INTRODUCTION/PROBLEM STATEMENT

Tobacco exposures, that include personal tobacco use, secondhand smoke or third hand smoke exposures, are highly prevalent, and there is clear evidence linking human health consequences with tobacco exposures. The U.S. Surgeon General reported scientific evidence demonstrating that there are no safe levels of secondhand smoke exposure, and that tobacco smoke as a known human carcinogen is associated with disease and death in nonsmokers (U.S. Department of Health and Human Services, 2006; 2010a). Tobacco smoke exposure is linked to adverse health outcomes, particularly cancer, cardiovascular and pulmonary diseases. Physiological mechanisms underlying smoking-related diseases include DNA damage, inflammation, and oxidative stress (U.S. Department of Health and Human Services, 2006; 2010a). The primary addictive component of tobacco is nicotine. Repeated nicotine exposures become associated with daily environmental cues, producing long term changes in dopaminergic signals in the reward/reinforcement brain centers and eventually resulting in addiction (Das, Cherbuin, Anstey, Sachdev, & Easteal, 2012; Siqueira & American Academy of Pediatrics Committee on Substance Use and Prevention, 2017).

In the U.S., adult smoking rates have decreased over the past decade (15.1%, 2015), though higher prevalence is found in the Midwest (18.7%) and South (15.3%) (Centers for Disease Control and Prevention (CDC), 2016a). Increased smoking rates among adults are seen primarily in young adults of childbearing age, adults who live below the poverty level, minorities, and adults with a GED certificate or 12 or fewer years of education. Rural residents, particularly males and adults (ages 18-34 years) bear a disproportionate burden of tobacco use, with 27.8% of rural residents smoking tobacco as compared to 22.7% of urban residents (American Lung Association, 2012a). Rates of non-cigarette tobacco product use, including electronic cigarettes (e-cigarettes) and hookahs, by young adults (ages 18-24 years) exceeded that of older adults (25 years and older) (U.S. Department of Health and Human Services, 2016).

The 2015 Youth Risk Behavior Surveillance Survey reported that 32.3% of adolescents reported trying a cigarette at least once, a significant decrease from 70.1% reported in 1991 (CDC, 2016b). The current rate of adolescent tobacco use (cigarette, cigar, smokeless tobacco) is 18.5%, though rates are higher among males (23.3%) as compared to females (13.4%), and higher in white students as compared to nonwhite students (CDC, 2016b). While conventional tobacco use (cigarettes) has declined in adolescents, adolescent e-cigarette use has rapidly increased over the last five years. In 2015, 13.5% of middle school students and 37.7% of high school students reported using e-cigarettes. Adolescents who are more likely to use e-cigarettes include males, Hispanics and Whites, older students, and those with less education. Adolescent e-cigarette use is often associated with other tobacco products, such as cigarettes or smokeless tobacco (e.g., chewing tobacco) (U.S. Department of Health and Human Services, 2016). Rural adolescents are more likely to start using tobacco at earlier ages, as compared to urban

Tobacco use is associated with more than 480,000 deaths per year, with lung cancer, ischemic heart disease and chronic obstructive pulmonary disease (COPD) as the leading causes of smoking-attributable deaths (U.S. Department of Health and Human Services, 2014). Tobacco industries spent approximately $8.49 billion on cigarette advertising and promotional expenses in 2014 (Federal Trade Commission, 2016). In contrast, annual expenditures are estimated to be over $132.5 billion for smoking-attributable costs due to cigarette smoking, and annual health care expenditures associated with secondhand smoking have been estimated to be more than $5.6 billion (U.S. Department of Health and Human Services, 2014).

E-cigarette liquids contain solvents, toxicants, and flavorants are known to have adverse health effects; however, little is known about the health effects of e-cigarettes (U.S. Department of Health and Human Services, 2016). Young children are particularly vulnerable to nicotine ingestion, and e-cigarette liquid ingestion is associated with acute toxicity and death (Buettner-Schmidt, Miller & Balasubramanian, 2016; U.S. Department of Health and Human Services, 2016). Most e-cigarette devices are produced in Asia, and device flaws and malfunctioning devices have resulted in serious injuries due to device malfunctioning or incorrectly charged batteries resulting in explosions and fires (Bohr, Almarzouqi & Pallus, in press; Shastry & Langdorf, 2016).

Children may be exposed to tobacco through inhalation, ingestion, and dermal routes. Secondhand smoke exposure remains higher for children (ages 3-11 years, 40.6%) and adolescents (ages 12-19 years, 33.8%), as compared to adult nonsmokers (older than 20 years, 21.3%) (CDC, 2015). While parents are responsible for over 90% of children’s exposure to tobacco, resident grandparents and other relatives living in the household may also contribute. Secondhand smoke exposure has been strongly linked to early life health consequences. Smoking during pregnancy has been clearly linked to fetal growth deficits, fetal death and deformities, and low birth weight (U.S. Department of Health and Human Services, 2014). Prenatal and postnatal maternal and paternal secondhand smoke exposures have been strongly linked to SIDS, and in utero exposure has been associated with a 23 gram decrease in birth weight (U.S. Department of Health and Human Services, 2010a; 2014). Secondhand smoke exposure is associated with an increased prevalence of recurrent otitis media, respiratory infections, and asthma exacerbations (Institute of Medicine (IOM), 2000; U.S. Department of Health and Human Services, 2006). Children exposed to secondhand smoke who are hospitalized for influenza are 4.7 times more likely to be admitted to intensive care units, have 70% longer hospital stays, and greater illness acuity (Wilson, Pier, Wesgate, Cohen, & Blumkin, 2012).

**DEFINITION(S)**

Secondhand smoke exposure is side stream smoke, that is, a mixture of chemicals emitted in smoke from a burning cigarette, as well as the mainstream smoke exhaled from the lungs of smokers (Matt et al., 2011).

Third hand smoke consists of residual tobacco smoke pollutants that remain on surfaces (e.g., clothing, hands, furniture) and in the dust, after tobacco has been smoked (Matt et al., 2011).
RATIONALE AND SUPPORTING INFORMATION

Children and adolescents are particularly susceptible to nicotine, a highly addictive chemical, due to their rapidly developing brains. Tobacco use in early life is associated with a neurophysiologic dependence, thus greater amounts of nicotine are needed to maintain equilibrium; and childhood/adolescent tobacco use initiation is more likely to be associated with greater difficulties in cessation (Siqueira & American Academy of Pediatrics Committee on Substance Use and Prevention, 2017). Infrequent smoking (e.g., monthly) in adolescents can increase the likelihood of developing nicotine addiction by tenfold (Doubeni, Reed & Difrnaza, 2010; U.S. Department of Health and Human Services, 2014). Additives in cigarettes (menthol) and e-cigarettes (flavorants) used to reduce the harsh tobacco taste make tobacco use among children and adolescents appealing (Siqueira & American Academy of Pediatrics Committee on Substance Use and Prevention, 2017; U.S. Department of Health and Human Services, 2016).

While secondhand smoke contains over 4,000 chemicals, third hand smoke contains some of these same chemicals, as well as others not found in freshly emitted tobacco smoke (U.S. Department of Health and Human Services, 2006). Poor indoor air quality (increased levels of particulate matter) leading to unhealthy indoor air conditions has been associated with tobacco exposure in indoor areas (homes, hotel rooms, cars, etc.). Third hand smoke exposure is pervasive in multi-unit indoor environments, spreading through air ducts, walls, and floor cracks, along plumbing and electrical routes, as well as moving from one floor of a multistory building to another (American Lung Association, 2012b; Matt et al., 2011). Tobacco smoke exposure levels may remain unhealthy even when smoking is confined to distal smoking areas (Matt et al., 2011; Van Deusen, 2009).

Children may have third hand exposure from contact surfaces, and preschool children may be more likely to ingest nicotine from surfaces given their hand to mouth practices, as they grow older this exposure risk declines (Matt et al., 2011). Tobacco smoke exposure in cars has been found to be associated with an increased likelihood of respiratory symptoms such as cough and wheeze in children (Kabir et al., 2009), in lower income populations (Jain, 2016), and secondhand exposure was found to be present in automobiles despite driving with open windows (Sendzik, Fong, Travers, & Hyland, 2009).

Young adults and inner city parents often lack knowledge of the risks associated with secondhand smoke exposure. Two parent households, parents with college educations, upper income households (household income greater than $50,000) or households with infants are more likely to report smoke-free homes and car rules (Zhang, Martinez-Donate & Rhoads, 2015). Nonsmokers living with a smoker are more likely to report home/car smoking ban rules and have higher risk perceptions of secondhand smoke exposure as compared to smokers (Binns, O'Neil, Benuck, & Ariza, 2009; Wamboldt et al., 2008). Smoking bans are often hard to enforce when there is a smoker with cravings, bad weather (cold, rain, etc.) or when there is a visitor who smokes (Escoffery, Kegler, & Butler, 2009). However, secondhand smoke exposure reductions in households are associated with fewer emergency department visits, hospitalizations, and exacerbations for children with asthma (Gerald et al., 2009).

Interventions to reduce tobacco use and exposure among children/adolescents have included policy, minimal clinical advice, counseling services and parental smoking cessation programs, and with most programs conducted through encounters in health-related settings. Efforts to reduce tobacco use, promote smoke free environments, as well as federal, state and local regulations have increased because of greater awareness of the health concerns associated
with tobacco use and exposures. Comprehensive smoke free legislation in the U.S. has been passed in only 28 states and the District of Columbia, though few states have addressed emerging tobacco products such as e-cigarettes (American Lung Association, 2017). Reducing tobacco use, increasing smoking cessation treatments through changes in health systems, and social/environmental changes to reduce secondhand smoke exposure remain as major public health goals (U.S. Department of Health and Human Services, 2010b).

**POSITION and/or RECOMMENDATIONS**

To reduce tobacco exposure and use among children and families, as well as tobacco use by nurses, SPN recommends:

1. Promoting a tobacco-free culture and supporting members to be role models by not using tobacco, including cigarettes and non-cigarette products (e.g., e-cigarettes, hookahs, etc.).
2. Assessing tobacco use and exposure in all health care encounters with children and adolescents (tobacco use and exposure assessment question added as a vital sign) (Turner-Henson, Kohler, Lyrene, & Johnston, 1999).
3. Counseling parents on strategies of how to promote smoke-free homes, cars, and recreational settings (CDC, 2014).
4. Gaining knowledge and skills in smoking cessation treatment strategies, and implement best practice tobacco reduction interventions in all healthcare settings (CDC, 2017).
5. Identifying tobacco cessation resources for adolescents and parents.
6. Enacting institutional comprehensive smoke-free policies (CDC, 2017), and ensuring review of policies includes both cigarettes and non-cigarette products (e.g., e-cigarettes, hookahs, etc.).
7. Advocating for community anti-tobacco policies that prohibit tobacco use and the sale and distribution to youth.
8. Establishing institutional policies that restrict accepting any known tobacco industry support, financial or otherwise, and prohibiting investment in the tobacco industry.
9. Establishing institutional policies that prohibit the advertising, promotion, or sale of tobacco products on its premises.
10. Hosting all Society activities (including chapters, committees) in smoke-free environments.

**REFERENCES**


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