PROBLEM:
E-CIGARETTES AND HOOKAHS ARE GAINING POPULARITY AMONG STUDENTS.

Escape the Vape: Keeping Electronic Cigarettes Away from Kids and Schools
February 7, 2014
10:00 – 11:00 a.m.
Briefing hosted by the Orange County Department of Education
WELCOME

Dr. Arthur Cummins
Administrator, Center for Healthy Kids & Schools
Orange County Department of Education
Deputy Brian Gunsolley
School Resource Officer, Laguna Hills High School
Orange County Sheriff’s Department
What are Electronic Cigarettes?

The vapor is created by:
- Atomizer
- Heating
- Flavor liquid
- Silicone
Various Types of E-Cigs

Mini (AKA “cig-a-like”)
✓ Look and feel like traditional cigarettes
✓ Small, lightweight, discrete
✓ Produced in disposable and rechargeable options
✓ Cheap

Source: Cigbuyer.com
Various Types of E-Cigs

**Mid-Size**
- Most popular for vapers
- Size of a cigar
- Double vapor and battery life of a mini
- Manually operated
- Moderately-priced

Source: Cigbuyer.com
Various Types of E-Cigs

**APVs or Mods**
- Look like a fat tube reminiscent of a flashlight (a tubemod) or a box the size of a pack of cigarettes (a boxmod)
- For experienced vapers
- Functions such as digital readouts, variable voltage
- Can be very expensive

Source: Cigbuyer.com
Hookah Pens

✓ Most do not contain nicotine, but some do
✓ Come in candy and fruity flavors
✓ Often used to learn smoke tricks
✓ $5.99-$19.99
e-Juice
Other Uses

Where can they be purchased?
SoCal Vape Shop Retail Directory

List of retail stores put together by CaliVapers.com for SoCal vaping enthusiasts. Keep in mind that some shops may have not officially opened yet. Call ahead to confirm.

Unlisted - 3 Collaborators - 232,822 views
Created on Jan 26, 2013 - By Jan - Updated Jul 25, 2013

Vape Supreme
918 W Williamson Ave, Fullerton, CA 92832
The Vapor Loft
Vapor Labs in Orange
Vapor Labs in Garden Grove
Local Vape
eGoVape
Vape Revolution
Vapor Bombz
1142 N Brookhurst St Ste 100 Anaheim, CA 92801
E-CIG City
Vape On 2
Vapure of Oceanside

Made in the Milky Way, on Planet Earth.

Before you enter our world, you must confirm that you are of legal smoking age.

Agree  Disagree

MyVaporStore
THE ELECTRONIC CIGARETTE Super Store
Enter
I am of legal smoking age

Exit
I am not of legal smoking age
Anaheim, CA
OC Vape Shops’ Booming Market

Approximately 2 dozen vape shops
August 2012

Over 200 vape shops
October 2013

Source: OC Register, October 24, 2013
Are there any restrictions on how e-cigarettes are used or sold?

**Use in California**
- Currently there is no California or federal law that restricts where people can use e-cigarettes.

**Sale in California**
- California law prohibits the sale of e-cigarettes to minors (California Health and Safety Code § 119405). In most local tobacco retailer licensing laws in California, selling e-cigarettes to a minor is a license violation.

**FDA Regulation**
- Only e-cigarettes that are marketed for therapeutic purposes are currently regulated by the FDA Center for Drug Evaluation and Research (CDER).
School Confiscation

• District Policy
• Involved Parties
• Consequence
• Informing Parents
• Alternatives to Suspension Offered
• Cessation Support
Prevalence at School

• Depends on the school, 3-10 per month.
• Students say they are getting their e-cigs from:
  – The internet
  – A friend
  – Their own parents
• SROs are reporting a general decrease in e-cig confiscations
Prevention Measures

• Text A Tip
• Confiscate e-cig
• Issue consequences
• Educate parents about the dangers of e-cigs
• Educate teachers on what to look for
• Use opportunity to gather intel about other drug use
• Refer to diversion program such as PRYDE
Escape the Vape: 
Health Effects of Electronic Cigarettes

Helene M. Calvet, MD
Deputy Health Officer
Orange County Health Care Agency
Three Big Problems with E-Cigs

1. Lack of regulation
2. Contents of vapor
3. Long term impact on health unknown
Problem #1: Lack of Regulation

- No regulation of and questionable quality control on production of the devices
- No regulation on content of e-cigarette fluid
  - Concentration of nicotine may be higher or lower than label says
  - No control over type or purity of additives
- When you buy one, you have no clue what you’re getting!
Problem #2: Contents of E-Cig Vapor

- Nicotine (covered by Dr. Lerner)
- Propylene glycol and/or glycerol
- Cancer-causing chemicals and other toxins
- Small metal particles
- Flavorings

“Harmless Water Vapor”?
Propylene Glycol or Glycerol

- Main ingredients used to create “vapor”
- Approved food additives, considered to be generally safe for oral intake (eating)
- When inhaled, can cause eye, throat and lung irritation
- Safety data on propylene glycol warns that heating/burning it may form toxic gases
- Long-term effects of inhalation unknown
Two Reasons You Should Not Inhale Stuff That’s OK to Eat

• Blood from the gut goes to the liver first, where it is filtered and detoxified; blood from the lungs goes directly to the heart, then on to the rest of the body

• The lung is not made to absorb stuff well
Lipoid (Fatty) Pneumonia Due to E-Cigarette Use

CT scan of fatty pneumonia in an e-cig user

CT scan of normal lungs

“Harmless Water Vapor”? 

McAuley et al, Chest 2012; 141 (4): 1110-1113
Cancer Causing Substances and Other Harmful Substances

• Tobacco-associated cancer-causing substances found in e-cigarette liquids/vapors in much smaller amounts than in regular cigarettes

• Other potentially harmful substances (formaldehyde, acetaldehyde, acrolein,) found in various levels in vapor, some likely created by heating of propylene glycol and/or glycerol

• Levels of all these substances are low, but for some, there is no “safe” level.
# AEROSOL COMPOSITION

- Propylene glycol
- Glycerin
- Flavorings (many)
- Nicotine
- NNN
- NNK
- NAB
- NAT
- Ethylbenzene
- Benzene
- P,m, xylene
- Toluene
- Acetaldehyde
- Formaldehyde
- Naphthalene
- Styrene
- Benzo(b)fluoranthene

- Chlorobenzene
- Crotonaldehyde
- Propionaldehyde
- Benzaldehyde
- Valeric acid
- Hexanal
- Fluorine
- Anthracene
- Pyrene
- Acenaphthylene
- Acenaphthene
- Fluoranthene
- Benz(a)anthracene
- Chrysene
- Retene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene

- Benzo(ghi)perylene
- Acetone
- Acrolein
- Silver
- Nickel
- Tin
- Sodium
- Strontium
- Barium
- Aluminum
- Chromium
- Boron
- Copper
- Selenium
- Arsenic

- Cadmium
- Silicon
- Lithium
- Lead
- Magnesium
- Manganese
- Potassium
- Titanium
- Zinc
- Zirconium
- Calcium
- Iron
- Sulfur
- Vanadium
- Cobalt
- Rhubidium

Compounds in **yellow** are from FDA 2012, Harmful and Potentially Harmful Substances – Established List

*“Harmless Water Vapor”*?
Small Metal Particles

• Metal filament used to heat liquid to create vapor
• Over 25 different kinds of metals detected in e-cigarette vapor, most lower than levels seen in regular cigarette smoke, others higher
• Some particles small enough to enter blood and go to other organs
• Long term health effects not known
Flavorings

• Several studies have looked at the effect of e-cigarette fluid and/or vapor on lung cells, brain cells, heart cells and stem cells
• Some fluids/vapor have little or no effect, others kill the cells.
• Most negative effects seem to be due to flavorings added to the liquids

“Harmless Water Vapor”? 
Side Effects

- Review of 3 online forums of e-cigarette users found that 80% of the symptoms reported were negative.
- A study found that five minutes of e-cigarette use lead to mild narrowing of the airways (like asthma).
- Since 2008, the Food and Drug Administration (FDA) has received reports of 47 “adverse events” due to e-cigarette use, 8 of these serious (pneumonia, heart failure, seizure, second-degree burns, etc.)
Problem #3: Long Term Health Effects Unknown

• Cigarettes were introduced in the 1880’s, but it was not until the Surgeon General’s report in 1964 that the link to lung cancer was clearly established

• We know that there are short term effects, but nobody knows what the long-term heart, lung, or cancer-promoting effects may be
Conclusion

“Until such a time as a given electronic nicotine delivery system is deemed safe and effective and of acceptable quality by a competent national regulatory body, consumers should be strongly advised not to use any of these products, including electronic cigarettes”

World Health Organization statement, July 9, 2013
Countering Industry Messages:
What are the Sellers Saying?

• E-cig industry: “It is only harmless water vapor”

• Reality: there are many potentially harmful substances in the vapor
  – Nicotine
  – Cancer-causing substances
  – Heavy metals
  – Toxins and chemicals that can harm our lungs and other organs
Countering Industry Messages: What are the Sellers Saying?

• E-cig industry: “A study performed at Drexel University says they are safe”

• Reality:
  – “Study” at Drexel University is not a study but a technical paper (not peer-reviewed)
  – Compared levels of some of the components of e-cig vapor to acceptable “Occupational Exposure Limits” (OELs) and found that they were within limits
  – Warned about propylene glycol and glycerol, which have no established OELs
  – Did not consider flavorings
Countering Industry Messages: What are the Sellers Saying?

• E-cig industry: “OK to use indoors”
• Reality: we don’t know for sure, but there is evidence for second-hand vaping
  – Study showed that blood levels of cotinine, a marker for exposure to nicotine, were similar between passive smokers and passive vapers
  – Another study showed that after just 3 minutes of vaping, the indoor Particulate Matter (PM$_{2.5}$) increased to a level above that recommended by WHO for short term exposure
Countering Industry Messages: What are the Sellers Saying?

• E-cig industry: “E-cigarettes are safer than regular cigarettes”

• Reality: this *may* be true, so it is tough to argue with those who want to try them as a method to quit smoking (even though not approved for that), but:
  – Short term effects do occur
  – Long term effects of many of the different components is not known
  – Flavors appeal to youth, who are particularly susceptible to addictive effects of nicotine; may lead non-smokers to try them and become dependent on them
  – “Safer” does not mean “safe”
References

1) Goniewicz, ML, et al. “Levels of Selected Carcinogens and Toxicants in Vapour from ECs” *Tob Control* 2013; e-pub
8) Chen, IL. “FDA Summary of Adverse Events on Electronic Cigarettes” *Nic & Tob Res* 2012
10) Pellegrino, RM et al. “Electronic Cigarettes: an evaluation of exposure to chemicals and fine particulate matter (PM)” *Ann Ig*; 2012; 24(4):279-88
Nicotine Use and Risks for Youth

Marc Lerner, M.D.

Medical Director
Center for Healthy Kids & Schools
Orange County Department of Education
Sources of Nicotine

• Nicotine gets its name from the tobacco plant Nicotiana Tabacum (a member of the nightshade or potato family)

• Nicotine is a naturally occurring chemical compound found in tobacco leaves but the compound is present in many other plants
Nicotine’s Action in the Body

• In the nervous system, chemicals transmit signals across nerve endings
• Acetyl cholinesterase (Ach) is one such important chemical
• Specialized receptors normally stimulated by Ach are also responsive to nicotine
• Nicotine leads to targeted nervous system stimulation
Possible Mechanisms for Link of Nicotine and Cancer

• A nicotine by-product contributes to both the start of and continuing growth of cancers
• Tumor growth occurs when the critical balance between formation of new cells and death of old cells in normal healthy tissues is disturbed
• Nicotine activates the cell signals which cause new cells to form
• Nicotine can also cause DNA damage in some cells
Nicotine and Health

• Nicotine impairs, disrupts, duplicates and/or interacts with essential body functions
• Nicotine narrows the airways and weakens the immune system
• Nicotine is an irritant that is often associated with changes to the inside of the mouth
• Nicotine appears to be implicated in development of some inflammatory conditions / diseases
Nicotine and Heart Attack / Stroke Risk

• In the presence of a high cholesterol diet, nicotine promotes the formation of plaques (blockages) in blood vessels

• Nicotine favors clot formation that may lead to heart attacks and strokes
Concerns For Early Nicotine Exposure

• Toxic to developing fetuses and brains
  – Evidence for thinking and behavioral disorders in children born to mothers exposed to nicotine during pregnancy
  – Nicotine decreases fetal respiratory movements
  – Nicotine can interfere with the normal developmental role of Ach receptors on non-neural cells

• Detrimental effects of nicotine on children
Nicotine and Mental Function

- Nicotine can negatively affect brain development
- Evidence for positive effects
  - Increases attention and alertness in smokers
  - In patients with mental disorders
    - Schizophrenia
    - Attention deficit/hyperactivity disorder
- Nicotine dependence is associated with SUD, anxiety and other conditions
- The success rate for smoking cessation is low among patients with mental disorders

20-60% of teen smokers are addicted to nicotine
Summary

• Nicotine is an addictive substance that can be delivered through the mechanism of e-cigarettes
• Animal studies link nicotine to an increased risk of cancer
• Nicotine has been linked to negative health effects on fetuses and can impact blood vessel, immune system and nervous system functioning
Stacy Deeble-Reynolds
Prevention Coordinator
Center for Healthy Kids & Schools
Orange County Department of Education
E-Cig Retail Sales

2011 sales
$300 million

2012 sales
$600 million

2013 sales
$6 billion

10 years on the market

Source: Wells Fargo Securities, LLC
L.A. City Council moves to regulate sales and use of e-cigarettes
90% of today’s adult smokers in the U.S. began smoking by the time they were 18 years old.

Source: Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, Nov. 15 2013
Appeal to Youth

“I DON’T ALWAYS VAPE, BUT WHEN I DO, I CHOOSE VAPOR SHARK.”
- KRIS KRINGLE

Vapor Shark E-Cigarette Billboard, Florida, 2013
Teen Flavors

- Pink Bubblegum
- Vanilla Cup Cake
- Cotton Candy
- Gummy Bear
- Sunday Split
- Love Your Lungs
- Maple Pancakes
“Smart” Social Features

Social Feature
Smoking is a social activity, so why shouldn’t your electronic cigarette pack be packed with social features? The blu logo on the front of the Premium Pack will light up and vibrate when another blu user is within 50 feet, giving you the perfect ice-breaking opportunity or when you’re near a blu retailer, giving you the chance to replenish your supply of blu while you’re out and about. With the blu Premium pack, you’ll always send the right signals.

http://www.blucigs.com/premium100-starter-kits
Celebrity Endorsements

http://youtu.be/OZIHD7RZzec
Stanford Research into the Impact of Tobacco Advertising

http://tobacco.stanford.edu/tobacco_main/ecigs.php
Orange schools snuffing out e-cigarettes

Orange Unified School District is amending a policy that prohibits tobacco use in schools to include electronic smoking devices.

The school board has tentatively approved the plan to ban devices commonly known as e-cigarettes.

Officials said the devices, which allow users to inhale a vaporized form of nicotine, pose a danger to students’ health and do not belong in schools.
CDE Recommended Language

“In the interest of public health the [local educational agency governing board] prohibits the use of products containing tobacco or nicotine, including, but not limited to, smokeless tobacco, snuff, chew, and clove cigarettes, on district-owned or leased property, and in district vehicles at all times. This prohibition also applies to electronic nicotine delivery systems, such as electronic cigarettes, electronic hookahs, and other vapor emitting devices, with or without nicotine content, that mimic the use of tobacco products any time. This policy applies to all students, staff, visitors, and civic use permit holders. However, this section does not prohibit the use or possession of prescription products, or other FDA-approved cessation aids such as nicotine patches or nicotine gum. Student use or possession of such products must conform to laws governing student use and possession of medications.”
California Ed Codes

- **48900.** A pupil shall not be suspended from school or recommended for expulsion, unless the superintendent of the school district or the principal of the school in which the pupil is enrolled determines that the pupil has committed an act as defined pursuant to any of subdivisions (a) to (r), inclusive:
  - (a) (1) Caused, attempted to cause, or threatened to cause physical injury to another person.
  - (2) Willfully used force or violence upon the person of another, except in self-defense.
  - (b) Possessed, sold, or otherwise furnished a firearm, knife, explosive, or other dangerous object, unless, in the case of possession of an object of this type, the pupil had obtained written permission to possess the item from a certificated school employee, which is concurred in by the principal or the designee of the principal.
  - (c) Unlawfully possessed, used, sold, or otherwise furnished, or been under the influence of, a controlled substance listed in Chapter 2 (commencing with Section 11053) of Division 10 of the Health and Safety Code, an alcoholic beverage, or an intoxicant of any kind.
  - (d) Unlawfully offered, arranged, or negotiated to sell a controlled substance listed in Chapter 2 (commencing with Section 11053) of Division 10 of the Health and Safety Code, an alcoholic beverage, or an intoxicant of any kind, and either sold, delivered, or otherwise furnished to a person another liquid, substance, or material and represented the liquid, substance, or material as a controlled substance, alcoholic beverage, or intoxicant.
  - (e) Committed or attempted to commit robbery or extortion.
  - (f) Caused or attempted to cause damage to school property or private property.
  - (g) Stole or attempted to steal school property or private property.
  - (h) Possessed or used tobacco, or products containing tobacco or nicotine products, including, but not limited to, cigarettes, cigars, miniature cigars, clove cigarettes, smokeless tobacco, snuff, chew packets, and betel. However, this section does not prohibit use or possession by a pupil of his or her own prescription products.
  - (i) Committed an obscene act or engaged in habitual profanity or vulgarity.
  - (j) Unlawfully possessed or unlawfully offered, arranged, or negotiated to sell drug paraphernalia, as defined in Section 11014.5 of the Health and Safety Code.
  - (k) Disrupted school activities or otherwise willfully defied the valid authority of supervisors, teachers, administrators, school officials, or other school personnel engaged in the performance of their duties.
Other Means of Correction

- 48900.5. (a) Suspension, including supervised suspension as described in Section 48911.1, shall be imposed only when other means of correction fail to bring about proper conduct. A school district may document the other means of correction used and place that documentation in the pupil's record, which may be accessed pursuant to Section 49069. However, a pupil, including an individual with exceptional needs, as defined in Section 56026, may be suspended, subject to Section 1415 of Title 20 of the United States Code, for any of the reasons enumerated in Section 48900 upon a first offense, if the principal or superintendent of schools determines that the pupil violated subdivision (a), (b), (c), (d), or (e) of Section 48900 or that the pupil's presence causes a danger to persons.

(b) Other means of correction include, but are not limited to, the following:
- (1) A conference between school personnel, the pupil's parent or guardian, and the pupil.
- (2) Referrals to the school counselor, psychologist, social worker, child welfare attendance personnel, or other school support service personnel for case management and counseling.
- (3) Study teams, guidance teams, resource panel teams, or other intervention-related teams that assess the behavior, and develop and implement individualized plans to address the behavior in partnership with the pupil and his or her parents.
- (4) Referral for a comprehensive psychosocial or psychoeducational assessment, including for purposes of creating an individualized education program, or a plan adopted pursuant to Section 504 of the federal Rehabilitation Act of 1973 (29 U.S.C. Sec. 794(a)).
- (5) Enrollment in a program for teaching prosocial behavior or anger management.
- (6) Participation in a restorative justice program.
- (7) A positive behavior support approach with tiered interventions that occur during the schoolday on campus.
- (8) After-school programs that address specific behavioral issues or expose pupils to positive activities and behaviors, including, but not limited to, those operated in collaboration with local parent and community groups.
- (9) Any of the alternatives described in Section 48900.6.

48900.6. As part of or instead of disciplinary action prescribed by this article, the principal of a school, the principal's designee, the superintendent of schools, or the governing board may require a pupil to perform community service on school grounds or, with written permission of the parent or guardian of the pupil, off school grounds, during the pupil's nonschool hours. For the purposes of this section, "community service" may include, but is not limited to, work performed in the community or on school grounds in the areas of outdoor beautification, community or campus betterment, and teacher, peer, or youth assistance programs. This section does not apply if a pupil has been suspended, pending expulsion, pursuant to Section 48915. However, this section applies if the recommended expulsion is not implemented or is, itself, suspended by stipulation or other administrative action.
During your life, how many times have you used the following substances?

<table>
<thead>
<tr>
<th>Substance</th>
<th>Number of Times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 Times</td>
</tr>
<tr>
<td>A cigarette, even one or two puffs</td>
<td>A</td>
</tr>
<tr>
<td>A whole cigarette</td>
<td>A</td>
</tr>
<tr>
<td>Smokeless tobacco (dip, chew, or snuff such as Redman™, Skoal™, or Beechnut™)</td>
<td>A</td>
</tr>
<tr>
<td>An electronic cigarette or any other nicotine delivery device</td>
<td>A</td>
</tr>
<tr>
<td>One full drink of alcohol (such as a can of beer, glass of wine, wine cooler, or shot of liquor)</td>
<td>A</td>
</tr>
<tr>
<td>Marijuana (pot, weed, grass, hash, bud)</td>
<td>A</td>
</tr>
<tr>
<td>Inhalants (things you sniff, huff, or breathe to get “high” such as glue, paint, aerosol sprays, gasoline, poppers, gases)</td>
<td>A</td>
</tr>
<tr>
<td>Derbisol (DB, derbs, dirt)</td>
<td>A</td>
</tr>
</tbody>
</table>

During your life, how many times have you been...
For Parents

• Provide e-cig education to parent groups
• Share cessation hotline: 1-866-NEW-LUNG
• Promote the Partnership at DrugFree.org [http://www.drugfree.org/]
• Highlight district policies
Archived Presentation

http://ocde.us/ATODV

Stacy Deeble-Reynolds: 714-327-1061, sdeeble-reynolds@ocde.us
Save the Date - Webinar
Tuesday, February 11 - 1:30-3:30 pm

The California Department of Education (CDE), in collaboration with the California Youth Advocacy Network (CYAN), and the California School Boards Association (CSBA), invites you to participate in a free Webinar:

Electronic Nicotine Delivery Systems (ENDS) Policy

(See handout for registration information)
THANK YOU