

1. Have you ever walked through a cloud of what smelled to be unicorn poop? Or was it tropical sunrise? Whatever it was, what was that smell coming from?

Not near as often is it clouds of cigarette smoke we walk through: Rather, the emissions from electronic nicotine delivery systems, or ENDS. But what are these products exactly? Should we be concerned about them? Are they safe? These are all questions we will answer today.

By the end of this training, you will be able to decide if trying ENDS is simply taking a harmless hit, or taking a chance at lifelong addiction. Let's get started.

2. In 1979, the British American Tobacco Company stated that they were "searching explicitly for a socially acceptable addictive product," (Polito, 2013). Cigarette smoking was beginning to become taboo during this time, especially after the Surgeon General's Report on Smoking and Health was released in 1964. Smoking was becoming less and less acceptable socially, so something had to be done in order to keep business booming. As British American Tobacco concluded, "the essential constituent is most likely to be nicotine," (Polito, 2013). During this time, smokeless tobacco use increased as an alternative form of nicotine delivery as a result, because it was not as condemned as cigarettes.
3. This situation is still evident: ENDS are the socially acceptable form of nicotine delivery today.
4. ENDS are any product that contains a nicotine-based liquid that is vaporized and inhaled, stimulating the experience of cigarette smoking, such as e-cigarettes, vaping devices, mods or tanks, JUULS, e-cigars, e-pipes, e-hookah, and more. Though appearance may vary, the basic structure of ENDS stays primarily the same across the board. The basic structures that function together in order to create the vapor emissions include some sort of battery source which provides power for the atomizer to heat up the liquid found in the

tank/chamber. This entire process is what is now coined as “vaping.” We are not so concerned with the detail of all of the parts and history of the making of ENDS, so let us get right into what we are concerned about: how popular they have become among youth and young adults.

5. From 2011-2015, high school e-cigarette use increased by tenfold, reaching 16% of all high schoolers nationwide. You can see that between 2013 and 2014 is where the major increase occurred, which is when marketing of e-cigarettes heavily increased (CDC National Youth Tobacco Survey, 2016).
6. The current percent of high school students using e-cigarettes is 11.7%, as of 2018; the cause of the small decrease is unknown, but believed to be inaccurate. According to a Truth Initiative survey, over 25% of users do differentiate between “vaping,” “JUULing,” and using e-cigarettes, when the terms can really be used interchangeably (Bach, 2018). Since vaping and juuling are widely considered as different than using e-cigarettes, this 11.7% of teens using e-cigarettes is estimated to be a lot lower than the actual number since JUULing has become so popular among youth.
7. JUUL now actually holds 72% of the e-cigarette market share, with unit sales increased over 600% in 2017 alone, as JUUL held less than 5% of that same market share in 2016 (Bach, 2018).
8. Take a look at this video, JUULers against JUUL.
9. From looking at these numbers, we can't help but ask why so many young adults and teens using these products? The answers are actually simpler than one may think: marketing and flavors.
10. The 2017 Campaign for Tobacco Free Kids report *The Flavor Trap* revealed key findings on the increase of flavored, non-cigarette tobacco products, specifically e-cigarettes and cigars. Some key findings from the report included that flavored products fuel the

popularity of e-cigarette use among youth, flavors play the primary role in youth using tobacco products, and that the tobacco industry markets flavored products in attempt to entice youth. The fact is that if the tobacco industry wants any kind of future business, they have to addict youth to products, and the use of flavors seems to be doing the trick.

11. This is no new idea, however, as the tobacco industry has been looking at flavors to attract kids for years, as US Smokeless Tobacco stated in 1994 that, “Cherry...is for someone who likes the taste of candy if you know what I’m saying.”
12. In 2014, Lorillard tobacco stated in regards to e-cigarettes that “kids may be particularly vulnerable to trying e-cigarettes due to an abundance of fun flavors such as cherry, vanilla, pina-colada, and berry.
13. How many of you like candy? How many of you would honestly try something that tastes like Unicorn Poop...Even without knowing for sure what it is? If you answered yes, you are not the only one; that is an understandable and expected response. Take a look at this video to understand what I mean.

What did you think of THAT? How did that make you feel?

14. According to *The Flavor Trap’s* findings, of youth aged 12-17, 81.5% currently using e-cigarettes use them because they “come in flavors I like,” (Bach, 2018), and of young people who have ever tried ENDS, 43% report it was because of flavors (truthinitaive.org, 2018). According to research conducted by Harrell, et al. on the characterization of e-cigarette flavors and use among youth versus adults, it is found that sweet flavors are used more among young people and that adult users prefer tobacco flavor. With over 7,700 flavors available on the market and the majority of adults liking simple flavors such as traditional tobacco or vanilla, youth prevention efforts aimed at ENDS could benefit from increased restrictions on flavors characterizing increased youth use; sweet flavors of candy and desserts do increase the likelihood of youth trying ENDS (Harrell, et al., 2017).

15. The way in which these products have been marketed has also been found to increase the likelihood of youth using them. According to the Truth Initiative, “by 2016, nearly 4 out of 5 middle and high school students, or more than 20 million youth saw at least one e-cigarette advertisement” (2018). This exposure is primarily from the retail setting, accounting for 68% of it, followed by 41% from the internet, 38% television, and 24% from print medias like magazines (truthinitiative.org, 2018). Being exposed to just four e-cigarette ads on the television has been found to result in greater intentions to use e-cigarettes later on and increases curiosity associated with them (truthinitiative.org, 2018).
16. Let us now take a look at what some of these ads look like and the messages they are sending. So, to start off, what do you notice about these advertisements? A primary purpose of these ads is to separate e-cigarette and other ENDS use from traditional cigarette use, and promote a theme of freedom. These examples are geared toward current smokers in attempt to get them to switch, since ENDS were originally marketed as cessation tools, or a way for smokers to quit.
17. ENDS advertisements are now also starting to look a lot similar to the tactics the tobacco industry used to use with traditional cigarettes, which they know are effective. Take a look at the advertisements in the following few slides and discuss what you see in them, including any differences and similarities or how young adults may be attracted to them, in small groups, sharing what you find.
18. Common strategies in marketing include using vibrant colors, including stylish and eye-catching models, and using images that relate to people rather than the product itself.
19. Take a look at some examples of youth-centered marketing next. Santa and cartoons are the last two things one would expect to find in a tobacco advertising, a product that is illegal to buy and sell until the age of eighteen, and yet both have been used in traditional

cigarette ads and now e-cigarette ads. Let us look specifically at a blu e-cigarette ad now, about the cartoon character Bob. (FIND LINK!!!!)

20. ENDS advertisements are also very misleading in the health messages they are sending. Traditional tobacco advertisements even used doctors to claim one brand is better than the other, giving the impression that smoking is safe since a doctor is endorsing it. Today, ENDS advertisements are telling us messages like “Love Your Lungs.” This ad claims that using ENDS is “simple, refreshing, and smoke-free.” What do you think about that? Is that true?
21. After looking at the flavoring of ENDS and some of their marketing, as yourself this: Has your knowledge of ENDS been based on research you have heard, or from advertisements you see, your friends that use them, and your curiosity in their flavors? You receive more exposure to the latter, so I would not be surprised if that is your answer. Remember the question I asked at the beginning of the training, about whether or not trying ENDS would be simply taking a harmless hit or chance at lifelong addiction? Continue to keep that in mind, especially as we now discuss the research surrounding ENDS and their health impact.
22. First, can anyone tell me what they know or have heard about ENDS? You may be familiar with the claim that ENDS products only emit water vapor, because that is what the vapor was originally claimed to be. We now know that is not true. It is actually considered an aerosol, composed of an even higher concentration of even smaller sized particulate matter than traditional cigarette smoke (American Smokers’ Rights Foundation, 2018). Though ENDS aerosol is considered safer than traditional secondhand smoke, it is still dangerous, and the long-term impact of being exposed to the aerosol is still being studied. We are learning a lot more about it, however. Due to the higher concentration of particles and their size difference, the nanoparticles of ENDS are more readily absorbed than those in cigarette smoke, resulting in just as much short-term lung irritation as cigarette smoke

causes (Stillblowingsmoke.org, n.d.). The aerosol also contains volatile organic compounds, nicotine, carcinogens, tobacco specific nitrosamines, flavoring, carbonyls, propylene glycol, glycerol, and traces of heavy metals (Thompson, 2018). Propylene glycol is used as a base of e-liquids as well as a major component of the emissions, and causes eye, throat, and airway irritation, and in the long-term, could result in the development of asthma among teens (American Smokers' Rights Foundation, 2018). There are at least 10 chemicals in the aerosol found in the California's Proposition 65 list, which lists major carcinogen and reproductive toxins. Such compounds include Acetaldehyde, Benzene, Cadmium, Formaldehyde, Isoprene, Lead, Nickel, Nicotine, N- Nitrosonornicotine, and Toluene (American Smokers' Rights Foundation, 2018).

23. Furthermore, the flavorings in ESDs are FDA approved for ingestion, but have not been evaluated for inhalation, and heating the chemicals may even alter their composition to those similar to known carcinogens (American Smokers' Rights Foundation, 2018).
24. A result of inhaling the flavoring diacetyl found in e-liquid is the irreversible, obstructive lung disease bronchiolitis obliterans, aka popcorn lung. Popcorn lung results from the permanent scarring of the alveoli in the lungs. The condition gets its nickname because that is the same flavoring used in microwave butter popcorn, so it was common among employees working a microwave popcorn factories. (stillblowingsmoke.org, n.d.). It has even been found that non-smokers exposed to ENDS aerosol absorbed levels of nicotine similar to that found due to traditional cigarette smoke (American Smokers' Rights Foundation, 2018).
25. Now that we are on the topic, let us now talk about nicotine and ENDS. Nicotine is a substance that youth happen to be particularly vulnerable to, and as the Surgeon General states, "The use of products containing nicotine in any form among youth, including

e-cigarettes, is unsafe; and yet, the tobacco industry has frequently stated that ‘nicotine is not addictive.’”

26. We know nicotine is addictive, and is actually as addictive as heroin (stillblowingsmoke.org, 2018). Nicotine is a major component of the flavorings, and just like other ENDS users, 73% of JUUL users did not know that the product ALWAYS contains nicotine (truthinitiative.org, 2018). Though the levels of nicotine found in ENDS is variable between products, they can range from 6-59 mg of nicotine per ml of liquid (Bach, 2018). Take JUUL for example, they contain around 59 mg of nicotine, which is equivalent to the amount of nicotine in a pack of cigarettes in a single pod (Bach, 2018)! Now let us explore the effects nicotine has on the teenage brain. The brain does not stop developing until the age of 25, so exposure to nicotine before then results in long-term effects on teen brain function (stillblowingsmoke.org, 2018), such as lapses in attention, decreased cognitive function, and alterations in mood function-- all of which we need more of among teens!
27. Since teens are especially vulnerable to nicotine's effects, teens who vape are even 3x more likely to smoke one year later than those who do not, coining ENDS as a “gateway” tobacco product (stillblowingsmoke.org, 2018; truthinitiative.org, 2018).  
As we had mentioned earlier, ENDS were initially marketed as a cessation tool, and although many adults have been able to use these products to quit or reduce the negative impacts on health cigarettes can have, there is no proven research supporting this. The issue is found in the fact that youth who have never smoked before are trying these products and becoming addicted to nicotine as a result. If used for the right reasons, ENDS could benefit public health; otherwise, youth using ENDS is a major public health crisis.
28. Lastly, to help wrap everything up, take a look at this update on e-cigarettes, from the Healthcare Triage from 2016.

29. Okay, think back to that question one more time. Would you consider trying ENDS a harmless hit or taking a chance at life long addiction? After this training, I hope you can answer this question confidently and take this information to your peers.



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