

Teen Tobacco Use

Research and Regulatory Gaps

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Cigarettes are the greatest single threat to public health in the U.S.¹ and worldwide.² The good news is that teen cigarette smoking has been trending down in recent years.³ The bad news is that teen use of other tobacco products may be taking up the slack.

This is very bad news—and it comes despite the momentum of the past decade when researchers learned much about how and why youth try cigarettes, how quickly they show signs of addiction, how hard it is for them to quit, how insidious and effective tobacco marketing remains,⁴ and how effective policies can reduce youth smoking.

Many in the tobacco-control community were encouraged by the news that the U.S. Food and Drug Administration (FDA) was regulating cigarettes and smokeless tobacco. The FDA could now constrain marketing for cigarettes even more, impose packaging restrictions, including bigger and better warning labels, require companies to list all the ingredients in their products, and even regulate the manufacturing of the product, including nicotine content.

Unfortunately, cigarette and smokeless companies were also encouraged by the news—enough to respond with a massive output of more than 3,000 substantially equivalent products—new brands that they claim are little different from products that were already on the market before 2007. Additionally, companies that produce non-regulated products have filled voids created by FDA regulations. For example, cigar manufacturers have responded to FDA cigarette flavor restrictions with a flood of flavored little and medium cigars. Additionally, a new potentially reduced risk product has emerged—the electronic or e-cigarette.⁵ Being unregulated, e-cigarettes have rapidly gained a foothold in the U.S. market.⁶ Companies are promoting e-cigarettes using mass media, including

television⁷ and celebrity endorsements,⁸ to get the word out. The question this FDA/CDC research collaboration seeks to ask is, what are the implications of all these new products on youth tobacco use? The answers are just beginning to emerge, and it appears that the impact of these new products on youth behavior is profound—youth are using them all, some more than others.

New Tobacco Product Use Among Teens— A Big Research Gap

Until recently, researchers have focused almost exclusively on cigarette smoking. This research has taught us many things, among them: (1) some youth—those who are poor,⁹ whose social networks are characterized by high smoking rates,^{10,11} and whose personality is characterized by sensation-seeking^{12,13} and deviance tolerance¹⁴—begin experimenting in early adolescence, and these youth tend to be at high risk for many other risk behaviors¹⁵; (2) smoking is not limited to these high-risk youth—the onset of smoking among middle- and upper-class youth continues through young adulthood in workplace and college settings¹⁶; (3) some youth exhibit symptoms of addiction soon after smoking onset, and well prior to regular use^{17,18}; (4) many youth tobacco users report wanting to quit and trying but failing to succeed^{19–21}; and (5) exposure to tobacco marketing is one cause of youth smoking.⁴

This *American Journal of Preventive Medicine* supplement highlights new work addressing the use of expanded cigarette and other tobacco products by youth in an era of FDA regulation. It reports results from the 2012 National Youth Tobacco Survey of almost 25,000 U.S. middle and high school students.

The articles in the supplement confirm some things that we already know. For example, about half of current youth tobacco users have tried to quit using in the past year, and quitting intentions vary little by product used. Adolescents remain curious about tobacco products, and curiosity is associated with their recollection of seeing tobacco marketing. Finally, despite restrictions in the marketing of tobacco products, adolescents—especially users—remain susceptible to marketing. For example, use of tobacco coupons was only 13% overall but 30% among current tobacco users.

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The supplement also tells us a lot that is new. The survey was modified to include many forms of tobacco in the market today. The survey found that about half of respondents were aware of new tobacco products, with substantial rates of ever and current use of e-cigarettes (7% and 2%, respectively); hookah (9% and 4%); and cigars (21% and 8%). Many of the surveyed adolescents were using multiple products, as evidenced by the fact that use of alternative products was much higher among cigarette users. There were also notable racial and ethnic differences in prevalence; for example, current cigar use was much higher among non-Hispanic blacks, among whom cigar smoking greatly exceeded cigarette smoking.

Perhaps most importantly, the survey looked at use of e-cigarettes. The key question with youth is whether e-cigarettes will recruit youth that would not have otherwise tried tobacco because of the perceived health risks (90% of youth perceived daily smoking to be very harmful to health)—youth that may transition to using combustible products once they become addicted to nicotine.

The survey found that use of e-cigarettes alone was uncommon, but those who did use them perceived them to be lower risk than using cigarettes. These perceptions are not surprising; after all, some tobacco researchers see e-cigarettes as a potential game changer that could dramatically reduce health risk among combustible tobacco users.²² Theoretically, combustible tobacco users could substantially reduce their risk only through exclusive use of e-cigarettes; instead, most current users consume e-cigarettes in addition to combustible products, a practice that may have little impact on harm caused by combustible tobacco.

FDA Oversight of the Tobacco Industry— A Big Regulatory Gap

The goal of the Family Smoking Prevention and Tobacco Control Act was, in part, to “ensure that the FDA has the authority to address issues of particular concern to public health officials, especially the use of tobacco by young people and dependence on tobacco.” To date, the agency has moved very cautiously in implementing regulations, much too slow to keep up with an industry that has responded with thousands of novel products and even new classes of products. The recently launched youth anti-tobacco campaign is a welcome FDA action, rolling out a national media campaign that emphasizes short-term health consequences and loss of self-control implied by nicotine addiction. Raising perceptions of immediate harm could lower youth experimentation. However, these

ads cover only cigarettes and smokeless tobacco. This supplement underlines that, in order to substantially affect tobacco use, the FDA will have to succeed in regulating other products that they will soon have authority over—hookah, e-cigarettes, and cigars. The million-dollar question is whether the very deliberative FDA bureaucracy, designed primarily to regulate drug development, will be able to move fast enough to effectively capture and regulate the rapidly evolving tobacco industry.

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References

1. Jha P, Ramasundarathetige C, Landsman V, et al. 21st-century hazards of smoking and benefits of cessation in the U.S. *N Engl J Med* 2013;368(4):341–50.
2. Peto R, Lopez AD, Boreham J, Thun M, Heath C Jr, Doll R. Mortality from smoking worldwide. *Br Med Bull* 1996;52(1):12–21.
3. Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. National survey results on drug use, 1975–2012: volume I, secondary school students. Ann Arbor MI: University of Michigan Institute for Social Research, 2012. www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2012.pdf.
4. USDHHS. Preventing tobacco use among youth and young adults: a report of the Surgeon General. Atlanta GA: USDHHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2012.
5. Palazzolo DL. Electronic cigarettes and vaping: a new challenge in clinical medicine and public health. A literature review. *Front Public Health* 2013;1:56.
6. Zhu SH, Gamst A, Lee M, Cummins S, Yin L, Zoref L. The use and perception of electronic cigarettes and snus among the U.S. population. *PLoS One* 2013;8(10):e79332.
7. Esterl M. Holy smokes: e-cigarette ads debut on TV. *The Wall Street Journal*, 2013. online.wsj.com/news/articles/SB10001424052702304753504579282752217648562.
8. Satel S. Are Hollywood starlets glamorizing smoking by using e-cigarettes? *New York: Forbes*, 2014. www.forbes.com/sites/realspin/2014/01/23/are-hollywood-starlets-glamorizing-smoking-by-using-e-cigarettes.
9. Tyas SL, Pederson LL. Psychosocial factors related to adolescent smoking: a critical review of the literature. *Tob Control* 1998;7(4):409–20.
10. Christakis NA, Fowler JH. The collective dynamics of smoking in a large social network. *N Engl J Med* 2008;358(21):2249–58.
11. Ennett ST, Bauman KE. Peer group structure and adolescent cigarette smoking: a social network analysis. *J Health Soc Behav* 1993;34(3):226–36.
12. Arnett J. Sensation seeking: a new conceptualization and a new scale. *Person Individ Diff* 1994;16(2):289–96.
13. Wills TA, Vaccaro D, McNamara G. Novelty seeking, risk taking, and related constructs as predictors of adolescent substance use: an application of Cloninger's theory. *J Subst Abuse* 1994;6(1):1–20.
14. Chassin L, Presson CC, Pitts SC, Sherman SJ. The natural history of cigarette smoking from adolescence to adulthood in a midwestern community sample: multiple trajectories and their psychosocial correlates. *Health Psychol* 2000;19(3):223–31.

15. Wills TA, Cleary S, Filer M, Shinar O, Mariani J, Spera K. Temperament related to early-onset substance use: test of a developmental model. *Prev Sci* 2001;2(3):145–63.
16. Bernat DH, Klein EG, Forster JL. Smoking initiation during young adulthood: a longitudinal study of a population-based cohort. *J Adolesc Health* 2012;51(5):497–502.
17. DiFranza JR, Savageau JA, Fletcher K, et al. Symptoms of tobacco dependence after brief intermittent use: the Development and Assessment of Nicotine Dependence in Youth–2 study. *Arch Pediatr Adolesc Med* 2007;161(7):704–10.
18. Scragg R, Wellman RJ, Laugesen M, DiFranza JR. Diminished autonomy over tobacco can appear with the first cigarettes. *Addict Behav* 2008;33(5):689–98.
19. Bachmann MS, Znoj H, Brodbeck J. Smoking behaviour, former quit attempts and intention to quit in urban adolescents and young adults: a five-year longitudinal study. *Public Health* 2012;126(12):1044–50.
20. Sargent JD, Mott LA, Stevens M. Predictors of smoking cessation in adolescents. *Arch Pediatr Adolesc Med* 1998;152(4):388–93.
21. Tzilos GK, Strong DR, Abrantes AM, Ramsey SE, Brown RA. Quit intention as a predictor of quit attempts over time in adolescents with psychiatric disorders. *Am J Addiction* 2013;23(1):84–9.
22. Barbeau AM, Burda J, Siegel M. Perceived efficacy of e-cigarettes versus nicotine replacement therapy among successful e-cigarette users: a qualitative approach. *Addict Sci Clin Pract* 2013;8(1):5.