

# Youth Hazards Associated with Electronic Nicotine Delivery Systems (ENDS)

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## Disclosures (salary sources):

- 0.75 FTE – FDA Center for Tobacco Products
- 0.25 FTE – FSSA Division of Mental Health and Addiction

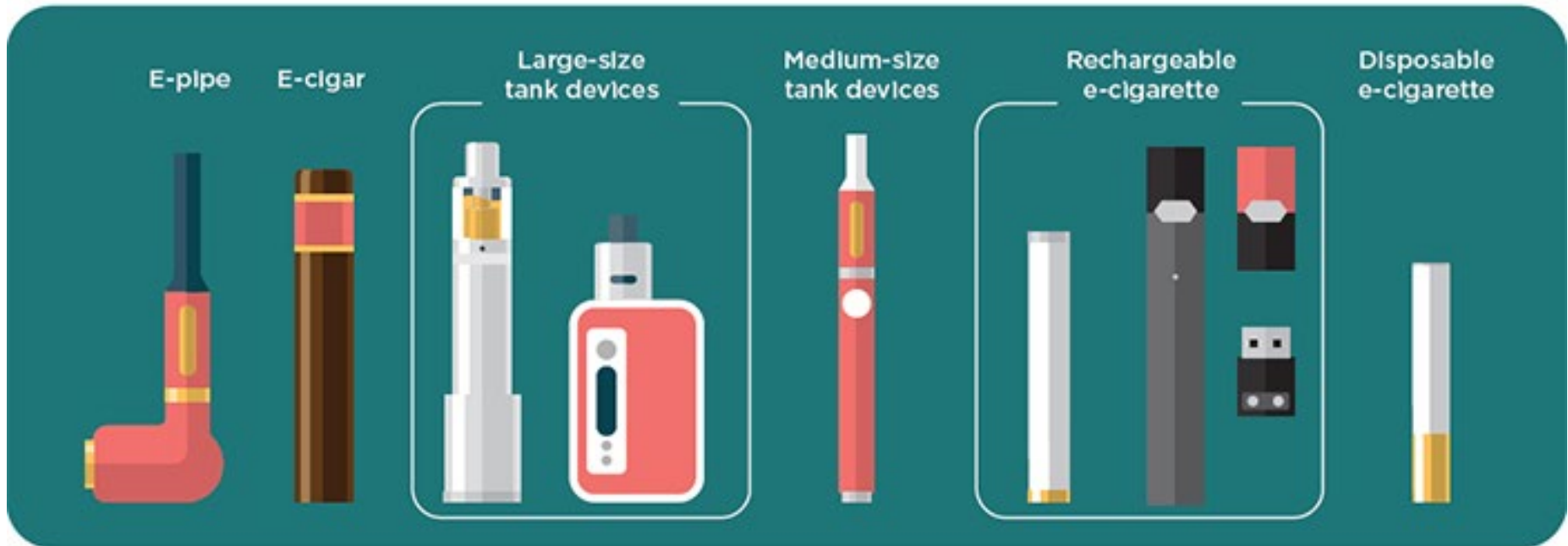


## **Electronic Nicotine Delivery Systems (ENDS)**

- Any electronic device used to create and ingest aerosolized nicotine without combustion
- Mass marketing began approx. 2006; growth of market has been exponential worldwide
- Not regulated nationally (FDA) until 2016 (only 18 states previously passed laws prohibiting use by minors)
- More kids vaping than smoking cigarettes



## Most devices sold are refillable with cartridges or liquids



[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/about-e-cigarettes.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html)



# Cartridges and E-Liquids

7 Flavors Available: Mango, cucumber, Minty, Creme Brulee, Fruits, Virginia Tobacco, Classic Menthol  
8 Pods/Pack



5%



Usually 3-12mg/ml nicotine; as high as 36mg/ml



## National ENDS Regulation

- August 2016, FDA Center for Tobacco Products was allowed to deem ENDS as being under their jurisdiction (regulate manufacturing, sale and distribution)
- Policy prohibiting sales to minors enacted. Surveillance begins nationwide.
- September 2018, FDA gives Juul and other manufacturers 60 days to show how they will reduce sales to minors.



## Dangers to Children < 12 yrs old

- Prior to 2016, most states did not have much regulation regarding manufacturing or sales of ENDS and E-Liquids
- Packaging was often not child-proof
- Flavor additives were often not tested
- Claims that marketing was not targeting children were often hard to justify, as evidenced by photos included in FDA in letters to manufacturers...

<https://www.fda.gov/TobaccoProducts/NewsEvents/ucm605729.htm>



# Frank 'N Vape



E-liquid



Food product





# Juice Box - One Mad Hit



E-liquid



Food product



# Patches - Candy Co.



E-liquid



Food product



# Whip'd Strawberry



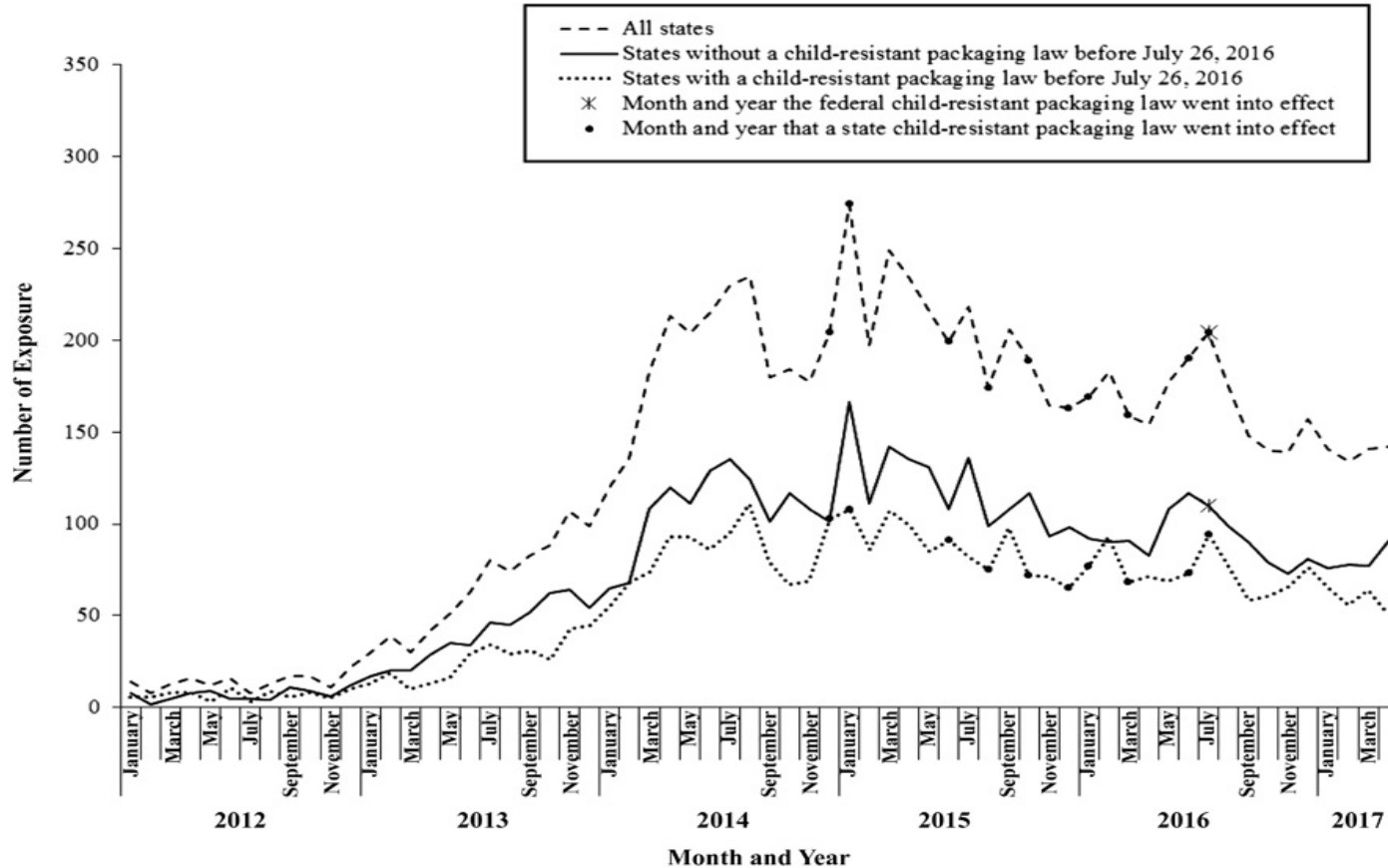
E-liquid



Food product



# Liquid nicotine exposures among children <6 yrs old by child-resistant packaging law status



Govindarajan P, Spiller HA, Casavant MJ, et al.  
*E-Cigarette and Liquid Nicotine Exposures Among Young Children. Pediatrics. 2018;141(5):e20173361*



## Dangers to Children 12 - 17 yrs old

- Nicotine is highly addictive
- Vaping increases the likelihood of smoking
- Most youth think vaping not very harmful
- 25% have tried vaping  
(surpassed smoking in 2014)
- 85% of 12-17 yr old vapers use flavors

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



# Problems with Vaping for Youth and Young Adults

- Vaping by youth increases risk of subsequent use of combustible tobacco cigarettes
- Among youth who have ever smoked, vaping increases the frequency and intensity of subsequent cigarette smoking

National Academies of Sciences, Engineering, and Medicine. 2018. ***Public Health Consequences of E-Cigarettes***. Washington, DC: The National Academies Press



## Other Hazards to Youth

- Nicotine exposure during adolescence can cause addiction and can harm the developing adolescent brain
- Marketing of ENDS to youth uses same approaches that have been used in the past for marketing conventional tobacco products to youth and young adults.

*U.S. Department of Health and Human Services. E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General—Executive Summary. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.*



## Conclusions

- Child-proof containers are not enough to protect small kids from nicotine poisoning
- An end to attractive flavors should significantly reduce accidental poisoning of youngsters
- Public policy is changing rapidly at this time regarding availability of flavored ENDS
- Must remain vigilant regarding use by youth and industry marketing practices