

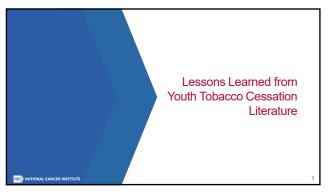
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Intervening with Youth Smokers is Different than Adults

- Youth are not mini-adults
- Intense period of brain development
- Impulse control and decision-making areas of the brain still developing
- · Period of emotional lability, risk-taking
- Youth do not think of themselves as smokers or addicts
- Youth have unstable smoking patterns
- Nicotine dependence can develop differently for youth
- Importance of peers and social motivations for use

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Lessons Learned from Youth Tobacco Cessation

- Demand focus on increasing motivation for quitting
- Tailoring match messages to stage in trajectory of smoking, "windows of opportunity"
- Attend to the unique cognitive and emotional needs of adolescents
- Address interpersonal context peer and parent factors important, help them adapt their social and environmental context while quitting
- Support for some behavioral interventions; promise for mobile technology delivery modes (text messaging, apps)

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Curry, Mermelstein and Sporer 2009; Curry et al., 2012

Intervention Research with Youth Smokers is Challenging

Recruitment and retention challenges

Parental consent

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- Youth have logistical challenges to participating in research studies (need reliable transportation, rely on parents)
- Lighter smokers (≤ 5 cpd) easier to recruit but heavier smokers (≤ 6 cpd) were easier to retain (Backinger et al., 2008)
- Older youth, low academic achievement and low SES more challenging to retain (Kalkhuis-Beam et al., 2011)
- Conducting intervention soon after enrollment as possible may improve retention (Kalkhuis-Beam et al., 2011)

Intervention Research with Youth Smokers is Challenging

- Establishing a threshold of cigarette consumption as an enrollment criteria can impact enrolling sufficient numbers of youth in a study
- Adequate sample size is often hard to obtain
- Need to screen large numbers of youth
- Often need multisite study design (complex and more expensive)

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Challenges Posed by Product Class

- Product diversity presents challenges for assessing frequency, intensity, use patterns and dependence
 - Impacts ability to decide "who" to provide a particular treatment, or "who" to enroll in a particular study
- No standard unit of consumption for the product
- No standard size of reservoir and capacity for amount of e-liquid
- No standard e-liquid composition in terms of nicotine content
- No standard terminology for consumption behavior (e.g., time, puff, pod)



mage from cdc.gov

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"The most commonly cited reasons for using e-cigarettes among both youth and young adults are curiosity, flavoring/taste, and low perceived harm compared to other tobacco products."

SGR 2016, Conclusion #6, Chapter 2

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Correlates of Youth E-cigarette Use

- Evidence that e-cigarettes are attracting youth with intermediate risk profiles for using cigarettes
- Some correlates of e-cigarette use are the same as for cigarette use but some weaker associations compared to cigarette smoking or dual use
- E-cigarette-only user has an overall lower risk profile than cigarette-only and dual user, greater than non-user
- The longitudinal relationship between e-cigarette use and onset of cigarette smoking among never smokers was stronger for youth at lower risk of smoking vs. higher risk
- Dual and poly use of e-cigarettes with other products and substances
- E-cigarettes and other tobacco products, especially cigarettes
- E-cigarettes and other substances, especially marijuana

Barrington-Trimis et al., 2015; Wills et al., 2015; Leventhal and Sussman, 2016; Miller et al., 2017; Case et al., 2017; Dutra and Glantz, 2017; Sawdey et al., 2018; Wills et al., 2016; SGR, 2016

Unique Challenges to Addressing Youth E-Cigarette Cessation – Fewer Perceived Negatives for Use

- Lack of knowledge about nicotine presence/level in products, think they are just using flavors (ex. 63% 15-24 didn't know JUUL contains nicotine)
- Low perceived addictiveness of e-cigarettes, lack of understanding about vulnerability to consequences of nicotine addiction
- Low harm perceptions compared to cigarettes
- Lack of stigma compared to cigarettes odor minimized or smells sweet, flavors are appealing (taste and novelty)
- E-cigarette use among close friends and friends' positive attitudes toward e-cigarette use is associated with susceptibility to e-cigarette use and cigarette smoking
- Greater acceptance of using e-cigarette in indoor or outdoor environments than cigarettes

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Willett et al., 2019; SGR, 2016; Gorunkanti et al., 2017; Kwon et al., 2018; Lechner et al., 2018; Kowitt et al., 2018

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Considerations for Youth E-cigarette Cessation Intervention

Increase motivation among youth e-cigarette users

Increase understanding of vulnerability to addiction

Increase harm perceptions

Critical to address perceived benefits/lack of negatives and social context

Consider stage of e-cigarette use, interrupt progression to regular use

NIH E-cigarette Funding Opportunity Announcement

- PAR 18-847/848: Electronic Nicotine Delivery Systems (ENDS): Population, Clinical and Applied Prevention Research (R01/R21) - NCI, NIDA, NIDCR, NIMHD
- <u>Purpose</u>: to support studies on ENDS that examine population-based, clinical and applied
 prevention of disease (including cancer, dental, oral, and/or craniofacial) including etiology of use,
 epidemiology of use, potential risks, benefits and impacts on other tobacco use behavior among
 different populations
- Specific topics of interest to NCI include, but are not limited to:
- Studies to identify risk and protective factors for ENDS use, including dual/poly-tobacco
 product use among youth and young adults (such as, but not limited to, perceptions of
 risk/benefit, parent influences, peer influences, relationship to other substance use, proximity to
 tobacco outlets, density of tobacco outlets and other environmental factors)
- NCI's Scientific Contact: Rachel Grana Mayne, PhD, MPH
- Last receipt date: June 27, 2020

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Summary

- Opportunity to learn from teen smoking cessation interventions to plan research and interventions for e-cigarette cessation and dual/poly use cessation
- Need to develop evidence base for youth e-cigarette cessation
- Address the unique factors contributing to appeal and use of e-cigarettes by youth
- Youth tobacco cessation interventions best addressed as part of a comprehensive tobacco control program

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