Addressing the Dangers of Increased E-Cigarette Use Among Youth: A Call to Action for Clinicians

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Many in the medical and public health communities are increasingly concerned with the use of electronic cigarette products (e-cigarettes) among youth. These electronic products, which are handheld devices designed to “deliver emissions for inhalation by heating a solution that commonly contains nicotine, a humectant, and flavoring chemicals” (i.e., designed for the act of vaping) are becoming all too common in youth sensitive areas such as schools, parks, and libraries. The devices are also often used to deliver other dangerous chemicals such as cannabis/tetrahydrocannabinol (THC). Although research is underway to further study the use of e-cigarettes as a cessation aid for helping adult smokers quit using conventional cigarettes, the highly addictive nature of nicotine combined with the heavy promotion of these products to youth through subversive marketing and use of flavorings has caused a public health crisis in younger populations.6-14

With the rapid rate in which adolescents have embraced e-cigarette use in less than a decade, a significant portion of the next generation of Americans may become dependent on nicotine, en route to further risk of experimentation and transition to conventional cigarette or recreational drug use.5,13 Considering the recent national statistics (Table 1),5,13,14 the 60+ years of progress that our nation has made in tobacco control may be erased within a matter of a few years. Moreover, the recent outbreak of severe pulmonary disease associated with e-cigarette use15-17 and growing number of fatalities underscore the potentially dire consequences that these products can cause. The Centers for Disease Control and Prevention (CDC)17 and the American Medical Association18 are currently recommending that all persons refrain from using e-cigarettes until more information is gathered and more is known about their dangers and association to severe lung injury. In 2018, the former United States (U.S.) Food and Drug Administration (FDA) Commissioner, Scott Gottlieb, MD, called the “disturbing and accelerating trajectory” of e-cigarette use among youth an “epidemic,” a term which he used “with great care.”5

This article reviews the national and local data on e-cigarette use among youth and discusses ways in which clinicians can help to curb this growing public health problem.

**Table 1. Patterns and Prevalence of E-cigarette and Other Tobacco Product Use Among Youth in the United States**5,13,14

- >90% of smokers first try a tobacco product by age 18 years.a
- Even on an infrequent basis, experimentation with combustible cigarettes by youth can lead to an established smoking habit as an adult.
- Based on the National Youth Tobacco Survey, current e-cigarette use among high school students increased from 1.5% (220,000) in 2011 to 20.8% (3.1 million) in 2018. Among these current users:
  - current use of any flavored e-cigarettes increased from 60.9% to 67.8%
  - current use of menthol- or mint-flavored e-cigarettes increased from 42.3% to 51.2%
- During 2017 to 2018 alone, e-cigarette use rose by 78% in high school students and by 48% in middle school students.
- Based on data from a national random probability sample of U.S. adolescents, 7.6% of those aged 15-17 years had ever used the electronic [vape] device called JUUL®, and approximately 45.5% had ever seen or heard of the brand.
- In 2016, an estimated 4 in 5 (20.5 million) U.S. high school and middle school students were exposed to e-cigarette advertisements from at least one source (i.e., retail, Internet, TV/movies, newspapers or magazines).

a Tobacco product, as defined in this table, includes electronic devices such as electronic cigarette, electronic cigar, electronic hookah, and other vape devices that can deliver emissions of nicotine and/or other chemicals for inhalation (also see Box 1 and Box 2).
**Box 1. Definitions**

**Tobacco products**: Any product containing, made, or derived from tobacco or nicotine, whether natural or synthetic, that is intended for human consumption, whether smoked, heated, chewed, absorbed, dissolved, inhaled, snorted, sniffed or ingested by any other means. Tobacco products include, but are not limited to, cigarettes, cigars, little cigars, chewing tobacco, pipe tobacco, and snuff; and any electronic devices [vape devices] that deliver nicotine to the person inhaling from the equipment, including, but not limited to, electronic cigarettes, electronic cigars, electronic pipes, electronic hookahs, or any other device intended for vaping. Tobacco products do not include drugs, devices, or combination products authorized for sale by the FDA – e.g., nicotine patches or nicotine cessation therapies.

**Flavored tobacco products**: Any tobacco product that imparts a characterizing flavor – i.e., tastes or aromas relating to menthol, mint, wintergreen, fruit, chocolate, vanilla, honey, candy, cocoa, dessert, alcoholic beverage, herb, or spice. Electronic cigarette products are typically flavored.

**Vaping**: The action or practice of inhaling and exhaling the aerosol/vapor produced by an electronic cigarette or similar device.

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**E-cigarette Use Among Youth in Los Angeles County, by the Numbers**

According to the California Student Tobacco Survey (CSTS), LA County youth are not faring much better than their peers nationally, as the use of electronic cigarette products increased 1.5-fold from 6.4% in 2015-16 to 10.0% in 2017-18. Among high school students, 1 in 10 were current e-cigarette users (had used the product within the last 30 days), 61% bought e-cigarettes from vape shops in the county, and the use of multiple flavored tobacco products (mostly e-cigarettes) was quite common (see infographic below). These statistics may be the tip of the iceberg, as estimates from the California Healthy Kids Survey indicate that approximately 28% of LA County youth in the 11th grade used e-cigarettes at least once in 2015-17.

Table 2 shows the different flavorings that are associated with e-cigarette use, and how these flavorings are also common in most tobacco products sold to youth.

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The concern about this emerging epidemic extends beyond health professionals. In a recent Los Angeles County Department of Public Health (LAC DPH) survey of tobacco retailers, more than 60% of retailers reported being in support of public health intervention, including regulatory strategies, to reduce youth access to e-cigarette and other tobacco products (unpublished data).

**Box 2. Examples of E-Cigarette Devices**

E-cigarette devices can come in different types, shapes, and sizes. From left to right:

Back row – e-cigarette, vape mod, vape pen, vape rod

Front row – vape pod, vape pod, e-cigarette, vape pen
Table 2. Use of Flavored E-cigarettes and Other Flavored Tobacco Products among High School Students in Los Angeles County

<table>
<thead>
<tr>
<th>Proportion using Flavored Tobacco Products by Flavor Type</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarettes</td>
<td>81.7%</td>
<td>10.2%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little cigars &amp; cigarillos</td>
<td>68.8%</td>
<td>4.3%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Big cigars</td>
<td>67.7%</td>
<td>11.4%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Hookah</td>
<td>76.2%</td>
<td>15.2%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Smokeless</td>
<td>34.2%</td>
<td>43.3%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

*Flavor was only included as a flavor option for e-cigarettes. Source: 2017-18 CSTS. For LA County, the sample for this analysis was the youth (10th and 12th graders) who were current users, 83% of whom used flavored products (n=2,806). Non-users (17%) were excluded from the analysis.

The Local Public Health Response

Efforts are underway to more vigorously address tobacco use, including e-cigarette use among LA County youth. In August 2018, LAC DPH issued a Report, at the request of the County of Los Angeles Board of Supervisors, outlining action steps that can be taken to close the loopholes in the County’s existing ordinances and policies on tobacco control. Serving as a roadmap for unincorporated LA County, this document is aligned with the American Heart Association’s "Endgame" Presidential Advisory recommendations. It highlighted 10 possible policy actions based on best practices from national experts. They are:

1. revising the County of Los Angeles’ definition of tobacco products to include:
   i. e-cigarettes, specifying that their components, parts, and accessories also qualify as tobacco products, and
   ii. clarifying the exemption for products approved by the FDA for medical use (e.g., nicotine patches and other nicotine cessation products)
2. prohibiting the sale of menthol-flavored cigarettes
3. prohibiting the sale of flavored non-cigarette tobacco products
4. requiring minimum pack size for cigarillos and little cigars
5. prohibiting new tobacco retailers near “sensitive youth areas” (e.g., schools, parks, libraries)
6. prohibiting new tobacco retailers from locating within certain proximity of other tobacco retailers;
7. prohibiting establishment of new "Significant Tobacco Retailers" (i.e., any tobacco retailer for which the principal or core business is selling tobacco products, tobacco paraphernalia, or both)
8. limiting or capping the number of retailers that can sell tobacco products
9. regulating the sale of tobacco paraphernalia, and
10. prohibiting sale of tobacco products in pharmacies.

These policy actions are designed to restrict youth access to all tobacco products. When adopted and enforced, they have the potential to significantly prevent sales of e-cigarettes, combustible cigarettes, and any of their component parts to minors.

LAC DPH is working alongside a multi-sector coalition and with the State of California (through Proposition 56) to locally translate many of these policy recommendations into practice. Recognizing that there are over 80 municipalities in LA County in addition to the city of Los Angeles, local tobacco control efforts are crucial to curb the use of cigarettes including e-cigarettes throughout the county. Most notably, in June 2019, the city of Beverly Hills became the first city in the country to ban the sale of all tobacco products. Hermosa Beach, Manhattan Beach, and West Hollywood are three other cities that have enacted restrictions on flavored tobacco products. Stricter tobacco control ordinances that include flavor bans have been proposed or are being considered in Culver City, Manhattan Beach, Redondo Beach, Burbank, and for unincorporated LA County. Community activation, letter writing campaigns, youth storytelling, and raising of public awareness through radio, television and social media (e.g., see Tobacco Free California) are among the strategies that are being developed and implemented to support these policy efforts.
Earlier this year (March 2019), the County of Los Angeles Board of Supervisors passed three other policy changes directed at reducing secondhand smoke exposure among its employees and residents of unincorporated LA County. These included: (a) updating relevant smoke-free County policies to include e-cigarettes and cannabis as part of the definition of "smoke" and "smoking"; (b) banning smoking, including aerosol from e-cigarettes, in any outdoor County facilities – the restriction applies to locations near windows or doors, handicap ramps, and parking lots, and at parking areas of public beaches and parks; and (c) prohibiting smoking within 25 feet of outdoor dining areas and bar establishments offering food, and within 40 feet of any mobile food vendors, and at bus stops in unincorporated communities across the county.

Efforts Initiated by the Local Medical Societies

Recognizing the important role that clinicians can play by bringing their credibility and the science to the forefront to make the case against youth initiation of e-cigarette use, regional medical societies in LA County are getting involved and have been proactively supporting the local public health response to this epidemic. The Southern California Chapter of the American Academy of Pediatrics (AAP), for example, has been hosting town halls to educate the community and has been training their physicians on this issue. They have also partnered with local chapters of the American Heart Association, American Lung Association, American Cancer Society, and other community-based organizations to speak on the subject matter at city council meetings throughout the region. Likewise, the Los Angeles Pediatric Society dedicated its 2019 annual meeting to a collection of lectures on the threat of e-cigarette use in youth. The Los Angeles County Medical Association, in collaboration with the Los Angeles Pediatric Society, recently launched their Clear Lungs Clear Minds campaign (see Monday Rx21) to assist with LAC DPH’s more global effort to curb this growing public health threat among youth in LA County.

What Clinicians Can Do

Much needed actions to halt e-cigarette use among youth include community education and other efforts to change social norms, adoption and implementation of policies that reduce youth access to these products, and treatment interventions for adolescents with nicotine addiction. Clinicians can help with these recommended actions by considering the following in their practice, at their institution, and/or in their local community.

- **Support local tobacco control policy adoption and implementation.**
  Clinicians are highly regarded by the public and have a lot of credibility when speaking on health matters that affect their community. Interested clinicians can speak at city council meetings, public hearings, or in community gatherings to support tobacco control policies that can effectively reduce youth access to e-cigarettes. Community organizations, professional societies like the American Academy of Pediatrics, and the California Department of Public Health’s Champion Provider Fellowship often offer public speaking and media training for healthcare professionals who are interested in becoming a champion or a spokesperson for these issues. The "Making Your Voice Heard: How to be an Effective Health Advocate” article is another useful guide that clinicians can use if they are interested in advocacy.

- **Ask youth during clinical encounters about their use of e-cigarettes and other tobacco products.**
  Clinical encounters represent an untapped opportunity to intervene on youth nicotine addiction. Asking youth about e-cigarette use or use of other tobacco products is an appropriate practice and can serve as an important avenue for either prevention or early intervention, including educating adolescents about the dangers of vaping or providing resources (e.g., 1-800-NO-BUTTS Quitline, LAQuits.com, nicotine replacement therapy) to help them quit if they are already smoking or using these products.

- **Learn about and offer cessation treatment options for youth with nicotine addiction in the clinic setting.**
  Although not often a routine part of clinical practice (particularly for pediatricians), clinicians should learn to treat nicotine addiction among youth to complement referrals to the quitline. Because the dose of nicotine from e-cigarettes can be higher than conventional cigarettes and can also vary significantly depending on frequency of use, nicotine replacement and other cessation interventions are crucial to provide or offer to addicted youth. Primary care clinicians can play an essential role in assessing for nicotine dependency and in offering nicotine replacement therapy – the only FDA-approved pharmacologic treatment for people under 18 years of age. E-cigarettes are currently not recognized by the FDA as tobacco cessation aids. Referrals to clinicians with more specialized training in addiction and/or cessation treatment for certain youth subgroups may be necessary, especially for those with more complex addiction profiles, e.g., youth with substance use disorders or mental health conditions.

The medical community, alongside Public Health, has an obligation to protect this county’s youth from falling prey to unwanted nicotine addiction and to the sequelae that often come with this preventable condition. Clinicians are credible and important ambassadors of community health. This call to action to help address the dangers of increased e-cigarette use among youth is both timely and critical to the local public health response to this epidemic.

*The California Tobacco Tax for Healthcare, Research, and Prevention Act of 2016 (also known as Proposition 56) is a ballot measure that increased the tax of cigarettes or their equivalent (including e-cigarettes) to $2.00 per pack. The California ballot measure was passed during general election in November 2016. The proposition specifies that the revenue is to be used to expand existing tobacco control and prevention programs, health care services, and research to improve prevention, early detection, and treatment of tobacco-related disease.

### Resources

- **Quitline California Smoker’s Helpline**: 1-800-NO-BUTTS [https://www.nobutts.org/](https://www.nobutts.org/)
- **Cessation Resources at LAQuits**: [https://laquits.com/](https://laquits.com/)
- **Tobacco Free California**: [https://www.flavorshookkids.org/](https://www.flavorshookkids.org/)
References

12. Closing Existing Loopholes in Smoke-Free Ordinances or Policies and New Policy Actions to Address Gaps in Tobacco Control. [report] Los Angeles, CA: County of Los Angeles Board of Supervisors; August 22, 2018. (Response to a July 31, 2018 Board Motion, Agenda No. 8).