

Smoke Signals: An Analysis of Policies to Reduce Hookah Use Among Adolescents in
Washington State

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Abstract

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This paper analyzes three policy options aimed at decreasing the prevalence of hookah use among youth: (1) banning commercial hookah venues in Washington State (WA); (2) increasing the minimum age for purchase, possession, and sale of tobacco products from 18 to 21 years of age; and (3) increasing the state excise tax on pipe tobacco to equal that of the state excise tax on cigarettes. These policy options were analyzed using three criteria: (a) the predicted reduction in the prevalence of hookah use among twelfth graders; (b) the fiscal impact on WA State; and (c) the political feasibility. Based on the analysis, it is recommended that WA State increase the minimum age for purchasing tobacco to 21 years of age.

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Chapter I: Introduction

Despite success between 1997 and 2003 in reducing the number of adolescents and young adult tobacco users (12-25 years), rates of decline for cigarette and smokeless tobacco use have slowed or stalled completely in the last five years, while the use of cigars is gaining in popularity.¹ The use of alternate methods of tobacco consumption, including the use of hookah or water pipe, is also on the rise among U.S. youth.²⁻¹⁶ Between 2010 and 2011, the consumption of non-cigarette tobacco products increased by 123%.¹⁷

Nearly 99% of smokers report initiating smoking by age 26. By this age most smokers have made the leap from occasional to daily habits,¹ making the period between 12-25 a critical window for prevention of long-term tobacco use.

Hookah smoking has been reported to be attractive to young populations for several reasons: the social nature of the practice, the sense of relaxation imparted from smoking, the variety of flavors of the tobacco method of smoking that makes hookah smoke less harsh than cigarette smoke, and the misperception about decreased risk of smoking tobacco with a hookah compared to smoking cigarettes.¹²

Despite a number of laws designed to reduce youth access and exposure to tobacco products, including one of the most restrictive indoor smoking bans in the country, the prevalence of hookah use among Washington State (WA) tenth and twelfth graders and students at a WA university are consistent with reports from other states with less restrictive tobacco laws.^{9,18,19}

A number of policy options have the potential to reduce the attractiveness and accessibility of hookah use among these populations. This paper will examine three such policies: (1) banning commercial hookah venues in WA; (2) increasing the minimum age for the possession, purchase, and use of tobacco from 18 to 21 years of age; and (3) increasing the WA excise tax on pipe tobacco to be comparable to the state excise tax on cigarettes. Although each of these policies will affect the general population, it is likely that they will have the greatest effect on the adolescent and young adult population (12-25 years).

Chapter 2: Background

What is hookah?

Hookah, also commonly referred to as shisha, boory, goza, narghile, argihle, hubble bubble, and water pipe, is a centuries old tradition commonly ascribed to the Middle East and Asia.²⁰ A hookah is designed to smoke a special form of tobacco, typically called shisha or maassel. Hookah pipes consist of four main parts: the head; body; water bowl; and hose.^{20,21} The tobacco is indirectly heated over charcoal in the head. The smoke is then filtered through the body, which connects the head and a bowl of water. The smoke is then inhaled through a rubber hose.^{20,21} (See Figure 1.)

Although non-tobacco substances such as marijuana, hashish, and herbal shisha, can be smoked in a hookah pipe, this study is concerned with shisha.⁹ Shisha or maassel, is a sticky tobacco substance comprised of tobacco and either honey or molasses and is available in a variety of flavors, such as cotton candy, apple, coffee, strawberry, banana, and chocolate.²¹

Increasingly common in larger cities and college towns, hookah lounges have become a primary location where youth smoke hookah.¹² Griffiths, et al¹² estimate that, as of 2010, there were a total of 725 hookah locations, throughout 43 states and the District of Columbia. This is up from a 2007 American Lung Association report, which found 200 to 300 establishments in the United States.²¹ WA had approximately 27 hookah lounges as of 2014.

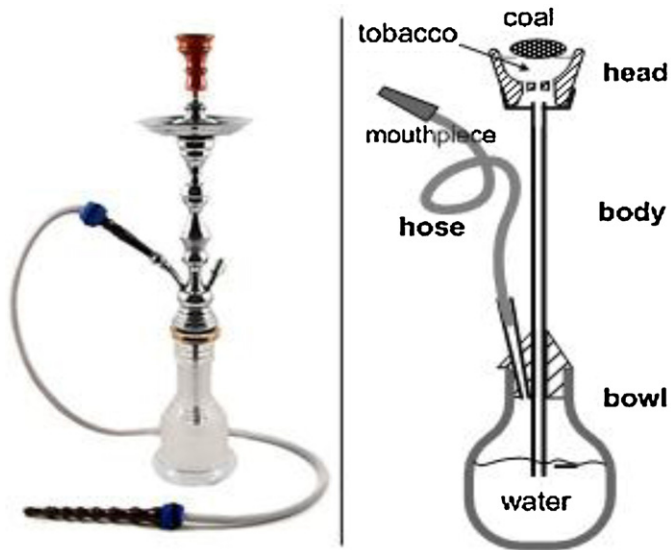


Figure 1: Parts of a Hookah Pipe²⁰

Many hookah lounges do not serve alcohol thereby allowing a younger set of clientele who are excluded from socializing in bars.^{4,12} According to Griffiths, et al,¹² a session at a hookah lounge is reasonably priced, starting at a \$10 flat rate. Due to unregulated access via the internet, youth can also purchase their own hookah and shisha for the purposes of smoking at home. Online merchants have no reliable way of verifying a customer's age.¹²

Prevalence of hookah smoking in adolescents and young adults

Historically, hookah smoking was primarily practiced in Asia and the Middle East by adults. By 1980 its popularity was on the decline, but has since experienced a resurgence, not only in the Middle East, but globally.^{20,22} A number of studies have documented the increased prevalence of hookah smoking among both middle and high school students,²⁻⁷ as well as college students⁸⁻¹⁶ in the U.S.

Rates of U.S. high school students reporting ever having smoked tobacco with a hookah, range from 10.3% to 38% between 2008 and

2011.²⁻⁷ Barnett, et al² found

approximately 11% of Florida high

school students had ever tried hookah

smoking, while Primack, et al⁴ found

10.3% of Arizona high school students

had ever smoked hookah. In a study of

New Jersey students from three high

schools, Smith, et al⁵ reported that

26.1% of students had ever smoked

hookah. The highest reported prevalence

comes from a study by Weglicki, et al⁷

that compared hookah use among Arab and non-Arab American students in Michigan, which has a high Arab-American population. Thirty eight percent (38%) of Arab-American students, who made up 70% of the total sample reported ever smoking hookah. Only two studies reported rates of twelfth grade students

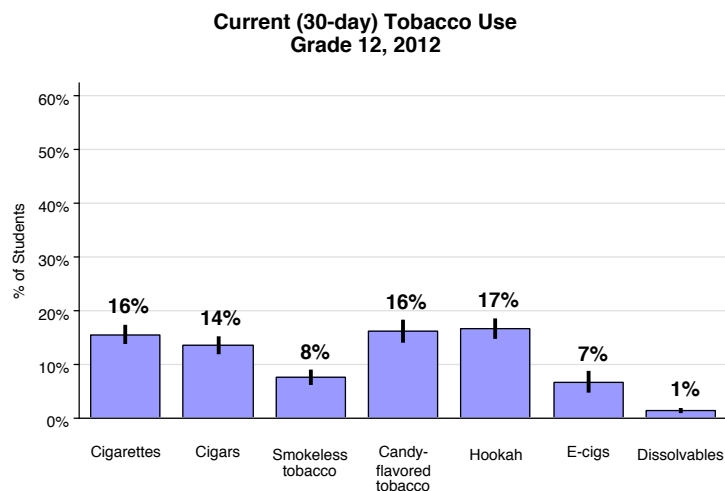


Figure 2: Healthy Youth Survey 2012 Tobacco Use in Twelfth Grade for all of WA¹⁸

who had ever smoked hookah.^{2,4} Both of these studies found the rates were higher among the twelfth grade population (16% of seniors vs. 11% of all high school students² and 15.1% vs. 10.3%, respectively⁴). In WA, the Healthy Youth Survey in 2012 found that 9% of tenth graders and 17% of twelfth graders had smoked hookah in the past 30 days.¹⁸

Hookah smoking rates have been found to be similar among college students. A number of studies have reported lifetime hookah smoking rates among college students ranging from 12.7% to 48.4%⁸⁻¹⁶ Rates of current hookah use (defined as use in the past 30 days) ranged from 7.2% to 20.4%^{8,10,11,13-16}

By restricting their focus to college students, these studies may underestimate the prevalence of hookah smoking among youth adults between the ages of 18-35. Young adults who do not attend college or have never received a college degree make up the preponderance of the young adult population (84% of 18-25 year olds in 2013).^{23,24} Green, et al²³ found that young adults without a college education smoke cigarettes at more than twice the rate of young adults with a college education. Hookah smoking prevalence has been found to be similar to that of cigarette smoking rates among college students.^{8,15,16} However, Lee, et al²⁵ found a higher prevalence of hookah smoking among college than non-college young adults. While there are a multitude of studies that have examined the prevalence of hookah use among college students, non-college youth are an understudied population. More work is needed in this area to determine the prevalence of hookah use among non-college youth and whether it is increasing in the face of growing hookah use among high school students.

Predictors and correlates of hookah use

While a number of studies have found that males are more likely than females to engage in hookah smoking,^{2,6,9,10,14-16} others have not reported any gender differences.^{3-5,7,8,11,13} In a review of the literature on hookah smoking in the college population, Grekin and Ayna²⁶ observe that all but one of the 16 studies they reviewed found that males were more likely than females to report hookah use. However, they noted that in the U.S. fewer gender differences were reported.

When looking at race and ethnicity, studies have reported that being Caucasian, Asian, Arab, or Hispanic is associated with hookah use.^{2,4,7-11,14} The most consistent finding has been that African American students report the lowest rates of hookah use.^{2,6,8,10}

Studies of adolescent and college students have reported that hookah use is associated with cigarette or other tobacco use.^{2,3,5,6,8,10,13,15,16} These studies did not determine the temporal nature of the relationship and it is unknown whether cigarette smoking increases an individual's susceptibility to hookah smoking or whether hookah smoking acts as a gateway to cigarette use.

Both Primack, et al¹³ and Sutfin, et al¹⁶ observed that approximately one-third to one-quarter (35.4% and 22% respectively) of hookah users had never tried a cigarette, suggesting that hookah use may be attracting individuals who would otherwise have remained non-smokers. This could be a result of the commonly held misconception that hookah smoking is less hazardous than cigarette smoking.

^{3,5,10,13,15,16}

Access to a commercial hookah venue has also been associated with hookah use.^{5,6,8,16} Most notably, Sutfin, et al¹⁶ examined the relationship between hookah use and the availability of commercial hookah venues near college campuses in North Carolina. The odds of hookah use increased with the availability of hookah lounges, cafes, or restaurants. Smith, et al⁵ found that high school hookah users were more likely than nonusers to have visited a hookah lounge and to know that there is a hookah lounge in the community. Additionally, 22.3% of hookah ever-users first learned about hookah by seeing a hookah lounge. In a study of Chicago high school students, Sterling, et al⁶ reported that attending a commercial hookah venue was a predictor of not only "ever hookah use," but also "past thirty-day hookah use." Barnett, et al⁸ found that among University of Florida hookah smokers, 90.2% reported smoking in a restaurant, bar, or cafe.

Studies that have examined the relationship between beliefs or attitudes about hookah and cigarette use have found several associations. Barnett, et al² found among high school students that positive responses to questions regarding whether cigarettes help relieve stress and whether cigarettes help make social situations more comfortable are associated with a history of hookah use. Jordan, et al³ found that among high school students those who "perceive smoking makes one look cool or helps someone to fit in" were more likely to report current hookah use. Similarly, in a survey of Virginia

Commonwealth University students, Eissenberg, et al¹⁰ found that hookah use was associated with a greater likelihood of believing that hookah makes peers look “cool.” Primack, et al¹³ also found positive associations between hookah use and beliefs about the popularity of hookah use. Perhaps of most concern, is that a number of studies have documented the association between hookah use and the belief, among high school and college students, that smoking tobacco with a hookah pipe is less harmful and less addictive than cigarette smoking.^{3,5,10,13,15,16}

Exposure and health effects of hookah use

Although it is perceived by hookah smokers as a less harmful alternative to cigarette smoking, hookah use may be equally harmful and may result in different disease risks than cigarette tobacco.^{27,28} During an average smoking session, which typically lasts one hour, a hookah user may inhale 100-200 times the amount of smoke produced by a single cigarette.²² Significant amounts of nicotine, tar, heavy metals, and a variety of carcinogens, including benzene and chrysene, have been found in hookah smoke.²⁸⁻³⁴ The use of charcoal to heat the tobacco results in additional exposures to carbon monoxide and heavy metals, not only for smokers but for non-smokers in proximity.³⁴

Exposure to the various chemicals found in the smoke generated from the tobacco and charcoal used when smoking a hookah pipe are linked to potential health effects for users and those exposed to second-hand smoke. Jacob, et al²⁸ reported that a greater number of high molecular weight polycyclic aromatic hydrocarbons (PAH) and higher levels of benzene were generated when smoking hookah compared with cigarette smoking. Higher molecular weight PAHs are more carcinogenic than the lower molecular weight PAHs found in cigarette smoke, while benzene is a known human carcinogen linked to leukemia.²⁸

In a systematic review of the literature, Akl, et al²⁷ found that hookah use was significantly associated with lung cancer, respiratory illness, low birth-weight, and periodontal disease. Although there was not sufficient evidence for an association between hookah use and additional cancers or other disease, the authors note that this may be a result of the lack of power to detect a sufficient statistical relationship.

They also observe that there has not been enough time since the beginning of the “recent water pipe epidemic” to gather evidence on the long-term effects of hookah use.

Smoking in a group setting, often sharing mouthpieces, leaves users at risk for communicable diseases, such as tuberculosis and herpes.³⁵ Additionally, hookah smoking releases second-hand smoke, not only from the tobacco, but also the charcoal, which can be a danger to those in close proximity.³²

Until longitudinal studies are conducted on the use patterns of adolescents and young adults and the resulting health impact, it will be impossible to definitively assess the relative harm of smoking hookah compared to smoking cigarettes. There is evidence to suggest that hookah use is an occasional, rather than regular practice among high school and college students, which would influence the observed health effects.⁹

Legislation and regulations of hookah tobacco

Since 1965, when Congress passed the Federal Cigarette Labeling and Advertising Act, the federal government has been progressively adding regulations on tobacco products in an effort to deter cigarette smoking and reduce negative health impacts.³⁶ Hookah smoking is a more recent phenomenon and is limited only by those laws and regulations that are currently in force for other (non-cigarette) tobacco products. Unfortunately, the tobacco smoked in hookah pipes, classified under the pipe tobacco category, is among the least regulated of the non-cigarette tobacco products.

The Tobacco Control Legal Consortium has identified several regulatory gaps related to the marketing, sale, and use of hookah tobacco.³⁷ Such gaps include: the prohibition of flavoring, which applies only to cigarettes; the restriction of free samples, which the FDA maintains applies only to cigarette and smokeless tobacco products; the federal law restricting retailers from selling cigarettes or smokeless tobacco, but not other tobacco products to underage persons (youth less than 18); exemptions of commercial hookah venues from smoke-free laws; and limitations on state and local governments to regulate advertising and promotional activities for cigarettes but not non-cigarette tobacco products. Morris, et al³⁸ noted several additional policy gaps related to the sale and marketing of hookah tobacco. In addition to the gaps identified above, the following issues were noted: the discrepancy in federal tax on

pipe tobacco, the category of tobacco that shisha falls under, compared to cigarette tobacco; the federal requirement for warning labels on cigarettes and smokeless tobacco, but not on pipe tobacco; and the Prevent all Cigarette Trafficking Act, which prohibits shipping of cigarettes, roll-your-own tobacco, and smokeless tobacco, but not pipe tobacco.

WA has already closed a few of these gaps with state-level legislation. It is illegal in WA for anyone, even parents, to sell or give tobacco, including cigars, cigarettes, cigarette paper or wrappers, or non-cigarette tobacco, to persons under the age of 18. It is also illegal for a person under the age of 18 to purchase, attempt to purchase, obtain or possess any tobacco product.³⁹⁻⁴¹ Although it is unclear how well local officials enforce youth possession statutes, there are communities who are making strides, such as Puyallup's TIES (Tobacco Intervention, Education and Support) program, which combines enforcement of youth possession laws with school policies and public education.⁴² Unlike the federal law, WA's underage smoking statutes encompass all tobacco products, not just cigarettes and smokeless tobacco.

Furthermore, it is illegal to ship or cause to be shipped any tobacco product purchased by mail or internet to anyone in WA except a licensed wholesaler or retailer.⁴³ This law makes it more difficult for youth to circumvent the age-restrictions encountered at brick and mortar stores that require identification to verify age.

Finally, WA law prohibits smoking in most public places and workplaces, including bars and restaurants, and defines boundaries around entrances, exits, windows, and air intakes within which smoking is prohibited.⁴⁴ This law, however, allows smoking in private facilities. Despite warnings from officials, hookah lounges have taken advantage of this exception by becoming private clubs with an annual membership fee.^{45,46} In order to avoid violating the restriction on smoking in workplaces, hookah bars are often staffed with volunteers or family members.⁴⁷ Public health departments around WA have attempted to enforce the state law for hookah lounges with varying degrees of success.⁴⁵ Recent WA legislation (HB 1750) has been proposed to establish special licenses for cigar lounges and retail tobacconist shops to allow smoking on the premises provided certain conditions are met.⁴⁸ This bill could impact the legality of hookah lounges if the law is written to encompass private establishments whose purpose is limited to the sale and communal smoking of tobacco products. As of May 2013, this bill has been "reintroduced and retained in current status."⁴⁹

Chapter 3: Policy Options

This analysis considered three policy options designed to potentially reduce the prevalence of tobacco consumption with the use of a hookah pipe among adolescents and young adults in WA. These policies were analyzed based on three criteria: (1) the predicted reduction in the number of hookah smokers in the twelfth grade; (2) the predicted fiscal impact to WA; and (3) the political feasibility.

Policy Option 1: Banning Commercial Hookah Venues

In 2005 the WA legislature passed Initiative 901, which amended the 1985 Clean Indoor Air Act to prohibit smoking in all public places and places of employment.⁵⁰ This is one of the most stringent statewide smoking bans in the country. One exception to this law is that smoking is not restricted in private facilities, except on occasions when the facility is open to the public. It is through this loophole that commercial hookah venues have continued to operate.⁵⁰ Such venues use volunteers and family members instead of employees to get around the ban against smoking in the workplace.⁴⁷ Additionally, there have been attempts led by cigar enthusiasts to specifically exempt cigar clubs and retail tobacco shops from the indoor smoking ban. The most recent exemption was introduced in February 2013 as House Bill 1750, which is still active in the legislature.⁴⁹

Because access to a commercial hookah venue has been associated with hookah use^{5,6,8,16} limiting commercial hookah venues is a key area for policy makers to address. Primack, et al⁴ has theorized that commercial hookah venues may be particularly attractive to people who are too young to purchase alcohol because they simulate the bar social environment. In a qualitative study of young hookah users, the findings of Griffiths, et al¹² supported this theory.

Although there are laws prohibiting the sale of tobacco to individuals under the age of eighteen, the real harm of hookah lounges, bars, or cafes may come from the early introduction of the concept of hookah smoking to high school students. Smith, et al⁵ reported that 21% of high school students in their study found out about hookah smoking from seeing a commercial hookah venue in their community.

Additionally, the presence of such venues may reinforce social norms that provide tacit approval of the practice.

The first policy option would modify RCW 70.160, the Smoking in Public Places Act, to explicitly ban the operation of facilities in which hookah pipes are used for the purposes of inhalation of tobacco smoke or other vapors. As defined, this policy includes not just the use of shisha, but also herbal shisha (a form of shisha that is tobacco and nicotine free) and steam stones (stones infused with nicotine and flavoring used instead of charcoal and shisha). The rationale for including herbal shisha and steam stones is twofold. First, this policy is intended to decrease the visibility of hookah use for younger populations. By allowing hookah use with alternate, non-tobacco sources, though likely decreasing the health risk to users, the visibility to youth would not functionally decrease. Second, currently health departments struggle with enforcement of the Smoking in Public Places laws. Due to limited resources, they would be ill equipped to monitor whether hookah lounges were actually using only allowed substances. If patrons found either herbal shisha or steam stones to be a less desirable product, vendors may be tempted to return to the use of shisha and risk possible fines in order to preserve their sales.

Policy Option 2: Increase the Age Limit for Tobacco Possession, Use, and Sale to 21

In 1992, the U.S. Congress passed the Synar Amendment, requiring states to enact and enforce laws restricting the sale and distribution of tobacco to persons under the age of 18.⁵¹ WA Revised Code (RWC) 70.155 and 26.28.080 prohibit the purchase or attempts to purchase tobacco by persons under the age of 18 and the sale or distribution of tobacco to persons under age 18.^{40,52} Despite this, minors still obtain tobacco products. Among WA high school seniors, 8.3% reported purchasing tobacco in a store and 1.2% reported purchasing tobacco products from vending machines. Furthermore, 7.1% report either giving someone else money to purchase tobacco for them or having received tobacco from a person 18 years or older.¹⁸ Because a portion of high school seniors is 18 years old and legally allowed to purchase tobacco, it is informative to compare high school senior numbers to those of high school juniors. Among juniors, 1.6% reported purchasing tobacco in a store, 0.7% reported using a vending machine, and 5% reported either giving someone else money to purchase tobacco for them or having received tobacco from

a person 18 years or older.¹⁸ The WA State Department of Health (WSDOH) reported that in 2012, 15% of tobacco retailers sold tobacco to minors.⁵³ It has been reported that 90% of those who purchase tobacco for underage youth were themselves under the age of 21.⁵⁴

Policies raising the purchase age for tobacco have become more visible in recent years. Several communities in Massachusetts (MA), New Jersey (NJ), and Hawaii (HI) have passed local ordinances to raise the minimum age for tobacco use and purchase to 21, as has, most notably New York City. Local governments in WA are unable to take such action at this time due to preemption in our state. Therefore in order to change this policy in WA, it is necessary to do so at the state level. In 2014, four states: Colorado (CO); Utah (UT); Maryland (MD); and Hawaii (HI), attempted to pass legislation to increase the smoking age to 21, but were unsuccessful.⁵⁵⁻⁵⁷

The second policy option would increase the age as specified in RCW 70.155.080 and RCW 26.28.080 from 18 to 21 years of age. Enforcement and penalties would not change from those currently in place under RCW 70.155.100.

Policy Option 3: Increase State Excise Tax on Pipe Tobacco

At this time the federal excise tax on pipe tobacco (which is the tobacco category shisha belongs to) is \$2.8311 per pound or \$0.1769 per ounce compared to the tax on cigarettes of \$50.33 per 1,000 units or \$1.10 per 20 count pack and the tax on roll-your-own tobacco of \$24.78 per pound or \$1.5488 per ounce.⁵⁸ Although WA taxes other tobacco products at 95% of the taxable sales price, there remains a significant discrepancy in excise tax from the \$3.025 per 20 count pack for cigarettes.⁵⁹ Because youth have been found to be more price sensitive than adults, increasing the effective price of tobacco has been a valuable tool to discourage cigarette smoking in adolescents and young adults.^{60,61}

Although there have been previous attempts to close the gap in federal excise taxes between other tobacco products, such as pipe tobacco, it is unlikely that there will be any change on the federal level in the near future. In 2010, Representative Steve Cohen, a Democrat from Tennessee, introduced H.R. 4439, The Tobacco Tax Parity Act of 2010, which never made it out of committee. If enacted this regulation

would have amended the Internal Revenue Code to make the federal excise tax on pipe tobacco equal to the tax on roll-your-own tobacco.⁶²

The third policy option would increase the excise tax rate for pipe tobacco to the same level as the excise tax rate for cigarettes under RCW 82.24.020(1). This rate is \$0.12125 per cigarette or \$3.73 per ounce and would apply to all future and preexisting inventories of pipe tobacco. The pipe tobacco revenue would go towards the WA Tobacco Prevention and Control Program budget.

Chapter 2: Criteria and Methods

In order to compare each policy option, three criteria were identified that would be of use to policy-makers deciding between the three policy options. Each policy option was assessed on the basis of these criteria. Analyses of these criteria utilized a variety of methods and data sources.

Criteria 1: Predicted reduction in the prevalence of hookah smokers in the twelfth grade

The first part of the analysis compared the predicted levels of the prevalence of hookah smokers in the twelfth grade between each of the three policy options. The twelfth grade was chosen as the age of comparison because this is the age by which most individuals begin to smoke.

According to the 2012 Surgeon General's Report, the number of deaths each day as a result of smoking exceeds 1,200. Every day, at least two adolescents or young adults become regular smokers to take the place of each smoker who dies from smoking. Of those, nearly 90% began smoking by the age 18.¹

Criteria 2: Fiscal Impact to the State

The second part of the analysis compared the predicted costs that WA would incur by implementing each policy in 2015. Costs that were considered included: policy development, implementation, and enforcement costs, and anticipated changes in tax revenue.

Criteria 3: Political Feasibility

The final part of the analysis compared the political feasibility of each policy option. As each of the proposed policy options requires state-level legislative action, political feasibility is a key consideration.

Methods

In order to develop estimates for the first two criteria, data from a variety of sources were used. These sources include: (1) Healthy Youth Survey data from 2002-2012;¹⁸ (2) U.S. Census data from 2012;²⁴ (3) prices from Seattle tobacco shops, online WA pipe tobacco retailers, and hookah lounge websites; (4) an estimate of the number of hookah lounges from an internet search of social media, hookah enthusiast sites, and search engine results; (5) state government agency websites; (6) a business plan for a proposed hookah lounge;⁶³ (7) fiscal notes for proposed legislation from WA (H.B. 2795), CO (H.B.14-1263), and UT (S.B. 12);^{73,74,95} (8) census data from the WA Office of Financial Management for 2012;⁶⁹ (9) The Tax Burden of Tobacco, compiled statistics of cigarette and other tobacco product taxes by state;⁷¹ (10) the Center for Disease Control and Prevention (CDC) State Tobacco Activities Tracking and Evaluation (STATE) system;⁹² and (11) state reported salaries.⁶⁵ Details of the specific calculations are provided in the results section for each policy.

In order to evaluate the political feasibility of each policy, key informant interviews were conducted. The University of Washington Institutional Review Board (IRB) and Human Subjects Division granted exempt status for the key informant interview portion of this analysis. The first round of potential informants were identified from an internet search. Individuals were selected in an effort to balance the number of possible supporters and opponents. Subsequent informants were identified by asking interviewees to suggest individuals or groups to contact. Potential key informants were approached by email, phone, and in person. Interviews were conducted by phone with a preset interview guide (see Appendix for guide).

Out of 22 requests for interviews, five individuals consented. These included representatives from the WA Department of Health (1), county public health departments (2), a public school district (1), and

university student health clinic (1). The interviews were audio recorded and transcribed by the author. The transcripts were analyzed for common themes and unique insights provided by the key informants as a result of their roles and experiences. During the course of the first two interviews, it was discovered that an initial policy option to require large, graphic warning labels and plain packaging of other tobacco products was not permissible under the Family Smoking Prevention and Tobacco Control Act; future interviewees were asked about a replacement policy (increasing the legal age limit for tobacco sales).

Of the key informants, all held favorable views of the proposed policy ideas. No potential opponents to the policies agreed to an interview. In order to address the lack of opposing views and present a more balanced analysis, the following additional sources were used: public testimony for proposed legislation in WA (H.B. 2795), UT (H.B. 12), and HI (S.B. 2029);^{84,85,96} media reports; grey literature from special interest groups; and poll results.

Chapter 5: Results

	Predicted Prevalence of Current Hookah Use Among Twelfth Graders	Political Feasibility	Fiscal Impact
Policy Option 1: Ban Commercial Hookah Venues	No change	Very low	Total lost revenue: \$1.25 million - \$5.8 million Costs: approximately \$8,000
Policy Option 2: Increase minimum age limit to 21	Hookah use: 13.6% Cigarette use: 12.7%	Low, with two possible future windows of opportunity	Total lost revenue: \$784,000 - \$2.25 million Costs: none
Policy Option 3: Increase excise tax on pipe tobacco	Hookah use: 11.6% - 11.8%	Low, with one possible future window of opportunity	Change in revenue: -\$429,000 to +\$10.4 million Costs: \$304,100

Table 1: Overview of Analysis Results

Question	Key Informant Responses
Policy Option: Banning Commercial Hookah Lounges	
Political Barriers to Implementation	<ul style="list-style-type: none"> • Definition of hookah is key • Questionable legality of banning the sale of hookah • Clean indoor air laws already in place • Partisan nature of legislature • Objections of business community • Republican objections to “nanny state” governance • Cultural aspect to some hookah lounges
Ways to Increase Political Feasibility	<ul style="list-style-type: none"> • Educating lawmakers about hookah and the associated harms • Document potential carbon monoxide risks • Keeping the focus of policy on youth risk reduction • Clear definitions of hookah lounge • Economic analysis of the costs of enforcing existing clean indoor air laws • Offer businesses the option of using steam stones instead of shisha
Policy Option: Increasing Minimum Smoking Age to 21	
Political Barriers to Implementation	<ul style="list-style-type: none"> • Objections based on “individual liberty” • Complaints about “nanny state” • Objections that 18 year olds can vote and serve in military, so they should be able to smoke • Tobacco doesn’t intoxicate like alcohol and marijuana • Republica opposition based on party values (“anti-regulation”, “anti-government”) • Objections of business community • Enforcement and compliance issues
Ways to Increase Political Feasibility	<ul style="list-style-type: none"> • A compelling story to incite positive public sentiment • Evidence of economic benefit to state
Policy Option: Increase Excise Tax on Pipe Tobacco	
Political Barriers to Implementation	<ul style="list-style-type: none"> • Raising taxes faces strong opposition in the current economic & political landscape • WA already has high cigarette taxes • Differential tax rates between neighboring states increases potential for black market • Comparable issues to current e-cigarette tax hike bill • Objections of business community • State history of two-thirds majority of both houses to raise taxes
Ways to Increase Political Feasibility	<ul style="list-style-type: none"> • Public pressure • Clear purpose for tax revenue for tobacco control and prevention • Educating lawmakers about hookah and associated harms • Comparable taxes in bordering states

Question	Key Informant Responses
General Questions	
Major Stakeholders	<ul style="list-style-type: none"> • Public health departments & public health officials • Voluntary organizations (American Heart Association, American Lung Association, American Cancer Society, The Campaign for Tobacco Free Kids, Americans for Non-Smokers' Rights) • Tobacco retailers • Users of tobacco products • Hookah bars • Colleges • Businesses next to hookah bars • Attorney General • Schools
Additional Suggested Policy Options	<ul style="list-style-type: none"> • Beter enforcement of current law • Increased funding for health departments to enforce current law • Mandating hookah bars switch to the use of steam stones instead of shisha

Table 2: Results of Key Informant Interview

Policy Option 1: Banning Commercial Hookah Venues

Prevalence

This analysis used county-level data from the 2012 Healthy Youth Survey of twelfth-grade students and the U.S. Census estimates for 2012.^{18,91} In order to estimate the prevalence of current hookah use among twelfth graders under the policy to ban hookah lounges, a linear regression analysis was conducted. The dependent variable of interest was the prevalence of current hookah use among twelfth graders. Because this variable was a proportion, the logit function ($\ln P_0 / (1 - P_0)$) was used. The main independent variable was a weighted estimate of the number of accessible hookah venues. This variable was used because it can be argued that high school seniors may be accessing hookah venues in neighboring counties. However, because they cannot access hookah venues in neighboring counties as easily as hookah venues in their own county, a weighting factor of 0.5 was applied to the number of hookah venues in neighboring counties to account for distance and reduced accessibility.

No relationship was found between the prevalence of current hookah use among twelfth graders and the weighted estimate of accessible hookah venues. Alone, the weighted estimate of accessible hookah venues accounted for only 1.68% of the variance ($R^2 = 0.0168$, $F(1, 27) = 0.46$, $\text{Prob} > F =$

0.503). See Figure 3. Controlling for a variety of other independent variables (population size of county, median income of county, perceptions of marijuana, cigarette, and alcohol accessibility, and the prevalence of current use of cigarettes, alcohol, and marijuana) only marginally improves the relationship but not level of statistical significance. ($\beta = 0.011$, $p > 0.503$ without other variables vs. $\beta = 0.019$, $p > 0.350$ with other variables). See Table 3 for detailed results.

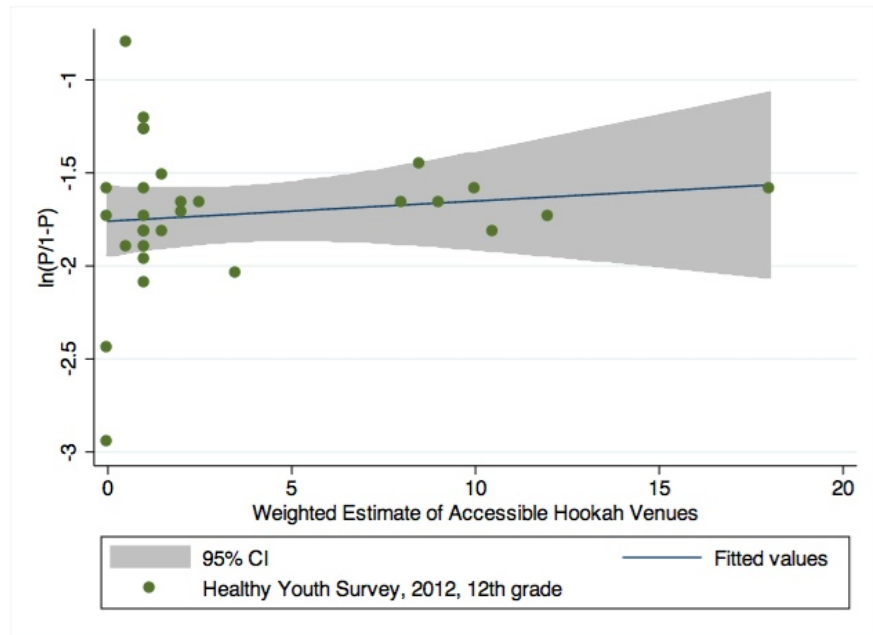


Figure 3: Relationship Between Prevalence of Current Hookah Use and Hookah Venue

The only variable that had explanatory power in this analysis was the prevalence of current cigarette use ($\beta = 0.884$, $p > 0.021$) which, considered alone only explained 15% of the variance ($R^2 = 0.1502$, $F(1, 27) = 4.77$, $\text{Prob} > F = 0.038$).

Variable	Coefficient (β)	Std. Error	t-Statistic	Prob.
Weighted Access to Hookah Venue	0.0192658	0.0200988	0.96	0.350
Prevalence of Current Alcohol Use	-0.3837271	0.3030803	-1.27	0.222
Prevalence of Current Cigarette Use	0.88449997	0.3506636	2.52	0.021*
Prevalence of Current Marijuana Use	0.1815272	0.2885439	0.63	0.537
% Reporting "Marijuana is very easy to get"	0.4409946	0.3097516	1.42	0.172
% Reporting "Alcohol is very easy to get"	-0.1494991	0.338712	-0.45	0.660
% Reporting "Cigarettes are very easy to get"	-0.6550468	0.4067406	-1.61	0.125
County Population	-8.82 e -08	2.57 e -07	-0.34	0.736
Number of Students Surveyed	-0.0000117	0.0000839	-0.14	0.891
Median Household Income	1.85 e -06	9.88 e -06	0.19	0.854
Constant	-0.3118734	0.763059	-0.41	0.688
R-Squared	0.6334		F-Statistic (10, 18)	3.11
Adj. R-Squared	0.4297		Prob. of F-Statistic	0.0175
Root Mean Std. Error	0.29061			

Table 3: Results of Linear Regression Modeling of Prevalence of Current Hookah Use
(* statistically significant at P<0.05 level)

Of the 27 hookah lounges in WA, 16 are located in Seattle. If the relationship between the presence of hookah lounges and youth hookah use were strong, we would expect King County to exhibit the highest prevalence of current hookah use among all WA counties. In reality, the prevalence of current hookah use among twelfth graders in King County is the same as the state average (17% and 16.7%, respectively). Located on the Olympic Peninsula, Jefferson County, whose largest city is Port Townsend,

reported the highest prevalence of current hookah use among twelfth graders with 31% reporting current hookah use. However, there are no hookah lounges in Jefferson County or any neighboring county connected by land (see Figure 4). Thus there appear to be other factors at play, not captured in this analysis, that could better explain the prevalence pattern of hookah use WA. This requires further study.

These results are consistent with a key informant from the public education sector who noted that hookah lounges do not come up in conversation with kids about hookah use. With the exception of some

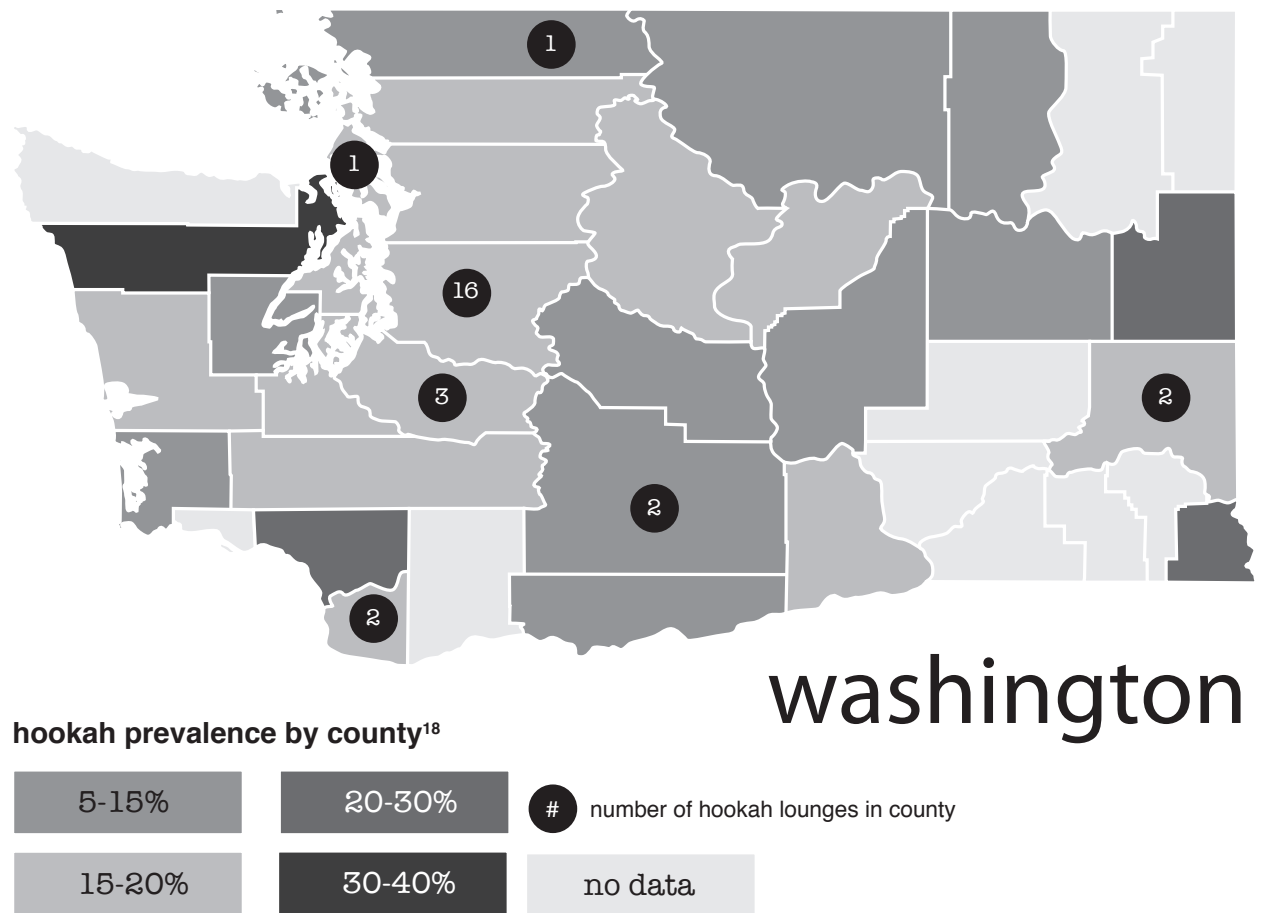


Figure 4: Map of Prevalence of Twelfth Grade Hookah Use and Hookah Venues in the County

high school seniors, most teens do not view them as an accessible place.

Based on this analysis, it is unlikely that banning hookah lounges would have a measurable impact on the prevalence of current hookah use among twelfth graders in the state. An analysis of the association between prevalence of hookah use among King County twelfth graders and the proximity of

commercial hookah lounges to high schools in King County may demonstrate that a ban of hookah lounges in King County could reduce teen hookah use.

The main limitation of this analysis is that it used county-level data, which means that there were only 40 possible data points. Of those counties, ten did not report any prevalence statistics due to small students sample sizes. Therefore, this analysis has insufficient power to detect any association between the number of hookah lounges and hookah smoking among twelfth graders in WA.

Fiscal Impact

In order to calculate estimates of the fiscal impact to WA of banning commercial hookah lounges, this analysis assumes:

- The policy is enacted January 1, 2015.
- There are 27 hookah lounges currently operating in WA State.
- An estimated average sales projection has been used. Low estimates are from projected first year sales from a newly established hookah lounge. High estimates are from projected third year sales.⁶³ This analysis assumes that the sales from all hookah lounges in question will fall somewhere within that range.
- An average estimated unit price per hookah session is \$14. This is a conservative estimate. Prices range between \$14 and \$21 based on a survey of prices on existing hookah lounge websites.
- There will be no loss in sales tax revenue for food or drink consumed at these hookah lounges because it is assumed patrons will meet those demands in other ways.
- The sales tax rate is 0.065.
- The excise tax on shisha is 95% of the taxable sale price.
- The Business and Occupation (B&O) tax rate for retail sales was used. This rate is 0.00471.⁶⁴

In order to estimate the loss to WA in B & O tax revenue, estimates of high and low revenue were derived from a hookah lounge business plan.⁶³ The B & O tax for retail sales was applied to the estimated total gross sales revenue for both the high and low estimates. The projected B & O tax was then multiplied by 27, the number of hookah venues anticipated to close under this policy option.

In order to estimate the lost excise tax revenue under this policy option, the same estimates for high and low revenue as the B & O tax were used. Using the direct unit cost for shisha (\$4.20), the amount of excise tax paid by the retailer was calculated. This amount was then multiplied by the number of estimated unit sales to determine the amount of excise tax paid by a single hookah venue. This amount was then multiplied by the 27 hookah lounges affected by this policy.

Similarly, estimated lost sales tax revenue under this policy was calculated using the same estimates for high and low revenue as the B & O tax. Using the purchase price per unit for shisha (\$14), the amount of sales tax paid by patrons was calculated. This amount was then multiplied by the number of estimated unit sales to determine the amount of sales tax earned through a single hookah venue, and then multiplied by the 27 hookah lounges affected by this policy.

Under the policy option of banning commercial hookah venues, WA will lose between \$63,423 and \$217,461 in B & O tax revenue. Table 4 shows an array of values for potential pipe tobacco excise tax revenue loss. Following closure of hookah lounges a proportion of commercial hookah venue patrons will switch to smoking hookah at home or other locations, thus not all of the pipe tobacco excise tax revenue will be lost as a result. Below are high and low estimates for the following conditions: (1) 0% of the sales are shifted to another source; (2) 25% of the sales are shifted to another source; and (3) 75% of sales are shifted to another source.

	Low Estimate	High Estimate
Total Excise tax loss to state - no alternative sources	\$1,095,432	\$3,874,500
Total Excise tax loss to state - 25% replacement	\$821,579	\$2,905,875
Total Excise tax loss to state - 75% replacement	\$273,858	\$968,625

Table 4: Estimated excise tax revenue lost under tax increase policy option

Table 5 shows the values for potential sales tax revenue loss. Because some proportion of commercial hookah venue patrons will switch from smoking in a commercial hookah venue to smoking at home, not all of the sales tax revenue will be lost. The following are high and low estimates for the

conditions: (1) 0% of sales are shifted to another source; (2) 25% of sales are shifted to another source; and (3) 75% of sales are shifted to another source.

	Low Estimate	High Estimate
Total Sales tax loss to state - no alternative sources	\$486,265	\$1,719,900
Total Sales tax loss to state - 25% replacement	\$364,699	\$1,289,925
Total Sales tax loss to state - 75% replacement	\$121,566	\$429,975

Table 5: Estimated sales tax revenue lost under tax increase policy option

Enforcement will be the responsibility of the county public health departments. According to a key informant, enforcement of RCW 70.160, the Smoking in Public Act, costs health departments in WA on the order of \$15,000 to \$20,000 per hookah lounge depending on a variety of details specific to each case. This estimate includes legal fees, staff time, and resources. The majority of expenditures will occur in 2015, the year the policy is implemented. However, resolution of court cases can take up to 18 months from the time of filing, therefore these expenditures may be spread over the course of two to three years.

Under the first policy option, the WA Liquor Control Board (WLCB) will revoke the license to sell tobacco from each commercial hookah venue in WA on January 1, 2015. In the first year, the WLCB is estimated to incur total costs of \$8,037.00. These costs include: the time and effort equating to 0.2 FTE for the purposes of filing paperwork to revoke 27 licenses to sell tobacco.⁶⁵

The main limitation of this analysis is the use of a proposed hookah lounge business plan. There are no published data regarding gross sales revenue for these types of businesses. Furthermore, the plan did not specify a geographic region for the proposed business, which could skew the results either higher or lower depending on the region. In fact, the estimated cost per session was on the low range for Seattle. However, it is expected that the true values will fall somewhere within the range provided.

Political Feasibility

There are a variety of stakeholders who would likely support a policy to ban hookah lounges. Public health departments and special interest groups with a health focus, such as The Campaign for Tobacco-Free Kids, American Cancer Society, and American Lung Association, are expected to provide the backbone of support for the policy to ban commercial hookah lounges. Public health departments and health advocacy organizations have strong interest in protecting youth from tobacco and considerable resources to devote to it. Other potential supporters include neighboring business or residents who are impacted by second-hand smoke issues arising from improper ventilation of hookah lounges. A key informant noted that neighbors have been involved in actions to close hookah lounges in one WA county. This group may have strong interest, but likely few resources at their disposal. Parents with concerns about the visibility of businesses like hookah lounges and marijuana dispensaries may support this policy, however parents' level of interest and potential resources are uncertain.

There are a far greater number of opposing stakeholders. Chief among them are the hookah lounges and their patrons. Additionally, smoke shops, cigar clubs, and tobacco retail interest groups, such as the National Association of Tobacco Outlets (NATO), may join this fight in an effort to protect their own business interests. The tobacco industry, especially shisha manufacturers, has a large stake in this issue as well. Finally, there may be opposition from East African and other ethnic groups for whom hookah smoking has important cultural roots. All of these stakeholders have a strong interest in this issue, whether economically or culturally motivated. Hookah lounges may not have significant monetary resources but may be able to mobilize significant support, in the form of volunteers and public attention, from their young, enthusiastic patrons. Collectively, the tobacco industry, smoke shops, cigar clubs, and tobacco retail interest groups can contribute a considerable amount of resources towards this issue. On the other hand, while local ethnic groups may not have as many resources, they have a compelling argument that may sway those who would otherwise support a ban on hookah lounges.

The key informants who were interviewed also identified Republicans as likely opponents. However, it was noted that Republicans share an interest in children's health with Democrats, which may provide a possible opening for compromise on this issue. Democrats may go either way in their support of

this issue. While likely to support the goal of reducing the visibility and access of hookah lounges to youth, a hesitation to marginalize the cultural identity of ethnic groups contributes to this uncertainty.

There are four main arguments against the policy of banning commercial hookah venues. The first is that it impinges on adults' rights to engage in a legal activity, the smoking of tobacco. Opponents will likely frame this issue as the governments's overstepping its bounds and "nanny state" governance. The second argument is that this policy will adversely impact small business interests and contribute to higher unemployment. While closing hookah lounges may actually have minimal effects on unemployment, this argument hits a sensitive issue and may serve to mobilize people who would otherwise be ambivalent. Third, explicitly banning hookah lounges, but allowing the continued existence of cigar clubs could be construed as class bias.⁶⁶ Finally, it could be argued that hookah lounges serve a culturally valuable role for Muslim patrons who want a place to socialize in a nightclub-like setting that does not serve alcohol.

In contrast, there are several political arguments that can be made to support this policy. The argument favored by public health advocates is that this activity is already illegal under current WA Clean Indoor Air legislation banning smoking in all public places. Another argument for this policy is that the presence of hookah lounges in the community contributes to the perception among youth that this activity is socially acceptable. A third argument is that unlike other methods of tobacco consumption, hookah smoking emits far greater levels of carbon monoxide (CO), which in a close environment could have serious medical repercussions for patrons and staff. One key informant pointed out that people are instructed not to use their barbecues indoors because of the potential for CO poisoning, yet hookah lounges are basically doing just that by heating shisha over coals. Finally, unless properly ventilated, these businesses may pose a second-hand smoke risk for neighboring businesses and residential areas.

Many states with clean indoor air legislation that includes public places and workplaces have exemptions for smoke shops and other businesses whose income from tobacco sales exceeds a predetermined level. Only Boston, MA and the state of Maine have revoked exemptions to indoor-smoking laws that allowed hookah bars.¹⁹

Public Health Seattle-King County has attempted to enforce our existing state law but has struggled with the political nature of the problem. In June 2013, Interim Police Chief Jim Pugel cancelled,

at the last minute, a planned action to ticket eight Seattle hookah lounges and their clientele for violation of the law. The Seattle Times raised suspicions that the cancellation was a result of election-year politics on the part of Democratic Mayor Mike McGinn who feared losing the vote of minority communities.⁶⁷

Opposition to this policy appears to outweigh possible support. Given both the cultural implications and the negative effects on a subset of small businesses, it seems unlikely that this policy would garner enough support in the WA legislature to pass.

Policy Option 2: Increase the Age Limit for Tobacco Possession, Use, and Sale to 21

Prevalence

In order to calculate estimates of the prevalence of hookah use of twelfth graders under the policy option of increasing the age limit for the possession, use, and sale of tobacco from 18 to 21 years of age, this analysis assumes.

- Age-specific initiation rates for tobacco use will shift three years following the implementation of the policy, such that an 18-year old post-implementation would have the same likelihood to start smoking as a 15-year old under the current laws. This was the assumption used by Ahmad and Billimek⁶⁸ in modeling the impact of changing the minimum age limit for tobacco to 21.
- Current (30-day) use is approximately one-half of lifetime (ever) use. This relationship was derived by conducting a linear regression on the twelfth-grade lifetime and current use results from the WA State Healthy Youth Survey (2002-2012)¹⁸ ($\beta = 1.87$; $R^2 = 0.924$; $F(1, 3) = 36.42$; $\text{Prob} > F = 0.009$). The limitation of this analysis is the small sample size. The relationship is likely sufficient for WA State but may not be generalizable to other states.
- No other policies to reduce adolescent tobacco use will be put into effect in the timeframe under consideration.
- Full predicted prevalence reductions would be realized within ten years. This not only accounts for lags in compliance and enforcement, but also allows time for the cohort of 10-year olds under the status quo to have moved through the public school system. Because no state has yet increased the age limit for tobacco use to 21, there is no way to confirm this assumption.
- The initiation rate of cigarette smoking for a given age is constant over time. For example, a 17-year old in 2014 has the same likelihood of smoking initiation as a 17-year old in 2012. The initiation rate was determined by averaging the reported years of initiation from the twelfth grade Healthy Youth Survey responses (2002-2012).¹⁸
- The conversion factor between the current use prevalence of cigarettes to hookah is estimated by the ratio of current use prevalence of hookah to cigarettes as reported in the WA State Healthy Youth Survey 2012 for high school seniors.¹⁸ This assumes this ratio is constant for all years.

Initiation rates were calculated using the Healthy Youth Survey data for twelfth graders from 2002 to 2012 (2010 was excluded because the question was not asked) for the question about the age at which respondents first smoked a whole cigarette.¹⁸ These initiation rates were averaged to obtain a mean initiation rate. This allowed the calculation of the average ever-use prevalence of cigarette smoking among twelfth graders. Age-specific initiation rates were shifted three years based on the assumption outlined above (see Figure 5). Predicted ever-use prevalence of cigarette smoking for twelfth graders was calculated by summing the

probability of initiation for each age group 18 and younger. Using the assumption above, predicted ever-used prevalence was divided in half to determine predicted current use prevalence of cigarette smoking by twelfth graders. Predicted current use prevalence of hookah use among twelfth graders was calculated by applying the correction discussed above to the estimated current use prevalence of cigarette smoking.

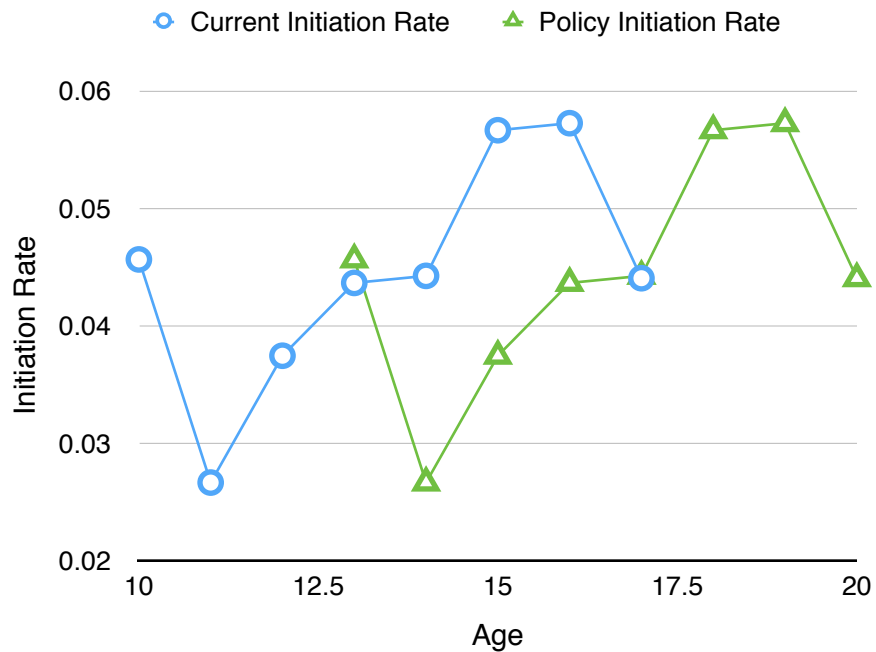


Figure 5: Shifted Initiation Rates Under Policy to Increase Minimum Smoking Age to 21

In 2012, the observed prevalence of current hookah use among twelfth graders was 16.7%.¹⁸ The predicted prevalence of current hookah use among twelfth graders under the second policy option is 13.6%. This decrease is assumed to occur within ten years of implementation of the policy.

This policy would affect not only youth who use hookah, but also youth who use other forms of tobacco. The predicted prevalence of current cigarette use among twelfth graders under the second policy option is 12.7%. This is compared to 2012, where the observed prevalence of current cigarette use among

twelfth graders was 15.6%.¹⁸ The potential impact on e-cigarette use among twelfth graders was not considered in this analysis. The e-cigarette trend is very recent, and there is inadequate data on teen use rates.

One limitation to this analysis is that initiation rates for cigarettes were used to predict current hookah use prevalence. This was a result of data constraints. Using cigarette initiation data is not unreasonable when current use prevalence of cigarettes and hookah are compared across grades in 2012. For eighth, tenth, and twelfth grades, current hookah use is within one percentage point of current cigarette use, which could be an indication of a similar pattern of uptake.¹⁸

Fiscal Impact

In order to calculate estimates of the fiscal impact to WA under the policy option of increasing the age limit for the possession, use, and sale of tobacco from 18 to 21, this analysis assumes:

- Predicted prevalence of current hookah use is 13.6% as calculated above.
- Predicted prevalence of current cigarette use is 12.7% as calculated above.
- The percentage of twelfth graders who obtain tobacco from stores, vending machines, or by giving another person money to purchase tobacco for them is 14.4%.¹⁸
- The population of 15-20 year olds is estimated at 534,061.⁶⁹ This is an estimate using 2012 data from the WA Office of Financial Management. Because the number of 20 year olds was not provided, it was estimated by averaging the numbers of 18-19 year olds.
- Average shisha consumption is one 50-gram container of shisha per month. This estimate is based on evidence that suggest hookah use is an occasional rather than regular practice among youth.⁹ A 50-gram pack of shisha is between four to six bowls. A bowl lasts anywhere from 30 minutes to 1.5 hours.⁷⁰
- The amount of state excise tax for an average 50-gram container of shisha is \$2.53.
- The amount of state sales tax for an average 50-gram container of shisha is \$0.36.
- On average, a cigarette user pays \$532.24 in state cigarette excise tax and purchases 176 packs of cigarettes per year.^{69,71,72}
- In the short run, sales to persons over the age of 21 will not be affected. Long run estimates of the fiscal impact are beyond the scope of this analysis.

The state sales tax revenue for shisha estimated to be lost under the policy to increase the minimum smoking age to 21 was calculated in the following manner. The difference between estimated

number of current hookah users purchasing tobacco, as opposed to receiving from friends or family, under the status quo and the same predicted value under the policy option were calculated. The amount of sales tax estimated to be lost was calculated by multiplying this value by the average amount of sales tax generated by the sale of one 50-gram container of shisha per month multiplied by 12 months.

The state excise tax revenue for shisha estimated to be lost under this policy was calculated in the same way as the sales tax, using the average excise tax generated by the sale of one 50-gram container of shisha per month, in place of the sales tax, multiplied by 12 months.

It is unknown how long it will take for this policy to achieve maximum impact. The prevalence estimates assumed a ten-year time horizon. However, it is possible the fiscal effects may be seen earlier. This analysis looks at three different scenarios: (1) full impact with 100% of the predicted loss occurring within 2015-2017; (2) medium impact with 75% of the predicted loss occurring by 2017; and (3) low impact with 25% of the predicted loss occurring by 2017.

After hookah, cigarettes account for the largest proportion of teen tobacco use in WA, therefore the estimated impact on state tax revenue from cigarettes was calculated. The state excise tax revenue for cigarettes estimated to be lost under this policy was calculated in the same way as the state sales tax, using the average excise tax paid by cigarette user per year.

Total estimated revenue lost between 2015 and 2017 as a result of the second policy range from approximately \$784,000 to \$2.25 million. For a detailed overview of the impact on sales and excise taxes see Table 6 below.

	Low Impact (25%)	Medium Impact (75%)	Full Impact (100%)
Estimated sales tax loss to state from shisha sales	\$3,651	\$10,952	\$14,602
Estimated excise tax loss to state from shisha sales	\$25,815	\$77,444	\$103,258
Estimated sales tax loss to state from cigarette sales	\$292,778	\$219,584	\$292,778
Estimated excise tax loss to state from cigarette sales	\$461,139	\$1,383,418	\$1,844,558
Total estimated revenue lost under policy	\$783,383	\$1,691,398	\$2,255,196

Table 6: Estimated Revenue Lost as a Result of Age Limit Increase

In 2012, 15% of tobacco retailers sold tobacco to minors.⁵³ No historic estimates of the amount of revenue from enforcement for either civil or administrative penalties under RCW 70.155.100 are available. Civil penalties for minors can be waived at the discretion of the judge if the defendant agrees to tobacco cessation treatment. Administrative penalties for businesses scale up based on the number of previous violations.

This analysis assumes no long-term change of the 15% of tobacco retailers selling tobacco to minors. Immediately following implementation of the policy the number of infractions may increase, however once equilibrium is reached it is likely to return to historic levels, if not lower. Alcohol control policies have made it easier for retailers to determine age by making the driver's license different for individuals under the age of 21, which may improve compliance with the proposed policy compared to the current law. However, there is no evidence from which to estimate the possible effect. It is estimated that changes to judicial workload will be minimal and can be accomplished without additional appropriations.⁷³

Under the current policy, enforcement falls under the purview of the WLCB and will continue to do so under the proposed policy. Within the first three years of implementation of the proposed policy, workload will increase for the WLCB. This will include outreach and training to educate retailers about the changes to the law, as well as an outreach campaign to educate young adults and parents. In the fiscal notes accompanying the UT, CO, and MD legislation to increase the minimum smoking age to 21, there were no recommendations for an increase in appropriations for implementation.⁷³⁻⁷⁵ There are no recommendations from Hawaii because it does not mandate that fiscal notes accompany legislation. This analysis will use the collective expertise of these states' fiscal offices, therefore no additional expenses are expected as a result of this policy.

Political Feasibility

Two clear supporters of the policy to increase the minimum age limit for the purchase, sale, and possession of tobacco are public health departments and special interest health organizations, such as The Campaign for Tobacco-Free Kids, American Cancer Society, and American Lung Association. Such

organizations seek to improve the health of populations and identify tobacco use as the leading contributor to preventable disease in the U.S. They have a strong interest in this issue, and, in the case of special interest health organizations, may have considerable resources to support it.

Stakeholders with less clear opinions are youth between the ages of 18 and 21 and parents. One insight from the key informant interviews was the youth who smoke may strongly oppose the policy, however, it is uncertain whether youth who do not smoke would feel the same. Similarly, parents' support of or opposition to this policy is uncertain and may depend on party affiliation and personal ideology. However, there is reason to believe that the majority of parents would support the policy. Polls in states with proposed legislation to increase the age limit to 21 show that a majority of residents support increasing the minimum age.⁷⁶⁻⁷⁸ Youth may have high interest in this issue, but few resources. Parents may have moderate interest in this issues, but the commitment of resources would be highly individual.

Opponents of this policy identified by key informant interviews, media reports, and testimony to state legislation include the tobacco industry, businesses with a tobacco retail interest, and business organizations. These organizations have a vested interest in maintaining and growing sales of tobacco and tobacco related products. Youth have long been a strategic population of interest to these groups.⁷⁹ Excluding such a large portion of young adult consumers would likely have serious impact on their revenue. These factions have a very strong interest in opposing this policy, as well as considerable resources to expend. For example, while the New York City Council deliberated legislation to increase the minimum age for tobacco sales to 21, a group supported by RJ Reynolds sponsored ads and developed a Facebook campaign to encourage New Yorkers to oppose the increase.⁸⁰ Tobacco industry representatives have been found in small communities in MA, gathering opponents to local government moves to increase the minimum age for tobacco to 21.⁸¹

The interviewed key informants believed political support in the WA legislature would fall primarily along partisan lines, with Democrats being more likely to support the policy and Republicans more likely to oppose it. UT and CO provide counter-examples, as UT Republicans, Senator Stuart C. Reid and Representative Kraig Powell, sponsored legislation to raise the minimum smoking age to 21.⁸² In CO, legislation to increase the age limit for tobacco sales to 21 had bipartisan sponsors in both the House and Senate.⁸³

There are four main arguments used by the opposition. First, there is the argument that persons who are 18 have reached the age of majority, and as such, have the ability to vote, join the military, marry, and bear children; therefore, it is unreasonable for the government to arbitrarily decide to limit certain activities.⁸⁴ A corollary to this argument is that contrary to marijuana and alcohol, tobacco does not intoxicate and therefore should not be restricted in the same way. The argument against raising the minimum smoking age is often framed as a personal responsibility issue. Second, businesses may argue that increasing the age limit cuts into their most profitable age groups and thus may significantly decrease revenue.⁸⁴ This is an argument that may be especially persuasive to Republicans. Third, increasing the age limit may encourage the expansion of black markets in tobacco products or the purchasing of tobacco products from neighboring states with lower legal limits or from stores on tribal lands. Finally, opponents argue that minors access tobacco under the existing law; therefore it is unreasonable to assume that raising the age limit will improve adherence to and enforceability of tobacco restrictions.⁸⁴

The main argument in support of this policy hinges on the observation that 90% of adults who purchase tobacco for minors are under age 21.^{54,81} High school seniors range in age from 17 to 18, therefore some high school students have the ability to legally buy tobacco, which increases the diffusion of tobacco to younger students. By increasing the age to 21, the distance between high school students and persons who can legally purchase tobacco increases, which serves to increase barriers to access of tobacco products for students.^{81,84-86} Proponents also note that unlike voting, serving in the military, marriage, and parenthood, tobacco does not provide any benefits to the participant or society, yet has considerable negative effects for both the individual and society.⁸⁴

Because four states have recently proposed legislation to increase the age limit for tobacco sales to 21, it is possible to examine the political feasibility of this policy in a real world situation. As of May 2014, proposed legislation in all four states (UT, CO, HI, and MD) was unsuccessful, despite polls that indicate strong support among voters.^{76,78,85} The failure of this legislation in the face of strong, bipartisan support may be the result of lobbying on the part of the tobacco industry, however no evidence could be found for this. A lack of evidence should not imply that this is an unlikely possibility. In 2010, nineteen tobacco-related companies spent \$16.6 million and retained 168 lobbyists for the purposes of affecting U.S. policy decisions.⁸⁷ Another possible reason that the legislation did not pass is that any state that

enacts this policy will be the first to do so. Until recently the only place where this policy has been in force is Needham, MA. While promising, there is limited information available about the effect this policy has had on youth smoking prevalence.⁸⁸ Lawmakers may be loath to risk implementing a policy with little real world evidence to support it. By deferring the decision, they guarantee that they are not the first state to pass a law with unknown effects.

The failure of these bills adds uncertainty to the prediction of political feasibility in the case of WA. Neither party holds a firm majority in the House or Senate, which may impact this issue. The bipartisan support for this policy in other states argues that partisan politics may not play as great a role as could be expected. However, failure of the legislation in CO, HI, MD, and UT is strong evidence that the political feasibility in WA is low.

The lack of a clear policy window, a window of opportunity during which the likelihood a policy will be adopted is high, may play a key role in how politically feasible this policy is. Two potential events on the horizon may help resolve this issue. The first is a Food and Drug Administration (FDA) study on the potential impact of increasing the minimum age limit for the sale of tobacco to either 21 or 25. This report is due to Congress in Spring 2015. Positive findings in this report may be the lever needed to move this issue on the state, if not federal level. The second event is the possible reportage of strong evidence from New York City, the largest municipality to enact legislation of this sort. Since New York City has yet to implement the policy, the impact of this legislation will need to be evaluated in the future.

This issue may surface in WA sooner rather than later. In April 2014, the King County Alcoholism and Substance Abuse Administration Board called on WA legislators to increase the legal age to purchase all tobacco products to 21.⁸⁹

Policy Option 3: Increase State Excise Tax on Pipe Tobacco

Prevalence

In order to calculate estimates of the prevalence of hookah use of twelfth graders under the policy option of increasing the state excise tax for pipe tobacco from 95% of the taxable sale amount to \$3.73 per ounce, this analysis assumes:

- Currently, a 50-gram container of shisha, including sales tax, is estimated to cost \$5.86.
- Under the proposed policy, a 50-gram container of shisha, including sales tax, will cost approximately \$10.17.
- The difference in state excise tax for a 50-gram container of shisha between the status quo and the proposed policy is \$3.74 (\$6.58 - \$2.66).
- The price sensitivity of adolescents to changes in cigarette price is comparable to the price sensitivity of adolescents to changes in shisha price.
- Prevalence of current hookah use among high school seniors is 16.7%.¹⁸

Carpenter and Cook⁹⁰ use an ordinary least squares (OLS) regression model for state data to determine a coefficient which reflects the relative effect of state excise taxes on cigarettes on current youth smoking prevalence. Based on Carpenter and Cook’s OLS model, the relationship between pre- and post-tax increase can be expressed as the model below. This assumes that the additional factors accounted for in the Carpenter and Cook model (overall response rates, school response rate, student response rate, grade distribution, race distribution, state unemployment rate, and indicators for clean air laws in areas likely to affect teens) remains constant. The use of this model can be justified by the assumption that price sensitivity of adolescents is similar regardless of whether the change is in cigarette price or shisha price.

The following model was used:

$$\ln \frac{P_n}{1 - P_n} = \beta(\Delta tax) + \ln \frac{P_0}{1 - P_0}$$

Where β is the coefficient calculated by Carpenter and Cook; Δtax is the change in tax between the status quo and the new policy in 2005 dollars; P_n is the predicted prevalence of current hookah use; and P_0 is the observed prevalence of current hookah use.

Carpenter and Cook calculate two possible coefficients for state level data. The first using a cross-section analysis and the second using a difference-in-difference analysis. Both coefficients were used in order to create a range of possible predicted prevalence values.

The calculated prevalence of current hookah use using the cross-section analysis coefficient was 11.6%, while the difference-in-difference coefficient resulted in a predicted prevalence of 11.8%. This is an approximately 5% point decrease in prevalence of current hookah use under the proposed policy compared to the observed prevalence.

The main limitation of this analysis is that price sensitivity of adolescents to changes in cigarette price and shisha price may not be exactly the same. However, there is no compelling reason to think they may be significantly different. At this time there have been no studies that examine price sensitivity of hookah users. An additional limitation is that the data used to calculate the coefficients is now nearly a decade old. This provides a source of error, but it is unclear whether it would result in under- or over-estimation of the prevalence. A study using more recent data could not be found.

Fiscal Impact

In order to calculate estimates of the fiscal impact to WA under the policy option of increasing the state excise tax for pipe tobacco from 95% of the taxable sale amount to \$3.73 per ounce, this analysis assumes:

- Pipe tobacco users make up 10.17% of all other tobacco product users. This was calculated using 2012 U.S. Census data and data from the CDC's State Tobacco Activities Tracking and Evaluation (STATE) system.^{91,92}
- Elasticity of demand for tobacco among adults ranges between -0.3 and -0.56.⁹³
- The average price of one ounce of pipe tobacco is currently \$6.09, including sales tax.
- The estimated price of one ounce of pipe tobacco under the proposed policy is \$6.48, including sales tax.
- Consumption of pipe tobacco will be between 11.7% and 21.8% less under this policy than under the status quo. This was calculated using high and low values of the elasticity of demand for adults for tobacco from the literature.
- The full effect of the price increase will be realized in one year following implementation. This assumption is based on findings of a study of U.S. cigarette demand using retail scanner information, which found that the impact of tax increases on tobacco products occurred on a short timescale relative to other tobacco control policies.⁹³

Using the *Tax Burden on Tobacco*, a historical compilation of tobacco taxes for the U.S., expected excise tax revenue under the status quo for 2015-2017 could be estimated using linear regression of the reported total other tobacco product tax revenue for years 2003-2012.⁹⁴ Dividing these amounts by the average excise tax per ounce of pipe tobacco (\$2.24) resulted in an estimate of the amount of approximated pipe tobacco to be consumed under the status quo. These amounts were adjusted based on expected decreases of demand under the proposed policy for price elasticity of -0.3 and -0.56. Multiplying

these estimates by the proposed excise tax per ounce resulted in high and low predictions of excise tax revenue under the proposed policy.

Excise tax revenue is expected to total approximately \$15,693,474 between 2015-2017 under existing tax law. Under this proposed tax increase, excise tax revenue could decrease slightly or increase up to \$10.4 million between 2015 and 2017. This outcome would depend the degree of demand elasticity for pipe tobacco among WA consumers. For a breakdown of estimated excise tax revenue under the proposed policy see Table 7.

	Low Estimate (-0.56 elasticity)	Medium Estimate (-0.3 elasticity)	Full Impact (no change in demand)
Estimated excise tax revenue	\$15,210,326	\$23,074,941	\$26,132,436

Table 7: Estimated excise tax revenue 2015-2017 under proposed tax increase

The following are estimated implementation expenses of this policy. These estimates were taken verbatim from the fiscal note created for H.B. 2795, which proposed taxing e-cigarettes at the same rate as other tobacco products.⁹⁵ It is assumed that similar actions would be necessitated and thus comparable costs would be incurred for any change in tax rates for tobacco products.

Year	Labor Costs	Material Costs	Total
2015	\$21,800 Time and effort equates to 0.2 FTE to expedite one administrative rule and develop and implement new line code for electronic reporting Pipe Tobacco tax	\$4,100 Printing and postage of one special notice	\$25,900
2016	\$26,400 Time and effort equates to 0.3 FTE to assist taxpayers and resolve error and out of balance returns	\$0	\$26,400

Year	Labor Costs	Material Costs	Total
2017	\$62,200 Time and effort equates to 0.7 FTE to assist taxpayers and resolve errors and out of balance returns and confuting partial audits of tobacco products	\$0	\$62,200
2018-2020	\$189,600 Time and effort equates to 1.1 FTE	\$0	\$189,600

Table 8: Implementation expenses for 2015-2020 under proposed tax increase⁹⁶

Political Feasibility

As with the other two policies, public health departments and special interest health organizations are likely supporters of the policy to increase the state excise tax on pipe tobacco. Of the three policies this has the strongest evidence base to support it. Excise taxes on tobacco products have been successfully implemented in most states in part due to the efforts of these groups. These organizations have a strong interest in preventing youth access to tobacco products and collectively would have considerable resources at their disposal.

Support or opposition of youth would depend on how cognizant they were about the impact such a tax would have on shisha. As with the other policies, parents may in principle support decreased youth access to shisha, but support for this policy may fall along political or ideological lines. It is uncertain how much interest these groups would have. Youth would have few resources, while parental resources are highly uncertain.

Opposition to these policies would come from a number of different stakeholders. Businesses with a tobacco retail interest and business-related organizations, such as the Association for Convenience and Fuel Retailing (NACS), would opposed any policy to increase excise taxes on tobacco products on the grounds that such a policy would adversely impact their sales revenue. Likewise the tobacco industry would have strong objections to this policy. Cigarette users who use pipe tobacco to avoid the higher

taxes associated with roll-your-own tobacco would also side with the opposition. Finally, anti-tax groups, such as Grover Norquist's Americans for Tax Reform, would oppose any tax increase regardless of the purpose.

It is likely that political support among WA legislators would fall primarily along partisan lines, with Republicans more likely to oppose the policy and Democrats more likely to support it. In March 2014 legislators failed to move H.B. 2795, a bill to extend the definition of other tobacco products to include e-cigarettes and associated paraphernalia, out of committee. This vote fell largely along party lines. Six Republicans and one Democrat voted not to move the bill out of committee, while six Democrats voted to move the bill out of committee. This vote has two notable differences that made it more politically unfeasible than a bill to increase the excise tax on pipe tobacco. First, arguments about e-cigarettes focused on the fact that e-cigarettes were a less harmful alternative than traditional cigarettes.⁹⁶ Second, by extending the definition of other tobacco products to include e-cigarettes, local jurisdictions would be preempted from making rules regarding e-cigarettes. Both of these issues may have contributed to the distribution of legislators who voted against the bill. The close outcome of the vote on H.B. 2795 may indicate that legislators might be more inclined to support a tax increase on a product that is more clearly harmful and already covered by existing preemption laws, such as pipe tobacco.

Key informants identified this policy as facing significant barriers. It was noted that WA has one of the highest cigarette taxes in the U.S. Additionally, the lower tobacco taxes of neighboring states, Idaho and Oregon, increases concerns about losing revenue through cross-border purchases and smuggling. One key informant referenced the 2010 WA Initiative 1053, which required a supermajority vote in the state legislature to raise taxes. Although this was later struck down by the State Supreme Court as unconstitutional, it provides evidence that any attempt to raise taxes in WA will face considerable opposition.

There are five main arguments made by the opposition. First is the argument that sin taxes seek to take away people's free choice and punish behavior seen by the government as "undesirable". Second, an excise tax will hurt business revenue and may drive some smaller retailers out of business altogether.^{96,97} Third, tobacco excise taxes are not a reliable source of revenue.⁹⁷ Fourth, excise taxes are regressive.⁹⁸ The burdens of such taxes fall disproportionately on low-income individuals who are least able to

withstand the impact. Finally, increasing taxes on tobacco products will encourage black markets, increase smuggling, and increase the loss of business to neighboring states and tribal organizations.

Supporters cite three core arguments to support increasing excise taxes on tobacco products. First, because youth are more price sensitive than adults, tax increases are an effective way to reduce smoking in teens and young adults.^{60,61} Second, low income groups have the highest smoking rates and are more price sensitive than higher income populations, therefore raising taxes will have a greater health impact on lower income individuals.⁹⁸ Finally, savings to a state in terms of the reduced health care and productivity costs dwarf reductions in state revenue as a result of increasing excise taxes on tobacco.⁹⁸

The FDA recently announced that it plans to extend its authority to other tobacco products and e-cigarettes.⁹⁹ This will increase the visibility of the harmful nature of other tobacco products, including shisha, which may serve as a policy window that would increase the feasibility of this policy.

Chapter 6: Recommendations and Next Steps

When comparing the three policy options, the policy to ban commercial hookah venues can be excluded immediately. Not only does this policy not show demonstrable effect on the prevalence of current hookah use among twelfth graders, but also it is the most politically infeasible of the three policies. It would potentially face opposition in the state legislature not only from Republicans, but also Democrats sympathetic to arguments from ethnic minority groups for whom hookah smoking is a long-held cultural tradition.

There are trade-offs to consider between the remaining two policies. While increasing the excise tax on pipe tobacco may result in lower prevalence of current hookah use among twelfth graders, it is likely to be less politically feasible. It would face a climate of public opposition to tax increases. The only possible policy window in the near future is increased visibility of other tobacco products resulting from the recent FDA decision to regulate these products. It does have the potential to bring in additional revenue, which would be used to supplement the Tobacco Prevention and Control Program (TPCP) Account.

On the other hand, increasing the minimum age for the purchase, possession, and sale of tobacco products to 21 would result in less of a decrease of the prevalence of current hookah use among twelfth graders compared to increasing the excise tax, but it would be also accompanied by a decrease in the prevalence of current cigarette use among twelfth graders. It can reasonably be expected that there would be decreases in the proportion of students using other forms of tobacco as well. This policy is questionably politically feasible. In states considering similar legislation, increasing the age limit enjoyed popular, bipartisan support, but did not pass in any of the four states. Such legislation would likely be passed if the issues of tobacco industry lobbying and gaps in knowledge about the possible effectiveness of increasing the age limit could be counteracted. There are two possible policy windows looming that could address these gaps in knowledge regarding effectiveness. First, the upcoming FDA assessment is expected to report on the possible effectiveness of increasing the minimum smoking age to either 21 or 25. Second, future evaluations of New York City's recent increase in smoking age may provide evidence of the effectiveness of this policy in a large metropolitan city. This policy would generate no new revenue and would cost the state up to \$2.25 million in lost revenue.

Based on this analysis, it is recommended that WA increase the minimum age for tobacco use from 18 to 21. While the predicted prevalence of current hookah use is not as low as that predicted for increasing the pipe tobacco excise tax, this policy has the added likelihood of lower prevalence of cigarette and other tobacco product use among twelfth graders. Furthermore, polls show bipartisan support for this policy in three other states. Four states have recently considered legislation on this issue, which could be an indication that this an idea whose time has come. The key event will be the upcoming FDA report. If this report can show positive outcomes, it is likely that more states will attempt to increase the minimum age for tobacco use to 21. WA policy-makers should closely monitor this situation.

In order to assess the public opinion about increasing the minimum smoking age to 21, polls of WA residents would be a valuable intermediate step. Additionally, policy makers should contact representatives at military bases located in WA in order to assess the potential impact on military personnel, which consists of men and women from around the U.S., some of whom may be smokers under the age of 21. During the debate of S.B. 12, a UT legislator reported that military officials had agreed to enforce the minimum age statutes on military bases.⁸⁴ Finally, it is suggested that focus groups

consisting of WA retail sales personnel be conducted in order to determine what factors contribute to compliance with minimum age laws and how best to educate the retail industry about the change in law.

Appendix

Interview Guide

General Questions:

1. Can you tell me a little about yourself and your thoughts about the current landscape in Washington State regarding hookah use, specifically among adolescents and young adults?

Questions about Policy 1: Banning Commercial Hookah Venues

1. What are the potential political barriers to the implementation of this policy?
2. What would increase the political feasibility of this policy?
3. Is this a policy that you or your organization would support? Why or why not?

Questions about Policy 2: Increase the Minimum Smoking Age to 21

1. What are the potential political barriers to the implementation of this policy?
2. What would increase the political feasibility of this policy?
3. Is this a policy that you or your organization would support? Why or why not?

Questions about Policy 3: Increase Taxes on Other Tobacco Products

1. What are the potential political barriers to the implementation of this policy?
2. What would increase the political feasibility of this policy?
3. Is this a policy that you or your organization would support? Why or why not?

Other Questions

1. Who are the most important stakeholders for these issues (either for or against)?
2. Are there other policies that should be considered?

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