



Health Disparities in Tobacco Use and Exposure: A Structural Competency Approach

Jyothi Marbin, MD, FAAP,^a Sophie J. Balk, MD, FAAP,^b Valerie Gribben, MD, FAAP,^a Judith Groner, MD, FAAP,^c SECTION ON TOBACCO CONTROL

Fourteen percent of US adults use tobacco products. Because many of those who use tobacco are parents and/or caregivers, children are disproportionately exposed to tobacco smoke. People who use tobacco products often become addicted to nicotine, resulting in tobacco dependence, a chronic, relapsing disease. Tobacco use and exposure are more likely to occur in vulnerable and marginalized groups, including those living in poverty. Although some view tobacco use as a personal choice, evidence suggests that structural forces play an important role in tobacco uptake, subsequent nicotine addiction, and perpetuation of use. Viewing tobacco use and tobacco dependence through a structural competency lens promotes recognition of the larger systemic forces perpetuating tobacco use, including deliberate targeting of groups by the tobacco industry, lack of enforcement of age-for-sale laws, inferior access to health insurance and health care, poor access to cessation resources, and economic stress. Each of these forces perpetuates tobacco initiation and use; in turn, tobacco use perpetuates the user's adverse health and economic conditions. Pediatricians are urged to view family tobacco use as a social determinant of health. In addition to screening adolescents for tobacco use and providing resources and treatment of tobacco dependence, pediatricians are encouraged to systematically screen children for secondhand smoke exposure and support family members who smoke with tobacco cessation. Additionally, pediatricians can address the structural issues perpetuating tobacco use by becoming involved in policy and advocacy initiatives.

BACKGROUND

Tobacco use results in exposure to nicotine, a powerfully addictive substance, often leading to tobacco dependence. Tobacco dependence is considered a pediatric disease because most tobacco use and subsequent

abstract

^aUniversity of California, San Francisco, San Francisco, California; ^bAlbert Einstein College of Medicine and Children's Hospital at Montefiore, Bronx, New York; and ^cCollege of Medicine, The Ohio State University and Nationwide Children's Hospital, Columbus, Ohio

Clinical reports from the American Academy of Pediatrics benefit from expertise and resources of liaisons and internal (AAP) and external reviewers. However, clinical reports from the American Academy of Pediatrics may not reflect the views of the liaisons or the organizations or government agencies that they represent.

Dr Marbin framed the overriding theme of the manuscript, conceptualized the manuscript, wrote a significant amount of content for the manuscript, and reviewed the manuscript; Drs Balk, Gribben, and Groner conceptualized the manuscript, wrote a significant amount of content for the manuscript, and reviewed the manuscript; and all authors approved the final manuscript as submitted.

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All clinical reports from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

DOI: <https://doi.org/10.1542/peds.2020-040253>

Address correspondence to Jyothi Marbin, MD, FAAP. E-mail: jyothi.marbin@ucsf.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2021 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: The authors have indicated they do have no financial relationships relevant to this article to disclose.

To cite: Marbin J, Balk SJ, Gribben V, et al.; AAP SECTION ON TOBACCO CONTROL. Health Disparities in Tobacco Use and Exposure: A Structural Competency Approach. *Pediatrics*. 2021;147(1):e2020040253

addiction begin in adolescence.^{1,2} Tobacco dependence is a chronic disease,³ and users are prone to relapse and remission.⁴ People who use tobacco suffer consequences, including disease and premature death. Their children suffer from the direct impact of parental tobacco use, including prenatal, secondhand smoke (SHS), and thirdhand smoke (THS) exposure, as well as the economic and social consequences of family tobacco use. Most tobacco users want to quit, and many make multiple quit attempts. People who smoke are more likely to quit when they receive treatment from clinicians.⁴

Although the overall use of combustible tobacco products is declining,⁵ tobacco use and exposure continue to affect marginalized* populations disproportionately. These groups include people living in poverty, people suffering from mental illness, and people with lower educational attainment. Other groups are highlighted in Table 1. The consequences of tobacco use and exposure are more concentrated in people already more likely to face greater health and economic challenges.⁶

The same children who are exposed to SHS are exposed to THS, or the “residues left behind by smoking,” which can include chemicals that “remain, react, re-emit, and/or are resuspended long after active smoking ends.”¹¹ Children are uniquely exposed to THS because of home exposure, dermal uptake from crawling, and increased respiratory rates compared with adults. However, distinguishing health effects of THS from SHS is challenging. For the purpose of this clinical report, the

term SHS exposure is used, understanding that this designation may refer to both SHS and THS.

Although combustible tobacco use has declined in the United States, electronic cigarette (e-cigarette), vaping, or Juuling usage has accelerated, reaching epidemic proportions among youth¹²; more than 20% of high school students now vape.¹³ The American Academy of Pediatrics (AAP) policy statement “E-Cigarettes and Similar Devices” details the clear links between e-cigarette companies’ coordinated, targeted advertising to youth and subsequent rapid increase in e-cigarette initiation among youth. That report also highlights research showing that adolescents and young adults who vape are 3.6 times more likely to progress to traditional cigarettes than those who never vaped, paving the way for new cycles of addiction.¹⁴ Although it is clear that e-cigarette use is rapidly changing the landscape of tobacco use and nicotine addiction, a comprehensive review of disparities related to e-cigarette use is beyond the scope of this clinical report. This report will focus on disparities related to combustible tobacco, recognizing the need for a separate report on disparities related to e-cigarette uptake and use.

This report proposes interventions to reduce disparities in combustible tobacco use and exposure using a structural competency framework. Pediatricians treating children whose parents or other caregivers use tobacco (and adolescents using tobacco) are urged to offer consistent cessation advice and tobacco-dependence treatment. Parents who have a primary care provider should also be advised to seek additional counseling and support from that clinician. If caregivers are unable to stop smoking, pediatricians should advise maintaining smoke-free clothing, homes, and cars.¹ Pediatricians may feel frustrated

when counseling patients and caregivers who continue to smoke despite discussions about cessation^{15,16}; however, pediatricians who gain a deeper understanding of structural factors perpetuating tobacco dependence may be better able to help families break the cycle of tobacco use. Viewing family tobacco use as a social determinant of health (SDH), systematically screening for tobacco exposure, and offering tobacco-dependence treatment to caregivers who smoke are ways to overcome structural barriers to smoking cessation. Advocacy steps and policy changes are also recommended to address structural inequalities reinforcing tobacco use.

STRUCTURAL ISSUES PERPETUATING DISPARITIES IN TOBACCO USE

Why Use a Structural Competency Framework?

Although some see tobacco use as a personal choice among adult informed decision-makers, looking at tobacco use through a structural competency framework calls attention to the larger societal forces that lead people to use tobacco. The structural competency approach frames health inequities “in relation to the institutions and social conditions that determine health related resources” and is focused on structural changes to address upstream causes of health disparities.¹⁷ The structural competency framework adds to the SDHs approach by acknowledging that social injustice and power dynamics underlie health inequity.¹⁸ Although the structural competency approach is used in social work and public health, it may be a new paradigm for clinicians focused on the care of individual patients.

Many structural issues perpetuate tobacco initiation and use on both a global and domestic scale. The

* The authors use the term “marginalized” to include social groups that are intentionally excluded from mainstream society through social and political oppression. The authors recognize that it is the social processes (and not any characteristic intrinsic to the people themselves) that lead to health disparities.¹⁰⁴

TABLE 1 Effects of Tobacco Use and Exposure on Marginalized Populations

High-risk Group ^a	Smoking Rate	Coexisting Challenges (Examples)	Comments
Black or African American people ⁷	Black or African American people usually smoke fewer cigarettes and start smoking at older ages compared with white people.	Black or African American people are more likely to die of smoking-related diseases than are white people.	Black or African American children and adults are more likely to be exposed to SHS than other racial or ethnic groups.
Hispanic people ^b	Cigarette smoking prevalence generally is lower than for most other US racial or ethnic groups, but rates are significantly higher for men compared with women.	Acculturation plays a role: smoking prevalence is higher among Hispanic people born in the United States.	Current prevalence is higher among Puerto Rican adults compared with Cuban, Mexican, and Central or South American adults.
Immigrants and refugees ^c	Smoking rates among immigrants to the United States (especially female immigrants) generally are lower than rates in US populations.	Smokers from these groups have vulnerability compounded by economic disadvantage, preimmigration experiences, attitudes toward smoking, and sociocultural and/or language barriers influencing access to care, including smoking cessation.	Research is limited because studies have been focused mainly on Mexican, other Hispanic, and Asian populations. More research is needed to investigate tobacco exposure in these and other immigrant populations.
Incarcerated people ^d	Smoking prevalence is approximately 4 times higher in criminal justice populations than in the general population.	Characteristics often found in individuals who are incarcerated, (eg, history of substance abuse, mental illness, poverty, low educational attainment) also increase likelihood of tobacco use.	The United States has the highest rate in the world of incarcerating adults. People of racial and ethnic minority groups are disproportionately affected; Black men are incarcerated at higher rates than non-Hispanic white men and Hispanic men.
LGBTQ people ^e	Of lesbian, gay, and bisexual adults, 20.5% smoke cigarettes, versus 15.3% of straight adults; 30.7% of transgender individuals smoke.	Gay men have high rates of HPV infection; coupled with tobacco use, this increases risk for anal and/or other cancers; LGBTQ individuals are less likely to have health insurance, which may affect cessation treatment options.	The tobacco industry targets LGBTQ individuals.
American Indian people ^f	The American Indian population has the highest cigarette smoking rates compared with other US racial or ethnic groups.	More American Indian women smoke during the last 3 mo of pregnancy compared with all other groups.	Some American Indian populations use tobacco for religious, ceremonial, or medicinal reasons. It is important to distinguish traditional versus commercial use. In addition, casino smoke exposure is difficult to regulate because of jurisdictional issues on reservations.
People of low socioeconomic status ^g	Adults below the poverty level are approximately 2 times more likely to use cigarettes, cigars, and smokeless tobacco as adults who live at greater than twice the poverty level.	There are higher lung cancer rates in those living in poverty compared with affluent groups; there is also less access to health care; therefore, tobacco-related conditions are diagnosed at later stages.	Low-income neighborhoods have a higher concentration of tobacco retailers.
People with mental illness and substance use disorders ^h	Approximately 25% of US adults have some form of mental illness or substance use disorder; these adults consume approximately 40% of all cigarettes smoked by adults.	People with mental illness more likely to have stressful living conditions, have low annual household income, and have inferior access to health insurance, health care, and help with quitting.	The tobacco industry perpetuates idea that it is impossible for these individuals to stop smoking.
People living in Tobacco Nation ⁹	Twenty-two percent of Tobacco Nation's adults smoke, compared with 15% of adults in the rest of the United States. Those in Tobacco Nation smoke many more cigarettes per capita annually (66.6 packs) than those in the rest of the United States (40.6 packs).	Residents of Tobacco Nation earn 20% less than those in the rest of the United States. There are 12% fewer doctors in Tobacco Nation, meaning that accessing primary care can be more challenging.	Compared with the rest of the country, Tobacco Nation has fewer smoke-free laws and tobacco-control policies, measures which have been proven to protect the public, deter youth smoking, and encourage cessation.
People living in rural communities ¹⁰	The prevalence of cigarette smoking among US adults is highest among those living in rural areas (28.5%).	The health of people living in rural areas is affected by tobacco more than the health of those living in urban and metropolitan areas, in part because of socioeconomic factors and lack of health care options.	Adolescents in rural regions begin smoking cigarettes earlier in life. Thirty-five percent of children in rural areas live in a household where someone smokes.

HPV, human papillomavirus.

^a These groups may not represent all of the high-risk groups. See text for other examples.

^b Centers for Disease Control and Prevention. Burden of cigarette use in the U.S. Available at: https://www.cdc.gov/tobacco/campaign/tips/resources/data/cigarette-smoking-in-united-states.html#by_race. Accessed November 17, 2020.

^c Bosdriesz JR, Lichtart N, Witvliet MI, Busschers WB, Stronks K, Kunst AE. Smoking prevalence among migrants in the US compared to the US-born and the population in countries of origin. *PLoS One*. 2013;8(3):e58654. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3592805/>. Accessed November 17, 2020.

^d Valera P, Reid A, Acuna N, Mackey D. The smoking behaviors of incarcerated smokers. *Health Psychol Open*. 2019;6(1):2055102918819930. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6328956/>. Accessed November 17, 2020.

^e Centers for Disease Control and Prevention. Lesbian, gay, bisexual, and transgender persons and tobacco use. Available at: <https://www.cdc.gov/tobacco/disparities/lgbt/index.htm>. Accessed November 17, 2020.

^f Centers for Disease Control and Prevention. American Indians/Alaska Natives and tobacco use. Available at: <https://www.cdc.gov/tobacco/disparities/american-indians/index.htm>. Accessed November 17, 2020.

^g Centers for Disease Control and Prevention. Cigarette smoking and tobacco use among people of low socioeconomic status. Available at: <https://www.cdc.gov/tobacco/disparities/low-ses/index.htm>. Accessed November 17, 2020.

tobacco industry aggressively targets vulnerable and marginalized groups, including children. People who smoke often have poor access to health insurance and health care, lack access to cessation resources, and live in poverty, all of which, in addition to other factors, perpetuate tobacco use and dependence. The lack of effective enforcement of age-for-sale laws means that too often youth have unregulated access to tobacco products.^{19,20} Tobacco dependence and exposure reinforces existing health disparities, and these health disparities perpetuate tobacco dependence, creating a cycle of intergenerational tobacco dependence, poverty, and poor health (Fig 1). Pediatricians can continue to engage and support individuals in cessation attempts while also recognizing and addressing economic, social, and political structures that reinforce tobacco dependence and exposure. Adding a structural competency approach to individual clinical interventions will help pediatricians recognize and address some of the structural factors promoting tobacco dependence and will allow pediatricians to push back against a cycle of addiction and disadvantage that reinforces its use.

Structural Barriers: The Tobacco Industry

Targeting vulnerable populations is a well-established tactic used by the tobacco industry to recruit new smokers and maintain current smokers. Children, the most vulnerable group, have long been targeted and tasked to serve as “replacement smokers” by the tobacco industry.²¹ The rapidly developing adolescent brain is uniquely susceptible to nicotine addiction,²² and 90% of adults who smoke started smoking before 19 years of age,²³ thus giving tobacco companies great incentive to recruit youth smokers. Documents reveal that the tobacco industry has clearly recognized this opportunity. Philip Morris executives noted, “Today’s teenager is tomorrow’s potential customer...”²⁴ The 2014 US Surgeon General’s report acknowledged that “the root cause of the smoking epidemic is evident: the tobacco industry aggressively markets and promotes lethal and addictive products, and continues to recruit youth and young adults as new consumers of these products.”² Although tobacco companies deny intentional marketing to children, they continue to advertise tobacco in outlets designed to reach children.²⁵

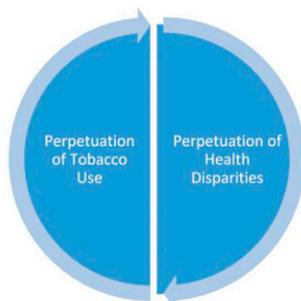
Lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals are a focus of targeted campaigns, likely contributing to higher smoking rates compared with non-LGBTQ individuals. In 1992, a tobacco industry memo stated, “We see the gay community as an area of opportunity... Philip Morris would be one of the first (if not the first) tobacco advertiser in this category and would thus ‘own the market.’”²⁶ The tobacco industry subsequently began advertising in publications aimed at the LGBTQ community and financially supporting LGBTQ organizations.²⁷

Black and African American youth and adults have been systematically targeted through advertisements, retailers, and promotion of menthol products. More tobacco advertisements are found in communities with a higher density of Black and African American residents. In these communities, Black and African American youth have been recruited to smoke through advertising and the distribution of free cigarette samples.²⁸ The proportion of Black and African American smokers who use menthol cigarettes increased from 5% in 1952 to 89% in 2011, likely because of aggressive racial targeting by the menthol cigarette industry. Between 1998 and 2002, *Ebony* magazine, a monthly publication with a large Black and African American readership, was nearly 10 times as likely to contain ads for menthol cigarettes as *People* magazine, which has a larger readership among white Americans.²⁹ This targeted advertising has contributed to nearly 90% of Black and African American smokers using menthol cigarettes, which are more addictive and more harmful than nonmenthol cigarettes.⁷

American Indian and Alaskan native people are also subject to predatory targeting by the tobacco industry. Tobacco companies exploit the federal exemptions that accompany

Structural Issues Perpetuate Tobacco Use & Health Disparities

- Tobacco industry targets marginalized populations
- Decreased access to health insurance means inadequate treatment
- Employment discrimination may make it harder for people who smoke to find jobs
- Missed school leads to fewer educational opportunities
- Unregulated child care centers may expose children to SHS



- Smoking during pregnancy may lead to learning and behavior challenges through epigenetic effects
- Youth are more likely to smoke if their parents smoke
- SHS leads to illnesses which can lead to missed school and work

Tobacco Use & Exposure Reinforce Disparities

FIGURE 1

Tobacco use and exposure reinforce existing health disparities, and these health disparities perpetuate tobacco use.

the unique sovereign status of tribal lands to increase their own economic profit, using tactics such as promotional coupons, price reductions, giveaways, and sponsorships.³⁰ Tobacco companies employ manipulative strategies to exploit sacred use of tobacco. For example, the Santa Fe Natural Tobacco Company, now owned by R.J. Reynolds, produced “an exclusive line of authentic reproductions of Native American pipes, snuff containers, tobacco pouches, and other natural tobacco implements.”³¹ These and other tactics are believed to contribute to the disproportionate burden of tobacco-related disease in Indigenous populations.³⁰

Since the 1920s, women have been targeted through appealing tobacco advertising that gave them perceived psychosocial needs around weight loss, independence, stress relief, and the need to escape.³² As smoking rates for increasingly educated women started to decrease, targeting of low-income women increased, with significant resources devoted to understanding the psychological profiles of potential customers.³² R.J. Reynolds Tobacco Company attempted to distribute coupons for packs of cigarettes in envelopes with foods stamps. Coupons were for individual packs, not cartons, because “the lower-income groups tend to buy single packs.”³²

People living in rural areas are also at higher risk of smoking and tobacco-related disease. Rural adolescents start smoking earlier and are more likely to be daily smokers than adolescents living in nonrural areas. Young rural men have historically been targeted through tobacco advertisements featuring cowboys, hunters, and other “rugged images.” Antitobacco media are less likely to reach youth living in rural areas.¹⁰ This targeting contributes to higher rates of tobacco use and lower life expectancies in the 12 contiguous states collectively known as “Tobacco

Nation”⁹: Alabama, Arkansas, Indiana, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Ohio, Oklahoma, Tennessee, and West Virginia.

The industry also cultivated relationships with organizations working with people with mental illness and funded research to encourage the erroneous ideas that cessation is too stressful for people with mental illness and that people with mental illness need to self-medicate with nicotine to relieve negative moods.⁸

Tobacco companies use targeted marketing strategies because they are incredibly effective in recruiting smokers. As “big tobacco” and “big vaping” become increasingly entwined,³³ a resurgence of these advertising tactics aimed at attracting youth to e-cigarettes has been observed. Pediatricians need to be aware of this targeted advertising and its impact on vulnerable populations.³⁴

Structural Barriers: Decreased Access to Insurance

Structural barriers maintain intergenerational smoking by reinforcing economic disparities and limiting access to tobacco-dependence treatment.

Access to health insurance is one example. In more than 40 states, people who smoke can be charged higher insurance rates than those who do not smoke³⁵; in some states, these rates can be up to 25% higher than rates for nonsmokers.³⁶ People from marginalized groups are already much less likely to have health insurance; raising premiums for people who smoke makes health insurance even harder and more expensive to obtain. In a 2016 study, authors examined the impact of tobacco surcharges on insurance coverage and cessation among people who smoked and found that smokers were 7.3% less likely to have health insurance coverage than nonsmokers.³⁷ The authors also

noted that “tobacco surcharges increased neither smoking cessation nor financial protection from high health care costs.”³⁷ Without health insurance, tobacco users may have limited access to care for smoking-related illnesses as well as less access to tobacco-dependence treatment. The treatment they can access may be inadequate, for example, providing limited medication only for a limited period of time. Such regressive policies do little to treat nicotine addiction as a chronic illness; instead, they limit access to treatment for people who are addicted to nicotine.³⁶

Life insurance is also more expensive for people who smoke,³⁸ which affects the ability of those who smoke, who have a higher mortality rate from numerous health problems, to provide financial security for their survivors, including minor children or grandchildren, in the event of their demise.

Structural Barriers: Employment Challenges

Discrimination in employment is another example of a structural barrier. Cross-sectional studies have consistently demonstrated an association between smoking and unemployment.³⁹ A 2006–2007 study of more than 52 000 construction workers found that those who smoked were more likely to be unemployed than those who did not smoke.⁴⁰ In one study of unemployed job seekers, people who smoke were found to be less likely to be reemployed after 1 year than those who did not smoke and were paid less when they were rehired.³⁹ The cost of hiring someone who smokes is estimated at nearly \$6000 more than the cost of hiring a nonsmoker,⁴¹ meaning that some employers simply refuse to hire people who smoke.⁴² Those who are living in poverty, are unemployed, and have less formal education are more likely to use tobacco. Refusing to employ smokers

effectively restricts access to jobs and ensures that people who smoke remain at an economic disadvantage.⁴³

Structural Barriers: Missing Work and School

Adding to the economic burden is hardship caused by missed work because of caregiver or child illness. Children are more likely to be absent from school if their caregiver smokes,⁴⁴ meaning caregivers may have to miss work to care for their sick child. The cost of missing work to care for a sick child can be high; caregivers lose an estimated \$227 million per year caring for ill children,⁴⁴ which reinforces economic disparities. Repeated school absences can hinder a child's school performance⁴⁵ and, in the long-term, may influence career trajectory and earning potential.⁴⁴

The cycle of health and economic disparities among people who use tobacco is self-perpetuating; adults who smoke who are unable to escape the cycle of addiction are more likely to have children who smoke,^{46,47} giving rise to new generations addicted to nicotine and susceptible to these same economic hardships.

Structural Barriers: Exposure in Child Care Settings

For young children, out-of-home child care may represent a significant portion of their day and a source of exposure, particularly for parents who have low incomes, do not speak English, have lower educational levels, or are single parents. These families are more likely to use non-center-based care⁴⁸ and instead may rely on child care with less oversight, where children may be more likely to be exposed to SHS.

INTERGENERATIONAL FACTORS PERPETUATING DISPARITIES

Smoking Rates During Pregnancy Are Higher in Marginalized Groups

Smoking during pregnancy is a risk factor for perpetuating intergenerational health disparities. Data from the Pregnancy Risk Assessment Monitoring System reveal that although prevalence of maternal smoking during pregnancy declined significantly between 2000 and 2010,⁴⁹ differences in prevalence by race and/or ethnicity persist. In 2010, smoking during pregnancy was highest among American Indian women (26.0%), followed by non-Hispanic white women (14.3%), non-Hispanic Black women (8.9%), Hispanic women (3.4%), and Asian American and/or Pacific Islander women (2.1%).⁴⁹ Birth certificate data for 2014 reveal that, overall, approximately 8.4% of women smoked at any time during pregnancy. Higher smoking rates during pregnancy were observed in women with fewer than 12 years of education (14.1%), women with Medicaid coverage (14.0%), women between 20 and 24 years of age (13.0%), unmarried women (14.7%), and non-Hispanic American Indian women (18.0%).⁵⁰ Smoking during pregnancy is associated with maternal vulnerability: women who experienced intimate partner violence were more likely to smoke during pregnancy and less likely to stop smoking.⁵¹

Smoking During Pregnancy Perpetuates Disparities

A large body of literature describes links between smoking during pregnancy and short- and long-term health issues in offspring, including increased infant mortality, sudden unexpected infant death,⁵² low birth weight, and respiratory problems. In addition to these detrimental outcomes of exposure to smoking in utero, epidemiological observational evidence links prenatal smoking to

increased risks of obesity, behavioral problems, conduct disorder, attention-deficit/hyperactivity disorder (ADHD), and cognitive issues in children.⁵³⁻⁵⁹ Recent research has revealed a dose-response relationship between maternal cotinine concentrations (indicating nicotine exposure) during pregnancy and presence of ADHD in children.⁶⁰ These associations remain even after controlling for confounding factors, such as maternal income and education and maternal and paternal ADHD diagnoses, and are linked to poor health and lower educational attainment. The research cited here has been conducted internationally (United States, Canada, and Europe), so it does not reflect a particular geographic confounding factor to explain the association between smoking during pregnancy and poor outcomes in children. Such pregnancy exposure can be said to perpetuate disparities because children with behavioral, conduct, and learning issues are likely to have a more difficult time throughout the life span. The potential mechanisms for adverse outcomes from prenatal smoking include direct effects of nicotine, carbon monoxide, and other tobacco toxicants on the developing fetal brain along with the potential for fetal adaptation to an adverse prenatal environment, potentially through epigenetic changes. Although epigenetic research is in the early stages,⁶¹ smoking-related epigenetic modifications of gene transcription in specific cells may be mechanisms by which the effects of maternal smoking during pregnancy are transmitted to the next generation.^{61,62} Further research will elucidate the epigenetic effects of prenatal smoking on alterations in neural circuitry during fetal development⁶² and may help establish mechanisms of the relationships between prenatal smoking and poor behavioral and cognitive outcomes in children.

Women who stop smoking during pregnancy are at risk for relapse after birth, leading to SHS exposure in infants and children.⁶³ Relapse may also perpetuate the cycle of beginning the next pregnancy with fetal exposure to maternal smoking.

SHS Exposure and Childhood Disparities

Children’s SHS exposure is a socioeconomic and educational disparity⁴ that leads to differences in health outcomes. It can be difficult to separate effects of prenatal smoking and postnatal SHS exposure; several of these outcomes, including sleep problems (sleep-disordered breathing, sleep apnea, nighttime awakenings)^{64–67} and sudden infant death syndrome,^{68–70} are linked to both prenatal smoking and postnatal smoke exposure. Impaired sleep itself during childhood is linked to cognitive and behavior issues and poor quality of life.^{71–75}

Children exposed to SHS are more likely to develop asthma, and their asthma is more severe than that in nonexposed children.^{76–80} The prevalence and severity of bronchiolitis, acute otitis media, chronic otitis media, influenza, and preclinical cardiovascular changes^{81–88} is linked to childhood SHS exposure. Smoke exposure in

utero and during childhood sets children up for poorer physical and mental health throughout their lives, which leads to poor school performance and may affect future job success and earning potential.

Finally, parents who are addicted to tobacco may prioritize tobacco over food and other basic needs,^{89–93} exacerbating negative health outcomes for children.

OFFICE-LEVEL INTERVENTIONS FOR PEDIATRICIANS

Pediatricians are well-positioned to help break the cycle of tobacco dependence at both the individual and structural levels. In this section, office-level interventions are described.

Screening for Tobacco Use and Exposure as SDHs

Tobacco use and exposure are SDHs that contribute to a more difficult future for already marginalized children, adolescents, and adults. Pediatricians have embraced screening and referral systems for other SDHs (eg, food insecurity, insurance access, mental health concerns, housing insecurity, unstable employment) that connect families to necessary resources.^{94,95} SDHs are complex and often intertwined,

increasing the challenge of addressing them, but tobacco use in parents and other caregivers is an SDH for which there currently are effective and actionable interventions.

Effective Interventions for Tobacco Cessation

Adults who smoke are able to achieve quit rates of more than 30% with a combination of medication and counseling from a primary care provider.⁹⁶ The pediatric visit provides a unique opportunity for pediatricians to offer tobacco-dependence treatment to parents and caregivers because most young parents see their children’s pediatrician more frequently than they see their own health care providers. Pediatricians can identify children who are exposed to tobacco smoke and assist parents, caregivers, and other household members who want to stop smoking.

The AAP policy statement “Clinical Practice Policy to Protect Children from Tobacco, Nicotine, and Tobacco Smoke”¹ clearly delineates mechanisms for screening for tobacco use and exposure at each visit and providing support to people who smoke. This assistance may include connecting them to state quitlines (such as 1-800-QUIT-NOW) or cessation services and recommending

TABLE 2 AAP Policy Statements and Other Resources for Tobacco and E-cigarettes

Resources for Decreasing Tobacco Exposure at the Individual Practice Level	Evidence Base for Tobacco Control	E-cigarette and Vaping Resources	Advocacy and Policy Resources	Social Justice Frameworks
“Clinical Practice Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke” (AAP policy statement, 2015)	“Protecting Children From Tobacco, Nicotine, and Tobacco Smoke” (AAP technical report, 2015)	“E-Cigarettes and Similar Devices” (AAP policy statement, 2019)	“Public Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke” (AAP policy statement, 2015)	“Health Disparities in Tobacco Use and Exposure: A Structural Competency Approach” (AAP clinical report, 2021)
CEASE Resources (Massachusetts General Hospital Web site)	“Nicotine and Tobacco as Substances of Abuse in Children and Adolescents” (AAP technical report, 2017)	Vaping, JUUL and E-Cigarettes Presentation Toolkit (Julius B. Richmond Center of Excellence Web site)	Tobacco Prevention Policy Tool (Julius B. Richmond Center of Excellence Web site)	“The Impact of Racism on Child and Adolescent Health” (AAP policy statement, 2019)
Pediatric Environmental Health manual (AAP policy manual, 2018)			Tobacco Education Resources for Kids & Teens (HealthyChildren.org)	
“Substance Use Screening, Brief Intervention, and Referral to Treatment” (AAP clinical report, 2016)				

or prescribing nicotine replacement therapy (NRT). This policy addresses parameters for prescribing NRT to parents, including potential liability, disease assessment, risks versus benefits, and documentation.¹

There are many ways to help caregivers cut down on or stop smoking⁹⁶; accessible resources are available from the AAP (Table 2). One option for office practices is Clinical Effort Against Secondhand Smoke

Exposure (CEASE), a program for clinicians designed to increase smoking cessation through brief motivational interviewing, a recommendation or prescription for NRTs, and referral to cessation helplines.^{97,98} CEASE has been shown to increase tobacco-dependence treatment offered by pediatric clinics; recent research has revealed promising results that parents who received CEASE interventions at their

child's clinic were more likely to quit smoking.^{96,99}

Social networks also affect smoking cessation. Smoking cessation by a spouse, sibling, friend, or co-worker increases the chance that an individual will also stop smoking.¹⁰⁰ Therefore, it may be beneficial to ask about other people who use tobacco within a tobacco user's social network and to suggest cessation resources for those people as well. In addition,

TABLE 3 Suggested Structural Interventions to Reduce Tobacco-Related Disparities

Structural Intervention	Rationale	Comment
End predatory targeting by the tobacco industry	Tobacco companies target vulnerable and marginalized groups.	Regulating predatory marketing tactics used by tobacco companies will protect children and other vulnerable groups and reduce tobacco initiation.
Ensure basic health coverage for all	Adequate health care would include the following: (1) access to evidence-based therapies for smoking cessation, (2) early recognition and treatment of tobacco use-related diseases, and (3) coverage for mental health services.	Coverage also increases the likelihood that people with mental health problems who also smoke receive needed health services.
Make funds for tobacco-dependence treatment available for people without insurance	Adequate tobacco-dependence treatment should be accessible to all.	Tobacco taxes are a potential source of funding.
Advocate for employers to provide effective tobacco-dependence treatment to employees who smoke	Tobacco-dependence treatment in the workplace may help workers stop smoking, stay in the workforce, and gain a better economic footing.	Efforts may thus reduce the burden of unemployment on those already experiencing poverty.
Incorporate smoking cessation for caregivers into pediatric visits	Caregivers often visit pediatric clinicians more frequently than their own clinicians, creating important opportunities to discuss tobacco use and need for cessation.	Clinicians aware of structural issues may be more likely to understand counseling efforts as interventions to address these issues. They may be more likely to use a chronic disease model and motivational interviewing techniques.
Support reimbursement for clinicians treating caregivers who smoke; ensure consistent coverage for tobacco-dependence treatment	Pediatricians should be compensated for time spent treating caregivers' tobacco dependence. ¹⁰² Consistent payment by health insurers for health risk assessments and preventive care counseling, already defined by CPT coding, and consistent health coverage of FDA-approved medications for tobacco-dependence treatment of household contacts, ¹⁰² even when available over the counter, may improve cessation rates.	ICD-10 codes allow pediatricians to code for SHS exposure ^a but not for time to assist caregivers with smoking cessation.
Improve access to counseling and medications by investing in streamlined referrals from EHRs to smoking quitlines	Greater access may improve referral rates to counseling services; many quitlines provide free NRT to their users.	EHR systems also can be modified to allow opening a linked medical record for the child's caregiver. This can facilitate documentation of pediatrician support given to the caregiver.
Partner with schools to monitor absences; provide educational opportunities for children chronically absent because of illness	Children exposed to SHS are more likely to miss school, impeding academic achievement.	Strategies to help children stay on track educationally may help improve educational outcomes.
Urge all child care centers to follow guidance about tobacco exposure	For young children, out-of-home care may represent a significant portion of their day and a source of exposure—particularly for low-income parents who may rely on family day care with less oversight when it comes to these issues. Currently, even teachers in centers are often subject to the structural SDHs as they tend to be low wage workers as well.	This guidance is provided by the National Resource Center for Health and Safety in Child Care and Early Education in <i>Caring for Our Children</i> . ¹⁰³

CPT, *Current Procedural Terminology*; EHR, electronic health record; FDA, US Food and Drug Administration; ICD-10, *International Classification of Diseases, 10th Revision*.

^a American Academy of Pediatrics. Tobacco/e-cigarettes use/exposure coding fact sheet for primary care pediatrics. Available at: https://downloads.aap.org/AAP/PDF/coding_factsheet_tobacco.pdf. Accessed November 17, 2020.

tobacco users may be able to help identify ways in which their social networks can support cessation.

EDUCATION AND TRAINING

Evidence-based smoking cessation counseling techniques can be integrated into curricula for medical students and residents so that trainees become familiar with behavioral and pharmacologic strategies to help people stop smoking.¹ Trainees should learn that tobacco dependence is a chronic disease similar to other chronic diseases that need consistent treatment by clinicians. Important components of treatment include cessation medications approved by the US Food and Drug Administration, including the nicotine patch, gum, and lozenge. E-cigarettes and similar devices should not be prescribed for tobacco-dependence treatment.¹³

Counseling and recommending or prescribing NRT can be incorporated into their practice. Trainees who plan to prescribe NRT for parents should review the guidelines described above.¹ In addition, as part of their curriculum, trainees can be educated on big tobacco's history of deceptive, targeted marketing techniques and encouraged to discuss potential parallels with the current vaping epidemic. Framing this information as a structural issue will make it clearer to trainees that tobacco use and its consequences are not uniformly distributed in the population.

Including smoking cessation counseling as part of pediatric graduate medical education will help trainees recognize that the most effective way to treat children exposed to SHS (and to prevent the children from using tobacco themselves) is to treat their caregivers. Regular trainings in this area will increase workforce capacity to treat tobacco dependence in families, which will decrease structural barriers to smoking cessation and eventually help improve child outcomes. Trainees can

be taught smoking cessation approaches by using a structural competency framework as part of the advocacy curriculum required in pediatric residency training.¹⁰¹

TOBACCO-RELATED ADVOCACY AND POLICY INTERVENTIONS

Pediatricians are trusted members of their communities and can play important roles in advocating for policies to protect children from tobacco use. Although a comprehensive review of advocacy strategies is beyond the scope of this document, we encourage readers to consult the resources available through the AAP (Table 2) for advocacy and policy actions related to tobacco use.

STRUCTURAL INTERVENTIONS TO REDUCE DISPARITIES

Larger systems that keep people in poverty need to change to address the disparities that perpetuate tobacco use. Changing these systems may be difficult because they have significant up-front costs and may threaten existing power structures. These structural changes are discussed above; Table 3 includes several key recommendations. Actions taken by pediatricians at local, state, and federal levels can support these and other initiatives aimed at addressing structural barriers that perpetuate intergenerational cycles of tobacco dependence and health disparities.

CONCLUSIONS

Tobacco dependence is a chronic, relapsing, addictive disease, and tobacco use causes 480 000 deaths in the United States every year. Structural barriers ensure that some marginalized groups initiate and use tobacco at disproportionately high rates. Members of these groups continue to experience health and economic disparities because of tobacco dependence, which, in turn, perpetuate tobacco dependence

through generations. Pediatricians have opportunities to reframe their understanding of tobacco-dependence treatment to include both individual and structural interventions. Viewing tobacco exposure as an SDH can help pediatricians systematically identify and provide support to family members using tobacco. Framing tobacco dependence through a structural competency lens and supporting appropriate advocacy and policy actions can disrupt tobacco use patterns and increase opportunities for children and their caregivers to live healthy, tobacco-free lives.

LEAD AUTHORS

Jyothi Marbin, MD, FAAP
Sophie J. Balk, MD, FAAP
Valerie Gribben, MD, FAAP
Judith Groner, MD, FAAP

SECTION ON TOBACCO CONTROL EXECUTIVE COMMITTEE, 2018–2019

Susan C. Walley, MD, FAAP
Rachel Boykan, MD, FAAP
Judith Groner, MD, FAAP
Brian P. Jenssen, MD, FAAP
Jyothi Marbin, MD, FAAP
Bryan Mih, MD, FAAP
Nina L. Alfieri, MD, FAAP
Alice Little Caldwell, MD, FAAP

STAFF

Karen S. Smith
Colleen Spatz, MSBA

ABBREVIATIONS

AAP: American Academy of Pediatrics
ADHD: attention-deficit/hyperactivity disorder
CEASE: Clinical Effort Against Secondhand Smoke Exposure
e-cigarette: electronic cigarette
LGBTQ: lesbian, gay, bisexual, transgender, and queer
NRT: nicotine replacement therapy
SDH: social determinant of health
SHS: secondhand smoke
THS: thirdhand smoke

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. Farber HJ, Walley SC, Groner JA, Nelson KE; Section on Tobacco Control. Clinical practice policy to protect children from tobacco, nicotine, and tobacco smoke. *Pediatrics*. 2015; 136(5):1008–1017
2. Centers for Disease Control and Prevention. 2014 US Surgeon General's report: the health consequences of smoking—50 years of progress. Available at: https://www.cdc.gov/tobacco/data_statistics/sgr/50th-anniversary/index.htm. Accessed July 14, 2020
3. Bernstein SL, Toll BA. Ask about smoking, not quitting: a chronic disease approach to assessing and treating tobacco use. *Addict Sci Clin Pract*. 2019;14(1):29
4. Tobacco Use and Dependence Guideline Panel. *Treating Tobacco Use and Dependence: 2008 Update*. Rockville, MD: US Department of Health and Human Services; 2008. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK63952/>. Accessed August 30, 2020
5. Centers for Disease Control and Prevention. Current cigarette smoking among adults in the United States. Available at: https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm. Accessed July 14, 2020
6. US National Cancer Institute. *A Socioecological Approach to Addressing Tobacco-Related Health Disparities*. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health; 2017
7. Centers for Disease Control and Prevention. African Americans and tobacco use. Available at: <https://www.cdc.gov/tobacco/disparities/african-americans/index.htm>. Accessed July 14, 2020
8. Centers for Disease Control and Prevention. Tobacco use and quitting among individuals with behavioral health conditions. Available at: <https://www.cdc.gov/tobacco/disparities/mental-illness-substance-use/index.htm>. Accessed July 14, 2020
9. Truth Initiative. Tobacco Nation: the deadly state of smoking disparity in the U.S. Available at: <https://truthinitiative.org/research-resources/smoking-region/tobacco-nation-deadly-state-smoking-disparity-us>. Accessed July 14, 2020
10. Centers for Disease Control and Prevention. Tobacco use by geographic region. Available at: <https://www.cdc.gov/tobacco/disparities/geographic/index.htmw>. Accessed xx xx, xxxx
11. Jacob P III, Benowitz NL, Destailats H, et al. Thirdhand smoke: new evidence, challenges, and future directions. *Chem Res Toxicol*. 2017;30(1):270–294
12. US Food and Drug Administration. Statement from FDA Commissioner Scott Gottlieb, M.D., on new steps to address epidemic of youth e-cigarette use. 2018. Available at: <https://www.fda.gov/news-events/press-announcements/statement-fda-commissioner-scott-gottlieb-md-new-steps-address-epidemic-youth-e-cigarette-use>. Accessed July 14, 2020
13. Cullen KA, Ambrose BK, Gentzke AS, Apelberg BJ, Jamal A, King BA. Notes from the field: use of electronic cigarettes and any tobacco product among middle and high school students - United States, 2011–2018. *MMWR Morb Mortal Wkly Rep*. 2018; 67(45):1276–1277
14. Jenssen BP, Walley SC; Section on Tobacco Control. E-cigarettes and similar devices. *Pediatrics*. 2019;143(2): e20183652
15. van Eerd EAM, Bech Risør M, Spigt M, et al. Why do physicians lack engagement with smoking cessation treatment in their COPD patients? A multinational qualitative study. *NPJ Prim Care Respir Med*. 2017;27(1):41
16. Collins BN, Levin KP, Bryant-Stephens T. Pediatricians' practices and attitudes about environmental tobacco smoke and parental smoking. *J Pediatr*. 2007; 150(5):547–552
17. Metz J, Hansen H. Structural competency: theorizing a new medical engagement with stigma and inequality. *Soc Sci Med*. 2014;103:126–133
18. National Association of County and City Health Officials. Advancing Public Narrative for Health Equity & Social Justice. Washington, DC: National Association of County and City Health Officials; 2018. Available at: http://publichealth.lacounty.gov/CenterForHealthEquity/PDF/advancing%20public%20narrative%20for%20health%20equity%20and%20social%20justice_NACCHO.pdf. Accessed July 14, 2020
19. American Lung Association in California. State of tobacco control 2014. Available at: http://tobaccocontrol.usc.edu/files/SOTC_2014_CA_REPORT_and_GRADES_3_7.pdf. Accessed July 14, 2020
20. Astor RL, Urman R, Barrington-Trimis JL, et al. Tobacco retail licensing and youth product use. *Pediatrics*. 2019; 143(2):e20173536
21. Campaign for Tobacco-Free Kids. Tobacco company quotes on marketing to kids. Available at: <https://www.tobaccofreekids.org/assets/factsheets/0114.pdf>. Accessed xx xx, xxxx
22. Yuan M, Cross SJ, Loughlin SE, Leslie FM. Nicotine and the adolescent brain. *J Physiol*. 2015;593(16):3397–3412
23. National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the*

- Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2012. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK99237/>. Accessed November 17, 2020
24. Cummings KM, Morley CP, Horan JK, Steger C, Leavell NR. Marketing to America's youth: evidence from corporate documents. *Tob Control*. 2002;11(suppl 1):i5–i17
 25. Bach L; Campaign for Tobacco-Free Kids. Tobacco company marketing to kids. Available at: <https://www.tobaccofreekids.org/assets/factsheets/0008.pdf>. Accessed July 14, 2020
 26. Smith EA, Thomson K, Offen N, Malone RE. "If you know you exist, it's just marketing poison": meanings of tobacco industry targeting in the lesbian, gay, bisexual, and transgender community. *Am J Public Health*. 2008; 98(6):996–1003
 27. Offen N, Smith EA, Malone RE. Is tobacco a gay issue? Interviews with leaders of the lesbian, gay, bisexual and transgender community. *Cult Health Sex*. 2008;10(2):143–157
 28. Hafez N, Ling PM. Finding the Kool Mixx: how Brown & Williamson used music marketing to sell cigarettes. *Tob Control*. 2006;15(5):359–366
 29. Landrine H, Klonoff EA, Fernandez S, et al. Cigarette advertising in Black, Latino, and White magazines, 1998-2002: an exploratory investigation. *Ethn Dis*. 2005;15(1):63–67
 30. Lempert LK, Glantz SA. Tobacco industry promotional strategies targeting American Indians/Alaska Natives and exploiting tribal sovereignty. *Nicotine Tob Res*. 2019;21(7):940–948
 31. American Cancer Society; Americans for Nonsmokers' Rights; Cancer Action Network. Manipulating a sacred tradition: an investigation of commercial tobacco marketing & sales strategies on the Navajo Nation and other native tribes. Available at: http://action.acscan.org/site/DocServer/Industry_Influence_Indian_Lands_Indian_Gaming.pdf?docID=8902. Accessed August 29, 2020
 32. Brown-Johnson CG, England LJ, Glantz SA, Ling PM. Tobacco industry marketing to low socioeconomic status women in the U.S.A. *Tob Control*. 2014; 23(e2):e139–e146
 33. LaVito A. Tobacco giant Altria takes 35% stake in Juul, valuing e-cigarette company at \$38 billion. Available at: <https://www.cnn.com/2018/12/20/altria-takes-stake-in-juul-a-pivotal-moment-for-the-e-cigarette-maker.html>. Accessed July 14, 2020
 34. Marbin JN, Gribben V. Tobacco use as a health disparity: what can pediatric clinicians do? *Children (Basel)*. 2019; 6(2):31
 35. Monti D, Kuzemchak M, Politi M. *The Effects of Smoking on Health Insurance Decisions Under the Affordable Care Act*. St Louis, MO: Center for Health Economics and Policy, Institute for Public Health at Washington University; 2016. Available at: <https://publichealth.wustl.edu/wp-content/uploads/2016/07/The-Effects-of-Smoking-on-Health-Insurance-Decisions-under-the-ACA.pdf>. Accessed July 14, 2020
 36. Kaplan CM, Graetz I, Waters TM. Most exchange plans charge lower tobacco surcharges than allowed, but many tobacco users lack affordable coverage. *Health Aff (Millwood)*. 2014;33(8): 1466–1473
 37. Friedman AS, Schpero WL, Busch SH. Evidence suggests that the ACA's tobacco surcharges reduced insurance take-up and did not increase smoking cessation. *Health Aff (Millwood)*. 2016; 35(7):1176–1183
 38. Loudenback T. Anyone trying to get life insurance should be ready to answer a loaded question: do you smoke pot? *Business Insider*: April 11, 2019. Available at: <https://www.businessinsider.com/smokers-marijuana-life-insurance-rates>. Accessed July 14, 2020
 39. Prochaska JJ, Michalek AK, Brown-Johnson C, et al. Likelihood of unemployed smokers vs nonsmokers attaining reemployment in a one-year observational study. *JAMA Intern Med*. 2016;176(5):662–670
 40. Okechukwu C, Bacic J, Cheng KW, Catalano R. Smoking among construction workers: the nonlinear influence of the economy, cigarette prices, and antismoking sentiment. *Soc Sci Med*. 2012;75(8):1379–1386
 41. Berman M, Crane R, Seiber E, Munur M. Estimating the cost of a smoking employee. *Tob Control*. 2014;23(5): 428–433
 42. Patel RR, Schmidt H. Should employers be permitted not to hire smokers? A review of US legal provisions. *Int J Health Policy Manag*. 2017;6(12): 701–706
 43. Schmidt H, Voigt K, Emanuel EJ. The ethics of not hiring smokers. *N Engl J Med*. 2013;368(15):1369–1371
 44. Levy DE, Winickoff JP, Rigotti NA. School absenteeism among children living with smokers. *Pediatrics*. 2011;128(4): 650–656
 45. Allison MA, Attisha E; Council on School Health. The link between school attendance and good health. *Pediatrics*. 2019;143(2):e20183648
 46. Cornelius MD, Leech SL, Goldschmidt L, Day NL. Prenatal tobacco exposure: is it a risk factor for early tobacco experimentation? *Nicotine Tob Res*. 2000;2(1):45–52
 47. Vuolo M, Staff J. Parent and child cigarette use: a longitudinal, multigenerational study. *Pediatrics*. 2013;132(3). Available at: www.pediatrics.org/cgi/content/full/132/3/e568
 48. Chaudry A, Pedroza JM, Sandstrom H, et al. *Child Care Choices of Low-Income Working Families*. Washington, DC: Urban Institute; 2011. Available at: <https://www.urban.org/sites/default/files/publication/27331/412343-Child-Care-Choices-of-Low-Income-Working-Families.PDF>. Accessed July 14, 2020
 49. Tong VT, Dietz PM, Farr SL, D'Angelo DV, England LJ. Estimates of smoking before and during pregnancy, and smoking cessation during pregnancy: comparing two population-based data sources. *Public Health Rep*. 2013;128(3): 179–188
 50. Curtin SC, Matthews TJ. Smoking prevalence and cessation before and during pregnancy: data from the birth certificate, 2014. *Natl Vital Stat Rep*. 2016;65(1):1–14
 51. Cheng D, Salimi S, Terplan M, Chisolm MS. Intimate partner violence and

- maternal cigarette smoking before and during pregnancy. *Obstet Gynecol.* 2015; 125(2):356–362
52. Anderson TM, Lavista Ferres JM, Ren SY, et al. Maternal smoking before and during pregnancy and the risk of sudden unexpected infant death. *Pediatrics.* 2019;143(4):e20183325
 53. Sun K, Zhang Y, Tian Y, Jiang X. Environmental tobacco smoke exposure and risk of habitual snoring in children: a meta-analysis. *J Epidemiol Community Health.* 2018;72(11): 1064–1070
 54. Aris IM, Rifas-Shiman SL, Li LJ, et al. Pre-, perinatal, and parental predictors of body mass index trajectory milestones. *J Pediatr.* 2018;201:69–77.e8
 55. Kristjansson AL, Thomas S, Lilly CL, Thorisdottir IE, Allegrante JP, Sigfusdottir ID. Maternal smoking during pregnancy and academic achievement of offspring over time: a registry data-based cohort study. *Prev Med.* 2018;113:74–79
 56. Kandel DB, Griesler PC, Schaffran C. Educational attainment and smoking among women: risk factors and consequences for offspring. *Drug Alcohol Depend.* 2009;104(suppl 1): S24–S33
 57. Zhu JL, Olsen J, Liew Z, Li J, Niclasen J, Obel C. Parental smoking during pregnancy and ADHD in children: the Danish national birth cohort. *Pediatrics.* 2014;134(2). Available at: www.pediatrics.org/cgi/content/full/134/2/e382
 58. Ruisch IH, Dietrich A, Glennon JC, Buitelaar JK, Hoekstra PJ. Maternal substance use during pregnancy and offspring conduct problems: a meta-analysis. *Neurosci Biobehav Rev.* 2018; 84:325–336
 59. Oken E, Baccarelli AA, Gold DR, et al. Cohort profile: project viva. *Int J Epidemiol.* 2015;44(1):37–48
 60. Sourander A, Sucksdorff M, Chudal R, et al. Prenatal cotinine levels and ADHD among offspring. *Pediatrics.* 2019; 143(3):e20183144
 61. Lewis AJ, Austin E, Knapp R, Vaiano T, Galbally M. Perinatal maternal mental health, fetal programming and child development. *Healthcare (Basel).* 2015; 3(4):1212–1227
 62. Knopik VS, Maccani MA, Francozio S, McGeary JE. The epigenetics of maternal cigarette smoking during pregnancy and effects on child development. *Dev Psychopathol.* 2012; 24(4):1377–1390
 63. Lelong N, Kaminski M, Saurel-Cubizolles MJ, Bouvier-Colle MH. Postpartum return to smoking among usual smokers who quit during pregnancy. *Eur J Public Health.* 2001;11(3):334–339
 64. Jara SM, Benke JR, Lin SY, Ishman SL. The association between secondhand smoke and sleep-disordered breathing in children: a systematic review. *Laryngoscope.* 2015;125(1):241–247
 65. Yolton K, Xu Y, Khoury J, et al. Associations between secondhand smoke exposure and sleep patterns in children. *Pediatrics.* 2010;125(2). Available at: www.pediatrics.org/cgi/content/full/125/2/e261
 66. Weinstock TG, Rosen CL, Marcus CL, et al. Predictors of obstructive sleep apnea severity in adenotonsillectomy candidates. *Sleep.* 2014;37(2):261–269
 67. Zhu Y, Au CT, Leung TF, Wing YK, Lam CWK, Li AM. Effects of passive smoking on snoring in preschool children. *J Pediatr.* 2013;163(4):1158–1162.e4
 68. Sawhani H, Jackson T, Murphy T, Beckerman R, Simakajornboon N. The effect of maternal smoking on respiratory and arousal patterns in preterm infants during sleep. *Am J Respir Crit Care Med.* 2004;169(6): 733–738
 69. Tirosh E, Libon D, Bader D. The effect of maternal smoking during pregnancy on sleep respiratory and arousal patterns in neonates. *J Perinatol.* 1996;16(6): 435–438
 70. Sawhani H, Olsen E, Simakajornboon N. The effect of in utero cigarette smoke exposure on development of respiratory control: a review. *Pediatr Allergy Immunol Pulmonol.* 2010;23(3): 161–167
 71. Jackman AR, Biggs SN, Walter LM, et al. Sleep-disordered breathing in preschool children is associated with behavioral, but not cognitive, impairments. *Sleep Med.* 2012;13(6): 621–631
 72. Galland B, Spruyt K, Dawes P, McDowall PS, Elder D, Schaughency E. Sleep disordered breathing and academic performance: a meta-analysis. *Pediatrics.* 2015;136(4). Available at: www.pediatrics.org/cgi/content/full/136/4/e934
 73. Beebe DW, Rausch J, Byars KC, Lanphear B, Yolton K. Persistent snoring in preschool children: predictors and behavioral and developmental correlates. *Pediatrics.* 2012;130(3): 382–389
 74. Rosen CL, Palermo TM, Larkin EK, Redline S. Health-related quality of life and sleep-disordered breathing in children. *Sleep.* 2002;25(6):657–666
 75. Gottlieb DJ, Chase C, Vezina RM, et al. Sleep-disordered breathing symptoms are associated with poorer cognitive function in 5-year-old children. *J Pediatr.* 2004;145(4):458–464
 76. Farber HJ, Wattigney W, Berenson G. Trends in asthma prevalence: the Bogalusa Heart Study. *Ann Allergy Asthma Immunol.* 1997;78(3):265–269
 77. Howrylak JA, Spanier AJ, Huang B, et al. Cotinine in children admitted for asthma and readmission. *Pediatrics.* 2014;133(2). Available at: www.pediatrics.org/cgi/content/full/133/2/e355
 78. McCarville M, Sohn MW, Oh E, Weiss K, Gupta R. Environmental tobacco smoke and asthma exacerbations and severity: the difference between measured and reported exposure. *Arch Dis Child.* 2013; 98(7):510–514
 79. Cohen RT, Raby BA, Van Steen K, et al.; Childhood Asthma Management Program Research Group. In utero smoke exposure and impaired response to inhaled corticosteroids in children with asthma. *J Allergy Clin Immunol.* 2010;126(3):491–497
 80. Burke H, Leonardi-Bee J, Hashim A, et al. Prenatal and passive smoke exposure and incidence of asthma and wheeze: systematic review and meta-analysis. *Pediatrics.* 2012;129(4): 735–744
 81. Semple MG, Taylor-Robinson DC, Lane S, Smyth RL. Household tobacco smoke and admission weight predict severe bronchiolitis in infants independent of deprivation: prospective cohort study. *PLoS One.* 2011;6(7):e22425

82. Figueras-Aloy J, Carbonell-Estrany X, Quero-Jiménez J, et al.; IRIS Study Group. FLIP-2 Study: risk factors linked to respiratory syncytial virus infection requiring hospitalization in premature infants born in Spain at a gestational age of 32 to 35 weeks. *Pediatr Infect Dis J*. 2008;27(9):788–793
83. Jones LL, Hashim A, McKeever T, Cook DG, Britton J, Leonardi-Bee J. Parental and household smoking and the increased risk of bronchitis, bronchiolitis and other lower respiratory infections in infancy: systematic review and meta-analysis. *Respir Res*. 2011;12(1):5
84. Hawkins SS, Berkman L. Increased tobacco exposure in older children and its effect on asthma and ear infections. *J Adolesc Health*. 2011;48(6):647–650
85. Jones LL, Hassanien A, Cook DG, Britton J, Leonardi-Bee J. Parental smoking and the risk of middle ear disease in children: a systematic review and meta-analysis. *Arch Pediatr Adolesc Med*. 2012;166(1):18–27
86. Weitzman M, Cook S, Auinger P, et al. Tobacco smoke exposure is associated with the metabolic syndrome in adolescents. *Circulation*. 2005;112(6):862–869
87. Groner JA, Huang H, Joshi MS, Eastman N, Nicholson L, Bauer JA. Secondhand smoke exposure and preclinical markers of cardiovascular risk in toddlers. *J Pediatr*. 2017;189:155–161
88. Celermajer DS, Adams MR, Clarkson P, et al. Passive smoking and impaired endothelium-dependent arterial dilatation in healthy young adults. *N Engl J Med*. 1996;334(3):150–154
89. Belvin C, Britton J, Holmes J, Langley T. Parental smoking and child poverty in the UK: an analysis of national survey data. *BMC Public Health*. 2015;15:507
90. Busch SH, Jofre-Bonet M, Falba TA, Sindelar JL. Burning a hole in the budget: tobacco spending and its crowd-out of other goods. *Appl Health Econ Health Policy*. 2004;3(4):263–272
91. John RM. Crowding out effect of tobacco expenditure and its implications on household resource allocation in India. *Soc Sci Med*. 2008;66(6):1356–1367
92. John RM, Sung HY, Max WB, Ross H. Counting 15 million more poor in India, thanks to tobacco. *Tob Control*. 2011;20(5):349–352
93. Nonnemaker J, Sur M. Tobacco expenditures and child health and nutritional outcomes in rural Bangladesh. *Soc Sci Med*. 2007;65(12):2517–2526
94. Garg A, Toy S, Tripodis Y, Silverstein M, Freeman E. Addressing social determinants of health at well child care visits: a cluster RCT. *Pediatrics*. 2015;135(2). Available at: www.pediatrics.org/cgi/content/full/135/2/e296
95. Cheng TL, Emmanuel MA, Levy DJ, Jenkins RR. Child health disparities: what can a clinician do? *Pediatrics*. 2015;136(5):961–968
96. Agency for Healthcare Research and Quality. *Treating Tobacco Use and Dependence: 2008 Update*. Rockville, MD: Agency for Healthcare Research and Quality; 2008. Available at: www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/index.html. Accessed October 2018
97. Rosen LJ, Noach MB, Winickoff JP, Hovell MF. Parental smoking cessation to protect young children: a systematic review and meta-analysis. *Pediatrics*. 2012;129(1):141–152
98. Winickoff JP, Hipple B, Drehmer J, et al. The Clinical Effort Against Secondhand Smoke Exposure (CEASE) intervention: a decade of lessons learned. *J Clin Outcomes Manag*. 2012;19(9):414–419
99. Nabi-Burza E, Drehmer JE, Hipple Walters B, et al. Treating parents for tobacco use in the pediatric setting: the Clinical Effort Against Secondhand Smoke Exposure cluster randomized clinical trial. *JAMA Pediatr*. 2019;173(10):931–939
100. Christakis NA, Fowler JH. The collective dynamics of smoking in a large social network. *N Engl J Med*. 2008;358(21):2249–2258
101. Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Pediatrics. Chicago, IL: Accreditation Council for Graduate Medical Education; 2020. Available at: https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/320_Pediatrics_2020.pdf?ver=2020-06-29-162726-647. Accessed November 17, 2020
102. Committee On Child Health Financing. Scope of health care benefits for children from birth through age 26. *Pediatrics*. 2012;129(1):185–189
103. National Resource Center for Health and Safety in Child Care and Early Education. Policies prohibiting smoking, tobacco, alcohol, illegal drugs, and toxic substances. Available at: <https://nrckids.org/CFOC/Database/9.2.3.15>. Accessed July 14, 2020
104. Walker AK, Fox EL. Why marginalization, not vulnerability, can best identify people in need of special medical and nutrition care. *AMA J Ethics*. 2018;20(10):E941–E947

Health Disparities in Tobacco Use and Exposure: A Structural Competency Approach

Jyothi Marbin, Sophie J. Balk, Valerie Gribben, Judith Groner and SECTION ON TOBACCO CONTROL

Pediatrics 2021;147;

DOI: 10.1542/peds.2020-040253 originally published online December 21, 2020;

Updated Information & Services

including high resolution figures, can be found at:
<http://pediatrics.aappublications.org/content/147/1/e2020040253>

References

This article cites 76 articles, 20 of which you can access for free at:
<http://pediatrics.aappublications.org/content/147/1/e2020040253#BL>

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.aappublications.org/site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Health Disparities in Tobacco Use and Exposure: A Structural Competency Approach

Jyothi Marbin, Sophie J. Balk, Valerie Gribben, Judith Groner and SECTION ON TOBACCO CONTROL

Pediatrics 2021;147;

DOI: 10.1542/peds.2020-040253 originally published online December 21, 2020;

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/147/1/e2020040253>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2021 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

