

# Screening, Diagnosis & Monitoring of Vaping among Adolescents

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IU Teen Vaping ECHO

#### **Disclosures**

I have no conflicts to disclose.

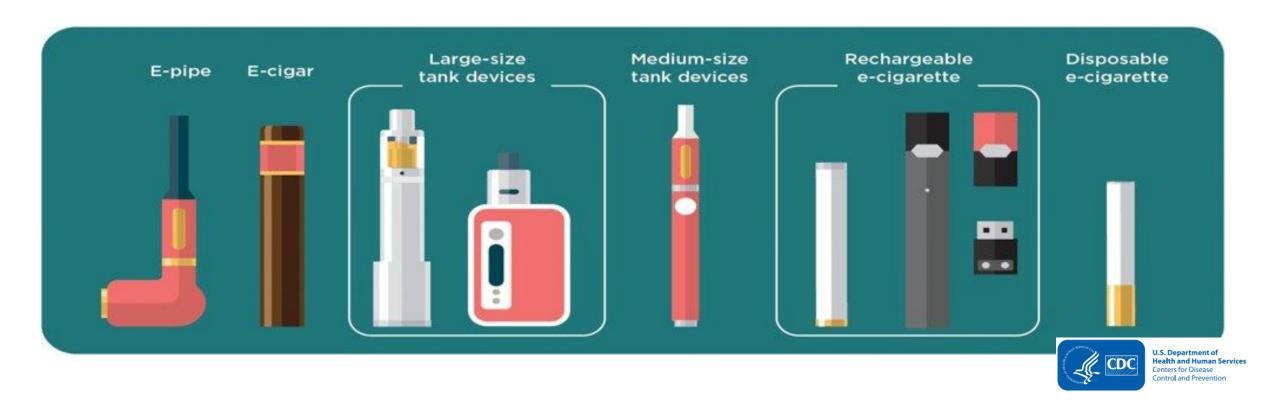


#### Agenda

- Review Screening Tools: BSTAD, CRAFFT-N, EHR
- Diagnosis Criteria
- Tests for Nicotine Dependence
- Monitoring



#### Challenges to Assessing Vaping





# Screening



# U.S. Preventative Service Task Force Recommendations

Final Recommendation Statement

## Prevention and Cessation of Tobacco Use in Children and Adolescents: Primary Care Interventions

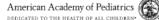
April 28, 2020

#### Recommendation Summary

Population	Recommendation	Grade
School-aged children and adolescents who have not started to use tobacco	The USPSTF recommends that primary care clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use among school-aged children and adolescents.	В



#### Recommendations for Preventive Pediatric Health Care



Bright Futures/American Academy of Pediatrics



Each child and family is unique; therefore, these Recommendations for Preventive Pediatric Health Care are designed Refer to the specific guidance by age as listed in the Bright Futures Guidelines (Hagan JF, Shaw JS, Duncan PM, eds. Copyright © 2021 by the American Academy of Pediatrics, updated March 2021 for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in a satisfactory fashion. Developmental, psychosocial, and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits. Additional visits also may become necessary if circumstances suggest variations from normal.

These recommendations represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of continuity of care in comprehensive health supervision

Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents. 4th ed. American Academy of Pediatrics; 2017).

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate The Bright Futures/American Academy of Pediatrics Recommendations for Preventive Pediatric Health Care are

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	INFANCY							EARLY CHILDHOOD MIDDLE O						IDDLE CH	HILDHOO	D						ADO	ADOLESCENCE									
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PHYSICAL EXAMINATION <sup>17</sup>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	4
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Newborn Bilirubin <sup>21</sup>		•																														
Critical Congenital Heart Defect <sup>22</sup>		•																														_
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Fluoride Supplementation <sup>36</sup>							*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					Ī

- 1. If a child comes under care for the first time at any point on the schedule, or if any items are not accomplished at the suggested age, the schedule should be brought up to date at the earliest possible time.
- 2. A prenatal visit is recommended for parents who are at high risk, for first-time parents, and for those who request a conference. The prenatal visit should include anticipatory guidance, pertinent medical history, and a discussion of benefits of breastfeeding and planned method of feeding, per "The Prenatal Visit" (http://pediatrics.aappublications.org/content/124/4/1227.fuil).
- 3. Newborns should have an evaluation after birth, and breastfeeding should be encouraged (and instruction and support should
- 4. Newborns should have an evaluation within 3 to 5 days of birth and within 48 to 72 hours after discharge from the hospital to include evaluation for feeding and laundice. Breastfeeding newborns should receive formal breastfeeding evaluation, and their mothers should receive encouragement and instruction, as recommended in "Breastfeeding and the Use of Human Milk" nt/129/3/e827.full). Newborns discharged less than 48 hours after delivery must be examined within 48 hours of discharge, per "Hospital Stay for Healthy Term Newborns" (http://pediatrics.aappublications.org/ content/125/2/405.full).
- Screen, per "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report" (http://pediatrics.aappublications.org/content/120/Supplement\_4/5164Juli)

  6. Screening should occur per "Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and
- Adolescents\* (http://pediatrics.aappublications.org/content/140/3/e20171904). Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years.
- 7. A visual aculty screen is recommended at ages 4 and 5 years, as well as in cooperative 3-year-olds. Instrument-based screening may be used to assess risk at ages 12 and 24 months, in addition to the well visits at 3 through 5 years of age. See "Visual System Assessment in Infants, Children, and Young Adults by Pediatricians" (http://pediatrics.aappublications.org/ content/137/1/e20153596) and 'Procedures for the Evaluation of the Visual System by Pediatricians'
- Confirm Initial screen was completed, verify results, and follow up, as appropriate. Newborns should be screened, per "Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs"
- Verify results as soon as possible, and follow up, as appropriate.
- 10. Screen with audiometry including 6,000 and 8,000 Hz high frequencies once between 11 and 14 years, once between 15 and 17 years, and once between 18 and 21 years. See "The Sensitivity of Adolescent Hearing Screens Significantly Improves by Adding High Frequencies" (https://www.sciencedirect.com/science/article/abs/pil/S1054139X1600
- 11. Screening should occur per "Promoting Optimal Development: Identifying Infants and Young Children With Developmental Disorders Through Developmental Surveillance and Screening" (https://pediatrics.aappublications.org/content/145/1/
- 12. Screening should occur per "identification, Evaluation, and Management of Children With Autism Spectrum Disorder (https://pediatrics.aappublications.org/content/145/1/e20193447)
- 13. This assessment should be family centered and may include an assessment of child social-emotional health, caregiver depression, and social determinants of health. See "Promoting Optimal Development: Screening for Behavioral and Emotional Problems\* (http://pediatrics.aappublications.org/content/135/2/384) and "Poverty and Child Health In the United States" (http://pediatrics.aappublications.org/content/137/4/e20160339).
  14. A recommended assessment tool is available at http://crafft.org.
- 15. Recommended screening using the Patient Health Questionnaire (PHQ)-2 or other tools available in the GLAD-PC toolkit and at https://downloads.aap.org/AAP/PDF/Mental\_Health\_Tools\_for\_Pediatrics.
- 16. Screening should occur per "incorporating Recognition and Management of Perinatal Depression into Pediatric Practice"
- 17. At each visit, age-appropriate physical examination is essential, with Infant totally unclothed and older children undressed and suitably draped. See "Use of Chaperones During the Physical Examination of the Pediatric Patient"
- (http://pediatrics.aappublications.org/content/127/5/991.fuli).

  18. These may be modified, depending on entry point into schedule and Individual need.
- Confirm Initial screen was accomplished, verify results, and follow up, as appropriate. The Recommended Uniform Screening
  Panel (https://www.hrsa.gov/advisory-committees/heritable-disorders/rusp/index.html), as determined by The Secretary's Advisory Committee on Heritable Disorders in Newborns and Children, and state newborn screening laws/regulations //www.babysfirsttest.org/newborn-screening/states) establish the criteria for and coverage of newborn screening procedures and programs.

**HRSA** 

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KEY: • = to be performed ★ = risk assessment to be performed with appropriate action to follow, if positive





#### Screening

#### Screening for Substances Needs to Be:

- 1. Easy to administer
- 2. Easy to score
- 3. Easy to remember





#### **BSTAD**

FRIENDS' USE		
Do you have friends who		
smoked cigarettes or used other tobacco products in the past year?	□ No	□ Yes
Do you have friends who		
drank beer, wine, or any drink containing alcohol in the past year?	□ No	□ Yes
Do you have friends who in the past year:		
- sniffed or "huffed" anything;		
<ul> <li>took illegal drugs like marijuana (weed, blunts), cocaine, etc;</li> </ul>		
- took prescription medications that were not prescribed for them; or		
- took prescription or over-the-counter medications and took more than they were sup	posed to	take?
	□ No	□ Yes
PERSONAL USE		
In the past year, have you		
smoked cigarettes or used other tobacco products?	□ No	□Yes
In the past year, have you		
had more than a few sips of beer, wine, or any drink containing alcohol?	□ No	$\square$ Yes
In the past year, have you:		
- sniffed or "huffed" anything;		
- taken illegal drugs like marijuana (weed, blunts), cocaine, etc;		
- taken prescription medications that were not prescribed for you; or		
- taken prescription or over-the-counter medications and took more than you were sup	pposed to	take?
	□ No	$\square$ Yes



#### **BSTAD**

[IF DRUGS ARE ENDORSED IN THE PERSONAL USE QUESTION, ASK THE FO	LLOWING:]
Which of the following substances have you used in the past year? (check all that apply)	
□ Marijuana or Hashish	
□ Cocaine or crack	
□ Heroin	
□ Amphetamines or methamphetamine (nonpharmaceutical)	
□ Hallucinogens (eg, Mushrooms, LSD)	
□ Inhalants	
Which of the following medications have you used in the past year that were not prescribe which you took more of than you were supposed to take? (check all that apply)	d for you or
☐ Prescription pain relievers (eg, morphine, percocet, vicodin, oxycontin, dilaudid, metha buprenorphine)	done,
□ Prescription sedatives (eg, Valium, Xanax, Klonopin, Ativan)	
□ Prescription stimulants (eg, Adderall, Ritalin)	
□ Over-the-Counter Medications (eg, Nyquil, Benadryl, cough medicine, sleeping pills)	
[FOR EACH SUBSTANCE WHERE USE WAS ENDORSED, ASK:]	
In the past 30 days, on how many days have you	
smoked cigarettes or used other tobacco products/used alcohol/used [SUBSTANCE]?	□□ days
In the past 90 days, on how many days have you	
smoked cigarettes or used other tobacco products/used alcohol/used [SUBSTANCE]?	□□ days
In the past year, on how many days have you	
smoked cigarettes or used other tobacco products/used alcohol/used [SUBSTANCE]?	$\Box\Box\Box$ days



Kelly et al. Pediatrics Volume 133, Number 5, May 2014 doi: 10.1542/peds.2013-2346

## **BSTAD Scoring**

<b>BSTAD Response</b>	Risk Category
0 days	No Reported Use
1 day	Lower Risk
2+ days (alcohol or other drugs) and/or 6+ days	Higher Risk



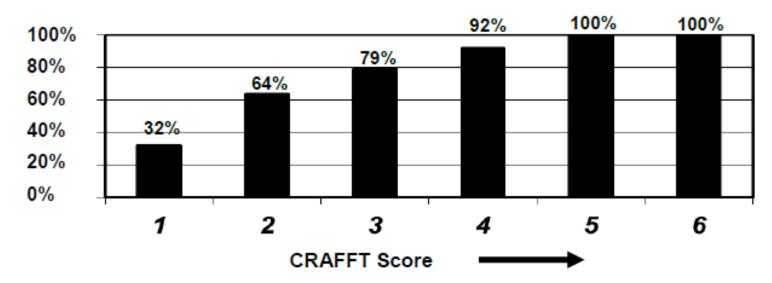
#### CRAFFT +N

	The CRAFFT+N Questionnaire To be completed by patient		
	Please answer all questions honestly; your answers will be kept conf	fidential	L
	During the PAST 12 MONTHS, on how many days did you:		
	Drink more than a few sips of beer, wine, or any drink containing alcohol? Put "0" if none.  ##0  ##0	of days	]
	Use any marijuana (weed, oil, or hash by smoking, vaping, or in food) or "synthetic marijuana" (like "K2," "Spice")? Put "0" if none.  #### The state of the	of days	]
	Use anything else to get high (like other illegal drugs, prescription or over-the-counter medications, and things that you sniff, huff, or vape)? Put "0" if none.  #6	of days	]
	4. Use any tobacco or nicotine products (for example, cigarettes, e-cigarettes, hookahs or smokeless tobacco)?  #6	of days	]
			•
	READ THESE INSTRUCTIONS BEFORE CONTINUING:  If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, To  If you put "1" or higher in ANY of the boxes above, ANSWER QUESTION 5, To		
	. If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, To	STIONS	
(	. If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, To	No No	5-10.
	If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, Ti     If you put "1" or higher in ANY of the boxes above, ANSWER QUES  5. Have you ever ridden in a CAR driven by someone (including yourself)	No.	5-10.
(	If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, Till If you put "1" or higher in ANY of the boxes above, ANSWER QUESTION 5. Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?  6. Do you ever use alcohol or drugs to RELAX, feel better about yourself,	No.	5-10.
	If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, Till If you put "1" or higher in ANY of the boxes above, ANSWER QUESTION 5. Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?  6. Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?	No.	5-10.
	<ul> <li>If you put "0" in ALL of the boxes above, ANSWER QUESTION 5, Till you put "1" or higher in ANY of the boxes above, ANSWER QUESTION 5. Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?</li> <li>6. Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?</li> <li>7. Do you ever use alcohol or drugs while you are by yourself, or ALONE?</li> </ul>	No	5-10.



## CRAFFT +N Scoring

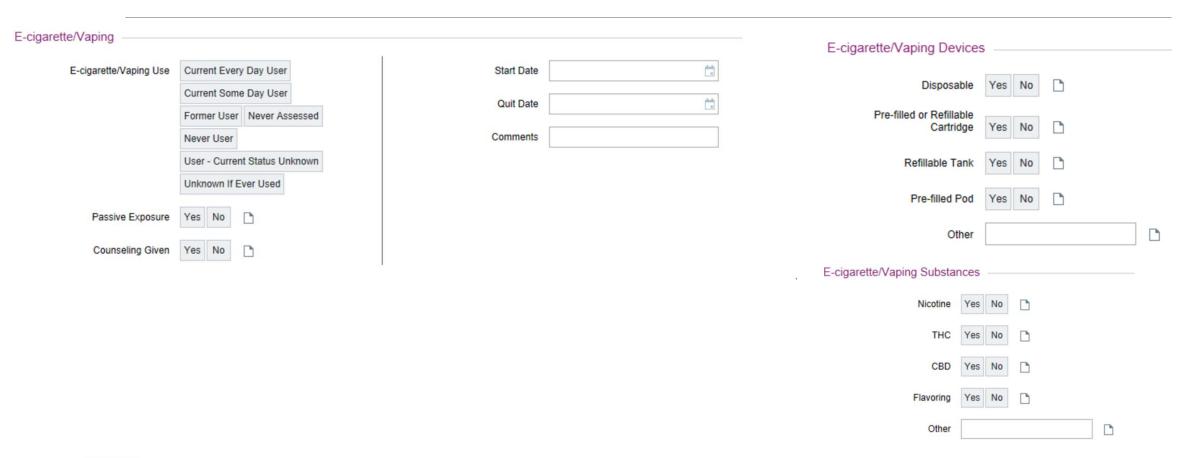
#### Percent with a DSM-5 Substance Use Disorder by CRAFFT score\*





\*Data source: Mitchell SG, Kelly SM, Gryczynski J, Myers CP, O'Grady KE, Kirk AS, & Schwartz RP. (2014). The CRAFFT cut-points and DSM-5 criteria for alcohol and other drugs: a reevaluation and reexamination. Substance Abuse, 35(4), 376–80.

#### **Electronic Health Record Screener**





## Diagnosis Criteria



#### **DSM-5 Tobacco Use Disorder**

A problematic pattern of tobacco use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

- 1. Larger quantities of tobacco over a longer period then intended are consumed
- 2. Persistent desire or unsuccessful efforts to quit or reduce intake of tobacco
- 3. Inordinate amount of time spent acquiring or using tobacco product
- 4. Cravings, strong desire, or urge to use for tobacco
- 5. Failure to attend to responsibilities and obligations at work, school, or home due to tobacco use
- 6. Continued use despite adverse social or interpersonal consequences
- 7. Forfeiture of social, occupational or recreational activities in favor of tobacco use
- Tobacco use in hazardous situations
- Continued use despite awareness of physical or psychological problems directly attributed to tobacco use
- 10. Tolerance for nicotine, as indicated by:
  - -Need for increasingly larger doses of nicotine in order to obtain the desired effect
  - -A noticeably diminished effect from using the same amounts of nicotine
- 11. Withdrawal symptoms upon cessation of use as indicated by
  - -The onset of typical nicotine associated withdrawal symptoms is present
  - -More nicotine or a substituted drug is taken to alleviate withdrawal symptoms



#### **DSM-5** Criteria for Substance Use Disorders

	DSM-IV Abuse <sup>a</sup>		DSM-IV Dependence <sup>b</sup>		DSM-5 Substance Use Disorders <sup>c</sup>	
Hazardous use	X	1	-		x	1
Social/interpersonal problems related to use	X	≥1	-		x	
Neglected major roles to use	X	criterion	-		x	
Legal problems	X	J	-		-	
Withdrawal <sup>d</sup>	-	-	x	1	x	
Tolerance	_		X		x	≥2
Used larger amounts/longer	10		X		x	criteria
Repeated attempts to quit/control use	-		x	≥3 criteria	x	
Much time spent using	-		×	Criteria	x	
Physical/psychological problems related to use	_		x		x	
Activities given up to use	-		х	J	х	
Craving	-		-		x	J



# Tests for Dependence



### Penn State Electronic Cigarette Dependence Index

#### Box 1. Penn State [Electronic] Cigarette Dependence Index

[For the Electronic Cigarette Dependence Index, substitute the underlined word with the words in square brackets]

- How many cigarettes [times] per day do you usually smoke [use your electronic cigarette]?<sup>a</sup> ([assume that one "time" consists of around 15 puffs or lasts around 10 minutes])
   (Scoring: 0-4 times/day = 0, 5-9 = 1, 10-14 = 2, 15-19 = 3, 20-29 = 4, 30+ = 5)
- On days that you can smoke [use your electronic cigarette] freely, how soon after you wake up do you smoke your first cigarette of the day [first use your electronic cigarette]?<sup>a</sup> (Scoring: 0-5 mins = 5, 6-15 = 4, 16-30 = 3, 31-60 = 2, 61-120 = 1, 121+ = 0)
- Do you sometimes awaken at night to <u>have a cigarette</u> [use your electronic cigarette]?<sup>b</sup>

(Scoring: Yes = 1, No = 0)

 If yes, how many nights per week do you typically awaken to <u>smoke</u> [use your electronic cigarette]?<sup>b</sup>

(Scoring: 0-1 nights = 0, 2-3 nights = 1, 4+ nights = 2)

 Do you <u>smoke</u> [use an electronic cigarette] now because it is really hard to quit?<sup>c</sup>

(Scoring: Yes = 1, No = 0)

Do you ever have strong cravings to <u>smoke</u> [use an electronic cigarette]?<sup>c</sup>

(Scoring: Yes = 1, No = 0)

 Over the past week, how strong have the urges to <u>smoke</u> [use an electronic cigarette] been?<sup>d</sup>

(Scoring: None/Slight = 0, Moderate/Strong= 1, Very Strong/ Extremely Strong = 2)

 Is it hard to keep from smoking [using an electronic cigarette] in places where you are not supposed to?<sup>c</sup>

(Scoring: Yes = 1, No = 0)

When you haven't used <u>tobacco</u> [an electronic cigarette] for a while or when you tried to stop <u>smoking</u> [using]...

Did you feel more irritable because you couldn't smoke [use an electronic cigarette]?<sup>c</sup>

(Scoring: Yes = 1, No = 0)

 Did you feel nervous, restless, or anxious because you couldn't <u>smoke</u> [use an electronic cigarette]?<sup>c</sup>

(Scoring: Yes = 1, No = 0)

Total scoring: 0–3= not dependent, 4–8 low dependence, 9–12 medium dependence, 13+ = high dependence.



Foulds et al. Nicotine & Tobacco Research, 2015, 186-192. doi:10.1093/ntr/ntu204

#### **Heaviness of Vaping Index**

- Combines time to first e-cig use on awakening and number of daily sessions
- ► Based on Heaviness of Smoking Index (derived from Fagerstrom Test of Cigarette Dependence)



## E-Cigarette Addiction Severity Index (EASI)

- > Self-described addiction
  - ➤ "On a scale of 0 (not)—100% (extremely): How addicted to e-cigarettes do you think you are?"
- Correlates with cotinine levels in adolescents.



# Monitoring



### **Monitoring**

- Self-report: TLFB
- Nicotine/cotinine testing
- UDS



## Questions

