

**Centers for Disease Control and Prevention, Office on Smoking and Health**  
**Summary of Scientific Evidence:**  
**Tobacco Retail Density, Location, and Licensure**  
**April 2021**

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**The Public Health Burden of Tobacco Use**

- The burden of disease and death from tobacco use in the United States is overwhelmingly caused by cigarettes and other combustible tobacco products.<sup>1</sup>
  - Every year in the United States, approximately 480,000 deaths and over \$300 billion in healthcare spending and productivity losses are attributable to cigarette smoking.<sup>2,3</sup>
  - For every person who dies from smoking in the United States, at least 30 people live with a serious smoking-related illness.<sup>4</sup>
  - Worldwide, tobacco use and secondhand smoke exposure causes over eight million deaths per year.<sup>5</sup>
  - Cigarette smoking causes diseases of almost every organ of the human body, including cancer, heart disease, stroke, diabetes, and chronic obstructive pulmonary disease (COPD).<sup>6</sup>
  - Smoking causes cancer of the lung, esophagus, larynx, mouth, throat, kidney, bladder, liver, pancreas, stomach, cervix, colon, and rectum.<sup>7,8,9</sup>
  - Even occasional or intermittent cigarette smoking still causes considerable harm.<sup>10</sup>
  - Occasional or intermittent smoking is associated with increased risk for cardiovascular disease, lung and other cancers, and lower respiratory tract infections.<sup>11,12</sup>
- No tobacco product is harmless.
  - Smokeless tobacco use causes cancer of the mouth, esophagus, and pancreas; is associated with diseases of the mouth; and may increase the risk for death from heart disease and stroke.<sup>13,14,15</sup>
  - Additional research is needed regarding the health effects of e-cigarettes and other emerging tobacco products, such as heated tobacco products. However, the current evidence shows that the e-cigarette aerosol that users breathe from the device and exhale can contain harmful and potentially harmful substances, including heavy metals like lead, volatile organic compounds, and cancer-causing agents.<sup>16</sup>
  - Moreover, studies of emissions from heated tobacco products suggest that the products expose both users and bystanders to some of the same chemicals found in cigarette smoke, although at lower levels than cigarette smoke.<sup>17</sup>
- Nicotine is a highly addictive drug found in tobacco products.<sup>18</sup>
  - As with drugs such as cocaine and heroin, nicotine activates the brain's reward circuits and reinforces repeated nicotine exposure.<sup>19</sup>
  - Nicotine also increases the risk of cardiovascular, respiratory, and gastrointestinal disorders, decreases immune response, negatively impacts reproductive health, and has acute toxicity at high-enough doses.<sup>20,21</sup> Nicotine also activates multiple biological pathways through which smoking increases risk for disease development.<sup>22</sup>
- Nicotine is a health danger for pregnant women and their developing babies.<sup>23</sup>
- Youth and young adults are especially vulnerable to the harmful effects of nicotine.<sup>24,25</sup>



- Nicotine exposure can harm the developing adolescent brain, which continues to develop into the mid-20s. Specifically, using nicotine in adolescence can harm the prefrontal cortex, or the part of the brain that controls attention, learning, mood, and impulse control.<sup>26</sup>
- Each time a new memory is created or a new skill is learned, stronger connections – or synapses – are built between brain cells. Young people’s brains build synapses faster than adult brains. Nicotine changes the way these synapses are formed.<sup>27</sup>
- Using nicotine in adolescence may also increase risk for future addiction to other drugs.<sup>28</sup>

## **Who Uses Tobacco Products**

- Smoking remains a considerable problem among adults and youth.
  - Globally, 1.1 billion adults smoke cigarettes.<sup>29</sup> In 2019, 14.0% (34.1 million) of U.S. adults currently smoked cigarettes.<sup>30</sup>
  - Since 2011, the United States has seen declines in youth use of combustible tobacco products.<sup>31,32</sup> In 2020, however, 1.6% of middle school students and 4.6% of high school students reported current (past 30 day) use of cigarettes and 1.5% of middle school students and 5.0% of high school students reported current use of cigars.<sup>33,34</sup>
  - Nearly 9 out of 10 adults who smoke cigarettes daily first tried smoking by age 18,<sup>35</sup> and each day in the United States, 1,600 youth under age 18 try their first cigarette.<sup>36</sup>
- Although considerable progress has been made in reducing cigarette smoking among U.S. adults and youth,<sup>37</sup> the tobacco product landscape continues to evolve to include a variety of tobacco products, including smoked, smokeless, and electronic products, such as e-cigarettes.<sup>38</sup>
  - In 2020, 19.6% of U.S. high school students and 4.7% of U.S. middle school students – a total of 3.6 million youth – reported using e-cigarettes in the past 30 days.<sup>39</sup>
  - E-cigarettes have been the most commonly used tobacco product among U.S. youth since 2014; thus, in recent years, patterns of e-cigarette use have driven patterns of overall tobacco product use among U.S. youth.<sup>40</sup>
- Tobacco product use varies among different population groups, including among groups with different socioeconomic status.
  - Adults with lower socioeconomic status, such as lower levels of education and income, have higher prevalence of cigarette smoking compared to those with higher levels of education and income,<sup>41</sup> and having a lower socioeconomic status is associated with higher prevalence of youth tobacco use.<sup>42</sup>
  - Tobacco product use also impacts population groups differently. For example, people with lower socioeconomic status are just as likely to make quit attempts, but are less likely to successfully quit smoking cigarettes than those with a higher socioeconomic status.<sup>43</sup>
- Tobacco product use also varies among different racial and ethnic groups.
  - For example, higher proportions of non-Hispanic American Indian/Alaska Native adults smoke cigarettes or use smokeless tobacco products, and a higher proportion of African American adults smoke cigars, as compared to different racial and ethnic groups.<sup>44,45</sup>
  - The proportion of African American adults who smoke is similar to the proportion of White adults who smoke, but African Americans are less successful at quitting, possibly because of lower utilization of cessation treatments, higher prevalence of use of menthol products that may increase nicotine dependence, and predatory marketing by the tobacco

industry.<sup>46,47,48</sup> African Americans are more likely to die from smoking-related diseases than Whites.<sup>49,50</sup>

### **Tobacco Retailers in the United States**

- There are approximately 375,000 tobacco retailers in the United States; to provide context, this means that for every one McDonald's restaurant, there are 27 tobacco retailers in the United States.<sup>51</sup>
  - Based on these estimates, there are 1.5 tobacco retailers per 1,000 residents, and 6.9 retailers per 1,000 school-aged youth (i.e. between ages 5 and 17) in the contiguous United States.<sup>52</sup>
  - To compare these numbers with other types of retailers, for every 10,000 residents in California, there are approximately 14 liquor stores and 96 tobacco retailers.<sup>53</sup> In other words, there are 1.4 liquor stores and 9.6 tobacco retailers per 1,000 residents in California.<sup>54</sup>
  - Cigarettes are sold in convenience stores more than any other type of store, and in 2018, more than half of current (past 30-day) youth who use tobacco products reported buying tobacco products as gas stations/convenience stores.<sup>55,56</sup>
  - While less information is available about the number of retailers that only sell e-cigarettes, a 2016 regulatory analysis estimated that there are an additional 5,000-10,000 selling only e-cigarettes.<sup>57</sup>
- Tobacco retailers are also heavily concentrated in certain areas, especially areas with high population density.<sup>58</sup>
  - Approximately 70 percent of tobacco retailers are located within 1,000 feet of one another, or less than 2 blocks apart.<sup>59</sup>
  - A 2019 study across 30 U.S. cities found that, on average, 63% of public schools were located within 1,000 feet of a tobacco retailer, the lowest-income neighborhoods had nearly five times more tobacco retailers than the highest-income neighborhoods, and 70% of residents across the 30 cities lived within a half mile of a tobacco retailer.<sup>60</sup>
  - A systematic review found that, like tobacco retailers in general, many e-cigarette retailers are located within a quarter mile of schools.<sup>61</sup>

### **The Impact of Tobacco Retail Density and Location**

- Variations in tobacco retailer concentration in certain communities may contribute to disparities in tobacco use.<sup>62,63,64,65,66</sup>
  - For instance, research demonstrates that tobacco retailer density is greater in areas with higher proportions of households receiving public assistance, as well as counties with a higher proportion of African American residents, same-sex couples, and rural residents.<sup>67,68</sup>
  - The U.S. Surgeon General and others have found that proximity to tobacco retail outlets and higher retail density is associated with increased tobacco product consumption, decreased quit attempts among adults who smoke cigarettes and want to quit, and with higher youth initiation of tobacco product use.<sup>69,70,71,72</sup>
- In 2012, the Surgeon General found that, "neighborhoods that are more densely populated with stores selling tobacco may promote adolescent smoking, not only by increasing access, but also by increasing environmental cues to smoke."<sup>73</sup>

- Studies have found that youth living in areas with the highest density of retail tobacco outlets are more likely to have smoked cigarettes in the past month than those in areas of the lowest density of outlets.<sup>74</sup>
- Moreover, the number of tobacco retailers surrounding a school has also been shown to increase students' susceptibility to future smoking, as well as the likelihood that youth would purchase their own cigarettes.<sup>75,76</sup> Other studies have found that tobacco retail outlets located near schools with higher cigarette smoking prevalence had significantly lower cigarette prices, fewer government-sponsored health warnings, and more in-store tobacco promotions relative to those located near schools with lower cigarette smoking prevalence.<sup>77</sup>
- In Chicago, youth in areas with the highest density of retail tobacco outlets were 13 percent more likely to have smoked cigarettes in the past month than those living in areas with the lowest density of outlets.<sup>78</sup>
- Moreover, a California study found that prevalence of cigarette smoking was 3.2 percentage points higher among students in schools with highest density of surrounding tobacco retailers compared with students in schools without any tobacco retail outlets.<sup>79</sup>
- These findings are not limited to cigarettes; growth in the retail availability of e-cigarettes has mirrored increases in e-cigarette use by youth and young adults.<sup>80</sup>
- In 2007, the Institute of Medicine (now the National Academies of Sciences, Engineering, and Medicine), recommended that “state governments should develop and, if feasible, implement and evaluate legal mechanisms for restructuring retail tobacco environments and restricting the number of tobacco outlets.”<sup>81</sup>
- In addition to preventing youth use, reducing tobacco retailer density throughout a community may also help reduce health disparities in tobacco use and tobacco-related diseases.<sup>82</sup>

### **Tobacco Marketing in the Retail Environment**

- Marketing in the retail environment, or at the “point of sale,” is also of public health concern.
  - The 2012 Surgeon General’s report found that retail marketing is an important channel for tobacco companies, and tobacco marketing at the point of sale is associated with youth tobacco use.<sup>83</sup>
  - Variations in tobacco retailer concentration in certain communities also contribute to disparities in exposure to tobacco marketing, particularly in minority and lower-income neighborhoods.<sup>84</sup>
  - As with greater retailer availability, exposure to retail marketing is associated with increased smoking and decreased cessation.<sup>85</sup>
  - As mentioned above, cigarettes are sold in convenience stores more than any other types of stores, and in 2005, about 70 percent of adolescents shopped in convenience stores at least weekly.<sup>86</sup>
  - Convenience stores also have more tobacco advertising and promotions than any other type of store, which increases the likelihood of exposing youth to pro-tobacco messages while they are shopping, and which can affect initiation rates among those exposed, particularly if the stores are near schools.<sup>87</sup>
- In 2018, the tobacco industry spent \$9.06 billion dollars (or \$25 million per day, or more than \$1 million per hour) on marketing and promoting cigarettes and smokeless tobacco, and spent 92.4% of its cigarette-focused marketing expenses on price discounts and other price-related promotions, including payments to cigarette wholesalers and retailers.<sup>88,89</sup>
- In addition, e-cigarette companies spent \$110 million on advertising in 2018.<sup>90</sup> The 2016 Point-

of-Sale Report to the Nation found that “more youth and young adults report seeing advertisements for e-cigarettes [in retail stores] than in any other marketing channel.”<sup>91</sup>

- A growing body of evidence has found a relationship between exposure of youth to tobacco marketing in stores and smoking initiation.<sup>92,93,96,97,98</sup>
  - For example, a 2010 longitudinal study of adolescents aged 11 to 14 years found that the odds of initiating smoking more than doubled for adolescents reporting that they visited the types of stores that contain the most cigarette advertising (convenience stores, liquor stores, small grocery stores) two or more times a week.<sup>94</sup>
  - Given this and other evidence, in 2012, the Surgeon General noted “that the addictiveness of tobacco, the severity of the health hazards posed by smoking, the evidence that tobacco marketing and promotion encourage children to start smoking, and the consistency of the evidence that it influences children’s smoking justify banning advertising and displays of tobacco products at the point of sale.”<sup>95</sup>
- Reducing the density and number of retailers may also curb exposure to tobacco marketing.<sup>96,97</sup>
- Some states and localities have implemented policies that aim to reduce retail marketing in general.<sup>98,99</sup>
  - For example, St. Paul, Minnesota adopted a content-neutral advertising ordinance to regulate the amount of window space that can be covered by signs at local businesses.<sup>100</sup>
  - This new requirement aimed at promoting safety by ensuring the clerk and interior of the store are visible from the outside, enhanced neighborhood beauty by reducing cluttered storefronts, and had the effect of reducing the amount of advertising for tobacco products and other products in the community.<sup>101</sup>

### **Tobacco Retail Licensure**

- States have broad legal authority, through their powers to protect public health and safety, to require tobacco retailers to obtain a license before selling tobacco products.<sup>102</sup>
  - Requiring a license for tobacco retailers ensures that states and localities know who is selling tobacco products in their jurisdiction, allowing states and localities to enforce policies, including those that prevent youth initiation.
  - The 2007 Institute of Medicine Report, *Ending the Tobacco Problem*, recommended requiring state licensing of all retail outlets that sell tobacco products.<sup>103</sup> Specifically, the report found that licensure enhances enforcement of key tobacco control policies, such as verifying the age of purchasers, restricting the use of self-service displays and vending machines, and selling products only in a face-to-face exchange.<sup>104</sup>
  - Similarly, in 2012, the Surgeon General found that “research supports the policy option of regulatory control over the retail tobacco environment. Studies show that tobacco use is associated with both exposure to retail advertising, and relatively easy access to tobacco products.”<sup>105</sup> Such controls could include restricting the number and location of tobacco retail outlets (through licensing, for example) and requiring that tobacco retailers obtain nontransferable retail licenses that could be suspended or revoked for failure to comply with laws.<sup>106</sup>
  - A 2014 California study found that “strong local tobacco retail licensing ordinances may lower rates of cigarette and e-cigarette use among youth and young adults.”<sup>107</sup>
  - The 2014 Surgeon General’s report, *The Health Consequences of Smoking—50 Years of Progress*, reiterated these findings, noting that some states have improved enforcement of sales to minors restrictions, including revoking store licenses for retailers that violate laws and sell to minors.<sup>108</sup>

- The Surgeon General’s report also noted that improving state tobacco licensure management can enhance revenue collection from tobacco taxes, as well as minimize tax avoidance and evasion.<sup>109</sup> In addition, maintaining high prices of tobacco products is a key way to reduce initiation and encourage quitting, especially among price-sensitive populations such as youth.<sup>110</sup>
- States and localities have implemented laws that require retail licensure, including many that tie tobacco retail licenses to policy enforcement.<sup>111</sup> For example, as of September 2020:
  - Eleven states and three territories require retailers to have a license to sell cigarettes in face-to-face transactions. Most of these jurisdictions also require a license to sell smokeless tobacco products in face-to-face transactions.<sup>112</sup> The combination of these products is referred to below as “conventional tobacco products.”
  - Twenty-seven states, the District of Columbia, and three territories require retailers to have a license to sell either conventional tobacco products or e-cigarettes in face-to-face transactions.<sup>113</sup>
  - Thirty states, the District of Columbia, and two territories allow licenses to either be suspended or revoked if a retailer violates the licensing requirements for selling conventional tobacco products; twenty-one states, the District of Columbia, and one territory allow licenses to be either suspended or revoked for violating the e-cigarette retailer licensing requirements; and eighteen states, the District of Columbia, and four territories allow these penalties if retailers sell conventional tobacco products or e-cigarettes to underage purchasers.<sup>114</sup>
- Appropriate licensing fees that adequately reflect the administration, implementation, and enforcement of the retailer license are another potential approach.<sup>115</sup>
  - As the Institute of Medicine found, “imposing prohibitive application fees [on tobacco retailer licenses] can... serve as an indirect limit on the number of retailers in an area.”<sup>116</sup>
  - As of September 2020, all but four states that require retailers to have a license require them to pay a fee.<sup>117</sup> Currently, there is a wide range in fees that states and territories require stores to pay to sell conventional tobacco products or e-cigarettes.<sup>118</sup> Maximum license fees range from \$5 in Montana to \$800 in Connecticut.<sup>119</sup>
  - Most states and territories require retailers to renew their licenses, and most require them to do so annually.<sup>120</sup>

### **Tobacco Retail Licensure as a Strategy to Address Tobacco Retail Density and Location**

- As noted above, high tobacco retailer density is a public health concern because it is associated with higher youth initiation of tobacco use, increased tobacco consumption, and lower likelihood of successful quitting.<sup>121</sup>
  - The Institute of Medicine noted that “retailer density can be controlled directly by the licensing body either by limiting the total number of licenses distributed or by limiting the density of licenses within geographic areas.”<sup>122</sup>
  - The Institute of Medicine also made the recommendation that “state governments should develop and, if feasible, implement and evaluate legal mechanisms for restructuring retail tobacco environments and restricting the number of tobacco outlets.”<sup>123</sup> Reducing tobacco retailer density may also help reduce health disparities in tobacco use and tobacco-related diseases.<sup>124</sup>
- There are several tobacco retailer reduction strategies, including capping the number of tobacco retailers in a defined area (by geographic boundary, city districts, or population density),

restricting the types of businesses that can sell tobacco products, and regulating where tobacco retailers can be located.<sup>125</sup>

- With regard to capping the number of tobacco retailers, a number of communities in California have limited the number of tobacco retailer licenses issued annually or stopped renewing a certain number of retailer licenses.<sup>126</sup> In 2015, San Francisco, California implemented a tobacco retail density policy which “caps the number of tobacco sales permits in each of the City’s 11 Supervisorial Districts at 45, limiting the citywide total to 495.”<sup>127</sup> Within the first 10 months that the policy took effect, the number of retailer licenses decreased by 8%, and all Supervisorial Districts experienced a decrease in the number of tobacco retailers.<sup>128</sup>
- Other cities have capped the number of allowable retailers.<sup>129</sup> For example, in 2017, Philadelphia implemented a population density cap of one tobacco retailer per 1,000 residents for each of its 18 districts.<sup>130</sup> Three years after Philadelphia implemented its policy, tobacco retail density declined by 20.3%.<sup>131</sup> Further, the study found that declines were significantly greater in low-income districts, and observed a 12% decline in the rates of tobacco retailers near schools.<sup>132</sup>
- Research also suggests that restricting the types of business that can sell tobacco products can influence tobacco retailer density.
  - For example, a study examined the impact of local tobacco-free pharmacy laws in California and Massachusetts. It found that although tobacco-free pharmacy laws are primarily designed to affect social norms, cities with tobacco-free pharmacy laws had greater reductions in tobacco retailer density over time compared to cities without such laws.<sup>133</sup>
  - Moreover, in 2018, New York City implemented a tobacco-free pharmacy law; and an examination of the policy found an overall reduction in retailer density, but greater declines in neighborhoods with higher median household incomes and a higher proportion of non-Hispanic White residents.<sup>134</sup>
- Regulating where tobacco retailers can be located can also influence tobacco retailer density.
  - For example, Santa Clara, California implemented a minimum distance requirement between tobacco retail outlets of 500 feet, and has prohibited retailers from being located 1,000 feet from a school.<sup>135</sup> After that policy took effect, 30% (11 of 36) of retailers in the county stopped selling tobacco; one of these retailers was within 500 feet of another retailer and three were within 1,000 feet of a school.<sup>136</sup> Overall 10 of the 11 retailers who stopped selling tobacco were non-traditional tobacco product retailers, such as camping stores; restaurants and bars; sport and country clubs; and bait and tackle stores.<sup>137</sup>
  - Additionally, some states and localities have limited the number of tobacco retail outlets, especially in proximity to places where youth frequent, such as schools, parks, libraries, and playgrounds.<sup>138</sup> Communities have also used zoning regulations to prevent the sale of tobacco products in certain areas, such as residential zones.<sup>139</sup> Examples of these communities include Santa Clara, Santa Barbara, and Baldwin Park, California; and New Orleans, Louisiana.<sup>140</sup>
- A review of retailer density approaches found that all tobacco retailer reduction strategies examined demonstrated actual or predicted reductions in retailer density.<sup>141</sup> However, depending on the community, some strategies may be more effective than others at reducing tobacco use among all populations.
  - For instance, school-based tobacco retailer reduction strategies have been shown to be more equitable in reducing tobacco retailer density for low-income, African American,

- and urban neighborhoods as compared to higher-income, lower prevalence of African American, and rural neighborhoods.
- Capping-based reduction strategies have been shown to be more equitable in reducing tobacco retailer density for rural neighborhoods as compared to urban neighborhoods.<sup>142</sup>
  - Because pharmacy-based reduction strategies are important for social norm change, but have demonstrated inequitable impacts, they may be most impactful when adopted in conjunction with other retail policies.<sup>143</sup>

## **Conclusion**

- The retail environment contributes to access and availability of tobacco products.
- There are hundreds of thousands of tobacco retailers in this country. Their proliferation and proximity to communities can exacerbate disparities and make it harder for people who use tobacco products to quit. They can also make it more likely that youth will initiate tobacco use.
- Research supports licensing tobacco retailers, limiting retailer density, and limiting proximity to youth-oriented places.
- Retailer-focused strategies are a complement to, but not a replacement for, evidence-based tobacco control strategies; thus, such strategies are best implemented as part of a comprehensive approach to tobacco prevention and control.<sup>144</sup> However, compliance and equitable enforcement are also critical to ensure efficacy.<sup>145,146</sup>

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