

# Assessing Nicotine Dependence in Adolescents

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# LEARNING OBJECTIVES

At the end of this session, participants will be able to:

- Understand health concerns related to nicotine dependence in adolescents
- Utilize practice tools to measure nicotine dependence in adolescent e-cigarette users



# A NOTE ABOUT THE EVIDENCE BASE

- There is very little data about the trajectory of nicotine addiction in adolescent e-cigarette users<sup>1</sup>
- Future research is needed to determine best practices for supporting youth who are addicted to e-cigarettes<sup>1</sup>
- Pediatricians need support addressing youth e-cigarette addiction immediately
- As such, this module incorporates evidence on nicotine dependence in both adolescent smokers and e-cigarette users



# Understanding Nicotine Dependence in Adolescents

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# NICOTINE DEPENDENCE IN ADOLESCENTS

Data on adolescent cigarette smokers indicate:<sup>1</sup>

- Dependence is more severe if tobacco use begins in adolescence
- If tobacco use begins during adolescence, the user is more likely to become dependent, use for more years, and use more heavily
- Adolescents are uniquely vulnerable to nicotine addiction because their brains are still developing
- Addiction/dependence is characterized by loss of autonomy: compulsive drug craving, seeking, and use that persists even in the face of negative consequences



# NICOTINE DEPENDENCE PROGRESSES FAST<sup>3</sup>

Experimentation



Nicotine dependence, indicated by craving, starts *prior* to daily or regular use

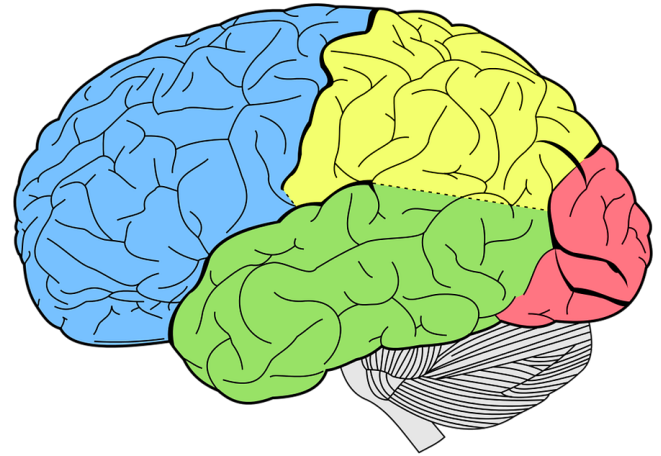


Regular Use



# NICOTINE ADDICTION

The adolescent brain is uniquely  
vulnerable to the rewarding  
effects of nicotine.<sup>4</sup>



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# NICOTINE DEPENDENCE AND E-CIGARETTES

- E-cigarettes can deliver higher levels of nicotine than traditional cigarettes<sup>5</sup>
- Pod systems, like JUUL, contain up to 59 mg/ml of nicotine<sup>6</sup>
- These higher levels of nicotine may impact the trajectory of dependence in adolescents
- More research is needed to understand addiction in young e-cigarette users<sup>1</sup>

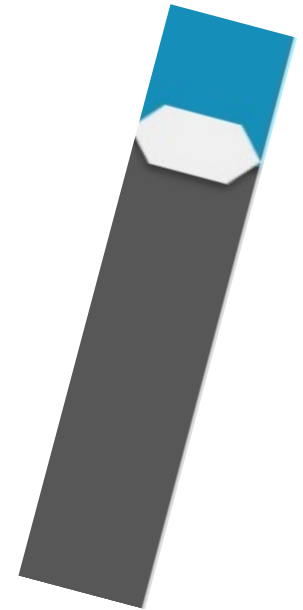


Image source: personal graphic





# Measuring Nicotine Dependence in Adolescent E-Cigarette Users

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# MEASURING NICOTINE DEPENDENCE

- When assessing a teen's readiness to quit, it may be helpful to show the teen that they are addicted to nicotine
- Pediatricians can consider using a practice tool to assess an adolescent's level of dependence on nicotine
- Some options:
  - **Hooked on Nicotine Checklist** (tailored for e-cigarettes or traditional tobacco products)<sup>7</sup>
  - **E-Cigarette Dependence Scale**<sup>8</sup>
  - **Modified Version of the Fagerstrom Tolerance Questionnaire (mFTQ)**<sup>9</sup>
  - **DSM-5** criteria for tobacco use disorder<sup>10</sup>



# HOOKED ON NICOTINE CHECKLIST (HONC)<sup>7</sup>

- Measure to determine an adolescent's level of dependence on nicotine
- Originally developed and validated for cigarette use
- Recently adapted for e-cigarette use
- Scoring:
  - Tally the number of 'yes' responses, from 0-10
  - Any score greater than zero indicates the user has lost some degree of autonomy over their e-cigarette use, and nicotine addiction has begun



# HONC FOR E-CIGARETTE USERS

1. Have you ever tried to stop vaping, but couldn't?
2. Do you vape now because it is really hard to quit?
3. Have you ever felt like you were addicted to vaping?
4. Do you ever have strong cravings to vape?
5. Have you ever felt like you really needed to vape?
6. Is it hard to keep from vaping in places where you are not supposed to, like school?

*When you tried to stop vaping (or, when you haven't vaped in awhile) ...*

1. Did you find it hard to concentrate because you couldn't vape?
2. Did you feel more irritable because you couldn't vape?
3. Did you feel a strong need or urge to vape?
4. Did you feel nervous, restless or anxious because you couldn't vape?



# E-CIGARETTE DEPENDENCE SCALE<sup>8</sup>

- Measure to determine an adolescent's level of dependence on e-cigarettes
- Modified from the *PROMIS Item Bank v1.0- Smoking: Nicotine Dependence for All Smokers*
- Adapted adolescent e-cigarette use
- Scoring:
  - Take the mean of all item scores
  - Higher score indicates more dependence on nicotine



# E-CIGARETTE DEPENDENCE SCALE

<b>Instructions:</b> Please respond to each question marking one box per row.	Never (0)	Rarely (1)	Sometimes (2)	Often (3)	Almost Always (4)
I find myself reaching for my e-cigarette without thinking about it					
I drop everything to go out and get e-cigarettes or e-juice					
I vape more before going into a situation where vaping is not allowed					
When I haven't been able to vape for a few hours, the craving gets intolerable					



# KEY POINTS

- Data on nicotine dependence in e-cigarette users is limited
- Data on adolescent cigarette smokers indicate that youth are uniquely vulnerable to nicotine addiction, and may become dependent more quickly than adult users
- E-cigarettes can deliver higher levels of nicotine than cigarettes, which may impact the trajectory of nicotine dependence
- The **Hooked on Nicotine Checklist** and the **E-Cigarette Dependence Scale** can be used to measure nicotine dependence in young e-cigarette users



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