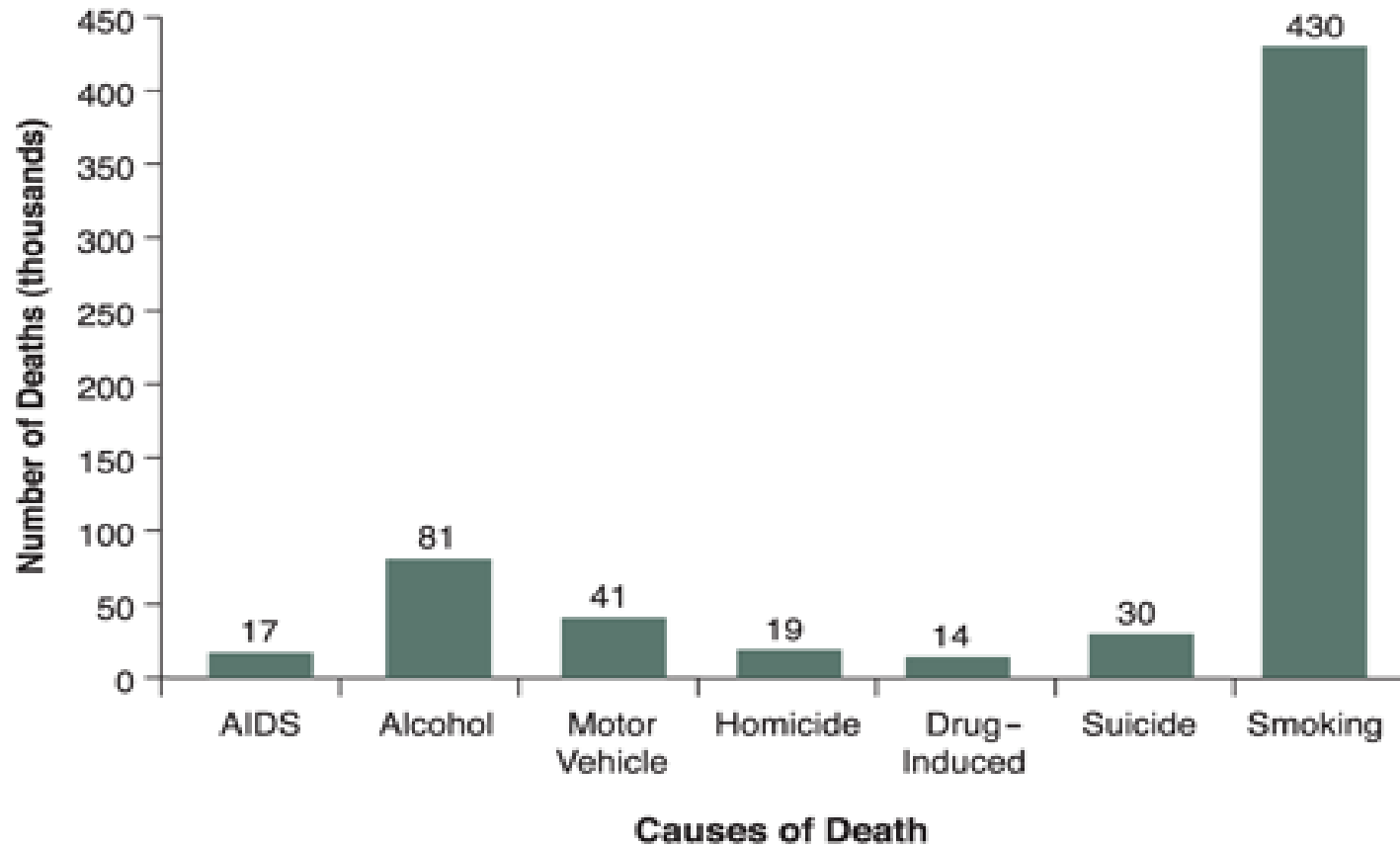
of deaths
in San Diego

Acknowledge CA Youth Advocacy Network, Prevention Partners, Campaign for Tobacco Free Kids, CDPH-CA Tobacco Control Program, American Academy of Pediatrics

- *Overview and Use of ESDs*
- Problems with Electronic Smoking Devices?
- Summary of science on ESDs
- Policy Recommendations & Solutions



TOBACCO IS THE #1 CAUSE OF PREVENTABLE DEATH IN THE U.S.



Comparative causes of annual deaths in the United States. Tobacco use is the number one preventable cause of death in the United States. SOURCE: Centers for Disease Control and Prevention (CDC), 2001. Available at: www.cdc.gov/tobacco/research_data/health_consequences/andths.htm

WHAT DO ALTERNATIVE PRODUCTS DO?



**SLIM. CHARGED.
READY TO GO.**

**AVAILABLE
NATIONWIDE!**
Visit us at blucigs.com/store-locator

NOT FOR USE WITHIN 100 YARDS OF A CHILD. blu eCigs electronic cigarettes are not a smoking cessation product and have not been approved by the Food and Drug Administration. Use only the products listed here. ©2012 blu eCigs, Inc. blu and the blu eCigs are trademarks of blu eCigs, Inc.

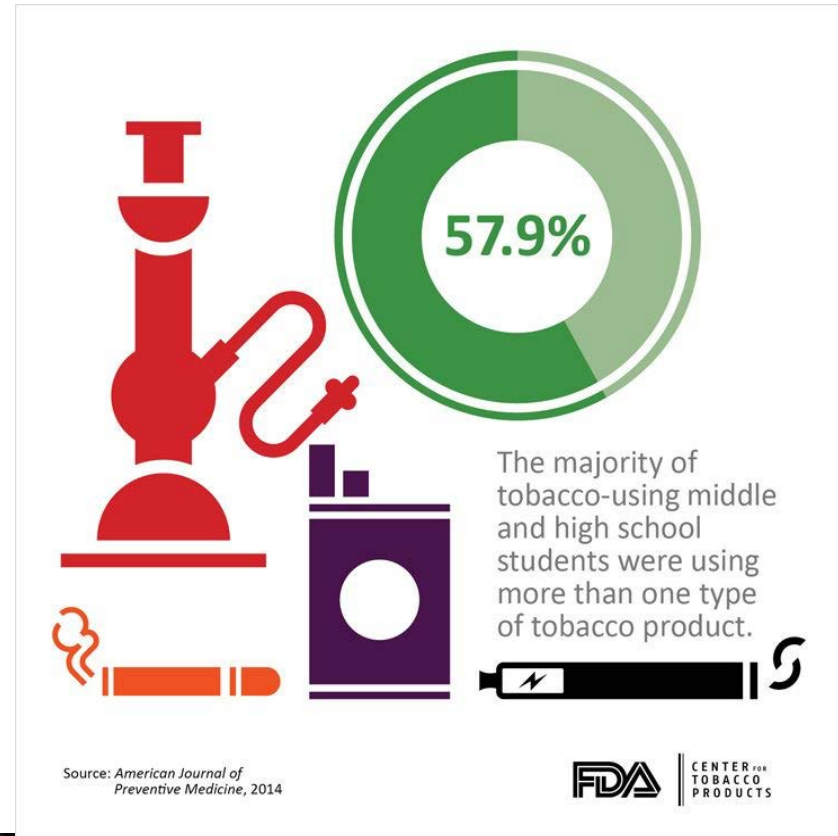


HOOKAH - INHALING A LARGE LOAD OF TOXINS



1 HOOKAH TOBACCO SMOKING SESSION EXPOSES THE USER TO:

- 25x the tar
- 125x the smoke
- 2.5x the nicotine
- 10x the carbon monoxide
 - Of a SINGLE cigarette



POPULATION-LEVEL IMPACT: E- SMOKING DEVICES-VAPING



- Initiation
- Dual Use
- Former Smokers
- Delays Quit Attempts
- Enforcement complexities
- Erosion of cultural norm



VARIATIONS OF THE SAME THEME



NEXT GENERATION ESDS



Source: 13 of Oulu



Source: tovapor.com



BASIC COMPONENTS:

1) BATTERY, 2) E-LIQUID, 3) ATOMIZER

- Pen style with tank
- E-hookah, E-Pipe



Source: jon.williams.eigstick.co.uk





E-LIQUID

GREAT TASTE, WITHOUT THE FANCY NAMES.



Refill cartridges or drop fluid into drip tips.

“HARMLESS WATER VAPOR?”



Side effects of **Nicotine**

s
u
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Blood
- Increased clotting tendency

Lungs
- Bronchospasm

Muscular
- Tremor
- Pain

Gastro-intestinal
- Nausea
- Dry mouth
- Dyspepsia
- Diarrhea
- Heartburn

Joints
- Pain

Central

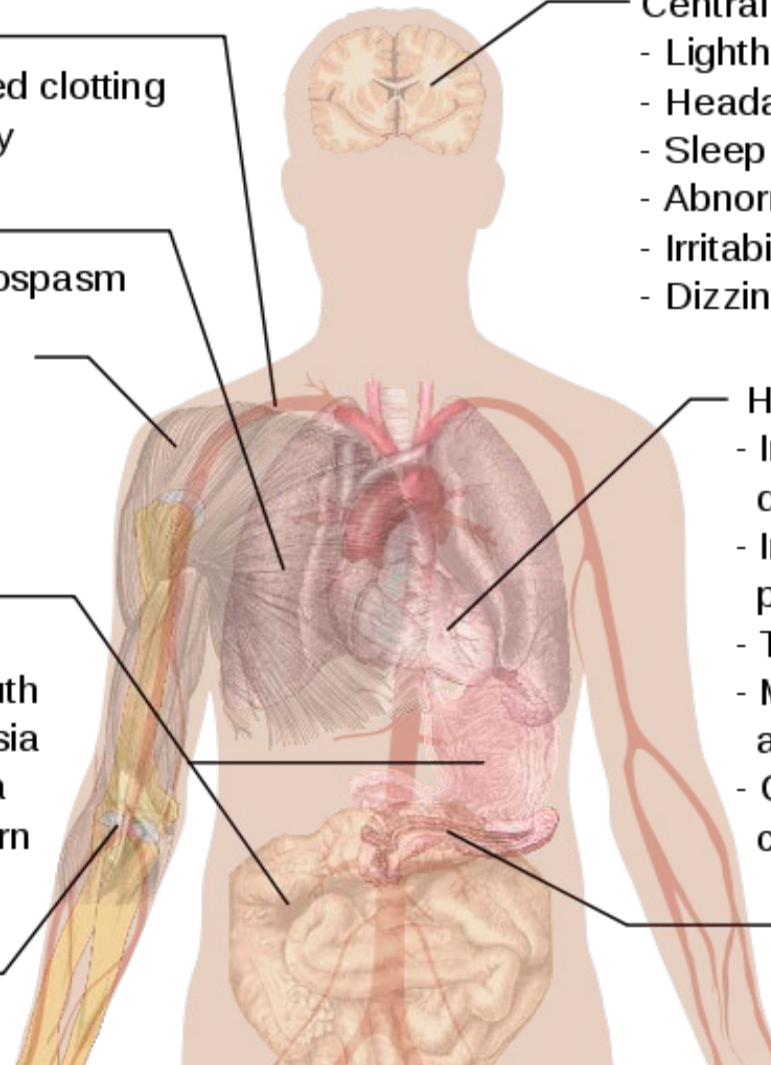
- Lightheadedness
- Headache
- Sleep disturbances
- Abnormal dreams
- Irritability
- Dizziness

Heart

- Increased or decreased heart rate
- Increased blood pressure.
- Tachycardia
- More (or less) arrhythmias
- Coronary artery constriction

Endocrine

- Hyperinsulinemia
- Insulin resistance



13 JURISDICTIONS RESTRICTING THE USE OF ESD IN SAN DIEGO COUNTY:



- Vista (10/22/13)
- Carlsbad (12/3/13)
- Solana Beach (2/12/14)
- Poway (2/4/14)
- *County of San Diego, (3/11/14)*
- Encinitas (3/26/14)
- Oceanside (4/2/14)
- Del Mar (4/7/14)
- La Mesa (7/8/14)
- City of San Diego (7/28/14)
- El Cajon (3/11/14 and 7/22/14 hookah, buffer zones, retailer licensing)
- San Marcos (10/28/14)
- Lemon Grove (9/1/15)



OTHER DECISION-MAKING BODIES



- **County of San Diego** – smoke-free indoor and designated smoking area outdoors – includes ESDs and applies to properties owned and managed by the County.
- **City of San Diego** – council voted unanimously to adopt a smoke-free policy for all San Diego Housing Commission (SDHC)-owned apartment buildings; took effect on February 1, 2014. The policy prohibits smoking anywhere at SDHC-owned residential properties (over 2,000 affordable housing units). Smoking is not allowed in individual apartments or within 25 feet of the buildings. The policy applies to residents, their guests, and SDHC employees or contractors working on-site.
- **North County Transit District:** On 12/18/15 NCTD restricts the use of ECs on all district property.
- **San Diego County Fair:** County Fair (4th largest in North America) Board voted to go smoke-free and the following year added ECs to the policy as well as restricting e-cig vendors.

THE E-CIGARETTE EXPLOSION



- **Market Size Continues to Increase**
 - retail sales about ~\$1.8B at the end of 2013
 - **Estimated to be \$10B by 2017**
 - U.S. comprises 30% of the \$6B global market



- **E-cigs could surpass consumption of conventional cigs within the next decade (by 2023).** (Herzog, 2013)

136 STORES VISITED IN ESCONDIDO (POP. 150K)

Electronic smoking devices were sold and advertised in:

- Tobacco/smoke shops, vape lounges 100%
- Gas stations 91%
- Liquor stores 78%
- Convenience stores 73%



YOUTH USE HAS DOUBLED



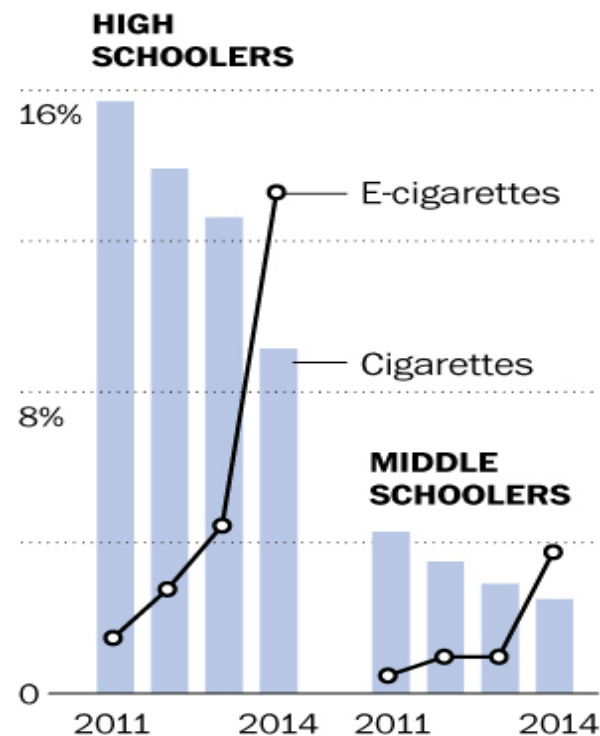
During 2011-2012, among US students in
grade 6-12

- Ever e-cigarette use increased from 3.3% to 6.8% (estimated 1.78 million students)
- Current e-cigarette use increased from 1.1% to 2.1%
- Dual use of e-cigarettes and conventional cigarettes increased from 0.3% to 0.7
- More than 1.78 million middle and high school students reported trying e-cigarettes in 2012.

2013 CDC MMWR

Teen e-cigarette use triples from 2013-2014

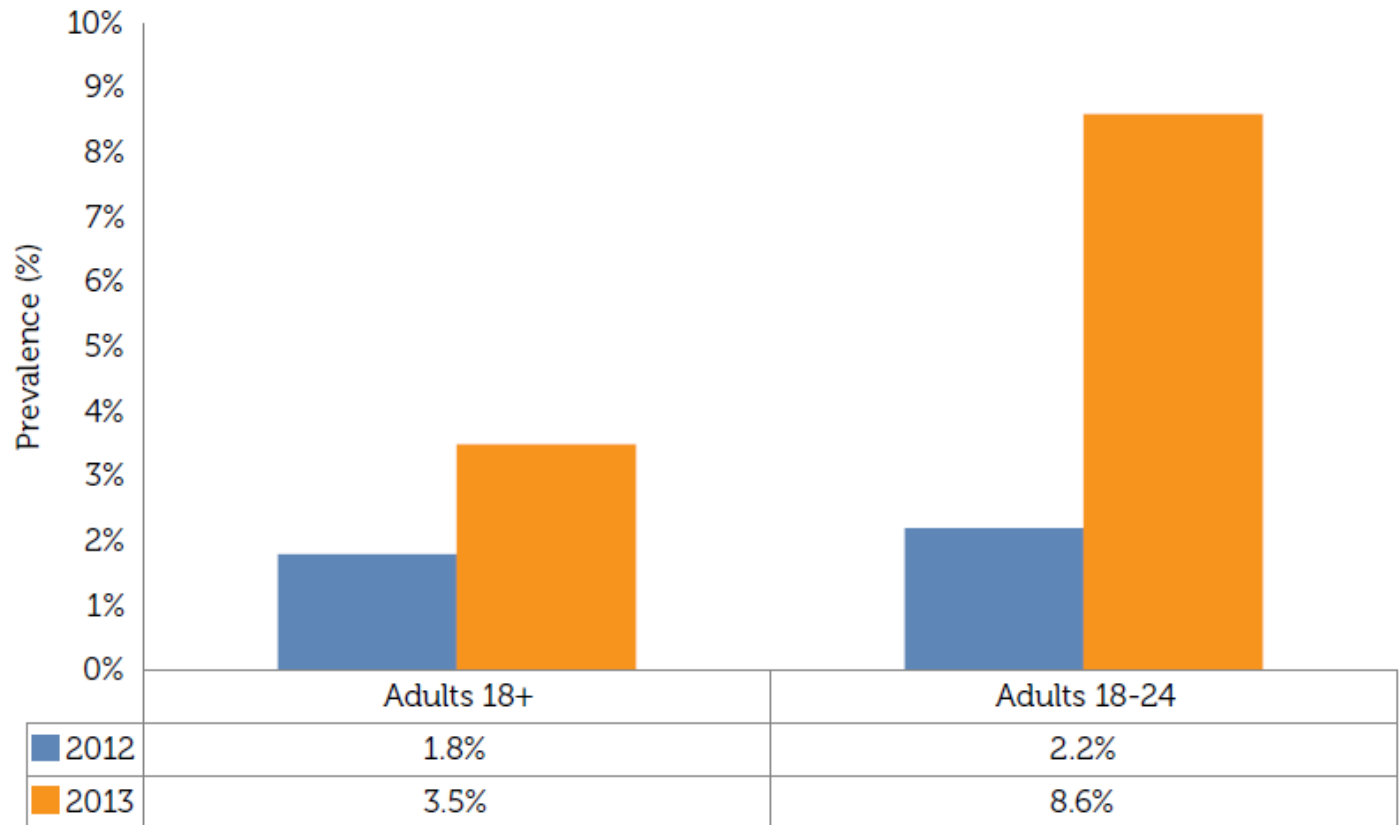
Estimated percentage of high school students who used tobacco in the preceding 30 days



Source: National Youth Tobacco Survey 2011-2014, and Centers for Disease Control and Prevention
THE WASHINGTON POST

Figure 1A.3 represents current electronic cigarette use in California adults in 2012-2013. The overall use of electronic cigarettes by adults nearly doubled in one year and nearly quadrupled for young adults between the ages of 18-24.

Figure 1A.3 California e-cigarette use, 2012-2013



Source: Behavioral Risk Factor Surveillance System/California Adult Tobacco Survey (BRFSS/CATS 2012-13) weighted to 2010 California Population.



E-CIGARETTE USE



- 2014 Monitoring the Future survey, which tracks substance abuse trends among over 40,000 youth nationally, found that the use of e-cigarettes among teens surpassed the use of traditional cigarettes.
 - More than twice as many 8th and 10th graders reported using e-cigarettes than traditional cigarettes in the survey,
 - Among 12th graders, 17% reported currently using e-cigarettes vs. 14% using traditional cigarettes.
- National Youth Tobacco Survey 2013, e-cigarette use
 - among high school students tripled between 2011 and 2013,
 - increasing from 1.5 percent to 4.5 percent
 - Over a quarter million students who reported using e-cigarettes had never used traditional cigarettes.²



VAPE PENS AND E-CIGARETTES



- California law prohibits the sale of e-cigarettes to minors (California Health and Safety Code § 119405).



Dry Herb Vaporizers are designed with discretion in mind



WAXY MARIJUANA AND HASH OILS



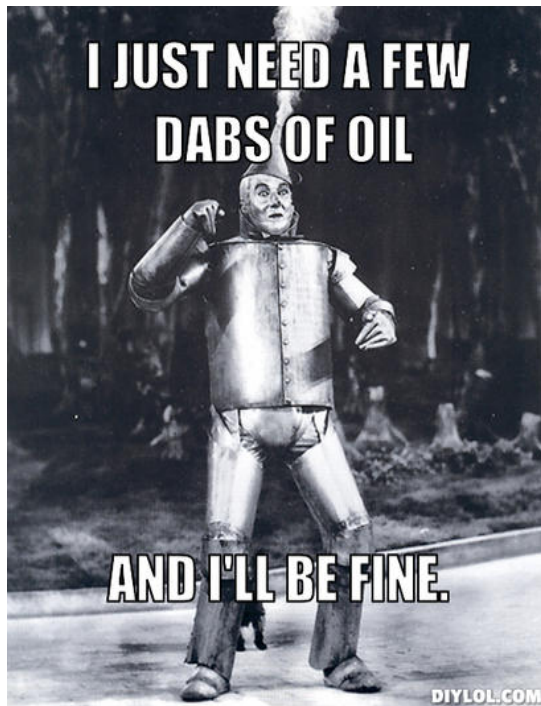
Wax marijuana is the purest form of cannabis. It contains from 82-99% THC making it several times more potent than a marijuana bud on a cannabis plant which usually contains 5-28% THC. One hit of the wax is supposedly equal to 1-2 full cannabis joints and is reported as being more clear and longer lasting than average marijuana. Wax marijuana is also a medical marijuana product.

Hash oils are concentrated and extremely potent. They are made through a volatile chemical process utilizing butane as a solvent.

Wax (extracted cannabinoid product) is a form of hash oil. The typical wax product is often golden in color and crumbly.



DABBING TOOLS





HEALTH ADVISORY – ISSUED JANUARY 28, 2015

Summary of the Public Health Risks and Recommendations for Health Care Professionals.

Recommendations:

- *Educate, Advise and Protect Unborn Children, Young Children and Adolescents.*
- *Educate About Clean Indoor Air.*
- *Encourage Cessation.*
- *Protect Children from Nicotine Poisoning.*
- *Promote Health Literacy: Educate about Misleading Marketing.*

<https://www.cdph.ca.gov/Documents/EcigHealthAdvisory01282015.pdf>

SERIES OF TELEVISION, DIGITAL, AND OUTDOOR ADS

- Message: Emphasis highly addictive products being mass marketed
- Wake up: Still Blowing Smoke
- Kids Aren't Alright
- <http://tobaccofreeca.com/resources>

OPPOSITION

- Counter media with mirror site



EXPLOSIONS



DEA: San Diego County is becoming the marijuana extraction capital of the U.S.

3-Year-Old Boy Catches Fire When Mom's E-Cigarette Explodes

Sep 24, 2013 | By Ruth Manuel-Logan

Share 150 Record



Two hurt in PB drug-lab blast

By Pauline Repard 6:52 PM, SEPT. 24, 2013 Updated 9:07 PM



Police investigate a narcotics-related explosion in an apartment in an alley between the 21st Avenue and Thomas Avenues in Pacific Beach on Tuesday night. A police detective at the scene says the explosion occurred while making hash oil. The two suspects in the apartment were burned in the explosion. (Karyn Palmer/SD) were taken to a hospital burn center. / Karyn Palmer/SD

PACIFIC BEACH — Two men in their 20s were injured while making operation blew up a Pacific Beach apartment Tuesday night, police said.

The blast blew out windows at the building along an alley between Grand and Thomas avenues, near Noyes Street, about 100 feet from the Pacific Beach police station, police and fire officials said.

Witnesses said an apartment was on fire, but any flames were quickly extinguished by firefighters who got there, fire spokesman Maurice Luque said.

3 injured in San Diego explosion after suspects light cigarette near hash oil

By Stephen C. Webster Thursday, January 31, 2013 1:59 PM EDT



Three people were seriously injured Wednesday after a container of butane exploded in a San Diego hotel room as two suspects tried to make hash oil out of marijuana, police told **The Associated Press**.

Although hotel room explosions are usually associated with making methamphetamine, they can happen any time an accelerant is improperly used, such as in the production of hash oil, a form of marijuana that is super-concentrated in liquid form, with roughly one drop equaling the amount of THC in a lower-potency joint.

Following Wednesday's blast, police said they found butane canisters that had apparently been ignited by a cigarette. The accelerant is used to extract THC from portions of the marijuana plant and is not usually smoked, then cooked off over a stove, leaving behind a viscous, tar-like residue.

The two suspects are both around 30 years old, police said. A man in an adjacent room was also severely injured and suffered burns over most of his body.

Though rare, a similar incident occurred in

DEA sees rise in hash oil explosions in San Diego County



At least 3 significant explosions in past year

2013 Explosions: No. All rights reserved. This content may be published, broadcast, rewritten or

Comment 43 people recommend this. Be the first of your friends.

Post 04/16/2013 Last updated 107 days ago

Delissa Mudge | Email Me

SAN DIEGO — Drug Enforcement Administration officials say they are seeing an increase in hash oil explosions in San Diego.

In the past 12 months, law enforcement has responded to three significant hash oil explosions, including one in January at the Heritage Inn that burned three people.

"Had it been early in the morning or later in the evening, we could have been talking about a number of people who were fatalities or a good number of people who were hospitalized," said Patrick Kelly, acting assistant special agent in charge of the DEA's Narcotic Task Force.

Significant explosions include the one at Heritage Inn near Sea World, as well as two others in San Diego County.

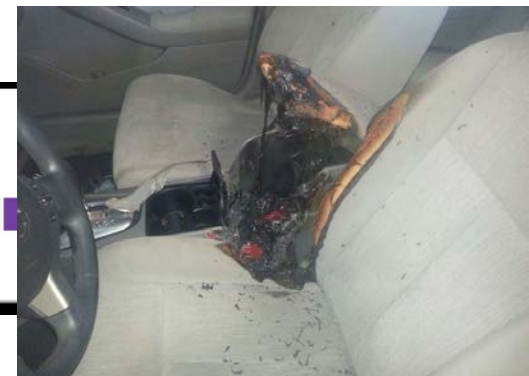
The main profit is money, with a gram of hash oil yielding anywhere between \$30 to \$100, Kelly said. The availability of the process on internet sites like YouTube adds to the problem.

He said he has an indication of just how dangerous that procedure can be. "Kelly said he has seen a video from the amebanca.com website, over the last several years that, in it, a person is using a blowtorch to heat a substance in a small container."

LATEST NEWS

Man Loses Teeth and Part of Tongue in Electric Cigarette Explosion

MELISSA NELSON, Associated Press
February 15, 2012 4:07 PM



Exploding e-cigarette could have killed my dogs and cats, terrified Atlanta woman says

Y ✓ X

Dylan Stableford, Yahoo! News September 4, 2013 12:19 PM

The Sideshow

AAP Position – E-cigarettes

- Sales to youth should be prohibited
- Flavors should be banned
- Smoke free environments should include e-cigarettes and their vapor in all workplace and clean air rules
- Child proof packaging should be required for E-liquids

- - -

- Parent/child and adolescent prevention screening and cessation counseling must ask the right questions about e-cigs and secondhand vapor

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SAN DIEGO

2016 Surgeon General Report

E-cigarette use among youth and young adults

- E-cigarette use among youth and young adults has become a public health concern.
- use of products containing nicotine poses dangers to youth, pregnant women, and fetuses. Nicotine in any form among youth is unsafe.
- E-cigarette aerosol (secondhand vapor) is not harmless. It contains harmful constituents, including nicotine, which can harm the developing adolescent brain.

<https://e-cigarettes.surgeongeneral.gov/>

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LIVE WELL
SAN DIEGO

2016 Surgeon General Report

E-cigarette use among youth and young adults

- E-cigarettes are marketed by promoting flavors and using a wide variety of media channels and approaches that have been used for marketing conventional tobacco products to youth.
- Actions could include incorporating e-cigarettes into smoke-free policies, preventing access to e-cigarettes by youth, price and tax policies, retail licensure, regulation of e-cigarette marketing likely to attract youth, and educational initiatives targeting youth and young adults.

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ENDS are Sold Everywhere

- “Vape” shops
- Convenience stores
- Gas stations
- Retail outlets
- Mall kiosks
- Grocery stores
- Internet vendors





From Cigarette to Vapor Pen: evolving terms and technology

- Electronic cigarettes or e-cigarettes
- Electronic cigars or e-cigars
- E-hookah or hookah sticks
- Vaping devices, vape pens, and personal vaporizers
- Mechanical mods or tanks
- ANDS: Alternative nicotine delivery systems
- ENNDS: non-nicotine...



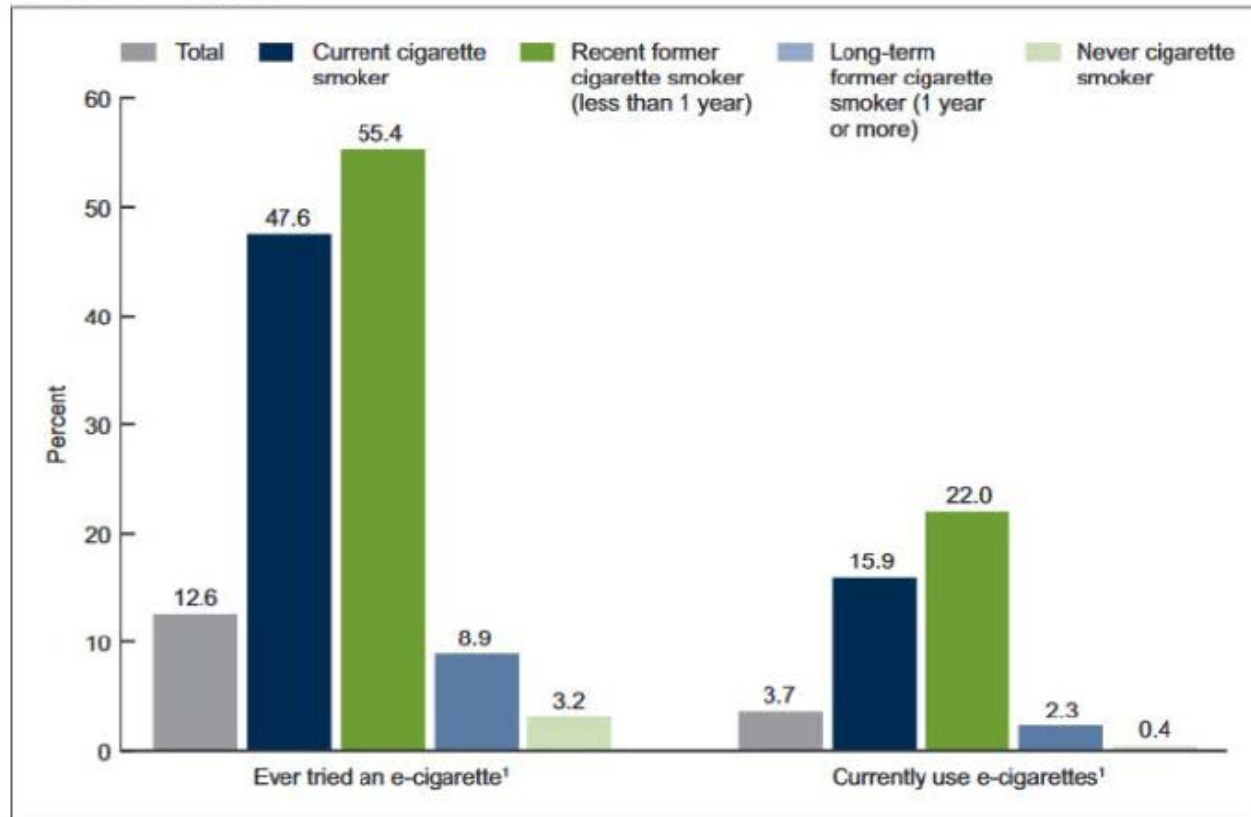
E-cigarettes and Nonsmoking Youth



Among nonsmoking youth, those that have ever used e-cigarettes have greater intentions to smoke conventional cigarettes than those who have never used e-cigarettes

2014 Adults and ENDS Use

Figure 3. Percentage of adults who had ever tried and percentage who currently use e-cigarettes, by cigarette smoking status: United States, 2014



¹Percentages were significantly different across all smoking status groups.

NOTES: Current e-cigarette users have ever tried an e-cigarette, even once, and currently use them every day or some days. Current cigarette smokers have ever smoked 100 cigarettes in their lifetime and currently smoke every day or some days. Based on household interviews with adults aged 18 and over.

SOURCE: CDC/NCHS, National Health Interview Survey, 2014.

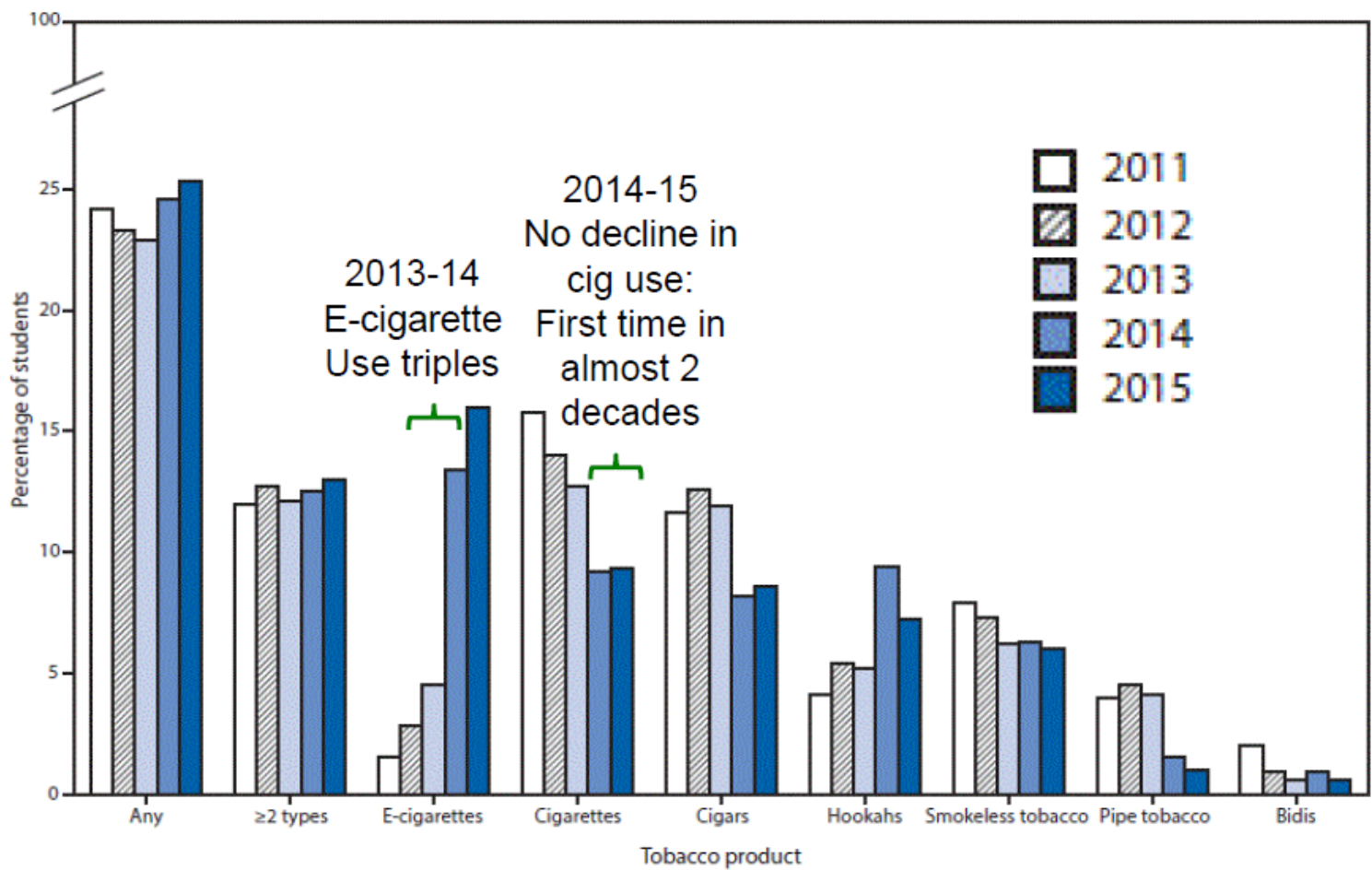
Schoenborn & Gindi, 2015

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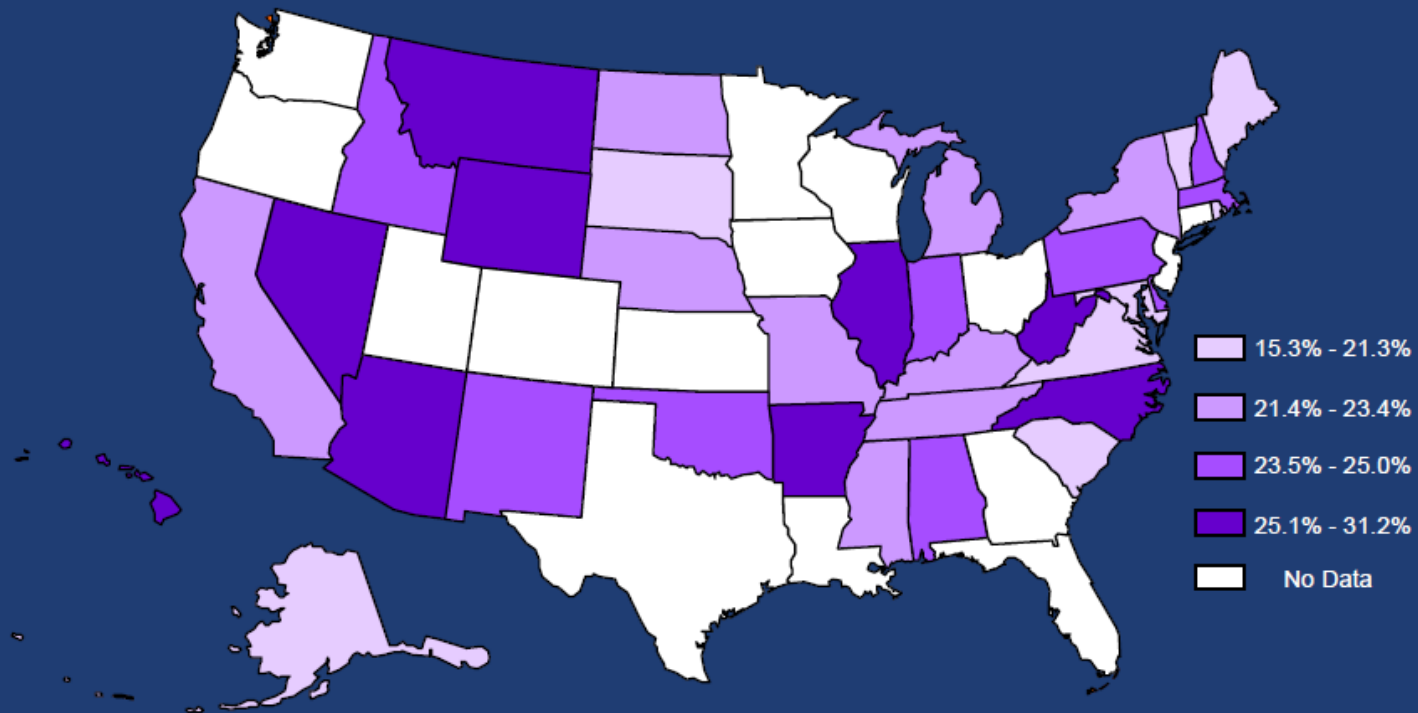
High School Student Tobacco Use National Youth Tobacco Survey (NYTS)



LIVE WELL
SAN DIEGO



Percentage of High School Students Who Currently Used Electronic Vapor Products*



*E-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens such as blu, njoy, or starbuzz on at least 1 day during the 30 days before the survey



Constituents of “e-juice”: humectant, flavoring, +/- nicotine

- GRAS classification:
 - Generally recognized as safe for use IN FOOD
 - Based on scientific evidence or use before 1958
- GRAS means safe for certain populations, in certain quantities, for ingestion or topical use
- Have NOT been assessed for safety as inhalants



Constituents of e-juice: Humectants

- Propylene glycol: general recognized as safe
 - Few human studies for inhalation, used as a tobacco humectant historically
 - Can cause eye and respiratory irritation
 - Dow Chemical states “inhalation exposure to mists should be avoided”
 - Altria published a study in rats and dogs in 2011, stating a plan to conduct “first-time-in-man” human exposure studies
- Vegetable glycerin: generally recognized as safe
 - When heated and vaporized, can form acrolein, which can cause upper respiratory irritation
- Unknown long-term health effects



Humectant Toxicity – heating creates carcinogenic compounds

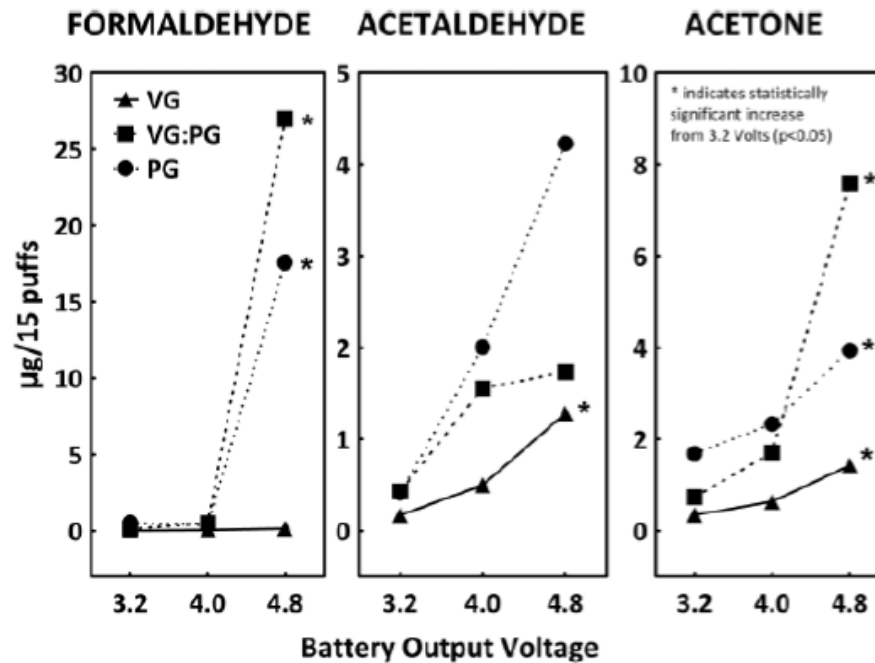


Figure 1. Effects of nicotine solvent and battery output voltage on levels of carbonyl compounds released from ECs (µg/15 puffs; $N = 3$; puff duration 1.8 s, puff volume 70 ml, puff intervals 17 s).



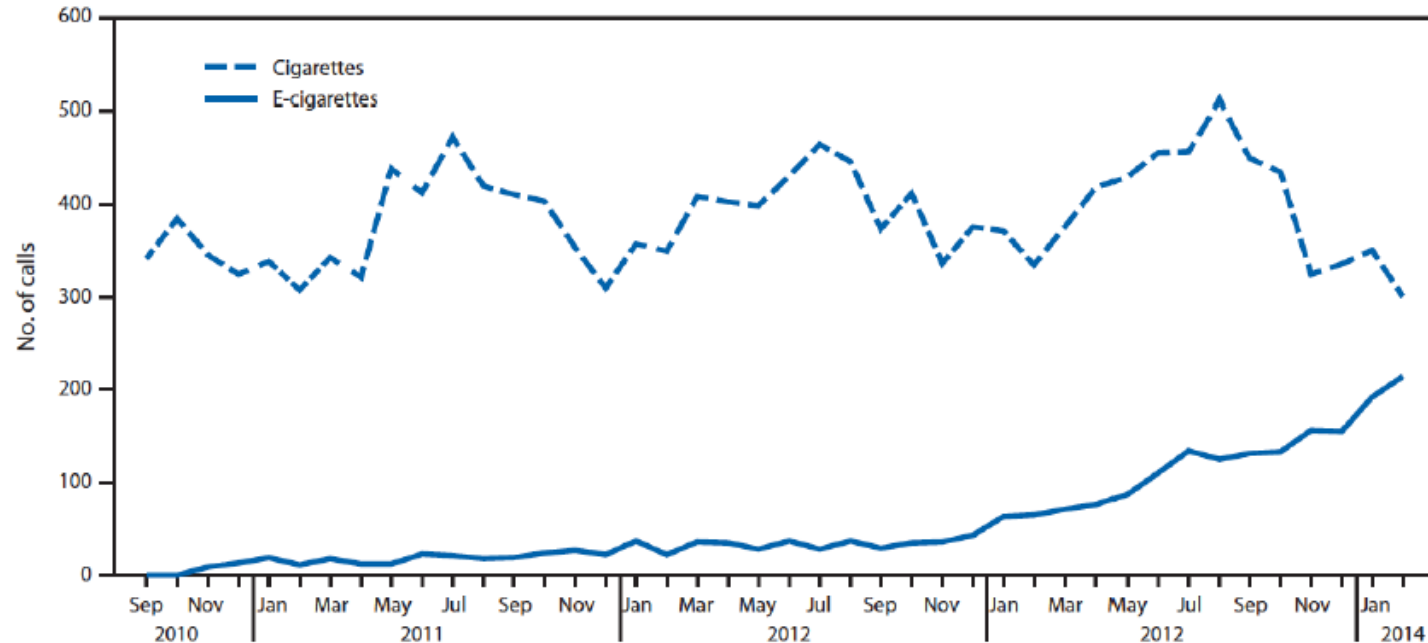
Constituents of e-juice: Nicotine

- Nicotine overdose
 - Excess: nausea and vomiting, excessive salivation, abdominal pain,, sweating, hypertension, tachycardia, ataxia, tremor, headache, dizziness and seizures
 - Death: several case reports of suicide by nicotine
 - Two child deaths SO FAR from e-juice reported
- Lethal dose in Humans - stated as 0.8mg/kg (60mg)
 - Multiple literature reports of survival at 6 mg/kg
 - Recent review suggests LD50 = 6.5-13mg/kg
 - = to 2 ½ teaspoons for an medium sized adult



Poison Control Calls

FIGURE. Number of calls to poison centers for cigarette or e-cigarette exposures, by month — United States, September 2010–February 2014



MAY CONTAIN TOXIC CONTAMINANTS IN FLUID AND/OR VAPOR (10)



- **Formaldehyde**
- Diethylene Glycol
- **Nickel**
- **Chromium**
- **Cadmium**
- **Lead**
- Fine and Ultrafine Particles
- TSNA's
- VOCs
- Heavy Metals
- Silicate Particles
- **Acetaldehyde**
- Acrolein
- **Benzene**
- **Isoprene**
- **Nicotine**
- **Touline**

* Items in RED: On CA prop 65 list of carcinogens and reproductive toxins

Battery issues?

A 17-year-old says he suffered third-degree burns to his leg when a vape pen battery exploded in his pocket.



Go Fund Me / Via gofundme.com



KDVR / Via kdvr.com



Go Fund Me / Via gofundme.com

The teenager's left leg was charred from his thigh to his calf, and he suffered second- and third-degree burns.



KDVR / Via kdvr.com

http://www.buzzfeed.com/stephaniemcneal/vape-pen-horror#_fj0pJ906Z

Feb 29, 2016

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EXPLOSIONS AND POISONINGS

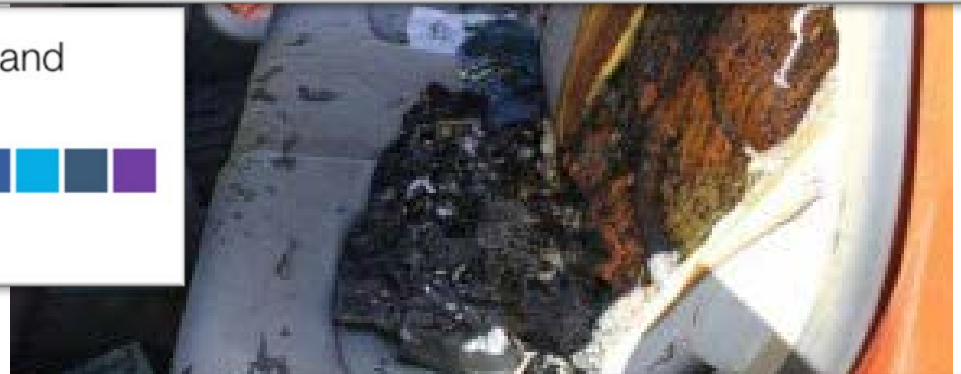
Liquid nicotine can poison kids

8:46 AM, Nov 12, 2012 | 29 comments

Exploding e-cigarette could have killed my dogs and cats, terrified Atlanta woman says



 **Dylan Stableford, Yahoo! News** September 4, 2013 12:19 PM
The Sideshow



LATEST NEWS

Man Loses Teeth and Part of Tongue in Electric Cigarette Explosion

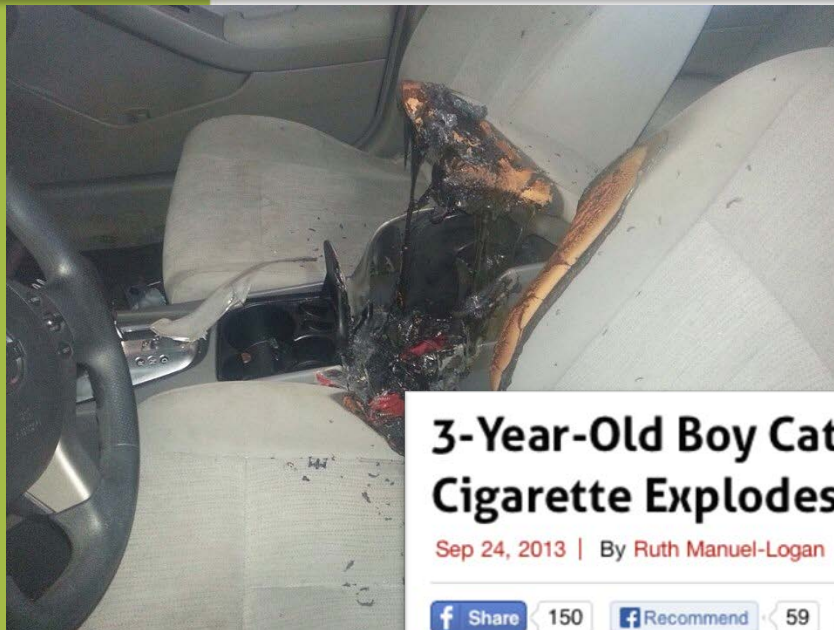
MELISSA NELSON, Associated Press

February 15, 2012 4:07 PM

3-Year-Old Boy Catches Fire When Mom's E-Cigarette Explodes

Sep 24, 2013 | By Ruth Manuel-Logan

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Marijuana



SATIVA Complete Set

DAYTIME • 500MG

An uplifting and stimulating sativa dominant blend of all-natural organic cannabis oil. Perfect for daytime, sativa provides an energetic and enhanced state of well-being.

Includes battery, 500mg cartridge, and USB charger. Everything you need to get started with a 100% lifetime guarantee.

INDICA Complete Set

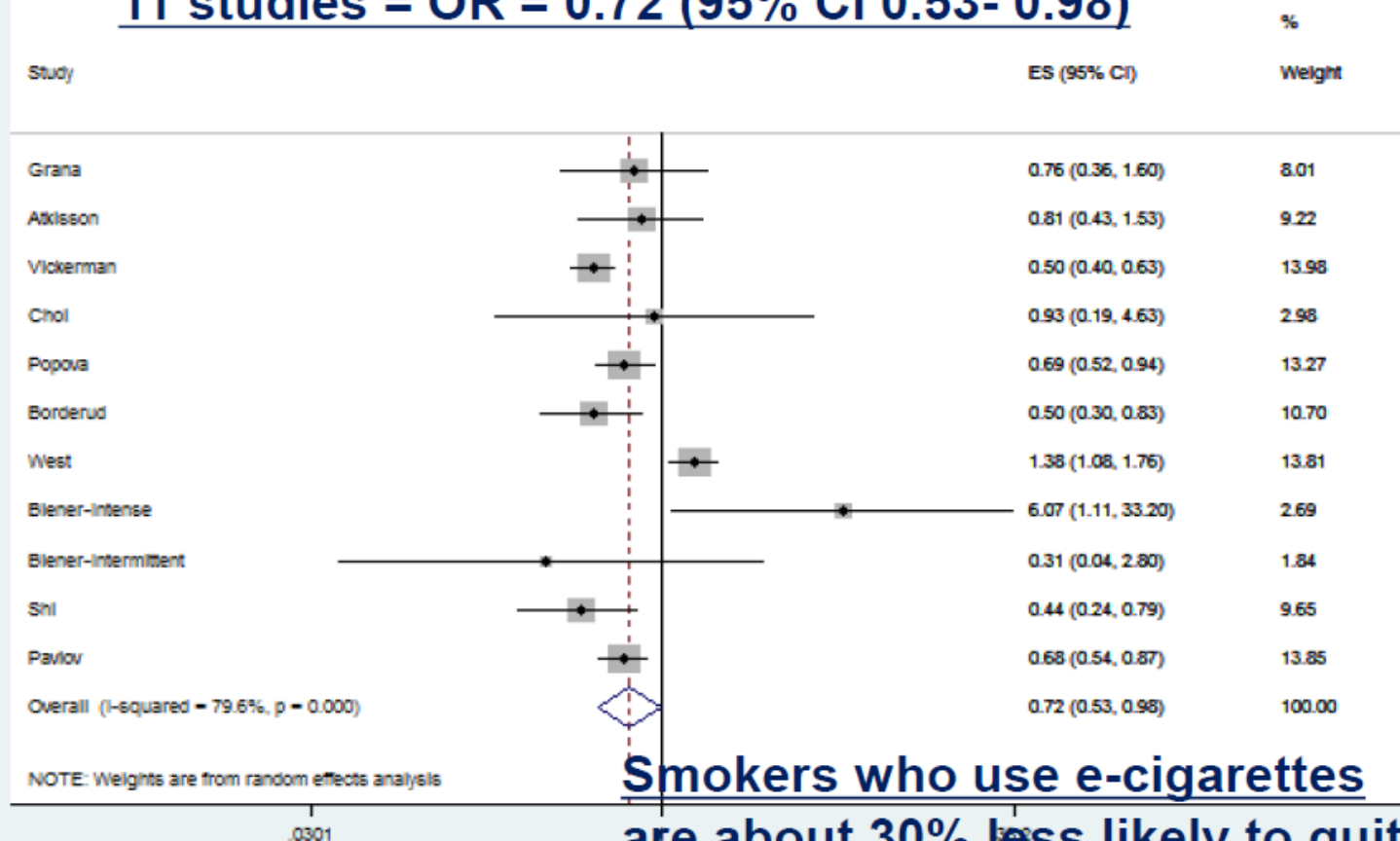
NIGHTTIME • 500MG

A calm and relaxing indica dominant blend. Perfect for nighttime, indica provides a relaxation, pain relief, and can be a powerful tool for inducing deep sleep.

Includes battery, 500mg cartridge, and USB charger. Everything you need to get started with a 100% lifetime guarantee.

Meta-analysis – Glantz et al 2015

11 studies = OR = 0.72 (95% CI 0.53- 0.98)



**Smokers who use e-cigarettes
are about 30% less likely to quit**



E-CIGARETTE USE IN 9TH GRADERS PREDICTS OTHER TOBACCO USE



- Ever e-cigarette use predicts in 9th graders after 6 and 12 months:
 - OR 2.73 (2.00-3.73) Any combustion tobacco product
 - OR 1.75 (1.10-2.77) Combustion cigarettes
 - OR 2.96 (2.00-4.38) Cigars
 - OR 2.26 (1.56-3.29) Hookah
 - OR 2.73 (1.99-3.75) Number of products

Leventhal et al 2015



Vapor Rush

100% Pure Cannabis
Kief In E-Cig

No Carcinogens

No Smell

Safe and Convenient

www.vaporrush.com

What happens now?

- Expected that the market will continue to explode
- FDA deeming rule – May 2016
 - Improved quality control and production standards
 - No sales <18 years
 - Health warning labels
 - No vending machine sales
 - No marketing implying “healthy” or “safe”
 - Would go into effect 2 years AFTER final rule
 - **Misses** several aspects: flavors, child-proof packaging, marketing, online sales
 - Legal challenges pending



So what should we do?

- Until we know more about “e-anything” and cessation, recommend medicinal NRT, quit lines and cessation support to tobacco/nicotine users
- Until there is regulation of marketing, flavoring, and promotion to youth, “debate” over possible harm reduction benefits of e-cigarettes supports industry efforts to delay effective regulation and to create a new generation addicted to nicotine





National Association of City and County Health Officials - NACCHO

- Use broadly-defined **language to include** e-cigarettes in new smoke-free legislation for indoor and outdoor environments
 - Make clear that e-cigarettes are **covered by existing smoke-free laws** through clarifying opinion or regulation/rule
 - **Oppose** legislation at the local or state level that **exempts** e-cigarettes from current smoking ban policies and regulations
 - **Require tobacco retailer licenses** to sell e-cigs, or add an additional fee for existing tobacco retailers to sell e-cigarettes
 - Establish an ordinance **limiting the number of retailers** or locations where e-cigarettes can be sold
 - **Ban** sales of e-cigarette **components that may appeal to minors**, such as flavored cartridges
 - Work with businesses and public locations, such as malls, to voluntarily **prohibit e-cigarette sales on premises**
- *National Association of Local Boards of Health*
 - *American Heart & Stroke Association,*
 - *American Cancer Society,*
 - *American Lung Association*

THANK YOU!



Irene Linayao-Putman, MPH

Tobacco Control Resource Program

Public Health Services, Maternal, Child & Family Health Services Branch

Chronic Disease and Health Equity Unit



Irene.Linayao-Putman@sdcounty.ca.gov

