

E-CIGARETTE WASTE:

REPORT TO FLORIDA DEP



TYPES OF E-CIGARETTES AS DEFINED BY FDA

- vaporizers, vape pens, hookah pens, electronic cigarettes (E-Cigarettes), e-pipes, and all other ***ENDS (electronic nicotine delivery systems)***



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Examples of components and parts of ENDS include, but are not limited to:

E-liquids

A glass or plastic vial container of e-liquid

Cartridges

Atomizers

Certain batteries

Cartomizers and clearomizers

Digital display or lights to adjust settings

Tank systems

Drip tips

Flavorings for ENDS

Programmable software

Unlike traditional cigarettes, which have similar design and materials across brands, e-cigs have evolved into a broad range of shapes, from cheap disposable models that simulate cigarettes to large refillable and modifiable models.

(Source: "E-Cigarettes, Recycling & the Environment", RecycleNation, 5/27/15)

TWO MAIN TYPES OF E-CIGARETTES: CARTRIDGE VS. REFILLABLE



**Cartridge Style
E-Cigarette**



**Re-Fillable Tank
Style E-Cigarette**

COMPONENTS OF E-CIGARETTES

- The majority of disposable e-cigs will have lithium-ion batteries and the atomizer will have electronic components. In addition, Nickel-cadmium (NiCad), nickel metal-hydride (NiMh), lithium ion (Li-ion), alkaline and lithium polymer (Li-poly), and lithium manganese (LiMn) batteries may be used to power e-cigarettes.
- **Nicotine is a commercial chemical product listed in 40 CFR 261.33(e) and is an acute hazardous waste (EPA waste code P075) when disposed.**
- **Cartridges contain plastics, metals, and some other classified D & U coded hazardous waste chemicals such as:**
- **Formaldehyde, Acetaldehyde, Acrolein, Toluene, Nickel, and Lead**
- Other chemicals that may be found are Diethylene glycol, Propylene Glycol, or Glycerol

(Sources: "Electronic cigarettes: product characterization and design considerations." Brown, C. & Cheng, J. Tob Control 2014;23:ii4-ii10; May 8, 2015 EPA Memorandum from Johnson to DeWitt (RCRA Online Number 14850))

FLAVORINGS

The EPA also finds flavorings and sweeteners to be inert ingredients because they are not performing the function of the product. Thus, the flavorings, propylene glycol, vegetable glycerin, and polyethylene glycol 400 are not active ingredients of the e-liquids you describe, leaving nicotine as the sole active ingredient in the e-liquid.

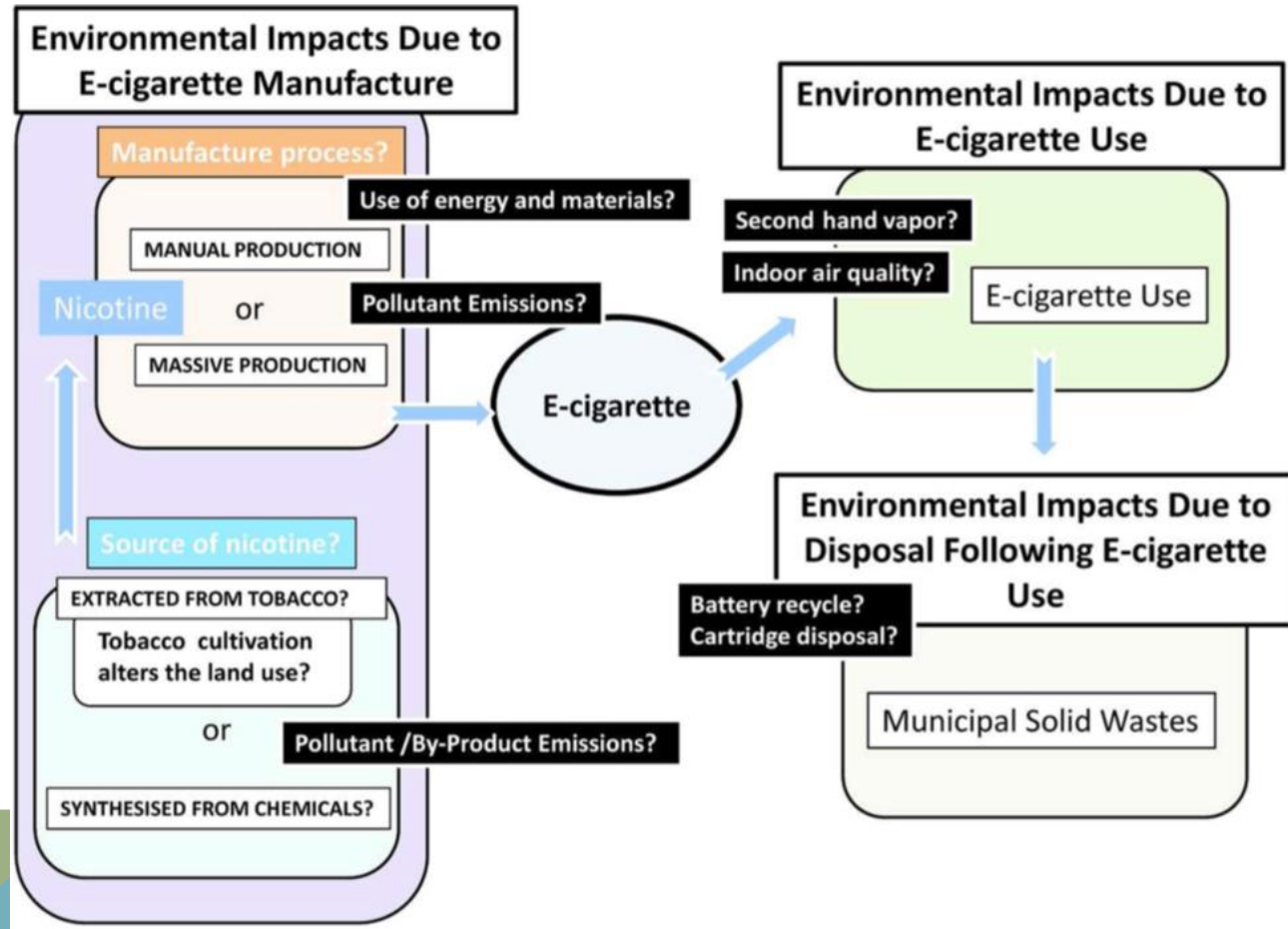
Therefore, nicotine-containing e-liquids are considered P075 acute hazardous waste when discarded.

- In 2013-2014, 81% of current youth e-cigarette users cited the ***availability of appealing flavors as the primary reason for use***
- ***More than 3 million middle and high school students*** were current users of e-cigarettes in 2015, up from an estimated 2.46 million in 2014.

(Sources: American Lung Association Expo Presentation & EPA Office of Resource Conservation and Recovery, 5/8/2015)



AS PEOPLE SWITCH FROM TRADITIONAL CIGARETTES TO E-CIGS AND VAPES, WHAT IS IN STORE FOR THE ENVIRONMENT?



THE WILD WEST OF E-CIGARETTES

- Literally thousands of types, brands, shapes, and sizes
- Some vape shop owners self-manufacture and create their own mixtures of e-liquid nicotine, flavorings, and other chemicals for the devices



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LATEST RESEARCH ON E-CIG WASTE

- According to recent research from UF, “Some e-cigarettes would be toxicity characteristic and when disposed in the unused form, e-cigarettes containing nicotine juice would be commercial chemical products (CCP) and would, in the United States (US), be considered a listed hazardous waste (P075).”

(Source: “Hazardous waste status of discarded electronic cigarettes.” Krause, MJ & Townsend, TG; [Waste Manag.](#) 2015 May;39:57-62)



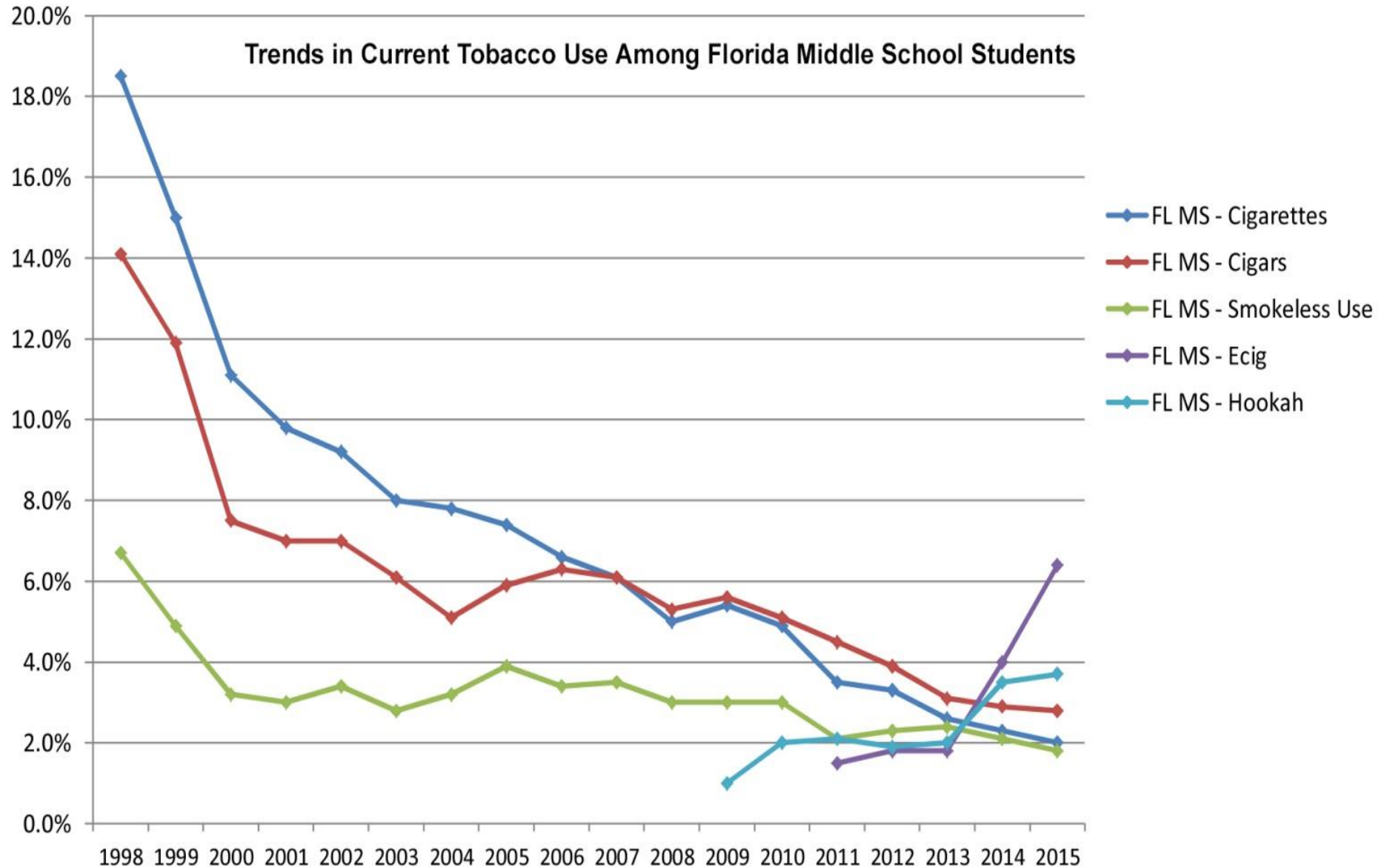
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USE

- Over the last several years, youth usage has **TRIPLED**
- With the decline of traditional cigarettes and fact that nearly 90% of all new tobacco users begin by the age of 18, the implications of waste and disposal are significant given that right now cigarette butt waste is the #1 source of litter in the world.

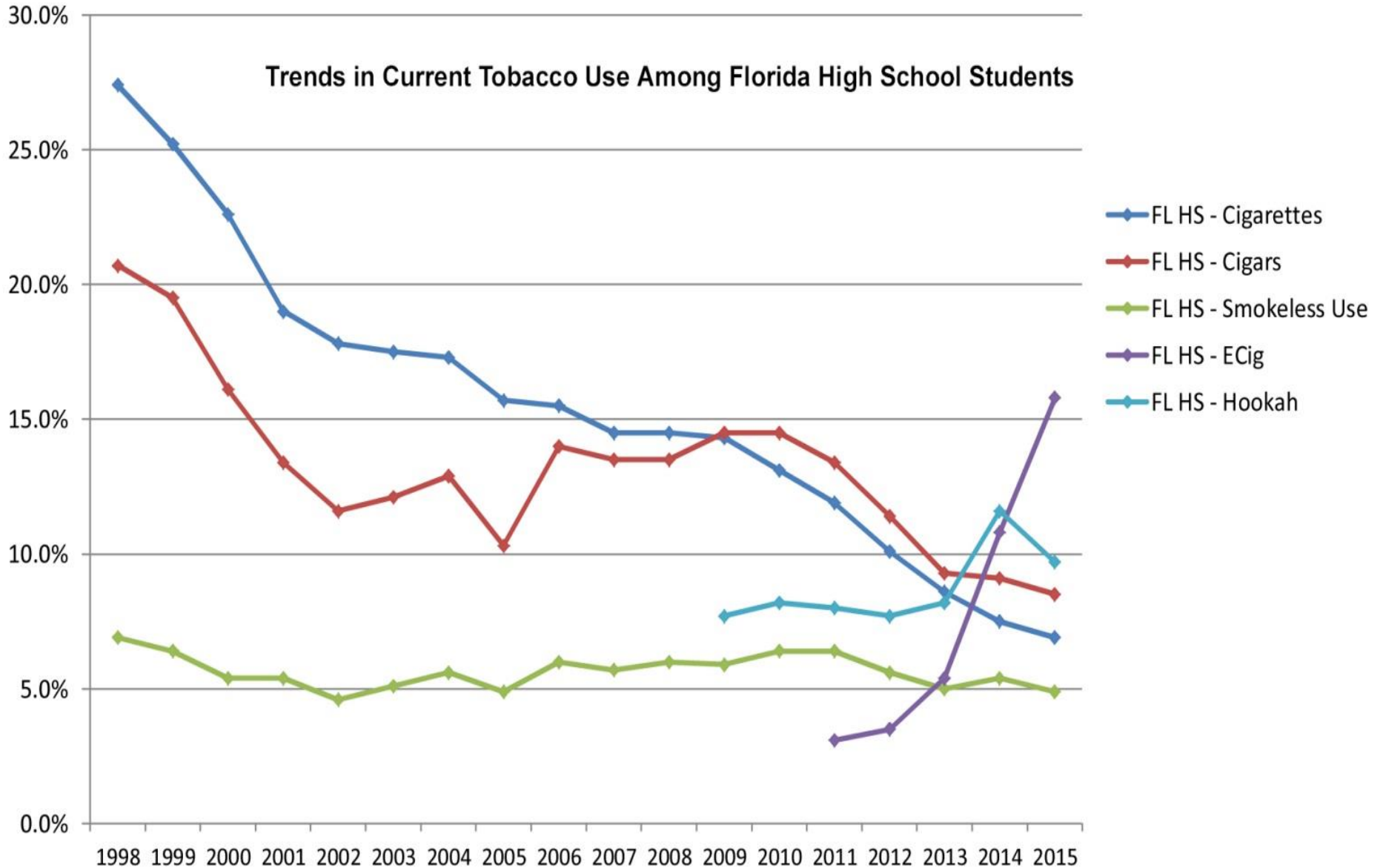


Recent Florida trends – middle school

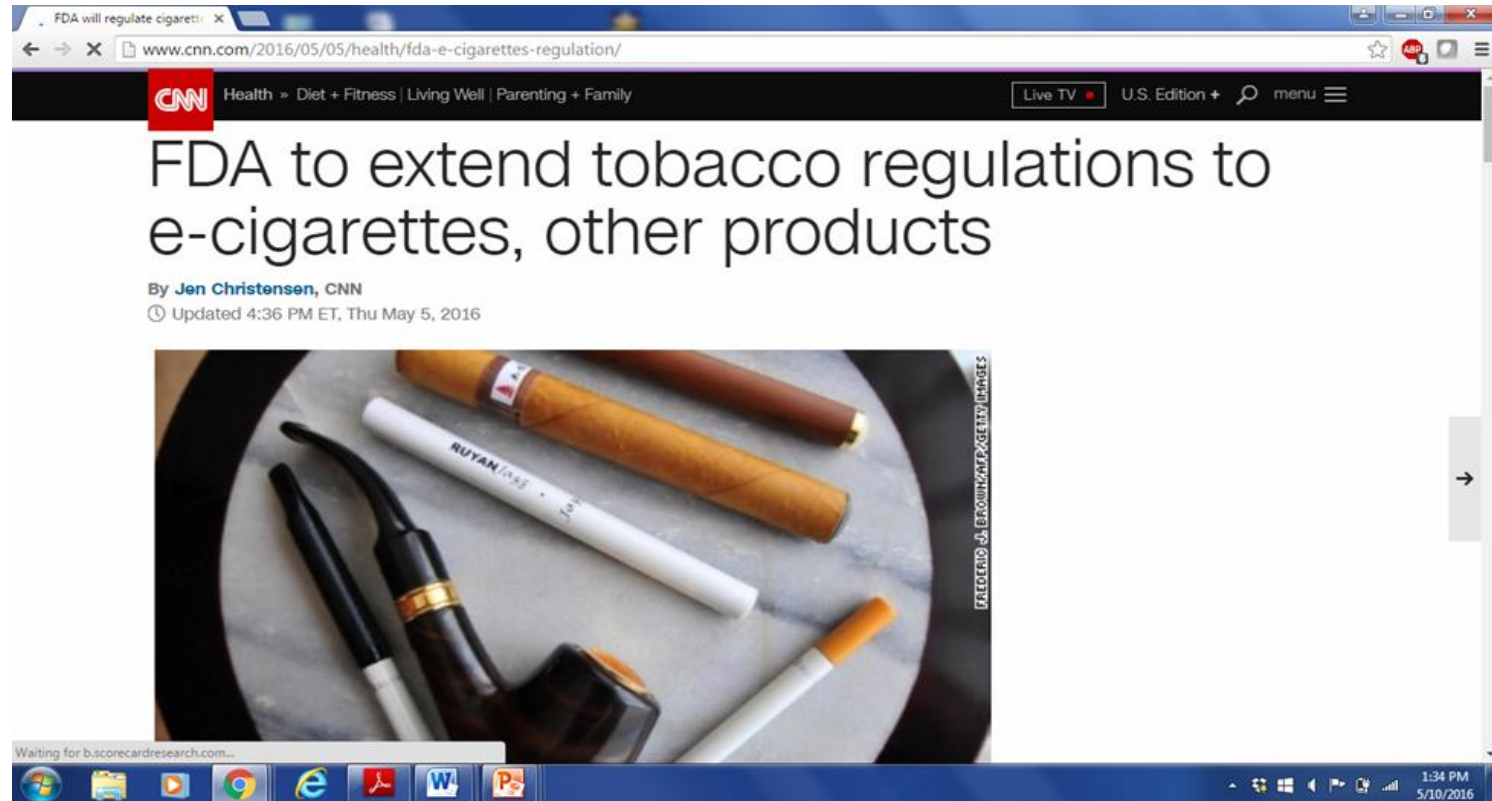


Recent Florida trends – high school

Trends in Current Tobacco Use Among Florida High School Students



RECENT FDA ACTION – MAY 2016



FDA REGULATIONS



- regulates the manufacture, import, packaging, labeling, advertising, promotion, sale, and distribution ***but NOT waste and disposal***



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STATE GUIDELINES

According to EPA's Office of Resource Conservation & Recovery Waste Support, since most states like Florida are authorized to implement the federal regulations they may have more stringent requirements.

Ex. Minnesota - Any business or government agency generating nicotine-containing waste must apply for an annual hazardous waste generator license. In addition these entities also must have a Hazardous Waste Identification Number (HWID) – also known as an *EPA ID Number*.

Minnesota Pollution Control Agency regulates the accumulation, transport, and disposal of waste E-cigarettes and associated products. (PLEASE SEE ATTACHED POLICY GUIDELINES)



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FLORIDA LANDSCAPE

According to the Waste Compliance Assistance Program with FDEP:

- ✓ Businesses that generate wastes from electronic cigarettes (nicotine) must comply with Florida's hazardous waste requirements adopted by rule in Chapter 62-730 Florida Administrative Code (F.A.C.).
- ✓ Vape shops would be included in the group of potential generators of hazardous waste. These business would be subject to the notification requirements (for an EPA ID number) if they are generating more than 220 pounds of hazardous waste (or 2.2 pounds of acutely hazardous waste) in any one month.
- ✓ ***There is no annual re-notification requirements in Florida and there are also no specific licensing requirements (that they are aware of) for waste management activities.***



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POLICY SUGGESTIONS FOR FDEP

- ✓ ADOPT SPECIAL LICENSE & LICENSING CRITERIA FOR E-CIGARETTE/VAPE SHOPS IN ORDER TO BETTER TRACK E-LIQUID DEVICE SELF-MANUFACTURERS
- ✓ PROPOSE SIMILAR SPECIFIC GUIDELINES AND DIRECTIONS TO MANUFACTURERS AND COUNTIES (*E.G. MINNESOTA*)
- ✓ PROMOTE AND EDUCATE USERS AND VAPE SHOP OWNERS VIA WEBSITE AND OTHER ALTERNATIVE COMMUNICATIONS TO EPA'S NICOTINE (P075) DESIGNATION & ENCOURAGEMENT OF RECYCLING PARTS/BATTERIES



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