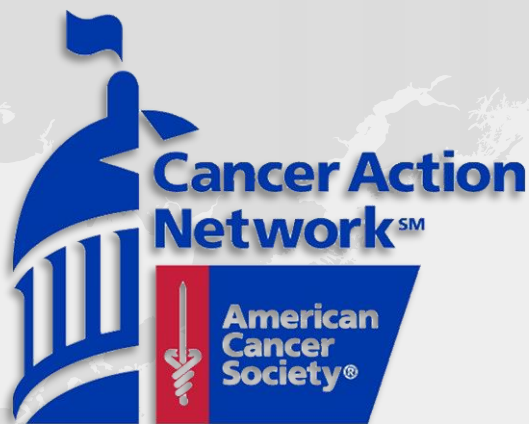


# Alaskan Opinions Regarding Statewide Smoke-Free Workplace Law

survey conducted for:



by:



# Methodology

- Fielded: December 30, 2015 to January 7, 2016
- Sample:
  - Statewide
  - n=800 Registered Alaska Voters
  - Interview quotas by location, age and gender
- Interview Method:
  - 75% landline, 25% cell phone
  - Live interviewers
- Weighting:
  - Based on most recent Alaska voter statistics
  - Highly representative sample in terms of age, gender, education, income, political registration and geographic location
- Margin of Error:
  - $\pm 3.46\%$  at 95% confidence interval for total sample

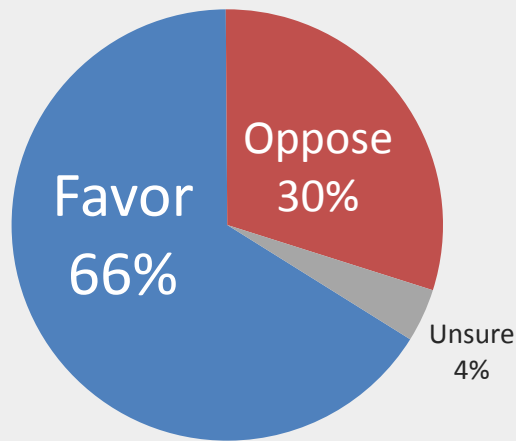


# Detailed Findings

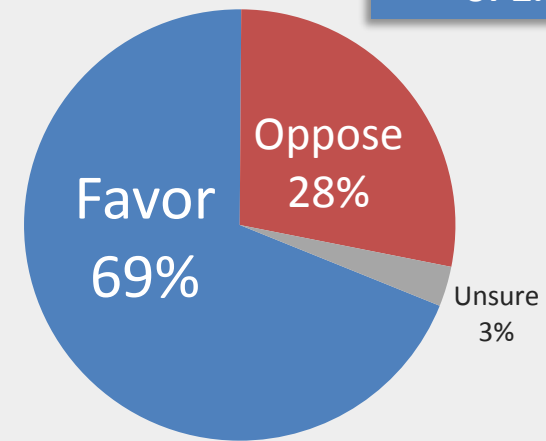
# Statewide Smoke-Free Workplace Law

*As you may know, there is currently no statewide law in Alaska that prohibits smoking indoors in public places, only local ordinances in some parts of the state. Would you favor or oppose a statewide law in Alaska that would prohibit smoking indoors in public places, including workplaces, public buildings, offices, restaurants and bars?*

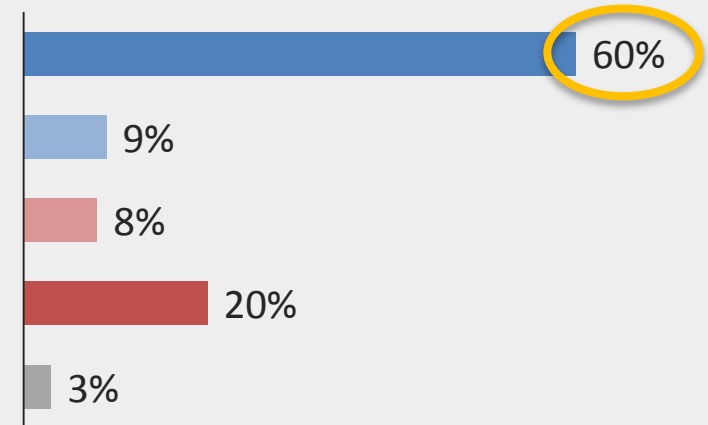
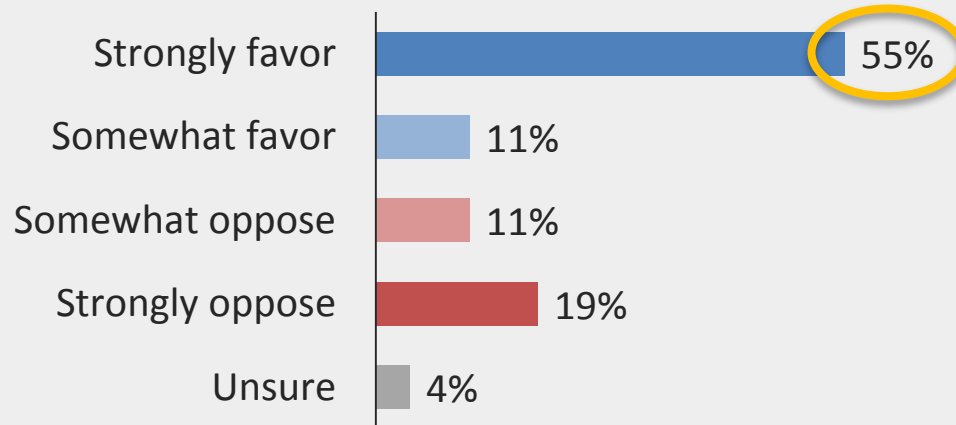
**2012**



**2016**

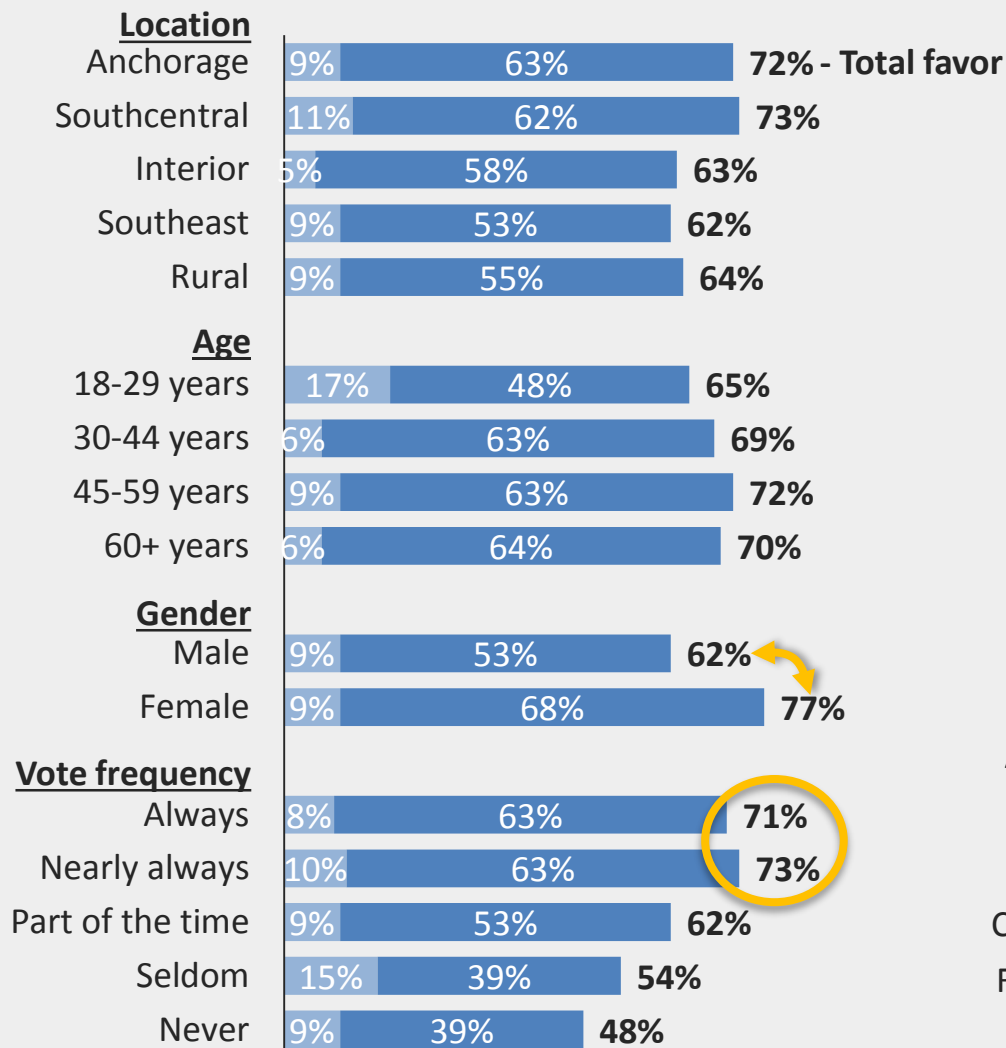


**Favored by margin  
of 2.5-to-1**



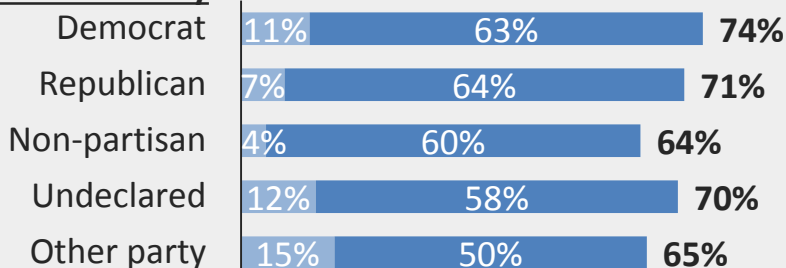
# Statewide Smoke-Free Law, cont'd

■ Somewhat favor ■ Strongly favor

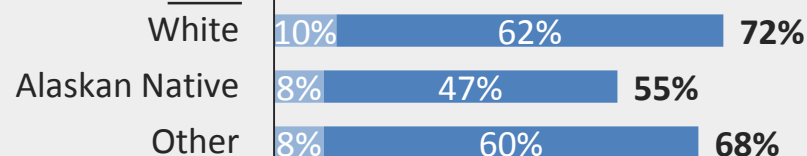


There is broad support for a statewide smoke-free workplace law, and in most demographic subgroups the majority of Alaskans “strongly favor” it.

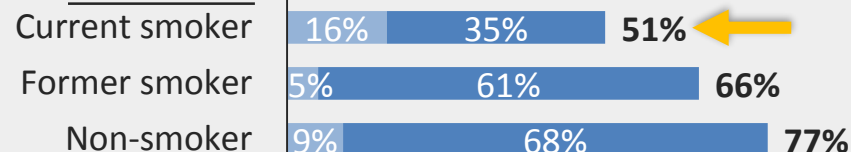
## Political Party



## Race



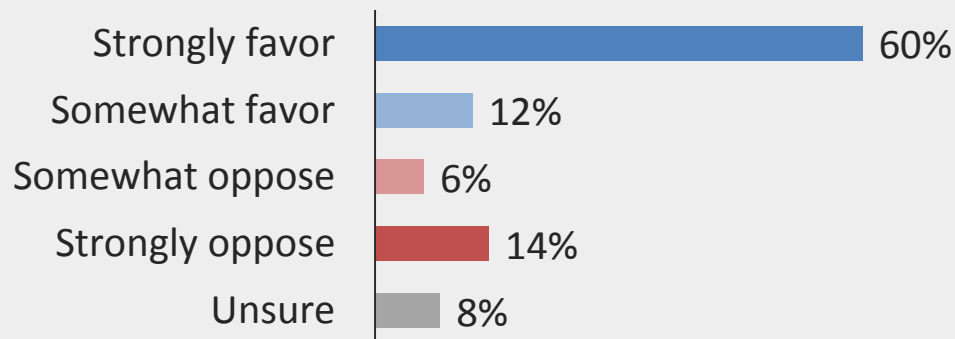
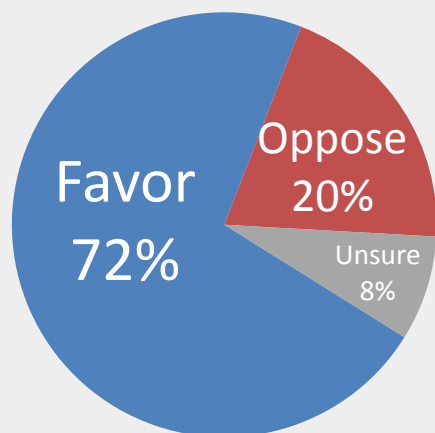
## Tobacco use



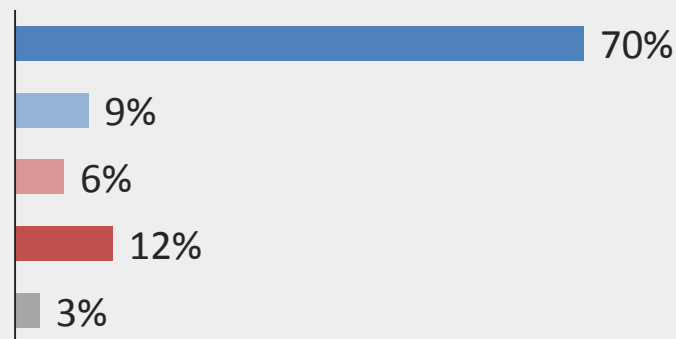
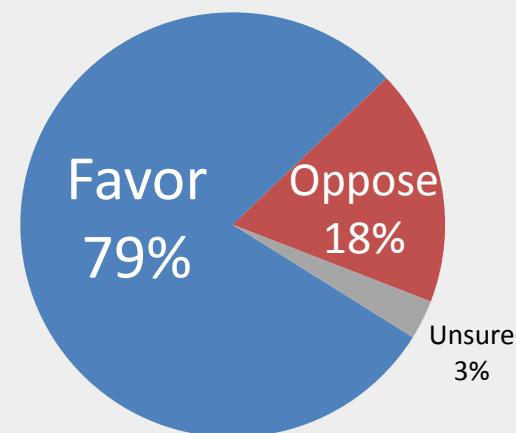
# E-Cigarettes and Marijuana in Smoke-Free Law?

*If Alaska passes a law prohibiting smoking indoors in public places, including workplaces, public buildings, offices, restaurants and bars, would you favor or oppose including electronic cigarettes, or e-cigarettes, in that law, so that the use of electronic cigarettes would not be allowed inside places that are smoke-free? ...What about the smoking of marijuana?*

## E-Cigarettes in Smoke-Free Law

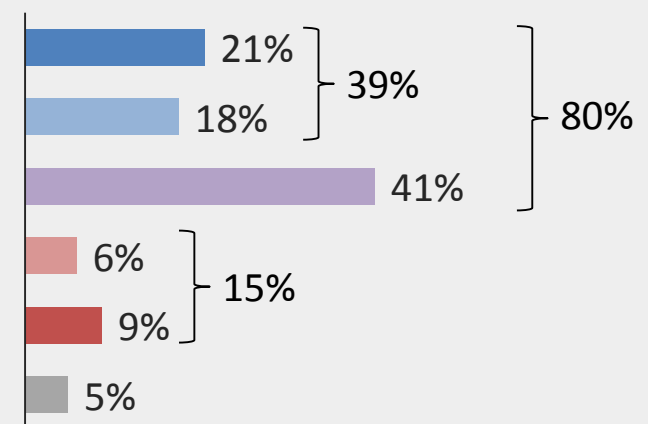
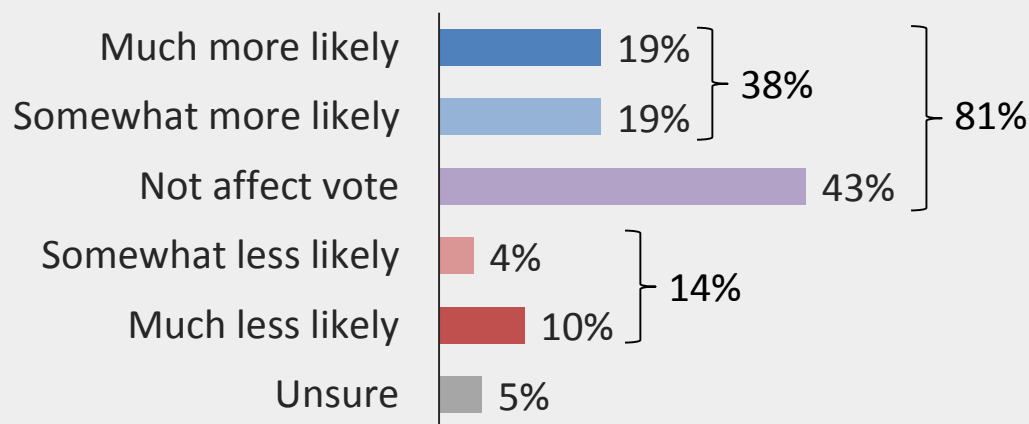
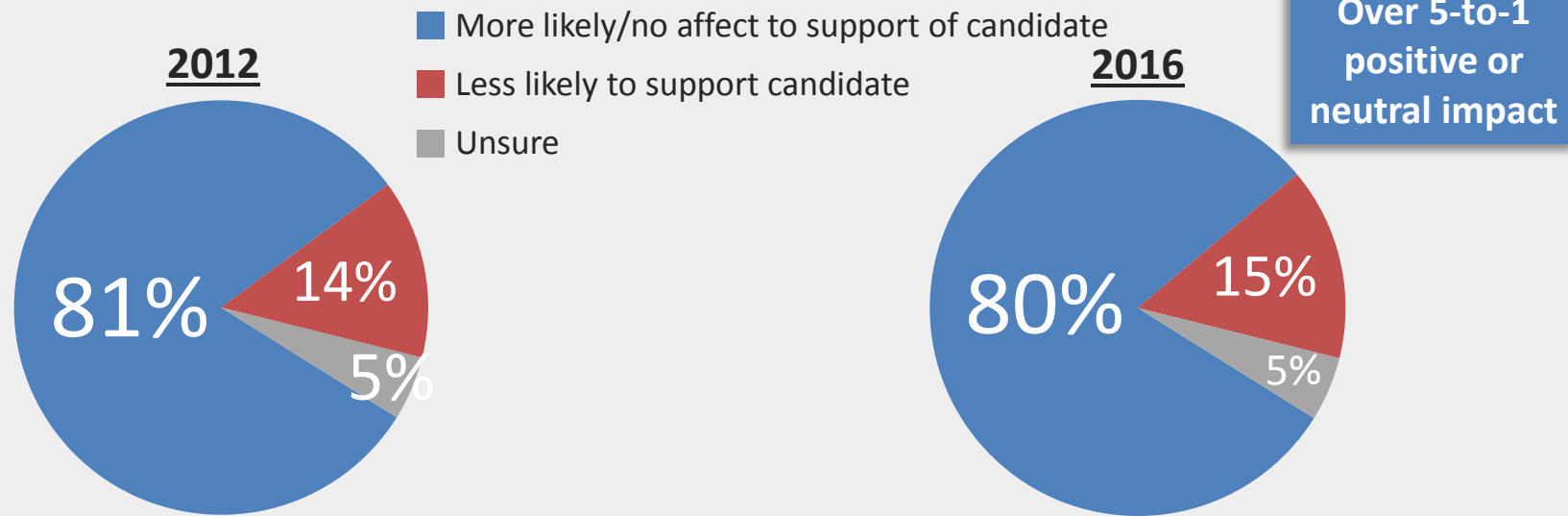


## Marijuana in Smoke-Free Law



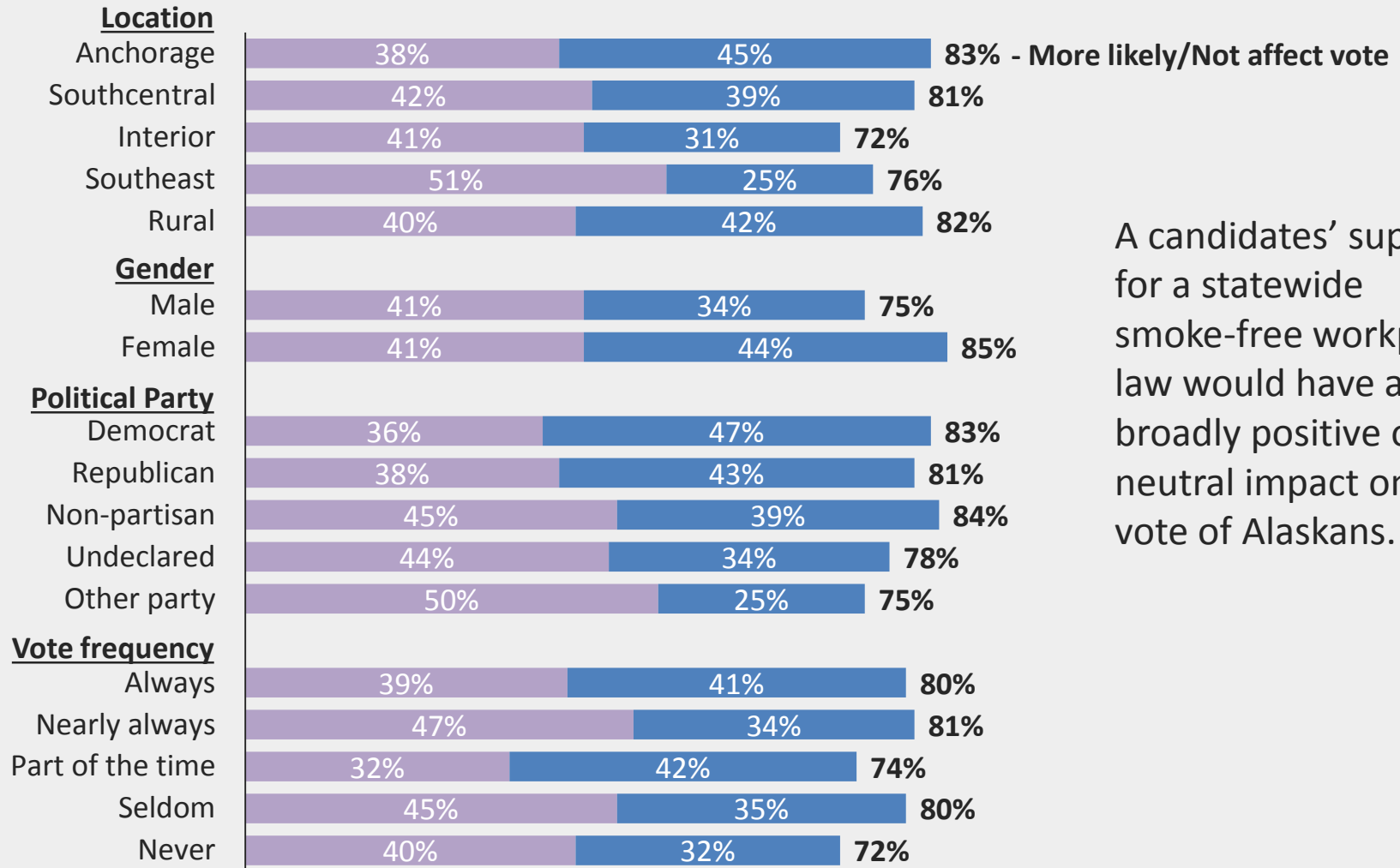
# Smoke-free issue affect your vote?

Would you be more likely or less likely to vote for a candidate who supports a law that would prohibit smoking indoors in public places and workplaces in Alaska, or would their opinion on this issue not affect your vote?



# Smoke-free issue affect your vote? cont'd

■ Would not affect vote ■ More likely to support



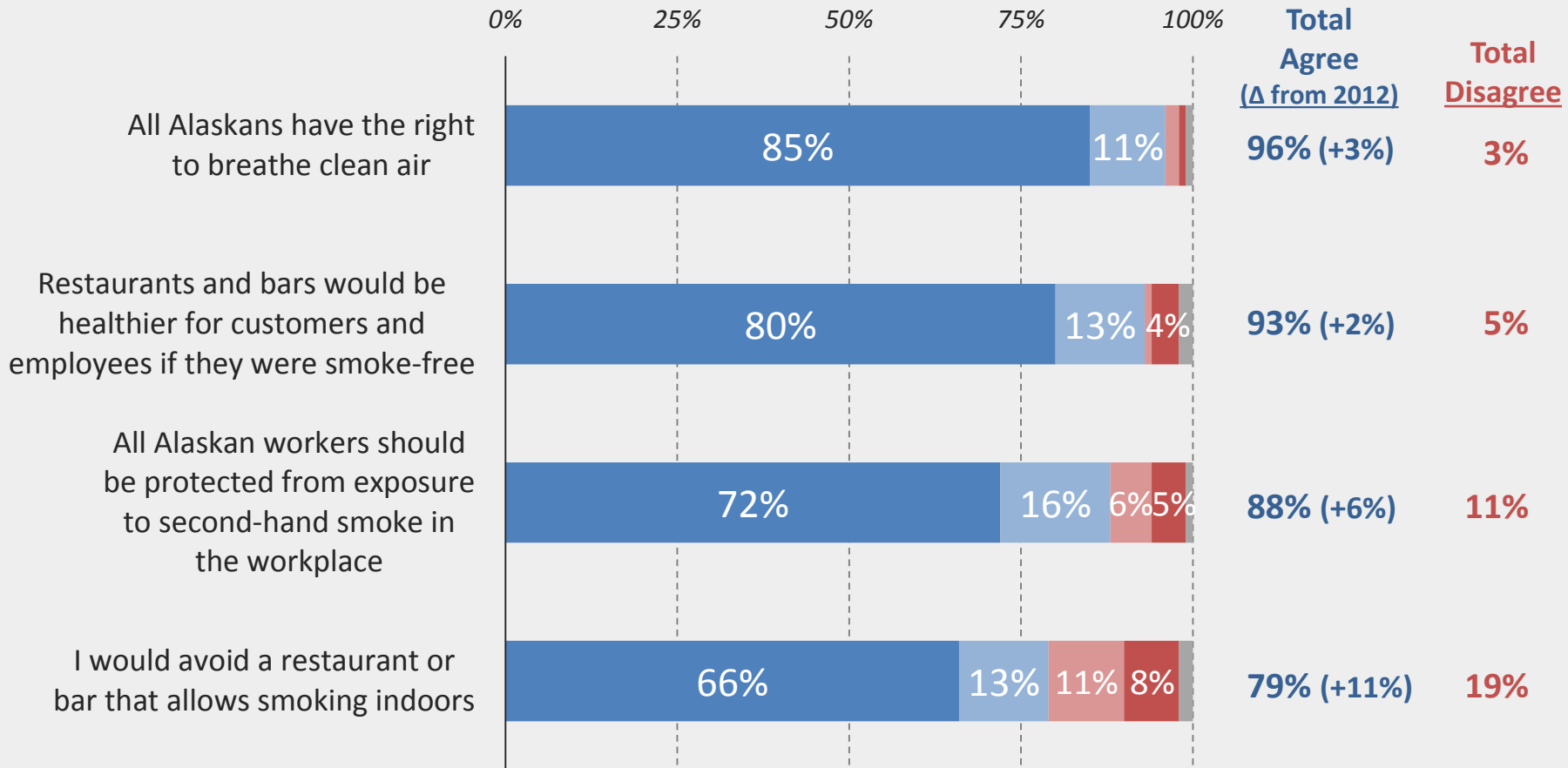
A candidates' support for a statewide smoke-free workplace law would have a broadly positive or neutral impact on the vote of Alaskans.



# Messaging

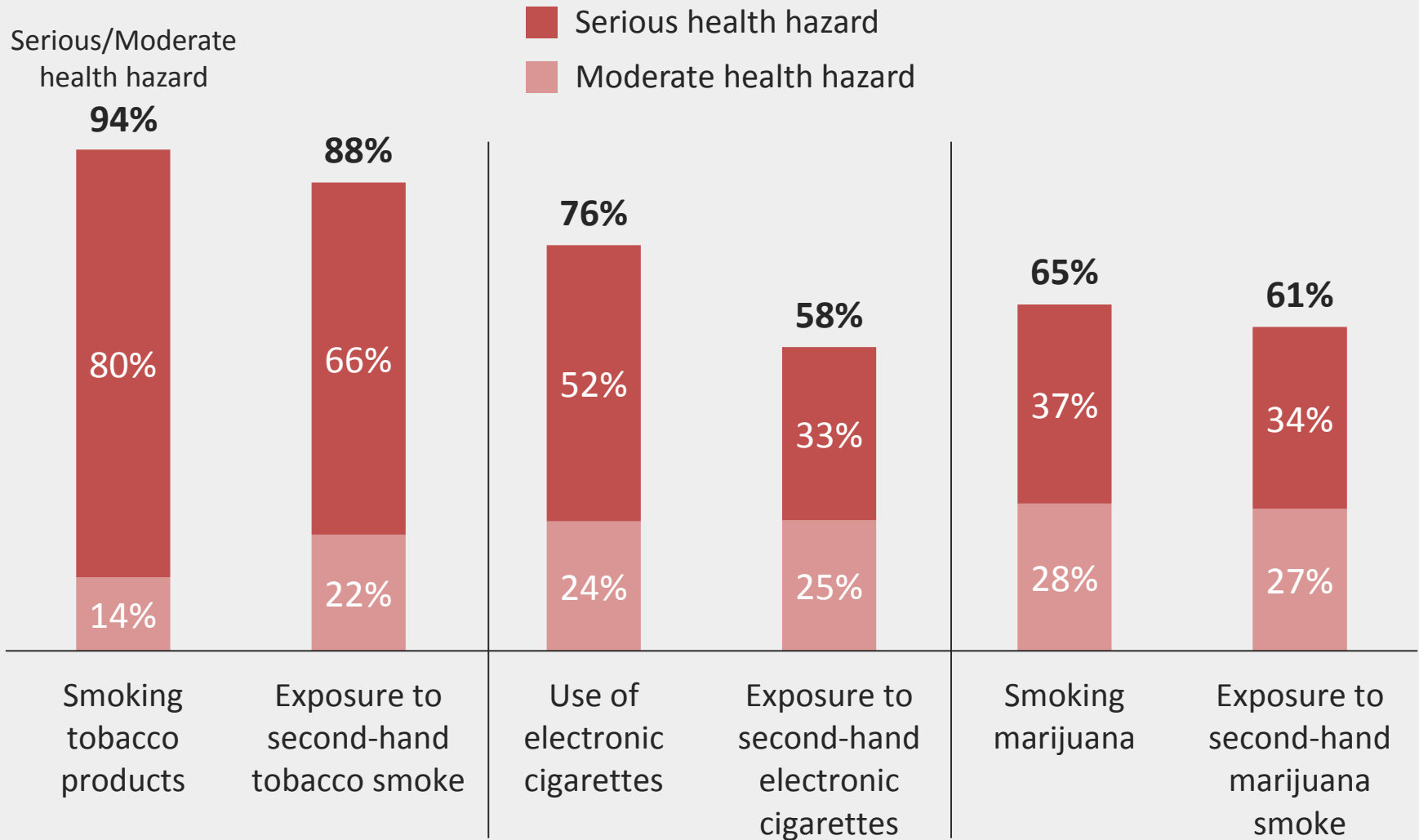
Please tell me whether you personally agree or disagree with each of the following statements...

■ Strongly agree
■ Somewhat agree
■ Somewhat disagree
■ Strongly disagree
■ Unsure

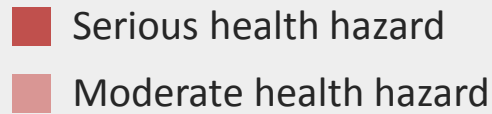


# Perceived Risk

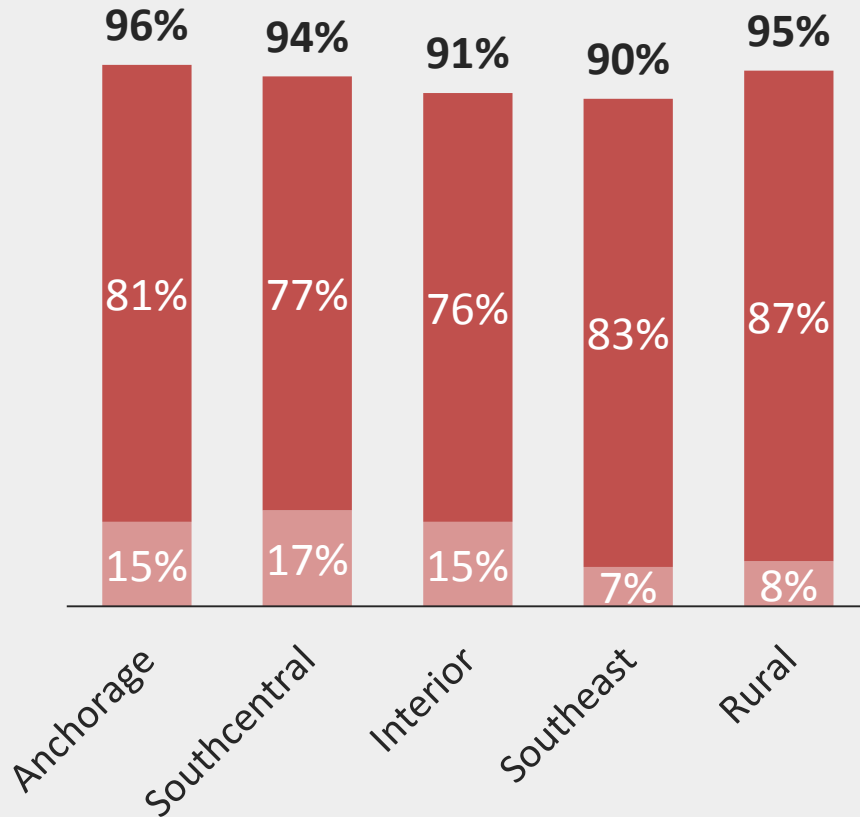
Please tell me whether you feel each of the following is a serious, moderate, or minor health hazard, or no health hazard at all.



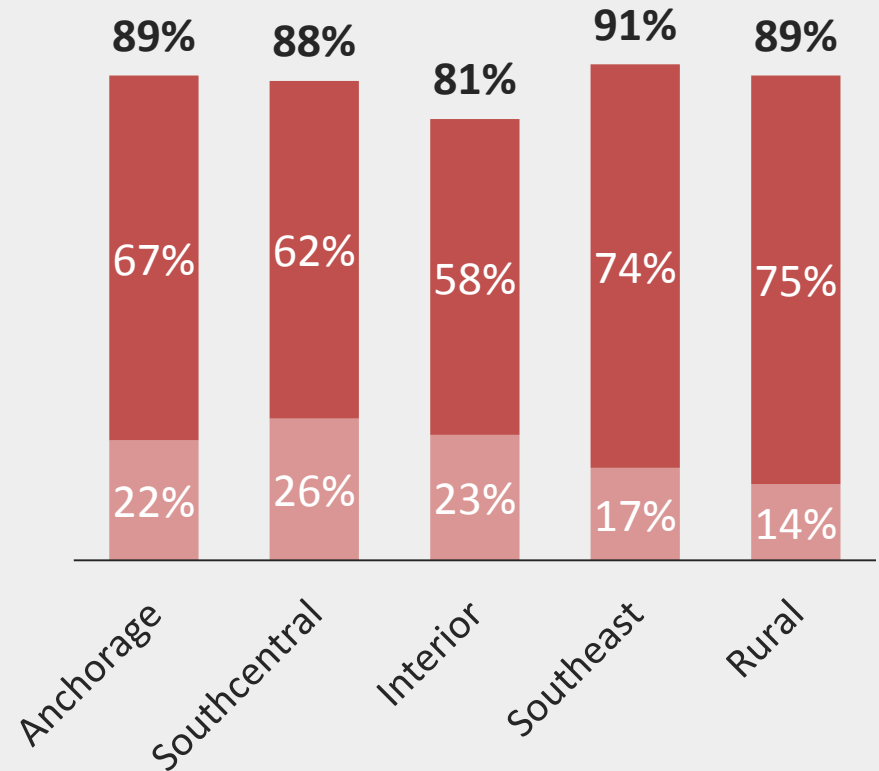
# Perceived Risk by Location



Smoking tobacco products



Exposure to second-hand tobacco smoke

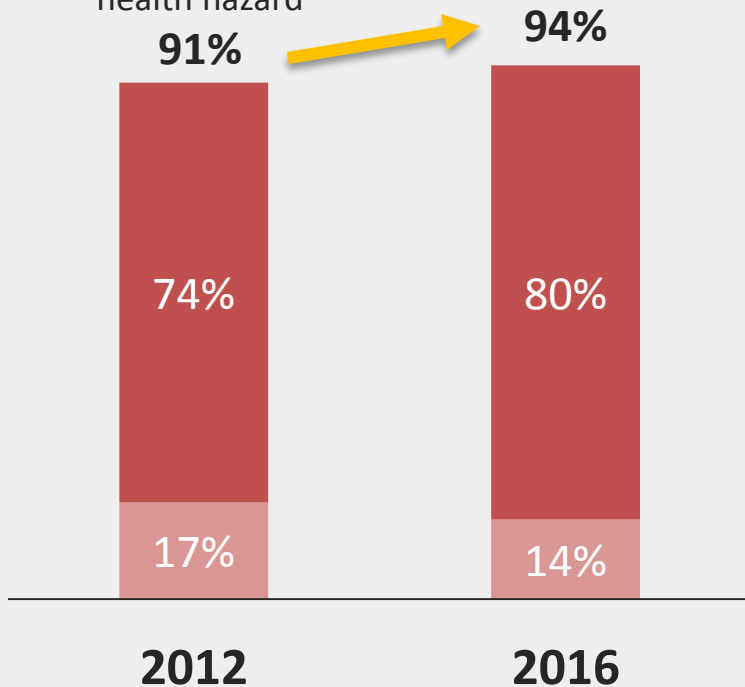


# Tracking Perceived Risk

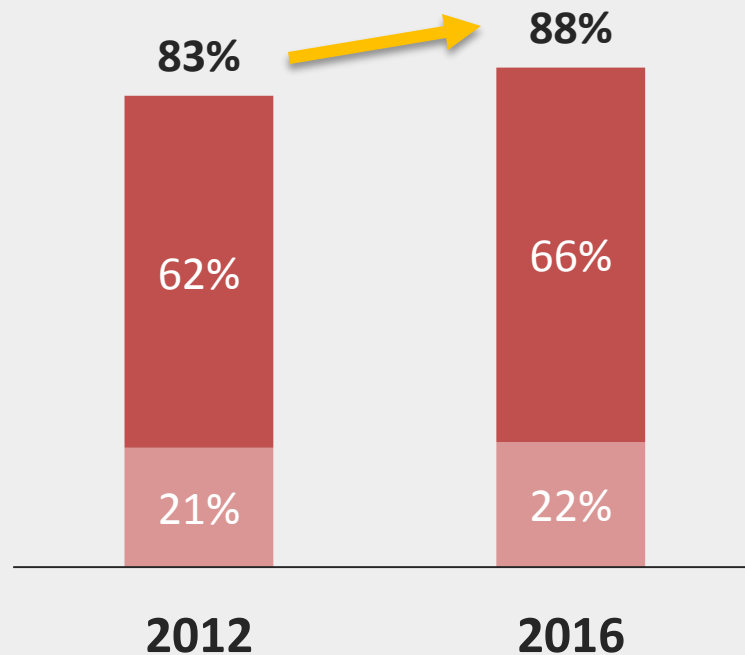
- Serious health hazard
- Moderate health hazard

## Smoking tobacco products

Serious/Moderate  
health hazard



## Exposure to second-hand tobacco smoke



# Takeaway

- Alaskan views are in strong alignment with the priorities of the American Cancer Society Cancer Action Network.
  - Across all measures that can be tracked, opinions have become even more favorable.
- A large majority of Alaskans (69%) support a statewide smoke-free workplace law.
  - Support is strong and consistent across all demographic subgroups, including location, age and political party. Even a slight majority of smokers (51%) support the law.
  - Similarly large percentages support including e-cigarettes (72%) and marijuana (79%) in a smoke-free workplace law.
- Thirty-nine percent (39%) of Alaskans say they would be more likely to vote for a candidate who supports a smoke-free workplace law. Fully four-out-of-five Alaskans (80%) say a candidates' support for the law would have a positive or neutral impact on their vote.
- The percentage of Alaskans who report smoking and exposure to second-hand smoke as a serious or moderate health hazard is near absolute (94% and 88%, respectively), and perceived risk has increased slightly since the last measurement.
  - A large majority also view the smoking and second-hand exposure of e-cigarettes and marijuana as a serious or moderate health hazard.



January 5, 2017

Office on Smoking and Health  
Centers for Disease Control and Prevention  
4770 Buford Highway NE, MS F79  
Atlanta, GA 30341

Senator Peter A. Micciche  
Alaska State Capitol, Rm. 514  
Juneau, AK 99801

Senator Micciche,

Per your request, I am submitting this statement of the scientific evidence regarding secondhand smoke exposure, as well as currently available scientific information on secondhand exposure to the emissions from electronic nicotine delivery system (ENDS) use and marijuana smoking. For the record, I am not submitting this statement for or against any specific legislative proposal.

### **The Health Effects of Secondhand Exposure to Tobacco Smoke**

Secondhand smoke from burning tobacco products is deadly. In adults, secondhand smoke exposure causes stroke, lung cancer, and coronary heart disease, as well as reproductive effects in women, including low birth weight.<sup>1</sup> Children who are exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections such as pneumonia and bronchitis, middle ear disease, more frequent and severe asthma, respiratory symptoms, and slowed lung growth.<sup>1</sup>

The scientific evidence on the harmful effects of secondhand smoke exposure is well-documented. The Surgeon General first concluded that secondhand smoke causes lung cancer in 1986.<sup>2</sup> In 2006, the Surgeon General's Report on *The Health Consequences of Involuntary Exposure to Tobacco Smoke* concluded that there is no risk-free level of secondhand smoke exposure.<sup>3</sup> Separating smokers and nonsmokers, using designated smoking areas, cleaning or filtering the air, and using separately ventilated areas do not work.<sup>3</sup> Furthermore, in 2010, the Surgeon General's Report on *How Tobacco Smoke Causes Disease* reaffirmed the conclusion that there is no risk-free level of exposure to tobacco smoke.<sup>4</sup> The report and subsequent findings also documented how the complex mix of chemicals in tobacco smoke causes disease, including finding that cigarette smoke contains 7,000 chemicals, 250 of which are toxic and nearly 70 of which cause cancer.<sup>1,4</sup> In 2014, the 50<sup>th</sup> Anniversary Surgeon General's Report on *The Health Consequences of Smoking* further affirmed these findings.<sup>1</sup> The report estimates that secondhand smoke exposure increases the risk of stroke by 20 to 30%.<sup>1</sup>

The effects of secondhand smoke exposure on the body are immediate.<sup>3</sup> A 2011 study reported that secondhand smoke exposure can produce adverse inflammatory and respiratory effects within 60 minutes of exposure and that these effects persist for at least three hours after the exposure.<sup>5</sup> These findings are significant; the concern is not just secondhand smoke exposure for guests during a meal at a restaurant, but also the compounded health effects for an employee working an eight-hour shift in a smoke-filled restaurant or bar.<sup>3</sup>

### **The Burden of Secondhand Exposure to Tobacco Smoke**

Secondhand smoke exposure costs nonsmokers—especially vulnerable populations, such as children—their health and wellbeing. These costs are born not just by individuals, but by society: exposure to secondhand smoke costs the United States billions of dollars in lost productivity and medical expenses every year.<sup>1</sup>

As a result of the considerable body of evidence documenting the adverse effects of secondhand smoke, substantial progress has been made toward eliminating nonsmokers' exposure to this preventable health hazard over the last 50 years.<sup>1</sup> Recent assessments of cotinine, a metabolite of nicotine and biomarker of recent secondhand smoke exposure, indicates that about 1 in 4 Americans continue to be exposed to secondhand smoke.<sup>6</sup> In the past 50 years, secondhand smoke exposure is estimated to have caused nearly 2.5 million deaths in nonsmoking Americans.<sup>1</sup> Each year, an estimated 7,330 lung cancer deaths and 33,950 coronary heart disease deaths are attributable to secondhand smoke exposure.<sup>1</sup>

The smoking-attributable economic costs in the United States also include about \$5.6 billion in lost productivity every year due to secondhand smoke exposure.<sup>1</sup> Many of these deaths and this lost productivity could be prevented if comprehensive smokefree laws prohibiting smoking in all indoor areas of worksites, restaurants, and bars were implemented nationwide.<sup>1</sup>

### **Preventing Secondhand Exposure to Tobacco Smoke**

We know what works to prevent the harms of secondhand smoke exposure. In 2006, the Surgeon General concluded that eliminating smoking in indoor spaces is the only way to fully protect nonsmokers from secondhand smoke exposure.<sup>3</sup> In 2009, the World Health Organization's International Agency for Research on Cancer reiterated these findings, concluding that smokefree policies lead to substantial declines in secondhand smoke exposure, citing air quality improvements of up to 90% in high-risk settings, such as bars.<sup>7</sup> Furthermore, the 2014 Surgeon General's report delved deeper into the science behind the success of smokefree laws in protecting people's health. Specifically, the report concluded that smokefree laws directly cause reductions in coronary events (especially heart attacks), making comprehensive smokefree laws one of the most effective and cost-effective approaches for reducing heart disease—the leading cause of death—in the country.<sup>1</sup>

Finally, beyond reducing exposure to secondhand smoke, smokefree laws also lower smoking rates as a whole, especially among vulnerable youth and young adults.<sup>1</sup> Both the Surgeon General and the U.S. Guide to Community Preventive Services conclude that smokefree laws in workplaces and communities help smokers quit and reduce tobacco use.<sup>1,8</sup> In addition, smokefree workplaces and communities make youth and young adults less likely to start smoking due to a number of factors, including lower visibility of people who smoke, fewer opportunities to smoke alone or with others, and reduced social acceptability for smoking.<sup>1</sup> The implementation of smokefree laws also increase the adoption of voluntary smokefree rules in homes, which can further protect nonsmokers—especially the most vulnerable that are exposed to secondhand smoke in the home, such as children.<sup>1</sup>

CDC defines a comprehensive smokefree law as one that prohibits smoking at all times, in all indoor areas of all workplaces and public places, including restaurants and bars. If a law allows exemptions for designated or ventilated smoking areas in workplaces, restaurants or bars, the state or community is not considered to have a comprehensive smokefree law.

Smokefree policies in hospitality venues such as restaurants, bars, and casinos protect employees and patrons from the adverse health effects of secondhand smoke. These policies are associated with improved indoor air quality and with reduced secondhand smoke exposure, reduced sensory and respiratory symptoms, and improved lung function in nonsmoking employees.<sup>2,9,10</sup>

Comprehensive smokefree laws are also associated with rapid reductions in hospitalizations due to heart attacks and strokes.<sup>11</sup> For instance, in Colorado, following the implementation of a comprehensive smokefree law in 2006, the state saw a 23 percent drop in ambulance calls from these venues.<sup>12</sup> However, there was no change in ambulance calls from casinos until the law was expanded in 2008 to include casinos—after which, ambulance calls from casinos dropped nearly 20 percent.<sup>12</sup> This illustrates that these health improvements are lifesaving and nearly immediate.

### **Evidence Shows that Smokefree Policies do not Adversely Impact Business**

The evidence concerning the economic impact of smokefree laws is well-documented. In 2006, the Surgeon General concluded that “evidence from peer-reviewed studies shows that smokefree policies and regulations do not have an adverse economic impact on the hospitality industry.”<sup>3</sup>

These findings have been replicated numerous times at the international, state, and local levels.<sup>1,3,7</sup> In 2009, the International Agency for Research on Cancer conducted a comprehensive review of 97 studies from eight countries on the economic impact of smokefree policies and found that studies consistently conclude that smokefree policies do not harm business.<sup>7</sup>

At the state and local level, studies consistently reiterate these conclusions. The largest analysis of the impact of smokefree ordinances, which examined local ordinances in eight states (Alabama, Indiana, Kentucky, Mississippi, Missouri, South Carolina, Texas, and West Virginia) and a state ordinance in one state (North Carolina), found that smokefree laws do not have a negative impact on either employment or sales in restaurants and bars.<sup>13</sup> A study of El Paso, Texas’s smoke-free policy found that the law had no effect on restaurant and bar revenue.<sup>14</sup> Furthermore, a 2007 study on the economic impact of a smokefree law in Lexington-Fayette County, Kentucky found that “no important economic harm stemmed from the smoke-free legislation...despite the fact that Lexington is located in a tobacco-producing state with higher-than-average smoking rates.”<sup>15</sup>

Further reviews of the literature have also found that, in some cases, a smokefree policy produces positive effects for local businesses.<sup>16,17,18</sup> For instance, an in-depth analysis of tax revenue data in California after the state implemented their smokefree restaurant law (in 1995) and bar law (in 1998) found that the smokefree restaurant law was associated with an increase in restaurant revenues, and the smokefree bar law was associated with an increase in bar revenues.<sup>19</sup> Additionally, just one year after implementation of the New York City smokefree law, an evaluation found that restaurant and bar revenues in New York City increased by 8.7% from April 2003 through January 2004.<sup>20</sup>

### **Smokefree Policies and ENDS**

Science on the issue of ENDS, including e-cigarettes, continues to emerge. However, there is sufficient scientific evidence to support the implementation of precautionary approaches to protect the public from risks associated with exposure to the emissions from these products. For example, in the 2016 Report from the U.S. Surgeon General on e-cigarette use among youth and young adults, “e-cigarette aerosol is not harmless. It can contain harmful and potentially harmful constituents, including nicotine.”<sup>21</sup> The report notes that exposure to the aerosol from these products can be particularly dangerous for youth; specifically, the report concludes that “nicotine exposure during adolescence can cause addiction and can harm the developing adolescent brain.”<sup>21</sup> ENDS use has the potential to involuntarily expose children and adolescents, pregnant women, and non-users to aerosolized nicotine and, if the products are altered, to other psychoactive substances.<sup>21</sup> Therefore, clean air—free of both smoke and ENDS aerosol—remains the standard to protect health.

In the 2016 Surgeon General’s Report, the Call to Action states that “State, local, tribal and territorial governments should implement population-level strategies to reduce e-cigarette use among youth and young adults, such as including e-cigarette in smokefree indoor air policies...” (Goal 4, Strategy 4A).<sup>21</sup> The report notes that most smokefree indoor air policies were put in place before the rise in e-cigarette use. Because of that, these policies may not cover e-cigarettes or exposure to the aerosol these produce.<sup>21</sup> Therefore, the Call to Action states that “smokefree indoor air policies should be updated to prohibit the use of both conventional cigarettes and e-cigarettes, thereby preserving standards for clean indoor air. Efforts to include e-cigarettes in smokefree laws should also uphold or strengthen, not weaken, existing protections against exposure to secondhand smoke.”<sup>21</sup>

As noted in the 2016 Surgeon General’s report, including e-cigarettes in smokefree indoor air policies can: eliminate health risks from exposure to secondhand aerosol from e-cigarettes; discourage people from using both combustible and electronic tobacco products (dual use); simplify compliance with and enforcement of existing smokefree laws; help to reduce the use of e-cigarettes among youth and young adults; and maintain tobacco-free norms.<sup>21</sup>



The majority of e-cigarette users also smoke cigarettes.**Error! Bookmark not defined.** Permitting ENDS use in public places could perpetuate combusted tobacco use and, therefore, tobacco-related morbidity and mortality. For example, ENDS use in public places could make it easier for smokers to sustain their nicotine addiction in public places, without switching completely away from combusted tobacco use.<sup>22</sup> There is no evidence to support any claim that policies that allow ENDS use in public places result in smokers switching to ENDS completely. Additionally, because some e-cigarettes are designed to mimic smoking, allowing ENDS use in places where smoking is prohibited could complicate enforcement of smokefree policies and renormalize tobacco use.<sup>23</sup>

### **Health Effects of Secondhand Exposure to Marijuana Smoke**

Generally, there are health risks associated with the combustion and subsequent inhalation of its emissions. Whether from burning tobacco or marijuana, toxins and carcinogens are released from the combustion of these materials. Inhaled smoke from marijuana contains many of the same toxins, irritants and carcinogens as tobacco smoke.<sup>24,25</sup> Further, secondhand smoke from combusted marijuana has been found to contain the same toxins and carcinogens found in inhaled marijuana smoke.<sup>26,27,28</sup>

There are recent findings that breathing secondhand marijuana smoke could damage heart and blood vessels as much as secondhand tobacco smoke.<sup>29</sup> Further, emerging research indicates that even brief exposure to marijuana smoke has been shown to have immediate, adverse effects on the heart.<sup>30</sup> The long-term health effects of secondhand exposure to marijuana smoke have not been extensively studied, and research in this area is ongoing.

### **What States and Communities Have Done**

As of December 2016, CDC has determined that 27 states, Puerto Rico, the District of Columbia, and over 800 other communities in the United States have comprehensive smokefree laws in effect that prohibit smoking tobacco in private worksites, restaurants, and bars.<sup>31,32</sup>

Of these 27 states that have implemented comprehensive smokefree laws, eight states (California, Delaware, Hawaii, New Jersey, North Dakota, Oregon, Utah, and Vermont) have also prohibited the use of ENDS where smoking is prohibited, as well as hundreds of local communities.<sup>32</sup>

The most effective tobacco control policies have most often originated at the local level.<sup>1,33,34</sup> This is especially true in the area of smokefree policies.<sup>1,33</sup>

### **Conclusion**

Evidence shows that secondhand smoke causes considerable death and disease, costing the United States billions every year in direct health care costs and lost productivity. And unlike many other health hazards, these harms are completely preventable. Further, secondhand aerosol emitted from ENDS, including e-cigarettes, is not harmless. The diversification of the tobacco product landscape – specifically the increase in ENDS use – is important to consider in the development of public health interventions to protect the public from involuntary exposure to known health risks. Clean air—free of both smoke and ENDS aerosol—remains the standard to protect health.

Thank you.

Sincerely,

Brian A. King, PhD, MPH  
Deputy Director for Research Translation  
Office on Smoking and Health  
Centers for Disease Control and Prevention

- 
- <sup>1</sup> U.S. Department of Health and Human Services. *The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.
- <sup>2</sup> U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Smoking: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1986.
- <sup>3</sup> U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.
- <sup>4</sup> U.S. Department of Health and Human Services. *How Tobacco Smoke Causes Disease: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010.
- <sup>5</sup> Flouris AD, Koutedakis Y. Immediate and short-term consequences of secondhand smoke exposure on the respiratory system. *Current Opinion in Pulmonary Medicine* 2011;17(2):110–5.
- <sup>6</sup> Homa DA, Neff LJ, King BA, Caraballo RS, Bunnell RE, Babb SD, Garrett BE, Sosnoff CS, Wang L. Vital signs: Disparities in nonsmokers' exposure to secondhand smoke—United States, 1999–2012. *Morbidity and Mortality Weekly Report* 2015;64(04):103–8.
- <sup>7</sup> International Agency for Research on Cancer. *Handbook of Cancer Prevention: Evaluating the Effectiveness of Smoke-free Policies*. Geneva, Switzerland: International Agency for Research on Cancer, World Health Organization, 2009.
- <sup>8</sup> Guide to Community Preventive Services. Decreasing tobacco use among workers: smoke-free policies to reduce tobacco use (2005 archived review). [www.thecommunityguide.org/tobacco/smokefreepolicies\\_archive.html](http://www.thecommunityguide.org/tobacco/smokefreepolicies_archive.html). Accessed January 14, 2015.
- <sup>9</sup> Semple S, Creely KS, Naji A, Miller BG, Ayres JG. Secondhand smoke levels in Scottish pubs: The effect of smoke-free legislation. *Tobacco Control* 2007;16:127–32.
- <sup>10</sup> Centers for Disease Control and Prevention. Indoor air quality in hospitality venues before and after implementation of a clean indoor air law—Western New York, 2003. *Morbidity and Mortality Weekly Report* 2004;53(44):1038–41.
- <sup>11</sup> Tan CE, Glantz SA. Association between smoke-free legislation and hospitalization for cardiac, cerebrovascular, and respiratory diseases. *Circulation* 2012;126:2177–83.
- <sup>12</sup> Glantz SA, Gibbs E. Changes in ambulance calls following implementation of a smokefree law and its extension to casinos. *Circulation* 2013;doi: 10.1161/CIRCULATIONAHA.113.003455.
- <sup>13</sup> Loomis BR, Shafer PR, van Hasselt M. The economic impact of smoke-free laws on restaurants and bars in 9 states. *Preventing Chronic Disease* 2013;10:120327. DOI: <http://dx.doi.org/10.5888/pcd10.120327>.
- <sup>14</sup> CDC. Impact of a smoking ban on restaurant and bar revenues—El Paso, Texas, 2002. *Morbidity and Mortality Weekly Report* 53(107);150–2; 2004.
- <sup>15</sup> Pyle M, et al. Economic effect of a smoke-free law in a tobacco-growing community. *Tobacco Control* 16:66–8, 2007.
- <sup>16</sup> Hahn EJ. Smokefree legislation: A review of health and economic outcomes research. *American Journal of Preventive Medicine* 39(6S1):S66–S76, 2010.
- <sup>17</sup> Eriksen M, Chaloupka F. The economic impact of clean indoor air laws. *CA: A Cancer Journal for Clinicians* 57:367–78, 2007.
- <sup>18</sup> Scollo M, et al. Review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control* 12:13–20, 2003.
- <sup>19</sup> Cowling DW, Bond P. Smoke-free laws and bar revenues in California: The last call. *Health Economics* 14(12):1273–81, 2005.
- <sup>20</sup> NYC Department of Finance, NYC Department of Health and Mental Hygiene, NYC Department of Small Business Services, NYC Economic Development Corporation. *The State of Smoke-Free New York City: A One-Year Review*. March 2004, <http://www.nyc.gov/html/doh/downloads/pdf/smoke/sfaa-2004report.pdf>. Accessed March 31, 2014.
- <sup>21</sup> U.S. Department of Health and human Services. E-cigarette Use Among Youth and Young Adults. A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, national Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.
- <sup>22</sup> Marynak K, Holmes CB, King BA, Promoff G, Bunnell R, McAfee T. State laws prohibiting sales to minors and indoor use of electronic nicotine delivery systems—United States, November 2014. *Morbidity and Mortality Weekly Report* 2014;63(49);1145–50.
- <sup>23</sup> Babej ME (2013). NJOY: The e-cigarette that aims to snuff out smoking. *Forbes*. July 18, 2013. Available at: <http://www.forbes.com/sites/marcbabej/2013/07/18/njoy-the-e-cigarette-that-aims-to-snuff-out-smoking/>
- <sup>24</sup> Tashkin DP. Effects of marijuana smoking on the lung. *Ann Am Thorac Soc*. 2013;10 (3):239-247.

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- <sup>25</sup> Moir D, Rickert WS, Levasseur G, et al. A comparison of mainstream and sidestream marijuana and tobacco cigarette smoke produced under two machine smoking conditions. *Chem Res Toxicol*. 2008; 21(2):494-502. doi:10.1021/tx700275p
- <sup>26</sup> Moore, C., et al., Cannabinoids in oral fluid following passive exposure to marijuana smoke. *Forensic Sci Int*, 2011. 212(1-3): p. 227-30.
- <sup>27</sup> Cone, EJ, et al., Non-smoker exposure to secondhand cannabis smoke. I. Urine screening and confirmation results. *J Anal Toxicol*, 2015. 39(1): p. 1-12.
- 28 Zarfin, Y, et al., Infant with altered consciousness after cannabis passive inhalation. *Child Abuse Negl*, 2012. 36(2): p. 81-3.
- 29 Wang X., et al. Brief Exposure to Marijuana Secondhand Smoke Impairs Vascular Endothelial Function. *Circulation*. 2014;130:A19538
- 30 Wang X, et al. One Minute of Marijuana Secondhand Smoke Exposure Substantially Impairs Vascular Endothelial Function. *J Am Heart Assoc*. 2016;5:e003858
- 31 Centers for Disease Control and Prevention. State Tobacco Activities Tracking and Evaluation (STATE) System. Available from: <http://apps.nccd.cdc.gov/statesystem/Default/Default.aspx>. Accessed June 9, 2016.
- 32 Americans for Nonsmokers Rights Foundation. U.S. Tobacco Control Laws Database. Available from: <http://www.no-smoke.org/goingsmokefree.php?id=519#ords>. Accessed June 9, 2016.
- 33 National Cancer Institute. State and local legislative action to reduce tobacco use. Smoking and Tobacco Control Monograph No. 11. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 2000.
- 34 The Task Force on Community Preventive Services. The Guide to Community Preventive Services: What Works to Promote Health? New York, NY: Oxford University Press, 2005.



# E-Cigarette Use Among Youth and Young Adults

## A Report of the Surgeon General

### Fact Sheet

This Surgeon General's report comprehensively reviews the public health issue of e-cigarettes and their impact on U.S. youth and young adults. Studies highlighted in the report cover young adolescents (11-14 years of age); adolescents (15-17 years of age); and/or young adults (18-25 years of age). Scientific evidence contained in this report supports the following facts:

**E-cigarettes are a rapidly emerging and diversified product class. These devices typically deliver nicotine, flavorings, and other additives to users via an inhaled aerosol. These devices are referred to by a variety of names, including "e-cigs," "e-hookahs," "mods," "vape pens," "vapes," and "tank systems."**

- E-cigarettes are battery-powered devices that heat a liquid into an aerosol that the user inhales.
- The liquid usually has nicotine, which comes from tobacco; flavoring; and other additives.
- E-cigarette products can also be used as a delivery system for marijuana and other illicit drugs.

**E-cigarettes are now the most commonly used tobacco product among youth, surpassing conventional cigarettes in 2014. E-cigarette use is strongly associated with the use of other tobacco products among youth and young adults, including cigarettes and other burned tobacco products.**

- In 2015, more than 3 million youth in middle and high school, including about 1 of every 6 high school students, used e-cigarettes in the past month. More than a quarter of youth in middle and high school have tried e-cigarettes.
- Among high school students, e-cigarette use is higher among males, whites, and Hispanics than among females and African-Americans.
- There is a strong association between the use of e-cigarettes, cigarettes, and the use of other burned tobacco products by young people. In 2015, for example, nearly 6 of 10 high school cigarette smokers also used e-cigarettes.
- Research has found that youth who use a tobacco product, such as e-cigarettes, are more likely to go on to use other tobacco products like cigarettes.

**E-cigarette use among youth and young adults has become a public health concern. In 2014, current use of e-cigarettes by young adults 18-24 years of age surpassed that of adults 25 years of age and older.**

- Among young adults 18-24 years of age, e-cigarette use more than doubled from 2013 to 2014. As of 2014, more than one-third of young adults had tried e-cigarettes.
- The most recent data available show that the prevalence of past 30-day use of e-cigarettes was 13.6% among young adults (2014) and 16.0% among high school students (2015).
- The most recent data available show that the prevalence of past 30-day use of e-cigarettes is similar among middle school students (5.3%) and adults 25 years of age and older (5.7%).
- Among young adults, e-cigarette use is higher among males, whites and Hispanics, and those with less education.

**The use of products containing nicotine poses dangers to youth, pregnant women, and fetuses. The use of products containing nicotine in any form among youth, including in e-cigarettes, is unsafe.**

- Many e-cigarettes contain nicotine, which is highly addictive.
- The brain is the last organ in the human body to develop fully. Brain development continues until the early to mid-20s. Nicotine exposure during periods of significant brain development, such as adolescence, can disrupt the growth of brain circuits that control attention, learning, and susceptibility to addiction.
- The effects of nicotine exposure during youth and young adulthood can be long-lasting and can include lower impulse control and mood disorders.
- The nicotine in e-cigarettes and other tobacco products can prime young brains for addiction to other drugs, such as cocaine and methamphetamine.

- Nicotine can cross the placenta and affect fetal and postnatal development. Nicotine exposure during pregnancy can result in multiple adverse consequences, including sudden infant death syndrome (SIDS).
- Ingestion of e-cigarette liquids containing nicotine can cause acute toxicity and possible death if the contents of refill cartridges or bottles containing nicotine are consumed.

**E-cigarette aerosol is not harmless. It can contain harmful and potentially harmful constituents including nicotine. Nicotine exposure during adolescence can cause addiction and can harm the developing adolescent brain.**

- The constituents of e-cigarette liquids can include solvents, flavorants, and toxicants.
- The aerosol created by e-cigarettes can contain ingredients that are harmful and potentially harmful to the public's health, including: nicotine; ultrafine particles; flavorings such as diacetyl, a chemical linked to serious lung disease; volatile organic compounds such as benzene, which is found in car exhaust; and heavy metals, such as nickel, tin, and lead.

**E-cigarettes are marketed by promoting flavors and using a wide variety of media channels and approaches that have been used in the past for marketing conventional tobacco products to youth and young adults.**

- E-cigarettes are an estimated \$3.5 billion business in the United States. In 2014, e-cigarette manufacturers spent \$125 million advertising their products in the U.S.
- In 2014, more than 7 of 10 middle and high school students said they had seen e-cigarette advertising. Retail stores were the most frequent source of this advertising, followed by the internet, TV and movies, and magazines and newspapers.
- The 2012 Surgeon General's Report on tobacco use among youth and young adults found that tobacco product advertising causes young people to start using tobacco products. Much of today's e-cigarette advertising uses approaches and themes similar to those that were used to promote conventional tobacco products.
- E-cigarettes are available in a wide variety of flavors, including many that are especially appealing to youth. More than 85% of e-cigarette users ages 12-17 use flavored e-cigarettes, and flavors are the leading reason for youth use. More than 9 of 10 young adult e-cigarette users said they use e-cigarettes flavored to taste like menthol, alcohol, fruit, chocolate, or other sweets.

**Action can be taken at the national, state, local, tribal and territorial levels to address e-cigarette use among youth and young adults. Actions could include incorporating e-cigarettes into smokefree policies, preventing access to e-cigarettes by youth, price and tax policies, retail licensure, regulation of e-cigarette marketing likely to attract youth, and educational initiatives targeting youth and young adults.**

- The Food and Drug Administration (FDA) now regulates the manufacturing, importing, packaging, labeling, advertising, promotion, sale, and distribution of e-cigarettes.
  - In August 2016, FDA began enforcing a ban on vending machine sales unless in adult-only facilities and a ban on free samples and sales to minors.
- Parents, teachers, health care providers, and others who influence youth and young adults can advise and inform them of the dangers of nicotine; discourage youth tobacco use in any form, including e-cigarettes; and set a positive example by being tobacco-free themselves.

**Citation:** U.S. Department of Health and Human Services. *E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General—Executive Summary*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.

**Website:** [E-cigarettes.Surgeongeneral.gov](http://E-cigarettes.Surgeongeneral.gov)