



# Tobacco Control and Treatment for the Pediatric Clinician: Practice, Policy, and Research Updates

Brian P. Jenssen, MD, MSHP; Karen M. Wilson, MD, MPH

From the Department of Pediatrics, University of Pennsylvania School of Medicine and PolicyLab, The Children's Hospital of Philadelphia (Dr Jenssen); and Division of General Pediatrics, Kravis Children's Hospital at Mount Sinai, New York, NY (Dr Wilson)

The authors have no conflicts of interest to disclose.

Present address for Karen M. Wilson, MD, MPH, Debra and Leon Black Division of General Pediatrics, Clinical and Translational Research, Department of Pediatrics, Kravis Children's Hospital at Mount Sinai, New York, NY.

Address correspondence to Brian P. Jenssen, MD, MSHP, Department of Pediatrics, University of Pennsylvania School of Medicine, PolicyLab, The Children's Hospital of Philadelphia, 3535 Market St, Rm 1454, Philadelphia, PA 19103 (e-mail: [jenssenb@email.chop.edu](mailto:jenssenb@email.chop.edu)).

Received for publication April 13, 2016; accepted December 17, 2016.

## ABSTRACT

Tobacco use is the leading cause of preventable death in the United States, and exposure to tobacco smoke harms children from conception forward. There is no safe level of tobacco exposure. Although overall smoking rates have declined, the advent of new products, such as electronic cigarettes, threatens to perpetuate nicotine addiction without clear health benefits. In addition to reviewing traditional and new tobacco products, we discuss the unique role that pediatricians should play in tobacco treatment and control efforts. New policies and technologies can empower pediatric clinicians and pediatric health care sys-

tems to help parent smokers quit, and new policies outside of the health care setting might help prevent smoking initiation as well as improve cessation treatments. Future research is needed to continue to study the consequences of tobacco use exposure as well as the best ways to help patients and parents stop tobacco use.

**KEYWORDS:** children; electronic cigarettes; secondhand smoke exposure; tobacco; tobacco policy; tobacco treatment

**ACADEMIC PEDIATRICS** 2017;17:233–242

## SCOPE OF PROBLEM

### TRADITIONAL TOBACCO PRODUCTS, MORBIDITY AND MORTALITY DATA

Although there are so many challenges in US health care and public health, we start this review with a sobering statistic: cigarette smoking remains the leading cause of preventable disease and death in the United States. Each year, approximately 480,000 deaths are attributable to smoking, responsible for 1 of every 5 deaths and 1 of every 3 cancer deaths in the United States. One in 6 adults—16.8% of the US adult population—smoke cigarettes, representing 40 million individuals older than the age of 18 years. This use results in more than \$300 billion in direct health care expenditures and productivity losses each year. Cigarettes are addictive by design and kill half of their long-term users.<sup>1,2</sup>

Exposure to secondhand smoke (SHS) from burning tobacco affects 58 million US nonsmokers—one-quarter of nonsmokers—causing more than 41,000 deaths among nonsmoking adults and 400 deaths in infants each year. There is no safe level of tobacco smoke exposure.<sup>3</sup> Exposure to tobacco smoke harms children from conception forward, either causing or exacerbating the risks of a litany of conditions, including, but not limited to: preterm birth, low birth weight, congenital malformations, stillbirth, sudden infant death syndrome, childhood

obesity, behavior problems, neurocognitive deficits, increased inflammatory conditions, preclinical atherosclerosis, reduced kidney function, middle ear infection, cough, reduced lung function, wheezing, more severe asthma, more severe bronchiolitis, pneumonia, and cancer.<sup>4–10</sup> Exposure to thirdhand tobacco smoke—the smoke that remains on surfaces and in dust and contains nicotine, tobacco-specific carcinogens and other toxicants—is another route of tobacco toxin exposure.<sup>4,11</sup> Children can absorb, ingest, and inhale these substances, which are widely prevalent and persist even in the households where smokers attempt to protect their children by smoking outdoors.<sup>12</sup> Finally, exposure to tobacco smoke might lead to symptoms of dependence in children who do not themselves use tobacco.<sup>13,14</sup>

### DISPARITIES IN TOBACCO USE AND EXPOSURE

Tobacco use and exposure is concentrated disproportionately among our most vulnerable and socioeconomically disadvantaged populations. Whereas 16.8% of the adult population smokes, disparities in smoking prevalence are consistently observed, for example, on the basis of education level (high school graduate only, 21.7% or General Education Development, 43.0%), poverty status (below poverty level, 26.3%), and health insurance coverage (Medicaid enrollees, 29.1%).<sup>1</sup> Disparities in

cigarette use extend to disparities in nonsmokers exposed to SHS. Whereas 25.3% of US nonsmokers are exposed, SHS is highest among children aged 3 to 11 years (40.6%), non-Hispanic black persons (46.8%), persons living below the poverty level (43.2%), and persons living in rental housing (36.8%). Children who come from socioeconomically disadvantaged populations are the most vulnerable, with nearly 7 in 10 non-Hispanic black children exposed.<sup>15</sup> Finally, there is strong evidence for the existence of an elevated prevalence of smoking among lesbian, gay, bisexual, transgender youth and young adult populations compared with the general population.<sup>16</sup> Although sexual identity does not have an intrinsic link to tobacco, substance abuse, or other risk behaviors, it is theorized that the stress of marginalization in this population might predispose to tobacco and other substance use.<sup>17</sup>

### YOUTH AND EMERGING TOBACCO PRODUCTS

Tobacco use and addiction mostly begin during youth and young adulthood, a period when the brain has heightened susceptibility to nicotine addiction.<sup>11</sup> Significant strides have been made in decreasing traditional cigarette use in middle and high school students over the past 2 decades. During 2011 to 2015, for example, among all high school students, current use of cigarettes has decreased significantly from 15.8% to 9.3%.<sup>18</sup> This accomplishment should be not minimized, but enthusiasm is tempered among the public health community because there has been a dramatic increase of emerging tobacco products during the same time period. During 2011 to 2015, significant increases in current use of electronic cigarettes (e-cigarettes) and hookahs (water pipes used to smoke tobacco) occurred among middle and high school students, whereas current use of conventional tobacco products, such as cigarettes and cigars decreased, resulting in no change in overall tobacco product use during this time period. For the first time in 2014, and a trend that continued into 2015, e-cigarettes (16.0%) are now the most commonly used tobacco product among high school students. Although the use of cigarettes and cigars declined during 2011 to 2015, there was no change in use of these products during 2014 to 2015, making cigarettes (9.3%) and cigars (8.6%) the second and third most commonly used tobacco products among youths in 2015, followed by hookahs (7.2%), smokeless tobacco (6.0%), and pipe tobacco (1.0%).<sup>18</sup>

### E-CIGARETTES

E-Cigarettes, also known as electronic nicotine delivery systems (ENDS), are handheld devices that produce an aerosol created from a solution of nicotine, flavoring chemicals, propylene glycol, and, often, other constituents unknown and/or unadvertised to the consumer. There is wide variability in terminology, product design, and engineering of these products, with alternative names including e-cigs, electronic cigars, electronic hookah, e-hookah, personal vaporizers, vape pens, and vaping devices.<sup>19</sup> A recent

American Academy of Pediatrics policy statement summarized the latest research around ENDS, emphasizing the potential for these products to addict a new generation of youth to nicotine and reverse more than 50 years of public health gains in tobacco control.<sup>20</sup> In this report, we briefly highlight the main findings of that policy statement, and incorporate the latest research and policy updates.

There are potential health harms to nonusers from e-cigarettes because of the toxicants, including nicotine, carcinogens, and metal particles, found in the secondhand and thirdhand aerosol.<sup>21,22</sup> Although e-cigarette advertisers often claim the secondhand aerosol is “harmless water vapor,” these claims are false: known harmful toxicants and carcinogens have been found in e-cigarette emissions.<sup>19</sup> Additionally, rates of acute nicotine poisoning have increased because of unintentional exposures of children from the concentrated nicotine-containing e-cigarette solution; this includes 1 death.<sup>23</sup> Fortunately, national legislation recently passed, called the Child Nicotine Poisoning Prevention Act, requiring child-safe packaging for all nicotine-containing liquids.

The increased use of and exposure to e-cigarettes among youth, combined with dramatic increases in marketing,<sup>24</sup> could undermine successful efforts to deglamorize, restrict, and decrease the use of tobacco products. The unique flavors offered in e-cigarette solutions, the majority of which are confectionary in nature and appealing to children,<sup>25</sup> have been shown to, in traditional tobacco products, encourage youth experimentation, regular use, and addiction.<sup>26</sup> Further, among youth, self-reported e-cigarette use is associated with higher odds of ever or current conventional cigarette smoking.<sup>27</sup> One survey found that e-cigarette users might have fewer social and behavioral risk factors than conventional cigarette users, raising concern that e-cigarettes are attracting youth who might not otherwise have used tobacco products. Additionally, compared with nonusers, youth who used e-cigarettes perceived them as healthier than cigarettes.<sup>28</sup> Although this sentiment might reflect youth who smoke conventional cigarettes seeking a perceived healthier alternative, e-cigarette use among youth was associated with lower rates of abstinence from conventional cigarettes.<sup>27</sup>

Health claims that e-cigarettes are effective smoking cessation aids are currently unsupported by scientific evidence. E-cigarettes are neither US Food and Drug Administration (FDA)-approved nor have they been shown to be safe or effective for tobacco dependence treatment. In one randomized controlled clinical trial of e-cigarettes compared with an evidence-based treatment option, nicotine replacement therapy (NRT) patch, low rates of smoking cessation with no significant difference between nicotine-containing and placebo devices in cessation rates was reported.<sup>29</sup> In population-based studies, the use of e-cigarettes is associated with decreased rates of smoking cessation among adolescents and adults.<sup>27,30</sup> Unless the

Download English Version:

<https://daneshyari.com/en/article/5716992>

Download Persian Version:

<https://daneshyari.com/article/5716992>

[Daneshyari.com](https://daneshyari.com)