

STATE-RUN TOBACCO SALES IN CALIFORNIA:
RECOMMENDATIONS FOR HOW TO IMPLEMENT TOBACCO CONTROL
ENDGAME STRATEGIES

A Thesis

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Alexandria Marie Byrd

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A Thesis

by

Alexandria Marie Byrd

Approved by:

_____, Committee Chair
Robert Wassmer, Ph.D.

_____, Second Reader
Edward Lasher, Ph.D.

Date

Student: Alexandria Marie Byrd

I certify that this student has met the requirements for format contained in the University format manual, and this thesis is suitable for electronic submission to the library and credit is to be awarded for the thesis.

_____, Department Chair
Edward Lasher, Ph.D.

Date

Department of Public Policy and Administration

Abstract
of
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This thesis aims to analyze and inform the public on existing nicotine control measures internationally under consideration for future full-scale elimination of nicotine products from the market in California, using a Nicotine Control Structure. This California Nicotine Control Structure emulates the alcohol-control systems of post-prohibition to create a system of industry checks to protect consumers, through state-run nicotine wholesales and stores. Within this thesis, I focus on regulations of nicotine content, packaging and product availability, including flavors, youth initiation prevention, advertising and couponing, and taxation.

To analyze the feasibility and practicality of the above methods, I interviewed four professionals in the field of tobacco control and tobacco endgame strategies. These interviews produced rich insights into what aspects of the Nicotine Control Structure were workable, what were not feasible, and what might need alternative formulations. I conclude this thesis with findings and recommendations for a consumer-focused structure to address nicotine addiction. The focus of any nicotine control structure must be supporting those addicted to nicotine, while preventing future initiations into nicotine use and not punishing those addicted.

_____, Committee Chair

Robert Wassmer, Ph.D.

Date

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Chapter 1:

The Public Problem of Nicotine Consumption

Introduction

In the last few years, California has seen a regression in the reduction of tobacco use, starting with the introduction of e-cigarettes in 2011 and exacerbated in 2016 with the introduction of nicotine salt-based pod systems, such as Juul. The largest failing in this sudden reemergence of tobacco is in California youth, who were at 2 percent tobacco use in 2015 and spiked to 12.5 percent tobacco use by 2018 (Vuong, 2019). The greatest attractant for youth has been the sweet candy-like flavors and the easy, hi-tech nature of these e-cigarette products. This major step back calls for immediate state-wide action, to protect these young people and other non-nicotine users from becoming another generation of nicotine addicts.

As of September 2019, the President of the United States, Governor of California, and multiple other state governors have begun forward motion on the banning of all flavored e-cigarette products, but this one step is not enough to correct the impact of nicotine addiction. All nicotine products in California must undergo regulation reform to ensure the health and safety of the public. This thesis presents one potential method of regulation reform, though State-run nicotine stores and regulated wholesale of all nicotine products through California. To validate the state-run store model, I research state-run alcohol sales practices, using the information available post prohibition to develop the best social practices of state-run stores to replicate in state-run nicotine stores.

Commercial tobacco, in the form we understand today, came onto the United States market at the beginning of the 20th century, with the combustible cigarette. Prior to the cigarette, tobacco consumption was in the form of chew and cigars (World Health Organization, 2019). The invention of the combustible cigarette more than tripled the number of tobacco consumers, as Big Tobacco represented combustible cigarettes as safer and recommended for lowering risk for mouth tumors and rotting teeth. By the 1980s more prominent knowledge that tobacco products

kill half of all its users became available, but high rates of use continued for another fifteen years before starting to decrease slowly. The purpose of tobacco consumption has been the delivery of nicotine to an individual. Nicotine, a highly addictive substance, releases neurotransmitters in the brain that create a feeling of contentment and pleasure. The tobacco industry is one of the world's top grossing industries, selling products known to cause cancer, heart disease, diabetes, and many other deadly health conditions. With the help of government funded organizations, the prevalence of nicotine use through tobacco has continually decreased, especially among youth.

However, in the last ten years, with the creation of Electronic Nicotine Delivery Systems (ENDS) or e-cigarettes, new reports show that nicotine consumption is starting to creep back up. Specifically, e-cigarette use by United States youth increased by 78 percent between 2017 and 2018 (CDC, 2018). Because of these increases, it is essential to investigate whether this increased nicotine consumption through ENDS is something that California would be concerned about, and hence use public policy to reduce.

In this master's thesis I explore the potential and desirability for California to reduce all nicotine consumption by 50 percent by the year 2035, through the establishment of either the state as the only wholesale distributor of products containing nicotine or state-run tobacco stores as the only point of tobacco sales. Either change would give California full regulatory power over the access, packaging, types of products, and nicotine content of the nicotine products sold in the state, as well as decrease point-of-sale exposures at non-tobacco specific stores. In the remainder of chapter one, I elaborate on the definitions and product functionalities, usage statistics, reasoning for the undesirable nature of nicotine abundant markets, potential ways of dealing with the nicotine rates, and the potential political opposition against a state-run tobacco store system.

Definitions and Product Functionality

When discussing the concerns of nicotine in the California market, there are several key definitions and product functionalities that I must first address. In this section, I define terms such as, nicotine, tobacco, vaping, freebase nicotine, and nicotine salts which appear throughout the remainder of this thesis.

Nicotine is a toxic colorless or yellowish oily liquid which is the primary active ingredient of tobacco. It works as a stimulant in small doses, but in larger amounts blocks nerve function in skeletal muscle cells (CDC, 2018). *Tobacco* is a plant that contains nicotine. Nicotine can be extracted from the tobacco plant and used to supplement products like ENDS. Consumers ingest tobacco through chewing, smoking, or inhaling vaporized nicotine solutions (CDC, 2018). In California, all products that contain nicotine and are not regulated as a Nicotine Replacement Therapy by the FDA are considered a tobacco product. *Vaping* is the action or practice of inhaling and exhaling vapor produced by an electronic cigarette or similar device. A vaporizing liquid (or e-juice) can contain nicotine or THC, an active psychogenic component of marijuana as well as stabilizing compounds such as propylene glycol and vegetable glycerin (CDC, 2019). *Freebase Nicotine* is a nicotine solution in which nicotine derived from pressed tobacco leaves mixes with a combination of propylene glycol, vegetable glycerin, and flavorings. Nicotine, when in a freebase form, absorbs into the body at a rate of 10 ng/mL per pull on an electronic cigarette (Wallace, 2019). *Nicotine Salts* came on the American market in 2017 for the first time in the ENDS product JUUL. Nicotine salts are a super concentrated nicotine derivative that is combined with an acid to reduce the pH of the vapor and increase the concentration of available nicotine, allowing for a deeper more concentrated pull of vapor and an absorption rate of over 20 ng/mL. However, nicotine salts are not yet regulated, and the full absorption is not yet

understood. The hypothesized nicotine absorption rate of nicotine salts is more than twice that of a cigarette at least (Wallace, 2019).

Nicotine Usage Statistics and Trends

Nicotine use among California adults has dropped from 17 percent in 2007 to 14.6 percent in 2017, equating to approximately four-million adults still using nicotine products. Meanwhile nicotine use in American youth has risen by 78 percent between 2017 to 2018, resulting in 12.7 percent of California youth using nicotine products, equating to one in eight high school students (Vuong, 2019). Of youth nicotine users, 86 percent are using a flavored product. In this section, I identify trends related to nicotine use in the United States, including breaking down factors of demographics and socioeconomics.

Tobacco related diseases kill 480,000 Americans every year, that is one of every five deaths in the United States annually (CDC, 2018). Regular exposure to nicotine, in any delivery method, including chewing, smoking, and vaping, results in cardiovascular distress and deterioration causing increasing risk of heart attack, stroke, poor blood oxygen absorption, and swollen heart valves (CDC, 2018). Secondhand smoking death in nonsmoking adults and children (CDC, 2018), results in 41,000 deaths each year in nonsmoking adults from stroke, lung cancer, and coronary heart disease. Also, 400 deaths in children each year are from secondhand smoke and include illnesses such as, sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory syndrome, and slowed lung growth. The United States Surgeon General (2016) released a statement about secondhand aerosols from ENDS, stating there is considerable harm to bystanders from the heavy micro-particles and metals present in vapor from ENDS. Additionally, the risk for secondhand nicotine exposure and thirdhand exposure is higher than from combustible cigarettes, as the particles remain more intact

and are more easily attached to nearby surfaces and maintain higher bioavailability of the nicotine. Thirdhand smoke or aerosol is the smoke or vapor residue left on clothing, furniture, floors, and other surfaces long after the act of smoking or vaping is done (Hays, 2017).

Inequities in nicotine use among populations by race and socio-economics effect certain communities more acutely than others (CDC, 2018). African Americans show trends of smoking fewer cigarettes and starting smoking later in life than their White and Hispanic counterparts; however, African Americans are more likely to die from smoking-related diseases than Whites. African American adults (39.6%), adolescents (54.6%) and children (67.9%) are more frequently exposed to secondhand smoke than any other demographic. American Indians/Alaska Natives youth and adults have the highest prevalence of cigarette smoking among all demographic indicators in the U.S.; more American Indian/Alaska Native women smoke during their last 3 months of pregnancy—26.0% compared to 14.3% of whites, 8.9% of African Americans, 3.4% of Hispanics, and 2.1% of Asians/Pacific Islanders (CDC, 2018). Among the Asian American/Pacific Islander (API) population, the smoking prevalence differs by sub-group, including regular smoking behaviors of 7.6% in Chinese, Asian Indian 7.6%, 10.2% Japanese, 12.6% Filipino, 16.3% Vietnamese, and 20% in Korean. Within the Hispanic community, prevalence of cigarette smoking is higher among American born Hispanic adults, than those who were foreign-born (CDC, 2018).

Adults with less than a high school education are more than twice as likely to smoke than adults who are college graduates, while blue-collar workers are more likely to start smoking at a younger age and to smoke more heavily than white-collar workers. People with family incomes of less than \$12,500 have higher lung cancer incidence than those with a family income of \$50,000 or more. Additionally, lower-income populations have less access to health care making it more likely they receive medical diagnoses at later stages of diseases and conditions (CDC,

2018). Additionally, researchers have found a higher density of tobacco retailers in low-income neighborhoods increasing the frequency and regularity of exposure to nicotine advertisements and products.

Percentage of individuals wanting to quit nicotine and success rates of quitting are also dependent on socioeconomics, race, and community. In self-reported research from the Center for Disease Control and Prevention (2018), interest in quitting by demographic includes 72.8% of African Americans; 69.6% of Asian Americans; 67.5% of Whites, 67.4% of Hispanics, and 55.6% of American Indians/Alaska Natives. LGB individuals are 5 times more likely than others to never intend to call a smoking cessation quitline. Gay, bisexual, and transgender men are 20% less likely than straight men to be aware of smoking quitlines despite LGBT individuals having exposure to tobacco cessation advertising like straight individuals' exposure. Adults with less than a high school education have less success in quitting (43.5%) than those with a college education or greater (73.9%). The use of e-cigarettes reduces the individual quit success rates by 28%, with those using e-cigarettes to quit smoking becoming twice as likely to begin smoking again within six-months. Additionally, e-cigarette users were more nicotine dependent than nonusers and individual who begin using e-cigarettes are 80-percent more likely to use multiple forms of nicotine products (Wallace, 2019). Meanwhile, individuals using FDA approved Nicotine Replacement Therapies, such as the patch, gum, and sprays, in the same study were eight times as likely to quit and stay off any nicotine products, compared to ENDS users (Wallace, 2019). With the increased bio-availability of nicotine in ENDS, individuals are self-identifying as addicted to nicotine at quicker rates than previously seen with combustible cigarettes and are finding it more difficult to quit and their body becomes increasingly more dependent on the high levels of nicotine (Surgeon General, 2016). Most surprising is the self-

reporting of youth in high school coming forward and identifying as addicted, especially with the lack of approved nicotine replacement therapies for individuals under 18 years of age.

The Undesirability of Nicotine Consumption on the Market

Frequent exposure to tobacco products at point-of-sale stores, the high concentration of nicotine, flavorings, and false health claims on tobacco products increases the likelihood of an individual becoming addicted to nicotine and makes quitting smoking increasingly difficult for adults, and easy for minors to start. In this section, I analyze why the presence of these nicotine products on the market require the intervention of state and/or federal government. This analysis includes the current science of ENDS, the use of targeted advertisements, and the dangers of flavoring on addiction.

The Center for Disease Control and Prevention (2019), reports over 380 cases of pulmonary disease across thirty-six states among people using ENDS and other vaporizing devices for THC products. The first death associated to these severe vaping lung illnesses occurred on August 22, 2019. As of September 17, 2019, there have been seven confirmed deaths related to short-term use of vaping. The CDC and FDA are currently investigating the cause of the illnesses but recommend the American public refrain from any ENDS and vaping use. Research from Duke University has revealed the presence of the chemical pulegone in all studied mint and menthol flavored e-cigarette liquids (Jabba, 2019). Pulegone is an oil derived from the plant catnip and is considered not safe for use in any food or consumable products by the FDA, as it is highly carcinogenic and causes hepatic carcinomas, pulmonary metaplasia, and other neoplasms. Additionally, because pulegone is an oily chemical, it runs the same risk of causing lipid phenomena. A study from University of Pennsylvania, released on August 20, 2019 in which 31 participants partook in CAT scans before and after a single episode of vaping nicotine-free e-

cigarettes showed a severe decrease of blood vessel function, blood oxygen levels falling below healthy levels, and peak flow breathing reducing dramatically (Caporale, 2019). As more information about the immediate dangers of vaping leading to lung disease and pneumonia emerged from the CDC, new reports are showing a transition of e-cigarette users back to cigarettes as a means of weaning off the high nicotine content in e-cigarettes, presenting a new potential for regression back into cigarette use (CDC, 2019).

Public knowledge of health impacts, frequency of exposure to advertisements, and the amount, size and cost of nicotine products are not equal across all communities. Communities of color and of lower socio-economic standing, have regular exposure to larger quantities of tobacco advertisements, and are often victims of information asymmetry relating to the safety and health effects of the nicotine products. According to the American Lung Association (2019), in 2016, the tobacco industry spent over \$8.7 billion – more than \$23 million dollars a day- on targeted advertisements, tailored to different populations.

In the African American communities, the use of primarily black individuals in all the menthol product advertisement, more than doubling the likelihood of an African American individual to start using mentholated products. According to the CDC, 88.5 percent of African American smokers age 12 and older prefer menthol cigarettes, while menthol cigarettes are more addictive than non-menthol cigarettes. Menthol products have more shelf space in retail outlets within African American and other minority neighborhoods.

In the LGBTQIA+ community, the tobacco industry simultaneously released advertisements sporting rainbows, same sex couples, and inclusive language, while funding legislative actions to ban marriage equality (CDC, 2015). This marketing plan was internally named Project SCUM (Subculture Urban Marketing).

Historically, tobacco industry product promotions to Native American/Alaska Natives featured symbols and names with special meanings to this group. For example, the American Spirit advertises their cigarettes as “natural”, and their packaging featured a Native American smoking a pipe. The tobacco industry has sponsored Chinese New Year and Vietnamese New Year festivals and other activities related to Asian/Pacific American Heritage Month. The tobacco industry has contributed to programs that enhance education of young people, such as funding universities and colleges and supporting scholarship programs targeting Hispanics. The tobacco industry has also provided significant support to Hispanic political organizations, cultural events, and the Hispanic art community. The tobacco industry has historically targeted young rural men by presenting advertisements with rugged images as cowboys, hunters, and race car drivers. Meanwhile, youth in rural areas are less likely to see anti-tobacco messages in the media and are more likely than any other youth population to use smokeless oral tobacco products, such as chew, snuff, and snus. Youth in Rural communities are 54-percent more likely than their urban peers to begin using tobacco products, specifically smokeless tobacco (Talbot, 2019). Big tobacco is known to frequently sponsor rodeos in rural areas and provide scholarships and samples to individuals attending and competing in these rodeos.

In urban and lower socio-economic communities, the concentration of stores selling nicotine products and prices of the nicotine products vary. The sale of cigarettes is regulated in these communities, requiring them to be sold in packs of at least 20 and to be only tobacco or menthol flavored, however these regulations do not carry over to cigarillos, meaning in some communities, a berry flavored little cigar can be sold in a single pack for less than a dollar and then be twenty cents cheaper or more expensive only five miles away (CDC, 2017). Youth and young adults are direct targets of the tobacco industry, as a majority of all nicotine additions are fully formed before the age of 26, when the brain finishes developing, 86 percent of these youth

users in 2017 were using flavored products and over 50 percent of these nicotine sales were made point of sale purchases (Vuong, 2019). There is a clear need for regulations of the advertising, sales, and types of products available to the public, as the tobacco industry has repeatedly targeted minority, at-risk populations with a product that is known to lead to the death of half of its users (CDC, 2018). Due to the new nature of ENDS, research is only just starting to catch up with public health predictions. As research continues to come out, it is highly recommended that the government take a preventative approach until the full extent of the harm is available. Additionally, the Surgeon General has declared it in the national interest to eliminate the prevalence of nicotine addiction, including the use of alternative nicotine delivery systems, like e-cigarettes (Surgeon General, 2016).

Methods of Dealing with Nicotine Use Rates

Across the world, tobacco control organizations are developing different tobacco Endgame strategies to combine into a comprehensive plan to eliminate all tobacco use in the world population. Each country has a different idea of how a successful Endgame strategy is structured (McDaniel, 2016). A possible means of achieving an Endgame strategy in California is through state-run wholesale distribution or tobacco/nicotine stores. Either would allow for greater state control over what products are inside the store, giving regulatory control on nicotine levels, flavors available, packaging requirements, quantities per package, availability of cessation products in prominent locations, taxes on and prices of the products, and where the allocation of funds. For the tobacco industry to participate in the California market, their products would need to meet all state-mandated regulations. For this thesis, I focus on the state-run store model over the distribution model as a means of eliminating the point-of-sale exposure to youth and individuals quitting nicotine at other non-nicotine stores.

In these state-run tobacco stores, six regulations would mandate the safety and ethnicity of the nicotine products sold in California. These six regulations are as follows: (1) Regulating nicotine levels in products, gradually reducing the nicotine over 10-15 years, allowing for nicotine users to wean off the addictive substance gradually. (2) Redesigning the nicotine products to make the experience less appealing, by removing the flavors, raising the pH to 8 or more, which is the levels prior to 20th century manufacturing and removing the filter, which does not improve the health of a cigarette but allows the smoke to be easier to breathe deeply. (3) Increasing taxes annually on nicotine products, while also setting a maximum price cap, causing the market value of the product to decrease and reducing industry interest in selling the nicotine products, due to reduction of profits. This is also known as the Sinking Lid. (4) Requiring packaging redesigns to educate nicotine users on the health risks of using nicotine products, additionally directing the funds to provide cessation resources and services at point-of sale locations at low or no cost. (5) Regulation of private sales and production through the state regulations on quantity limitations, packaging, advertising, and locations of sales. (6) Strengthen the point-of-sales exposure to youth, preventing the regular youth exposure to advertisements and greatly reducing the likelihood of youth purchasing tobacco products at physical locations, which in 2017 was the purchasing method of 74-percent of all youth tobacco purchases, followed by 52-percent from social sources and only 6-percent from the internet (Truth Initiative, 2017).

Post-Prohibition Alcohol Regulations to Replicate with Nicotine

As a basis for these recommendations for nicotine control policies, I analyzed state-run alcohol licensing states, specifically Alabama, Montana, and Oregon, to measure structure, successes, and failures of state-run retailing of a controlled product. In this section, I focus on a short description of the control model and post prohibition background information and will

provide deeper analysis in chapter two of this thesis. All three states I will focus on control the distribution of alcohol through state-appointed agents and focused distribution locations, however Oregon allows for a specific number of additional liquor licenses in the state.

After prohibition of alcohol ended in the United States in 1933, each state had the authority to regulate alcohol distribution, leading to a variety of different licenses, and seventeen states and one county chose to remain either dry or maintain state-regulated sales making up 23-percent of all alcohol sales in the United States (NABCA, 2019). Each state has a different title for their regulatory body, including ABCD in Alabama, ABC in Montana, and OLCC in Oregon; however, all three states have the same basis of control within their state-run stores.

These stores control the price, labeling, taxes collected, and purchasing amount allowed by the customer. The stores purchase the alcohol from the manufactures at a wholesale price and from there mark the state determined price based on the alcoholic content and type of alcohol, meaning spirits, wine or beer. In some control states, the days of the week that the stores are open is clearly designated, with Alabama regulating a ban on sales of alcohol on Sundays, but Montana and Oregon allowing stores to decide per county (NABCA, 2019). Additionally, these stores receive a certain stock maximum per month of operation, meaning is the store runs out of product there will be not replenishing their stock until the following month.

In chapter two I will further analyze the structure and functionality of the control model and relate those structures to the proposed nicotine model for California. A goal of analyzing the control model it to use these structures as a backbone for the marketing, sales structure, facility and license management, fund allocation methods, and community engagement styles of the nicotine model.

What to Expect in the Remaining Chapters

In the remainder of this thesis my chapters will consist of the following themes and information. Chapter 2 will look to both academic and non-academic literature and offer an extensive review of the state-run wholesale/liquor store model as being analogous. Specifically, I will discuss what has been described as the pluses and minuses of using this approach, and if it has resulted in a per-capita consumption of alcohol and less by minors in the states adopting it. Chapter 3 will provide additional details of the structures, models and reasonings behind the methods intended for the state-run store strategy, including a more detailed look into the potential backlash, hurdles, political implications, and other difficulties of the adoption and implementation of this model. Chapter 4 will describe my methodology of key informant interviews with professionals working in Big Tobacco, Tobacco Endgame strategies, and the California Legislature. Specifically, I will focus on their reactions to the proposed model, changes they would recommend, political hurdles it may encounter, and any factors they may want to change about the model. Chapter 5 will then conclude the concepts discussed throughout the thesis and end with my recommendations for the future of tobacco Endgame strategies in California.

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Chapter 2:

Lessons for Nicotine Regulations from State Wholesale/ Retail Regulations of Alcohol

Introduction

To help determine the feasibility of a state takeover of nicotine wholesale and retail distribution as a means of improving public health outcomes, it is helpful to analyze similar state arrangements for handling alcohol. This is widely referred to as *a Strong Alcohol Control Model*. The general idea is that such a model allows for easier monitoring and enforcement of state regulations to reduce alcohol consumption and successful features can be replicated in the California nicotine state-run store model. In the United States as of 2017, 13 states and one county used the Strong Alcohol Control Model in some form. Furthermore, such a model is used in 29 other countries use the control model to help mediate alcohol sales and consumption in their borders (NABCA, 2017). Sweden, for example, has a monopoly over all alcohol sales “for one reason: to minimize alcohol-related problems by selling alcohol in a reasonable way, without profit motive” (Chapman, 2009). This mirrors the intent of the nicotine control structure suggested for California in this thesis.

In this chapter I analyze the different methods of alcohol control systems and policies in each control state via a matrix and narrative and connect this analysis to the potentials of nicotine state-run stores for the purpose of improved health and decreased improper access. Before I do that, I offer a summary of the public health reasons most often given for the control of alcohol sales. My goal in doing this is to provide the reader detailed similarities between strong alcohol control models to potential nicotine state-run stores prior to the introduction of proposed recommendations in chapter 3.

Why Regulate Alcohol

In 1933, alcohol prohibition ended and the 21st Amendment passed, giving individual states regulatory ability over alcohol (NABCA, 2015, Today’s Alcohol). The 21st Amendment requires

each alcoholic beverage to have clear representation of the alcoholic content of the drink but includes no consistent regulations on consumer risk. According to the USDA, a standard drink, contains 0.6 ounces of ethanol, meaning there are strict regulations on the amount of alcoholic content per drink, with clearly provided information to the consumer for consistency. Alcohol is an addictive substance with 15.1 million American adults having Alcohol Use Disorder, 6.2 percent (NSDUH, 2015). Annually, 88-thousand people die from alcohol-related causes, making alcohol the third leading cause of death in the United States. Alcohol related driving impairments resulted in 10,000 deaths in 2014. Similarly, as represented in chapter one, nicotine is highly addictive, and results in the death of fifty percent of nicotine users, at 500-thousand deaths each year.

The privatization of an industry, whether in the form of alcohol or tobacco, results in more strategic, often misleading, and the normalization of advertisements and purchasing locations. This results in an increase in individuals purchasing the products. The privatization of alcohol sales results in an increase of consumption by 44 percent (Siegel, 2013). In states with privatized alcohol sales, 70.1 percent of people over 18 in America have had a drink in the past year, and 26.9 percent of people have engaged in binge drinking (Siegel, 2013). Much like the leaning of flavored nicotine products to draw in new and consistent nicotine users, modern day alcohols lean toward sweetened pre-mixed drinks, even beers and malts have added flavors. Some alcohols have added stimulants, such as caffeine and cannabis. Alcohol infused foods have become popular in the mainstream marketplace. Nicotine uses this strategy to draw in new and continued users, in the nicotine use epidemic in teenagers, 84-percent of teenagers using any form of tobacco products use only flavored nicotine products (Surgeon General, 2018).

However, on average when comparing strong alcohol control model states to state with average alcohol control systems, the states with strong alcohol control models have 14.5 percent

fewer high school students report drinking alcohol in the last 30 days and 16.4 percent fewer report binge drinking (Miller, 2006). Alcohol impaired driving deaths in those younger than 21 decrease by 9.3 percent in control states compared to non-control states (Miller, 2006). That is, there is evidence of a decrease in the hazards and public health risks related to alcohol in states that have strong alcohol control regulations, when compared to states without the stricter control standards. This structure of controlling an addictive and potentially dangerous substance, when overused or misused, has proven successful and increase in state revenue benefits, as depicted later in this chapter. With the success of the alcohol control methods of states since 1933, setting a nicotine control structure for California, under the same structure and guidelines, is a functional and practical option on the side of the public benefit of nudging health behaviors. This potential benefit develops more in chapter 3 of this thesis and faces analysis from experts in chapter 4.

Similarly, the United States has increased sales restrictions for cigarettes, by not allowing any flavored cigarettes, removing all cigarette vending machines, and setting a minimum number of cigarettes per pack, increasing taxes collected and setting a minimum price. These practices all decreased the number of cigarettes consumed in the United States, to under twenty percent (CDPH, 2019). These nicotine product regulations are not yet enough to curb young adults and youth from becoming the next generation of smokers. More regulations on other products besides cigarettes, including e-cigarettes, the removal of menthol flavors, and more consistent regulations on advertisements on all tobacco products is necessary to positively decrease the number of nicotine initiations and the number of adult nicotine quit attempts. Methods to achieve this are further developed in chapters 3 and 4.

Commonalities in Control States' Policies

Of the thirteen states and one county that have stronger state regulations on the sales and distribution of alcohol, distinct commonalities appeared, showing the consistency of successes in different regulatory methods. This section looks at the prominent policy commonalities and analyses how this relates to the nicotine store model. In this section, Table 1 provides reference details on the positives and negatives of the alcohol control system, as a way of advising in new state control measures for a California nicotine control system. Most states regulate the number of allowed stores, including state- and privately-run stores, in the state based on the population of individuals 21 years and over in the neighborhoods or condensed areas. Though each state has a different number of allowed store locations ranging from 3-105. All the stores represented in this thesis are in some capacity maintained and managed by the state, either through wholesale distribution, retail, or both.

Table 1 lays out the key policy and structural points of different United States alcohol control systems and the revenue distribution recipients in each state. The table is color coded based on the level of control the state holds over the distribution and sales of alcohol, with yellow being full control over all manufacturing, retailing and wholesales of alcohol; green being control over all wholesale and retailing; red being control over wholesale; and purple being control over retail practices. Each section highlights specific practices required for sales of alcohol, including if there are date and age of employee restrictions, the number of allowed outlets per 100,000 residents, and other key facts.

In the revenue distributions, the amount earned from alcohol sales, through taxes and other regulatory fees is per capita revenues based on financial earnings and populations per state in 2018. All information collected for this matrix comes from the National Alcohol Beverage Control Association. In this chapter, this matrix provides reference details on the positives and negatives of the alcohol control system, as a way of advising in new state control measures for a

California nicotine control system. Throughout this chapter, I reference this matrix and the revenue streams primarily in the Commonalities of State Control Policy section.

Table 1: Structure of State Controlled Alcohol Sale Policies Matrix

State	Distribution and Policy	Revenue Distribution
Control over all Manufacturers, Retailers, and Wholesalers		
<p>Alabama</p> <p>Alcoholic Beverage Control Board (ABC)</p>	<ul style="list-style-type: none"> • No sale of spirits in convenience stores • Separate locations can hold a package store license next door to the convenience store with distinct entrances and exits • Beer and wine permitted in grocery stores • Sunday sales not allowed <ul style="list-style-type: none"> ◦ Unless authorized by legislative or local government act • 25.1 spirit outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Department of Human Resources • Department of Mental Health • Education Trust Fund • Cities and Counties • Department of Revenue <p>Per Capita Revenue: \$53.82</p>
Control over all Wholesalers and Retailers		
<p>Idaho</p> <p>Idaho State Liquor Division (ISLD)</p>	<ul style="list-style-type: none"> • Private businesses contracted for off-premise locations selling spirits • Restrictions on locating near schools • Regulates density of off-premise outlets in condensed area • Sale of spirits in convenience stores if contractor of the ISLD • Beer, wine, low proof spirits up to 14% alcohol and ports, sherries and madeiras up to 24% permitted in grocery stores • Sunday sales allowed by county option • Keg registration required • 15.6 retail spirit outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Public Schools • Substance Abuse Treatment • Cooperative Welfare Fund • Community Colleges • Cities/ Counties • Court Services • Court Supervision Fund <p>Per Capita Revenue: \$44.75</p>

<p>Maine</p> <p>Maine Bureau of Alcoholic Beverages and Lottery Operations as part of the State Department of Administrative & Financial Services (DAFS)</p>	<ul style="list-style-type: none"> • Regulates density of off-premise outlets in condensed areas for agency liquor stores only • Other off-premise establishments, have no regulations on density • Sale of spirit liquor in convenience stores allowed • The sale of spirits, beer and wine permitted in grocery stores • Sunday sales allowed • Keg registration required. • 54.1 spirits outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • Liquor Operations Revenue Bond • General Fund • Department of Environmental Protection • Department of Health and Human Services • Department of Transportation <p>Per Capita Revenue: \$38.61</p>
<p>New Hampshire</p> <p>New Hampshire Liquor Commission (NHLC)</p>	<ul style="list-style-type: none"> • No sale of spirit liquor in convenience stores • On-premise outlet servers must be 18 years old and older to serve beer • The sale of beer and wines permitted in grocery stores • Sunday sales allowed • Keg registration required • 8.0 spirits outlets for every 100,000 residents ages 21 and older 	<p>General Fund</p> <p>Per Capita Revenue: \$115.01</p>
<p>North Carolina</p> <p>North Carolina Alcoholic Beverage Control Commission</p>	<ul style="list-style-type: none"> • Local governments appoint members of ABC boards. • Beer and wine sold at other outlets • Liquor exclusively sold at ABC stores • No sale of spirit liquor in convenience stores • Beer and wine sales permitted in grocery stores • Sunday sales after 10am allowed in local jurisdictions with approval • Keg registration required 	<ul style="list-style-type: none"> • General Fund • County -City Distributions • NC ABC & ABC Distribution Center • Local Alcohol Education • Local Law Enforcement • Counties - Rehabilitation

		<ul style="list-style-type: none"> • Department of Health and Human Services <p>Per Capita Revenue: \$102.93</p>
<p>Pennsylvania</p> <p>Pennsylvania Liquor Control Board (PLCB)</p>	<ul style="list-style-type: none"> • Has all licensing discretion • Cannot be within three hundred feet of any church, hospital, charitable institution, school or public playground, or within two hundred feet of any other licensed premise • Spirits sold in Fine Wine & Good Spirits stores, licensed limited distilleries and licensed distilleries only • Allows for sale of up to two six packs of beer and/or up to three liters of wine per transaction • Sunday sales allowed under a Sunday sales permit • 5.5 spirits outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Pennsylvania State Police • The Department of Drug and Alcohol Programs • Local Communities • Philadelphia and Allegheny Counties <p>Per Capita Revenue: \$58.53</p>
<p>Vermont</p> <p>Vermont Department of Liquor and Lottery</p>	<ul style="list-style-type: none"> • Training necessary to obtain a liquor license • Allows sale of spirits in convenience stores • The sale of beer and wine permitted in grocery stores • Sunday sales allowed • Keg registration required • 15 spirits outlets for every 100,000 residents ages 21 and older 	<p>General Fund</p> <p>Per Capita Revenue: \$53.03</p>
<p>Virginia</p> <p>Virginia Department of Alcoholic Beverage Control (VABC)</p>	<ul style="list-style-type: none"> • No sale of spirits in convenience stores • Beer and wine sales permitted in grocery stores • Sunday sales allowed • Keg registration required • 5.9 spirits outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Appropriation Act Transfers <p>Per Capita Revenue: \$21.22</p>
Control over Wholesale		
<p>Iowa</p>	<ul style="list-style-type: none"> • Allows sale of spirit liquor in convenience stores • Sunday sales allowed 	<ul style="list-style-type: none"> • General Fund

Alcoholic Beverage Division (ABD)	<ul style="list-style-type: none"> • Keg registration required 	<ul style="list-style-type: none"> • Iowa Department of Public Health • Cities/ Counties • Iowa Economic Development Authority <p>Per Capita Revenue: \$115.52</p>
<p>Michigan</p> <p>Michigan Liquor Control Commission (MLCC)</p>	<ul style="list-style-type: none"> • Regulates density of off-premise outlets in condensed area • Allows sale of spirit liquor in convenience stores • Specially license required for sales in grocery stores • Sunday sales allowed • Keg registration required • 105.4 spirit outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Local Governmental Units • Licensing and Enforcement • School Aid Fund <p>Per Capita Revenue: \$44.87</p>
<p>Montana</p> <p>Montana Alcoholic Beverage Control Division (ABCD)</p>	<ul style="list-style-type: none"> • Regulates density of off-premises outlets in condensed area for agency liquor stores • No sale of spirit liquor in convenience stores • Beer and wine sales allowed in grocery stores • Sunday sales allowed • Keg registration required • 12.9 spirits outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • General Fund • Department of Health and Human Services <p>Per Capita Revenue: \$39.01</p>
<p>Montgomery County, MD</p> <p>Montgomery County Alcohol Beverage Services</p>	<ul style="list-style-type: none"> • The County stores only off premise spirits sale • Beer not sold chilled • No sale of beer and wine in super markets and chain stores • Sunday sales allowed • Keg registration required • 3 spirits outlets for every 100,000 residents ages 21 and older 	<p>General Fund</p> <p>Per Capita Revenue: \$28.36</p>
Wyoming	<ul style="list-style-type: none"> • Allows sale of spirits in convenience stores 	General Fund

Wyoming Liquor Division	<ul style="list-style-type: none"> • Beer, spirits and wine sold in grocery stores • Sunday sales allowed • Keg registration required • 68.9 spirits outlets for every 100,000 residents ages 21 and older 	Per Capita Revenue: \$31.32
Control over Retail		
Utah Utah Department of Alcoholic Beverage Control (UDABC)	<ul style="list-style-type: none"> • No sale of spirits in convenience and grocery stores • 3.2% beer sales allowed in convenience and grocery stores • Sunday sales not allowed • 6.6 spirits outlets for every 100,000 residents ages 21 and older 	<ul style="list-style-type: none"> • School Lunch and Public Safety Transfer • General Fund Per Capita Revenue: \$60.21

Synopsis of State-Controlled Alcohol Sales in Table 1

One state (Alabama) regulates oversight of manufacturers, retailers, and wholesale. Alabama has the strictest policy with limitations on licensing, Sunday sales, and 25 stores to every 100,000 people over 21. Per capita revenues for Alabama are \$53.82, which funds mental health and education. Seven states (Idaho, Maine, New Hampshire, North Carolina, Pennsylvania, Vermont, and Virginia) regulate oversight of retailers and wholesale. These states allow for sales at regulated outside vendors, specifically grocery stores and some states allow convenient stores to sell spirits. The number of stores allowed per 100,000 adults over 21 varies from 5 to 54 store locations. Per capita revenues range from \$21.22 to over \$115, with funds going to general fund, law enforcement, and education. Though a few just designate the general fund.

Five states (Iowa, Michigan, Montana, Montgomery County, and Wyoming) regulate oversight of only wholesale. In these states, offsite locations can sell alcohol with specific licensing, specifically grocery stores and a majority allow for sales at convenient stores, however the beer and wine must remain uncooled, as to not compete with the outlets. Several states do not limit the density of stores, the ones that do range from allowing 15 outlets per 100,000 adults over 21 to 205 stores to 100,000 adults over 21. Per capita revenues range from \$28.36 to \$115.52, with funds going to their general funds and a few put funds into treatment and education. Only one of the states (Utah) regulates oversight of retailers only. In Utah, there are no sales of full alcohol spirits, beers, and wines allowed in offsite locations, meaning only beer under 3.2% is sold in grocery stores and convenient stores. Store density is limited to only 6 stores per 100,000 adults over 21. Per capita revenues in Utah are \$60.21, with funds going to school lunch programs, general fund, and operational costs.

All the states regulate the types of alcohol allowed in the state via the wholesale and alcohol companies work directly with the state organizations. Division of funds from state-controlled

stores depends on the state, with all states putting part or all their funds into the General Fund. Several states allocate funds directly to public health departments or educational purposes. Every state earned a per capita revenue above \$21 in 2018, with the highest at \$115.52 in Iowa, followed closely by New Hampshire at \$115.01. Earnings varied across all states, regardless of type of regulatory stretch, which is still a helpful addition to state funds.

When considering the information gathered on the state control alcohol structure, a few key factors relate closely to the recommendations of California controlled nicotine sales. In much of the alcohol control states in table Sunday sales and operation hours restrictions apply, as well as, limited access to alcohol on specific day and holidays. In nicotine control, regular closure and limited schedules of stores reduces the regularity of exposure to the nicotine products and encourages individuals to plan for alternatives to nicotine exposure when the products are unavailable.

Second, the price of alcohols in control states are consistently more expensive, increasing the barriers of entry for use and decreasing overall use. Control state prices average a higher price of about 30-percent compared to non-control states. Siegel, 2013). Historically, taxation is the most effective means of discouraging behaviors; by making the behavior more expensive, there are greater barriers to entry for youth and non-nicotine users, as well as, higher motivations to quit due to increase difficulty of purchasing the product.

Third, a majority of the alcohol control states use funds collected for education efforts and have limitations on the density of stores allowed depending on their population. In a nicotine control model, these funding could effectively provide cessation treatments, counseling, health care services, and early education for the purpose of preventing initial introduction to the nicotine products. These best practices show influence in the remainder of this thesis, particularly in the next chapter, on the recommendations for a California controls nicotine sales model.

What Can Be Learned from State-Run Nicotine Stores

In the next chapter I will provide recommendations of the specific nicotine control measures connected to a California controlled nicotine store and the academic backing for improvements to public health related to the recommendations. These recommendations additionally relate to the success of alcohol control policies and the improvements associated with public health. Recommendations of consideration for California nicotine stores include regulations over packaging, nicotine content, flavorings, and advertisements.

Alexandria Byrd

STATE-RUN TOBACCO SALES IN CALIFORNIA:
RECOMMENDATIONS FOR HOW TO IMPLEMENT TOBACCO CONTROL ENDGAME
STRATEGIES

Chapter 3:

Strategies and Potential Conflicts of the State-Controlled Nicotine System

Introduction

In the previous chapters, I presented a background of the current state of nicotine addiction and use in California, and an analysis of state-controlled systems on the sale of alcohol, including information on the different alcohol control regulations. This chapter uses the protocols, regulations, and rationale of the last two chapters to present my suggestions regarding new structural regulations for a California state-controlled nicotine wholesale distribution and sales structure.

Across the world, tobacco control organizations are developing different tobacco endgame strategies to combine into a comprehensive plan to eliminate all tobacco use in the world population. Each country has a different idea of how a successful endgame strategy is structured (McDaniel, 2016). A possible means of achieving an endgame strategy in California is through state-controlled wholesale distribution and nicotine retail stores. Either would allow for greater state control over what products are inside the store, giving regulatory control on nicotine levels, flavors available, packaging requirements, quantities per package, availability of cessation products in prominent locations, taxes on and prices of the products, and specification as to how the funds collected will be used. For the tobacco industry to participate in the California market, their products would need to meet all state-mandated regulations.

Functions of the Wholesale and State-Controlled Retail Structure

Current California nicotine regulations allow for sales at any store holding a state-authorized license to sell nicotine products, to adults over the age of 21 with a valid ID. In California, there is a cap on the number of allowed nicotine retailers in any county at one nicotine store per every 1,500 residents in the county (Huang, 2019). When calculated against the number of California residents over the age of 21 (a total over 39-million adults, according to the US

Census), that is the potential for over twenty-six thousand nicotine retailers. However, California allows each county to determine stricter nicotine policies, if desired, resulting in some counties restricting nicotine stores up to one per every four thousand, while others remain at the minimum. Locations like San Francisco have authorized policies restricting the number of nicotine stores by a total per district, as a means of preventing the build-up of too many nicotine stores in the city. Other cities, like Huntington Park, allow for nicotine stores to operate within 200 feet of one another, which disproportionately impacts their Latinx population. This lack of consistent regulations results in chronically disproportionate exposure and sales to low-income and minority populations.

Under the state-controlled nicotine model for California that I am suggesting here, all products containing or related to nicotine face state regulations and direct to state wholesales. This means that any nicotine company, including END companies, interested in selling nicotine products in the state of California would need to meet all regulations of the state, including packaging, flavors, nicotine content, and meet California's price demands which would be set as a lower wholesale price, to be later raised in sales with taxes and state-control to the consumers. Under this proposed structure, I suggest no other forms of distribution be allowed in the state, including direct to distributor sales, internet sales to consumers, or show sales. Additionally, I suggest that all point of sales nicotine stores become state-controlled and run, meaning no general stores, grocery stores, specialty stores, or other shops not under state-control have authority to sell any nicotine or nicotine related products. So effectively the State of California becomes the sole wholesaler and operating of retail stores that sell any form of nicotine product.

Mimicking the structure of the state-controlled alcohol structure I earlier described in Chapter 2, a population control for the number of nicotine stores related to 100,000 adults over 21 would be more effective. Even if California allowed for eight nicotine stores per 100,000 adults,

that would result in just over three-thousand stores, 8 times less than the current regulations. This could assist with the inequitable spread of store locations, as only three-thousand store would need to span the entire state of California, encouraging large distribution in-between, and located within an average of thirty minutes driving distance from any locations across California. This method also aligns with the choice architecture model of Thaler and Sunstein (2008), in while the structure of the retail environment influences the choices of the individual consumer. Meaning, if it becomes more difficult to purchase nicotine products than it is to access cessation services, more consumers are likely to make quit attempts.

This state-controlled nicotine store model does not remove nicotine completely from the market right away; instead, it makes nicotine product harder to acquire, more expensive, and arguably less enjoyable because of the lower nicotine content. This progressively encourages individual consumers to quit the product at their own pace and not start using the product to start. In the next section I focus on the six primary recommendations of the California state-controlled nicotine stores, including:

- Changing the regulations of nicotine content in products
- Redesigning Nicotine Products to Have No Artificial Appeal
- Sinking Lid Taxes on Nicotine Products
- Packaging Redesign and Point-of-Sale Placement in Stores
- Regulations on Quantity, Packaging, Advertising, and Location of Sales
- Strengthen Point-of-Sales Protects to Reduce Youth Purchasing

Six State Mandated Regulations

Regulation of Nicotine Content in Products

In 1972, Phillip Morris scientist William Dunn stated, “without nicotine...there would be no smoking” (Donny, 2014). The first recommendation of the California Nicotine Control system is regulating nicotine levels in products, including cigarettes and ENDS, reducing the nicotine over ten to fifteen years, allowing for nicotine users to wean off the addictive substance gradually. The regulations would require the reduction of nicotine to below addictive levels (<2 mg/g of nicotine), reducing the dependency on the nicotine products. A classic claim in tobacco control is that nicotine brings users to the cigarettes, but the tar is what kills them. By that logic, it would be logical to reduce the nicotine content to below addictive levels to ensure the public safety of these products by reducing smoking initiation and aiding in smoking cessation. The goal over the fifteen years is to completely remove the nicotine in these commercial products, removing the nicotine dependency of the tobacco users, decreasing consumer desire from the product and disrupting the demand of the products reducing the necessary supply.

Research in 2014 studied the potential outcomes of very low nicotine content (VLNC) nicotine products, such as cigarettes and cigars with relative success in reduction of dependency and removal of behavioral increases to compensate for nicotine (Donny, 2014). When compared to “light” cigarettes, marketed in the 1980s as a smoking alternative, VLNC cigarettes contain a low enough level of nicotine that it becomes extremely difficult, if not impossible to consume an addictive level of nicotine. “Light” cigarettes, though marketed as low-tar and low-tobacco, had high yields of nicotine concentrated in the cigarette, making them more addictive than conventional cigarettes (Donny, 2014). Conventional cigarettes can have up to 10-14 mg/g of nicotine currently, a VLNC cigarette would require less than 2 mg/g of nicotine per cigarette, meaning a phase out of nicotine, by reducing the nicotine content over a period of five years would assist in transitioning individuals off the nicotine. Initially, all reduced nicotine products would be available and then gradually the highest nicotine content products are removed until

only products under 2 mg/g remain. Donny's (2014) study showed a difference in the quit retention of current smokers for those reduces in nicotine content over time, versus when the nicotine levels dropped to below 2mg/g immediately. Those weaned off nicotine gradually showed an initial increase in the number of cigarettes used, but a significant decrease once nicotine levels fell to 1 mg/g over a year. The study also determined that individuals with nicotine replacement therapies in place while consuming VLNC cigarettes had 1.5 times higher and quicker success rates in quitting and staying off nicotine products. Due to ethical concerns, this study did not conduct trials with youth. However, based on the collected data from adult study candidates, the likelihood of initiating in long term cigarette use drops dramatically due to the removal of the addictive quality of the nicotine (Donny, 2014).

Due to ENDS having no FDA regulations in place, there is little consistency on the levels of nicotine in the devices. Most of the nicotine salt-based solutions come in only 3 mg/g and 5mg/g, however the absorption rate of the nicotine comes out to closer to 25-30 mg/g of nicotine per puff (CDC, 2019). Free-based nicotine solutions contain anywhere from 0 mg/g to 60 mg/g of nicotine, with a lower absorption rate than either nicotine salts or combustible tobacco. However, studies conducted on 0 mg/g solutions consistently show low levels of nicotine in the solution, meaning there are currently no truly nicotine-free solutions on the United States market (Caporale, 2019). According to the website for popular nicotine salt-based ENDS product Juul, in other countries, such as Canada and the UK nicotine strengths include a 1.5 mg/g option not offered anywhere in the United States (Juul.ca, Juul.co.uk, 2019). The absorption rates of these ENDS products result in higher occurrences of additional and introduction by youth users, prompting greater need for regulations on the nicotine content and ingredients included in these currently unregulated products.

Redesigning Nicotine Products to Have No Artificial Appeal

Since the commercialization of tobacco products, the tobacco industry has manipulated the flavors, pH, filtering, and nicotine content of the products to make them more attractive to users. With each iteration of redesigning nicotine products, the tobacco industry makes claims of health that are unfounded and consistently debunked by the FDA and CDC. To reduce the appeal and addictiveness of nicotine products, all nicotine products must be redesigned to remove all flavors, raise the pH above 8, as it was previously before manipulations, and remove the filters that provide no additional safety. These changes when combined with the reduction of nicotine content reduces the chances of individuals becoming addicted and increases the number of quit attempts by current nicotine users.

According to the CDPH (2019), 57.7-percent of all adult nicotine users under the age of twenty-five use flavored nicotine products. California youth (under the age of eighteen) nicotine users reported 84.3-percent use only flavored products across all forms of nicotine (CDPH, 2019). Nationally, it is illegal to sell any flavored cigarettes, due to the historically addictive nature and history of attaching children to cigarette use, however it is still legal to sell other flavored products, such as cigarillos, e-cigarettes, snus, and chewing tobacco. Currently excluded from the flavors restrictions already in place are mint and menthol tobacco products, which the tobacco industry claimed was due to cultural backing in the African American communities. However, this cultural backing historically only exists due to disproportionate advertising to communities of color, specifically with menthol products. Additionally, menthol products are more addictive than any other form of tobacco, due to the numbing nature of the menthol allowing the nicotine to absorb more deeply in the lungs. There is no naturally occurring menthol in any tobacco plants, meaning adding menthol is adding flavoring to the nicotine product and in turn must be included in any flavors ban.

In the early 20th century, the tobacco industry began altering the tobacco plant to lower the pH, for the purpose of easing consumption and absorption of nicotine into the blood stream. This process continued to develop into the age of the ENDS with nicotine salts, which have a low pH combined with an additional acid, creating a version of nicotine more addictive than previously seen, without having to add additional nicotine directly into the products. Prior to the 20th century, the pH of any tobacco product was eight or higher, presenting lower risk for addiction to the products. These California nicotine stores would require all nicotine products sold to have a pH of eight or higher, returning nicotine to less addictive form.

In the 1960's the tobacco industry came out with cigarette filters, claiming that the filters worked to prevent the breathing in of toxins into the lungs, making them a "safe cigarette" (Harris, 2011). Made of a synthetic plastic cellulose, these cigarette filters are acetate which are both a health and environmental hazard. These filters provided no health benefits or removal of any harmful toxins released from the cigarette, instead all the filters achieved was making the smoke smoother and easier to breathe deeply. The tobacco industry used these filters as a marketing technique to advertise their cigarettes as less harmful and reduced risk, never completely calling them free of danger, encouraging individuals to switch to filtered cigarettes for the health benefits and for the taste. This is the same tactic in use by the ENDS advertisement. Additionally, these filters are an environmental disaster, with one filter taking over twenty-five years to begin breaking down and leaching chemicals and tobacco toxins into the ground and other water runoffs, leading to contamination of the earth. Due to the inherent danger of these filters, and the consumer manipulation to create a more easily consumed addictive product, within a California state-run nicotine system, I suggest that all filters be banned from the state.

Sinking Lid Taxes on Nicotine Products

In public health policy, one of the most effective strategies at encouraging quitting certain behaviors is to place a sin or negative-externality based tax on that item or behavior, such as sugar-sweetened beverage taxes or alcohol taxes. Tobacco control actions have already started using this measure to discourage the use of tobacco. However, the tobacco industry has created and provided coupons to certain areas and populations to alleviate the effects of the taxes and keep their products on the market (Wilson et al., 2013). Additionally, ENDS are not currently taxed the same way as other nicotine products, as they entered the market under alternative guidelines, unregulated by the FDA. Under the California state-run nicotine stores, California would require a sinking lid policy structure, which increase taxes annually on nicotine products, while also setting a maximum price cap, causing the market value of the product to decrease and reducing industry interest in selling the nicotine products, due to reduction and eventual loss of profits. Due to California's status shifting to a monopsony buyer for the state, the state would be able to purchase at lower wholesale prices and then raising retail prices after taxes, offering revenue to fund info and cessation campaigns.

A sinking lid tax structure works to simultaneously increases the taxes on nicotine products at a regulated rate each year while maintaining an upper limit on price of the products, which is set by California at the point of wholesale. This process makes the selling of the products in California less profitable until the ultimate buy-in from the tobacco industry diminishes away from California. This process would increase prices at the consumer level, reducing the number of smoking uptakes, including in youth, encourage a larger number of quit attempts, and reduce the relapse behavior in those quitting (Wilson et al., 2013). This action additionally prompts policies and health facilities to increase the number of cessation resources, products, and services available to the public as a means of mitigating the community stress of quitting nicotine products.

Packaging Redesign and Point-of-Sale Placement in Stores

Historically, the tobacco industry has used packaging design as a form of marketing for their products, with much freedom in the fonts, images, and colors. To counter this issue, regulations are already in place in the United States requiring a text warning about the dangers and avoiding the use of any cartoon figure that is not their logo; however, ENDS have gotten around these regulations as the FDA does not regulate them. As of 2019, five countries have switched to a standardized and plain packaging, requiring a graphic image of potential risks related to nicotine use. Under the California state-run store model, all nicotine producers must redesign their packaging for the State as a wholesaler to buy and meet the standardized and plain requirements. The packaging redesigns educate nicotine users on the health risks of using nicotine products, additionally the standardization of all packaging allows for the directing the funds to provide cessation resources and services at point-of sale locations at low or no cost. This includes cessation leaflets included inside the packaging, much like the current tobacco ads included and graphic warning labels showing images of the risks related to using nicotine products.

In the five countries using standardized and plain packaging, the only allowed alteration by the nicotine industry is the color of the text, even the font is consistent across all brands (Moddie et. al., 2019). Each package must have a graphic warning that covers half of the container, and a website and/or phone number for cessation resources, and the remained of the packaging can only be blank with their brand name. The purpose of a packaging redesign is to discourage initiation, encourage quit attempts, help avoid relapse, and reduce exposure to secondhand smoke (Moddie et. al., 2019). Inside the packages, cessation resources and assistance

replace the currently allowed nicotine coupons and advertisements, instead nudging nicotine users to consider making quit attempts and getting assistance.

Nudging is the tactic of encouraging consumer behaviors through the space and representation of the products (Thaler & Sunstein, 2009). An example of nudging in the space of a California state-run store and packaging redesign is by the placement of the products and allowed packaging variations within the store. If all nicotine products are black packages with graphic warnings and simple text, while all cessation products are brightly colored and available closer and in eyesight of the consumer, the consumer is more-likely to purchase a cessation product. In the same way, if a consumer purchases a plain package of cigarettes and finds a colorful coupon for cessation products inside the package, the consumer is more-likely to seek out the colorful enticing product. An additional option for nudging toward the use of cessation services includes requiring a cessation counselor to be located at every retail location and requiring every individual interested in purchasing nicotine products to meet with them to renew a nicotine procurement license.

Regulations on Quantity, Packaging, Advertising, and Location of Sales

The sales of nicotine products in small quantities and packages has been a tactic of the tobacco industry to reduce price and maintain addiction, especially in communities of color and low-socioeconomic communities. To reduce the use of cigarettes in the United States, the federal govt banned the sale of single cigarettes, requiring that cigarettes are sold in packs of twenty. The purpose of this regulation was to increase the overall price of the products and amount of taxation allowed, reduce the likelihood of introduction due to the perception of lower risk of individual cigarettes, and better track purchasing behaviors. However, cigarillos and ENDS are allowed for sales in these smaller quantities, with cigarillos available in singles and two packs and

ENDS available by the “pod”. State-run nicotine stores would introduce the regulation of private sales and production through the state regulations on quantity limitations, packaging, advertising, and locations of sales, by removing all singles sales of nicotine products, controlling locations and content of advertisements, and designating locations of sales.

By increasing the size of the packaging and quantities, consumers take greater consideration before purchasing the nicotine products. The reasoning behind this is perception of a single item of nicotine as non-addictive or less harmful, which is why social smoking is underreported as a smoking behavior. Larger packages of the product also provide the ability to regulate and tax the product more easily, as well as increasing the overall cost of the product, making it more challenging to purchase. Additionally, larger quantities make nicotine products harder to obtain among youth, as it is easier to steal or convince someone to purchase a small package of nicotine products than to purchase larger quantities.

Thaler and Sunstein (2009) reference the influence of advertisement placement in a space on the purchasing and buy-in patterns of consumers. In nicotine sales, this tactic is present in the eye-level advertisements outside general stores, the front counter placement of products and the line-of-sight placement of tobacco products behind the cashier during purchase. These practices entice the consumer to impulse purchase nicotine products or feel an increased urge to sample the product, potentially becoming addicted. By completely removing these advertisements from general locations and line-of-sight, the purchase temptation reduces, and the overall consumption of nicotine products decreases. By instead advertising cessation products in their stead and allowing for sales of cessation products in general stores, consumers will have higher rates of buy-in for quit attempts than for impulse purchases of nicotine products.

Strengthen Point-of-Sales Protects to Reduce Youth Purchasing

The final implementation factor of a California state-run nicotine store model is a stronger point-of-sales structure to prevent the initiation of youth use of nicotine products. Strengthening the point-of-sales contact with nicotine of youth prevents the regular youth exposure to advertisements. Reducing the likelihood of youth purchasing tobacco products at physical locations, which in 2017 was the purchasing method of 74-percent of all youth tobacco purchases, followed by 52-percent from social sources and only 6-percent from the internet (Truth Initiative, 2017). To ensure youth are unable to purchase nicotine products, state-run stores would require age verification to enter the store, specific training for the store's staff to ensure compliance, and partake in quarterly compliance checks to ensure proper practices are in place and up to general state standards, as a precautionary step since there is no profit motives to sell the nicotine products, removing incentives for improper sales.

In the state-controlled alcohol store model, individuals must show identification to enter an alcohol store and must show age verification again upon purchasing the alcoholic products. This double verification method reduces the number of underage purchases of products and is applicable in the sales of nicotine to ensure the products sales are legal. To ensure the achievement of this practice, the store staff must undergo training on identifying and handling potential underage purchases, as well as ensuring regulated sales across all factors of product management. Under state-run stores, these trainings will be mandatory and funded by the state to ensure appropriate sales practices and product safety, as well as cessation information education. To ensure these trainings are successful, secret shopper and other quarterly compliance checks handled by the state can ensure the best protective measures are in place to avoid youth exposure. Such tactics can also help to ensure the functionality of the training system and determine any holes in the state model of management.

Potential Conflicts and Difficulties of Adoption and Implementation

Due to the restrictive nature of the state-run nicotine store model, these recommendations will face backlash, hurdles, and resistance in the adoption and implementation processes. Additionally, there will be political implications to consider and other potential difficulties to this model. In this section I mention some potential points of resistance from which I will pull during the chapter four key informant interviews. It is an important part of policy development to anticipate the opposition of any policy prior to adoption to best understand potential points of negotiation or preparation needed during implementation.

A model of California state-run nicotine stores can anticipate potential backlash, hurdles, political implications, and other difficulties of this model, in adoption and implementation from current smokers and their “right to vote”, the nicotine industry and their lobbyists, tobacco and vape shop owners, veterans who are among the most active tobacco using populations, and convenient store owners concerned about losing earnings revenues through a noticeable reduction in traffic after people not stopping in to buy cigarettes. In addition to those potentially opposing the tobacco regulations, groups such as some public health groups, local, district, and state governments, and the Homeowners Association may also have concerns with this model for a few distinct reasons.

The public health groups may voice concern of if this system is doing enough to counter the nicotine use and if selling nicotine products as a state is an ethical approach. Local, district, and state governments may argue over whose responsibility it is to maintain such structures and where the funding is directed to and from. The Homeowners Association would likely respond to the placement of these designated nicotine stores negatively as NIMBYs, which means not in my back yard. The Homeowners Association may worry about the potential impacts of a

concentration of nicotine sales in a single area and the implications it would have on their home values, children's safety, and community appeal.

Other areas of potential concern include the implications of these legislative controls on the cannabis industry, which use ENDS as a THC vaporizing device, potential normalization of nicotine sales from these stores, if this method is enough to curb nicotine use, and if these stores will reduce youth exposure or if the youth will find another way. It will be essential to analyze the short and long-term ramifications of these regulations to determine if the model is valid and to have flexibility in the model to adapt as new product come on the market or as behaviors change. This includes further anticipatory research into the potential costs and ramifications of black-market sales during nicotine reduction periods from products purchased in neighboring states.

Summary

In chapter three, I covered the reasonings for California state-run nicotine stores and the six recommended regulations attached to these store models. I also considered the potential hurdles and concerns of the model. In the next chapter I turn to how I will assess the tradeoffs of my recommended approach, by conducting key informant interview with professionals in the field.

Alexandria Byrd

STATE-RUN TOBACCO SALES IN CALIFORNIA:
RECOMMENDATIONS FOR HOW TO IMPLEMENT TOBACCO CONTROL ENDGAME
STRATEGIES

Chapter 4:

Methodology and Results: Key Informant Interviews with Professionals in the Field

Introduction

In the previous chapter, I covered the reasons for California state-run nicotine stores and the six recommended regulations attached to these store models. I also considered the potential hurdles and concerns of the model. In this chapter I turn to how I will assess the tradeoffs of my recommended approach, by conducting key informant interview with professionals in the field.

The purpose of this interview process assesses the feasibility and practicality of different considered tobacco endgame strategies to preemptively instigate conversations about concerns and preferences. I intend this research to assist in future considerations while approaching the international tobacco endgame strategy goals of eliminating tobacco from the market by the year 2035. The hypothetical California nicotine control systems which I assess are based on actual international tobacco endgame strategies discussed in chapter one of this thesis.

Methodology

Key Informant Interview Selection

To determine the professionals within the field to review the hypothetical California Nicotine Control System policy, I referred to the different sectors of both the tobacco control side and the political side of the tobacco industry. Each professional deemed valuable to the conversation received an email inviting them to participate in the interview and that their identity would remain anonymous via an informed consent contract. Over thirty individuals received emails asking for their participation and four individuals from tobacco control accepted and zero from the tobacco industry or California legislation accepted. This lack of response from the tobacco industry is further referenced later in this chapter, under the conflicts in data collection section.

Information Sheet on Proposed Policy Model

For the key informant interviews, I summarized the full California Nicotine Control Structure, detailed in chapter three, into a four-page, single-spaced brief proposal. I provide the professionals with the four-page proposal and the interview questions prior to the interview, to allow them to prepare their answers. Each of the six proposed aspects of the policy are designed specifically to instigate debate on the functionality of the language and practicality of the internationally proposed tobacco endgame strategies, as they would function for California specifically. Below is the entirety of the four-page proposal that all professionals who accepted the interview invitation received. The intent is to have removed all points of advocacy from the proposal, to open the conversation for both sides of the nicotine control argument.

STATE-RUN TOBACCO SALES IN CALIFORNIA: A SUGGESTION FOR HOW TO IMPLEMENT TOBACCO CONTROL ENDGAME STRATEGIES

Introduction

In my master's thesis I explore the potential and desirability for California to reduce all nicotine consumption by 50 percent by the year 2035, through the establishment of a California Nicotine Control System through state-run nicotine stores. These stores would become the only point of all forms of nicotine sales, including combustible, oral, vaporized and otherwise edible nicotine. Cigarette use among California adults dropped to 10.1 percent in 2017, but that still means that approximately 2.8-million adults in California are still consuming nicotine. Meanwhile, nicotine use in American youth has risen by 78 percent between 2017 to 2018, equating to one in eight high school students (Vuong, 2019). Of these youth nicotine users, 86 percent are using a flavored product. Accordingly, there remains a need to find ways to reduce traditional adult nicotine and the new vaping forms of youth consumption.

Wholesale and State-Controlled Retail Structure

Under the state-controlled nicotine model for California, all products containing or related to nicotine would face state regulations and only wholesale sales directly to California. This means that any nicotine company interested in selling any form nicotine products California would need to meet all regulations of the state, including packaging, flavors, nicotine content. Since the State becomes the only wholesaler of products containing nicotine, it would be in strong position to negotiate for lower purchase prices, that could be later raised through a markup used to fund regulatory and educational activities.

Under the proposal I have outlined, all point of sales nicotine stores become state-controlled and run, meaning no general stores, grocery stores, specialty stores, or other shops not under state-control have the authority to sell any nicotine or nicotine related products. So effectively the State of California becomes the sole wholesaler and operating of retail stores that sell any form of nicotine product. This state-controlled nicotine store model would not remove nicotine completely from the market; instead, it would make a nicotine product harder to acquire, more expensive, and perhaps less enjoyable if the state chooses to prohibit the level of nicotine content.

I suggest that these California state-controlled nicotine stores, all adopt and enforce:

- Regulations regarding the nicotine content in products
- Regulations regarding the restriction of the artificial appeal of nicotine consumption
- Sinking lid taxes on nicotine products
- Packaging redesign and point-of-sale placement in stores
- Regulations on quantity, packaging, advertising, and location of sales
- Strengthen point-of-sales protections to reduce youth purchasing.

Further details on each of these are next.

Regulation of Nicotine Content in Products

My first recommendation for the California Nicotine Control System is regulating nicotine levels in products, including cigarettes and electronic nicotine delivery systems (ENDS), reducing the nicotine over ten to fifteen years, allowing for nicotine users to wean off the addictive substance gradually. The regulations would require the reduction of nicotine to below

addictive levels (<2 mg/g of nicotine). Conventional cigarettes can have up to 10-14 mg/g of nicotine currently, a VLNC cigarette would require less than 2 mg/g of nicotine per cigarette, meaning a phase out of nicotine, by reducing the nicotine content over a period of five years would assist in transitioning individuals off the nicotine. Initially, all reduced nicotine products would be available and then gradually the highest nicotine content products are removed until only products under 2 mg/g remain.

A classic claim in tobacco control is that nicotine brings users to the cigarettes, but the tar is what kills them. By that logic, it would be logical to reduce the nicotine content to below addictive levels to ensure the public safety of these products by reducing smoking initiation and aiding in smoking cessation. The goal over the fifteen years is to completely remove the nicotine in these commercial products, removing the nicotine dependency of the tobacco users, decreasing consumer desire from the product and disrupting the demand of the products reducing the necessary supply.

Redesigning Nicotine Products to Have No Artificial Appeal

To reduce the appeal and addictiveness of nicotine products, all nicotine products must be redesigned to remove all flavors, raise the pH above 8, as it was previously before manipulations, and remove the filters which provide no additional safety and are detrimental for the environment. These changes when combined with the reduction of nicotine content reduces the chances of individuals becoming addicted and increases the number of quit attempts by current nicotine users.

In the early 20th century, the tobacco industry began altering the tobacco plant to lower the pH, for the purpose of easing consumption and absorption of nicotine into the blood stream. ENDS with nicotine salts additionally have a lowered pH combined with an additional acid, creating a version of nicotine more addictive than previously seen, without having to add additional nicotine directly into the products. Filters provided no health benefits or removal of any harmful toxins released from the cigarette, filters only make the smoke smoother and easier to breathe deeply. These filters are historically an industry marketing technique to advertise cigarettes as less harmful and reduced risk, never completely calling them free of danger. Filters are an environmental disaster, with one filter taking over twenty-five years to begin breaking down and leaching chemicals and tobacco toxins into the ground and other water runoffs, leading to contamination of the earth.

Sinking Lid Taxes on Nicotine Products

In public health policy, one of the most effective strategies at encouraging quitting certain behaviors is to place negative-externality based tax on that item or behavior, such as sugar-sweetened beverage taxes or alcohol taxes. Tobacco control actions have already started using this measure to discourage the use of tobacco. However, the tobacco industry has created and provided coupons to certain areas and populations to alleviate the effects of the taxes and keep their products on the market (Wilson et al., 2013). Additionally, ENDS are not currently taxed the same way as other nicotine products, as they entered the market under alternative guidelines, unregulated by the FDA.

Under the California state-run nicotine stores, California would require a sinking lid policy structure, which increase taxes annually on nicotine products, while also setting a maximum price cap, causing the market value of the product to decrease and reducing industry interest in selling the nicotine products, due to reduction and eventual loss of profits. Due to

California's status shifting to a monopsony buyer for the state, the state would be able to purchase at lower wholesale prices and then raising retail prices after taxes, offering revenue to fund info and cessation campaigns.

This process would increase prices at the consumer level, reducing the number of smoking uptakes, including in youth, encourage a larger number of quit attempts, and reduce the relapse behavior in those quitting (Wilson et al., 2013). This action additionally prompts policies and health facilities to increase the number of cessation resources, products, and services available to the public as a means of mitigating the community stress of quitting nicotine products.

Packaging Redesign and Point-of-Sale Placement in Stores

Historically, the tobacco industry has used packaging design as a form of marketing for their products, with much freedom in the fonts, images, and colors. To counter this issue, regulations are already in place in the United States requiring a text warning about the dangers and avoiding the use of any cartoon figure that is not their logo; however, ENDS have gotten around these regulations as the FDA does not regulate them.

Under the California state-run store model, all nicotine producers would need to redesign their packaging for the State as a wholesaler to buy and meet the standardized and plain requirements. The packaging redesigns educate nicotine users on the health risks of using nicotine products, additionally the standardization of all packaging allows for the directing the funds to provide cessation resources and services at point-of sale locations at low or no cost. This includes cessation leaflets included inside the packaging, much like the current tobacco ads included and graphic warning labels showing images of the risks related to using nicotine products. An additional option for nudging toward the use of cessation services includes requiring a cessation counselor to be located at every retail location and requiring every individual interested in purchasing nicotine products to meet with them to renew a nicotine procurement license.

Regulations on Quantity, Packaging, Advertising, and Location of Sales

To reduce the use of cigarettes in the United States, the federal government banned the sale of single cigarettes, requiring that cigarettes are sold in packs of twenty. The purpose of this regulation was to increase the overall price of the products and amount of taxation allowed, reduce the likelihood of introduction due to the perception of lower risk of individual cigarettes, and better track purchasing behaviors. However, cigarillos and ENDS are allowed for sales in these smaller quantities, with cigarillos available in singles and two packs and ENDS available by the "pod".

State-run nicotine stores would introduce the regulation of private sales and production through the state regulations on quantity limitations, packaging, advertising, and locations of sales, by removing all singles sales of nicotine products, controlling locations and content of advertisements, and designating locations of sales. Additionally, larger quantities make nicotine products harder to obtain among youth, as it is easier to steal or convince someone to purchase a small package of nicotine products than to purchase larger quantities.

In nicotine sales, most placements of advertisements are at eye-level outside general stores, at the front counter placement of products, and in the line-of-sight placement of tobacco products behind the cashier during purchase. These practices entice the consumer to impulse

purchase nicotine products or feel an increased urge to sample the product, potentially becoming addicted.

Strengthen Point-of-Sales Protections to Reduce Youth Purchasing

Strengthening the point-of-sales contact with nicotine of youth prevents the regular youth exposure to advertisements. Reducing the likelihood of youth purchasing tobacco products at physical locations, which in 2017 was the purchasing method of 74-percent of all youth tobacco purchases, followed by 52-percent from social sources and only 6-percent from the internet (Truth Initiative, 2017). To ensure youth are unable to purchase nicotine products, state-run stores would require age verification to enter the store, specific training for the store's staff to ensure compliance, and partake in quarterly compliance checks to ensure proper practices are in place and up to general state standards, as a precautionary step since there is no profit motives to sell the nicotine products, removing incentives for improper sales. To ensure the achievement of this practice, the store staff would need to undergo mandatory training on identifying and handling potential underage purchases, as well as ensuring regulated sales across all factors of product management, as well as cessation information education. To ensure these trainings are successful, secret shopper and other quarterly compliance checks handled by the state can ensure the best protective measures are in place to avoid youth exposure. Such tactics can also help to ensure the functionality of the training system and determine any holes in the state model of management.

References list available upon request.

Interview Questions and Interview Process

During the key informant interviews, I ask the professionals a set of nine questions with space allowed for expanding upon interesting comments. This is a qualitative approach to data collection for the purpose of determining opinion and practicality of a policy proposal and different tobacco endgame strategies. The policy proposal purposefully intends to promote honest opinions and justifications for best practices in tobacco control and the tobacco industries. The interview questions include the following:

- 1) Can I provide any clarification about the California Nicotine Control System proposal or any of the included aspects of this proposal?
- 2) After reading the proposal of the state-run nicotine store, what parts, if anything, stand out initially as innovative, creative or unfamiliar?
- 3) What parts of this proposal stands out as functional or desirable?
- 4) What parts of this proposal stands out as problematic or not functional?
- 5) If a state-run nicotine system was to be adopted, would you recommend any modifications to the proposal I provided you?
- 6) From your experience in the realm or tobacco policy, does this proposal seem likely to move politically? What about it informs your response?
- 7) [Ask depending on response to question 6] What alterations to the proposal would need to be made to make it politically feasible?
- 8) What groups do you think would back this proposal and why?
- 9) What groups do you think would oppose this proposal and why?

The key informant interviews were conducted in-person, over thirty-minutes in length, and were recorded for the purpose of correctly taking notes after the meeting. I informed the interviewees their identities would remain anonymous to protect them from any repercussions for their stated opinions. Their type of job in the field is represented but I include no direct identifiers of any professionals included in the interviews.

Conflicts of Data Collection

While contacting professionals in the different fields of expertise in tobacco related works, I was unable to secure any interviews with individuals from the tobacco industry, lobbying, or legislature. This results in a more tobacco control focused conversation about the hypothetical Nicotine Control Structure. However, the four individuals interviewed have worked in the tobacco control sector for many years and have a strong understanding of conventional arguments against nicotine control policies. The lack of reflection from an official tobacco industry professional may present a more tobacco control focused conversation and be missing the tobacco industry opinion. However, the arguments provided by the four professionals are strong in terms of defining the needs for alterations in this hypothetical policy proposal. I can relate the lack of response from anyone in the tobacco industry to the cautious and protective nature of the industry, and the concern that my particular subject could be perceived as potentially harmful. I see three possible reasons for the lack of responsiveness from potential respondents in the California Legislature. First legislators and legislative staff might desire to maintain the perception of non-biased behavior on not associating with the conversation of nicotine on either side of the argument. Second, I purposefully contacted offices that previously accepted campaign contributions from the tobacco industry and this could increase their desire to remain unconnected to the subject. Third, the beginning of my interview cycle correlates with the beginning of the upturn in the Coronavirus outbreak, making the legislative offices less staffed and increased the overall workload of the different offices.

Findings from the Interviews

Interview One: Nicotine Cessation Service Coordinator

The first interview I conducted was with an individual working in cessation services for a non-profit that receives funding from California state. Cessation is the term for services tailored to assist nicotine users quit nicotine using science-based methods and FDA approved forms of addiction treatment tailored specific to nicotine use. They provided strong insights into lack of support for current nicotine users in the Nicotine Control Structure and the concern about nicotine replacement therapies (NRTs) inclusion in any state-level wholesale system. Their primary concerns were for access to cessation services in more than just the nicotine control stores and the potential for backlash from the current nicotine users about the removal of their purchasing power and freedoms. However, they additionally mentioned that the isolation of sales of these products provide the potential of stepping down nicotine availability in the community progressively. This ensures that the community feels they are prepared for the removal of the nicotine products by a prespecified date.

During this interview, the discussion of inequity of addiction dominated the conversation and the importance of work such as this proposal to approach the social justice aspect of nicotine sales. They stated that the primary supports of this policy would need to be the social justice powerhouses, including organizations supporting minority populations, low socio-economic communities, and other organizations focused on equal access and rights in minority communities, to organize communities into standing behind these state-run nicotine stores. Additionally, the professional had concerns over the feasibility of any policy in California that uses the term “State-Run” as it has negative connotations of strong governing powers over personal choice. They gave examples of state-run television in China as a concern people would have based on the language. They recommend altering the name to something difference, potentially using a term related to pharmacy to focus more on the treatment of nicotine addiction. This professional also mentioned to emphasize the faze out process of the products, with

reminders and encouragements to access cessation services to properly quit prior to the close out date of all nicotine sales in California and ensuring consistent regulatory action to minimize the chances of a black market emerging for nicotine products during the phase out.

Interview Two: Youth Prevention Director

The second professional I interviewed worked on prevention of youth access and uptake in California. The reason I included this professional was to collect commentary of the needs for nicotine control functions to prevent the uptake in youth initiation of nicotine use and avoid youth purchasing behaviors. The primary focuses of their interview were the zoning of stores, point-of-sales trainings and practices, flavors, and the pricing of the products as these are all tactics organizations are attempting independently and are considered best practice in the field of youth prevention. Particularly, the state determination of stores can accurately keep nicotine stores a specific distance away from schools, parks, and other high youth population areas. Currently, point-of-sales safe tobacco sales practices are recommended but not required. Having the sellers of nicotine be from the state means that these trainings and practices can become more standard across all stores. As previously mentioned, flavored nicotine products are the number one factor of youth nicotine use, with 84-percent of youth currently using nicotine in California using flavored products (Voung, 2019). By removing flavors from the market, the largest population reduction of nicotine use would be in youth, assisting in the reduction of initiation and potential long-term nicotine addiction. Historically in tobacco control, the raising of nicotine prices has reduced the number of youth smokers due to the lowering of availability and affordability, again helping to curb the number of youth initiations into nicotine addiction. However, the use of a tobacco tax to achieve this would be difficult due to the recent passage of a new tobacco tax in 2020, which took around fifteen years to achieve.

The primary concerns during this interview were the packaging redesign, nicotine content, and the overall goal of the state-run stores. Again, as in the first interview, it was stated that packaging design is only controlled at the federal level, leaving California unable to include any packaging designations in their requirements and getting packaging changes approved federally is a difficult ask, as there could be first amendment issues with freedom of speech. Additionally, nicotine can only be controlled at the federal level as well, meaning that it would not be functional or possible for California to begin requiring reduced nicotine products, without first getting Federal approval for the action. The interviewee also express concern about clarity of the goals of these stores, as the state may see this as an opportunity to increase revenues through the nicotine sales over an ongoing period, instead of having the step down reduction with the goal of complete eradication of tobacco products from the California market. They recommend additional clarity in the proposal to mention the goal of a removal date and direct designation for the revenue.

One important aspect discussed in the interview was about the comprehensive nature of the proposal, with this professional showing concern over the feasibility of all these aspects being adopted at once. They instead recommend a stepped approach, starting with zoning, density, and flavors, with the addition of quantity control, location and sales protections over time. This could be considered a harm reduction approach and potentially more favorable by Californians than complete prohibition of the products. Which help to potentially gain support from public health groups and harm reduction groups.

Interview Three: Endgame Strategist

In the third interview, I spoke with an endgame strategist working on a similar study of potential state sales in other states already using state-run alcohol control structures. This study

looks at the feasibility of combining and controlling the sale of nicotine products into preexisting alcohol-control stores as a means of reducing the number of store locations in the regions. The study is still in early phases, so the data is not available for this thesis. During this interview, the primary point of conversation was that this hypothetical Nicotine Control Structure is not feasible for California, due to the current California state law and would only become feasible with a complete overhaul of multiple state laws, making the proposal impractical to keep up with the current pace of California tobacco policies. California has historically focused on the alteration of product availability and eventual full prohibition at the county levels, with successes seen in the past year in Beverly Hills and Washington Beach, which have banned all tobacco sales within their areas. The other concerns were the cost of building store locations for nicotine sales and the potential of the state extending the sales timeframe to try and balance the losses from construction, as well as, the perception from the public of the state selling these deadly products. If the amount of taxes accounts for the overall costs of the building and running of the stores, while in operation, the concern with overall funding loss from the endeavor is correctable. By selling these nicotine products, some members of the public may perceive nicotine products as safe and continue to use the products. This point can also be corrected by ensuring the state stores properly advertise throughout the store the dangers of the products, the purpose of the stores, and the closeout date of the selling of the products. This potentially created the environment of changemaking, rather than abrupt availability shifting of removing all products at once, and instead nudging toward quitting and addiction treatment, instead of continued nicotine use. The professional's recommendation was to provide these concepts to other states, with a higher likelihood of success in achieving these policy changes and benefiting from the shifting of sales.

During the interview, the professional brought up the inability to regulate packaging or nicotine at the state level, making these measures of the hypothetical policy infeasible as written. However, they provided a potential solution of banning the sale of more than one product per brand in the state, as a feasible alternative. . This would mean there would only be one version of Marlboro cigarettes on the shelf rather than multiples under the tags of Gold, Silver, Reds, etc. This would greatly remove the number of products available on the market to start without regulating the packaging itself. Unfortunately, the interviewee was unable to provide any recommendations to correct for the nicotine reduction. However, they did recommend a large advertising campaign to announce the dates that different brands would be removed completely from the store and the date all products would no longer be available, while also encouraging cessation and quit attempts. This would not only reduce the number of products per brand, but also slowly reduce the number of brands available on the shelf.

The primary takeaway from this interview is that this form of policy change may not be functional for California, as this is not how California has historically succeeded in accomplishing nicotine change behaviors, and though the process has seemed slow, it is moving more rapidly in California than in any other state in the United States. However, this proposal could be functional in other states, such as Utah, which already have alcohol-control programs. There would be little support for this in California, as it does not work in lines with California's efforts to have policy focused on community support efforts and be a leader in innovative policy in the United States.

Interview Four: Lawyer for National Endgame Strategy

The final interview I conducted was with a lawyer working with national endgame strategy, who assisted me in the clarification of the legality and functionality of the different

policy recommendations within this proposal. The primary comments for this proposal was the positive opinion of the sinking lid taxation, which calls for an ongoing increase in taxation on a product while also setting a price ceiling, causing the product to become less profitable and making California less enticing for the tobacco industry. They have been working on a sinking lid tax as well, with an emphasis on the need for the taxation increasing quicker than inflation. Additionally, this proposal goes primarily after the supply chain, instead of the demand and consumers, shifting the focus away from punishing the consumer and instead regulating the distributor. This professional provided more explanation on the parts of the proposal that are not at all functional for a state-level policy, specifically the packaging and nicotine content aspects. Specifically, the packaging design aspect was determined in a 2009 Federal Act that allows products to determine their own packaging with only federal approval and not state. The implication is that California can continue to label cancer causing chemicals, because the regulation passed prior to 2009, but the Federal Act prevents any new state-level labeling changes after 2009.

Since the start of authoring this thesis and creating this proposal, California has begun moving in the direction of complete prohibition in certain areas, such as Beverly Hills and Manhattan Beach. This proposal is no longer considered strong enough for California tobacco control and would be a step back in policy movement if done at the state-level. However, this could be functional if achieved at the local level for California communities with more conservative ideals around tobacco, such as the Central Valley and more rural areas. Progressively reduce these nicotine products with communities less likely to opt in for an outright ban of all nicotine products. Additionally, this proposal may be more functional in other countries with a more socialized form of government, when it comes to health services and individual care to assist with their nicotine control programs. The concern is that often groups

looking to use best practices look at the list of objectives as a menu and not a recipe, selecting only aspects of the whole plan and not using all the parts that are designed to work together to creating nicotine use change.

This professional warned if the state were to sell the nicotine products, there is the possibility of misperception of safety. However, if proper advertising and revenue controlled, this issue is easily mitigated. Additionally, this professional guaranteed there would be a large battle from the tobacco industry and associated lawsuits regarding various aspects of the proposal. This is something that regularly happens in tobacco control, as substantial changes to the functioning of their industry is a major threat and the industry would sue even if they knew they could not win to slow down the process.

Congruent Findings for Future Policy Initiatives

Overall all professionals found this proposal to be innovative as it combined various aspects of nicotine control into one proposal. However, there was also consensus that this proposal is not feasible for California as written. A common theme across all the interviews is the inability of the packaging redesign aspect of the proposal due to the state's inability to control any packaging of products. The regulation of product packaging is a federal issue that is not able to be altered at the state level.

Specifically, the packaging redesign and the nicotine concentration at the state-level aspects are non-starters as they must be controlled at the Federal level and that is a slow process. All the interviewees emphasized the importance of considering the consumer and the strength of addiction, and all felt that some of these changes to policy are functional for the improvement of initiation prevention without direct harm to adult smokers. Overall, the interviews suggest that nicotine control policies in California should think of the person, encourage quit attempts, prevent

initiation, go after the industry and not the individual, and be ready for a fight because no member of the tobacco industry would support any aspect of this policy proposal.

Conclusions and Summary

My interviews suggested that the hypothetical Nicotine Control Structure is not particularly functional for California as it does not fit with the normal methods of tobacco control used in California. However, the components of this proposal could be functional for local California counties, other states with existing alcohol-control systems, or other countries with a more socialized government structure. In the final chapter I will conclude my thesis with a revised proposal based upon interviewee remarks, comment on a possible path to its adoption, and provide my final thoughts and considerations for future work on the Nicotine Control Structure.

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Chapter 5:

Conclusions and Recommendations for Future Considerations

Introduction

In chapter four, I explained how I developed and conducted four key informant interviews for the California Nicotine Control Structure. The contents of the interviews provided informed professional opinions and recommendations of how to make the California Nicotine Control Structure more functional and politically feasible. In this final, concluding chapter, I use those professional recommendation to improve the Nicotine Control Structure for potential future considerations outside of this thesis project.

For this hypothetical Nicotine Control Structure, I would need to completely remove the packaging redesign and nicotine concentration aspects, add in the number of varieties available per brand as an alternative, increase the language on the cessation services and advertisement of quit attempts, clarify an end date for the stores, and potential make the whole proposal into a step system, implementing different aspects over a period of time.

Improvements on the California Nicotine Control Structure

All four of the professionals I interviewed about the hypothetical policy had sections they considered favorable and in need of improvements. Some of the primary takeaways of these interviews includes the limitation of controlling nicotine content and packaging at the state level, as these are both federally controlled, the need for clearer designations of end dates and clear access to cessation resources, and the need for a stepped approach of implementation.

Nicotine Content and Packaging

Nicotine content and packaging limitations are two of the primary issues with this California Nicotine Control Structure hypothetical policy, as California is unable to regulate the amount of nicotine allowed in the products or set individual requirements for packaging outside

of the Federal regulations. To correct for these two major flaws in the proposal, California can flex its purchasing controls over the products. If California enacts a state-run store model for nicotine sales, then California has all purchasing power over the products accepted into the state. This allows the state to limit the number of products per brand to one, in turn limiting the packaging advertising powers of the tobacco industry. Additionally, California can choose to only purchase existing products that have certain levels of nicotine, meaning that if the tobacco industry wants to sell products within the state, they must create and sell the reduced nicotine products. California's purchasing powers gives it full control of the products available, under a state-run store model, without conflicting with Federal regulations of power.

Closure Dates and Cessation Service Focus

The second main point of concern is easier to correct, as this pertains to designated dates of reductions and clearer access and push for cessation services. By indicating a step-down date system of availability of the products within the policy to prevent any community lag, we can correct for this concern. An example of this step-down approach would be full nicotine strength access for the first six months, and then a 2mg reduction per nicotine product, excluding NRTs, every six months, leading to the eventual closure of all the shops. With this in place, there is still a need to continually nudge the community to make quitting attempts and take advantage of cessation services. By having an end date in place and clearly advertising when each step-down is occurring, individuals are more likely to look for solutions to address any existing nicotine addiction. A crucial step would be to continue the access to the cessation services for a time period after the closure of all nicotine stores, to ensure individuals are not left struggling without proper assistance. If California remains the only state to take this action, services need to remain available for individuals with existing nicotine addiction that later move into California.

Incremental Implementation of the Nicotine Control Structure

A key point emerging from the informant interviews was the recommendation to create a stepped approach of implementation for this Nicotine Control Structure. The professionals recommended a stepped approach, starting with zoning, density, and flavors, with the addition of quantity control, location and sales protections over time. This could be considered a harm reduction approach and potentially more favorable by Californians than complete prohibition of the products. This method of incremental change decreases the shock of the full environmental change and uses the focus of current priorities, including youth access, density of product sales, and flavors. With youth access as a priority, the state-run stores provide the ability to control the distance of these stores from K-12 schools, the number of stores located within a neighborhood, and creates consistency of products and flavors. This is an easier first step, with the intentions of adding the quantity controls, meaning number of products per package, and other sales protections, including nicotine content and product availability over time. By reducing the shock of the change, this becomes more of a harm reduction tactic and less of a full out prohibition of the nicotine products.

Additional Considerations to Improve the Policy

In addition to the primary alterations the professionals recommended, there are additional recommendations that would also improve the strength of the hypothetical policy. One is to allow California communities to opt for larger change. Stronger policies, such as the full ban of all nicotine products could exist in communities that feel the stores are not enough to address their needs or readiness for more advanced environmental change. This allows for the bans in places such as Beverly Hills to continue. Meantime, places in need of slower adoption, such as

central valley locations with higher nicotine use rates, can implement at a pace more acceptable by their community.

A secondary recommendation to improve the strength of the policy is to explicitly state that Nicotine Replacement Therapies (NRTs) are allowed for sales in select locations by deeming them a form of prescription/over the counter medicine. With the requirement that all NRT products have the designation of an FDA approved cessation devices and must receive approval from the California Nicotine Control Structure before market sales at any location. This increases NRT availability by increasing visibility at pharmacies and other locations sales locations of over-the-counter medications, while also having the NRTs in the state-run stores, nudging individuals in the direction of quitting nicotine use.

Conclusions

In this thesis, I have provided the existing evidence of nicotine addiction and the need for an alternative approach to nicotine control in California, providing a hypothetical policy proposal for a complete California Nicotine Control Structure. In Chapter 1, I provided background information on the products, use rates, and overall concerns of nicotine for the California communities. Chapter 2 looked to both academic and non-academic literature an offer an extensive review the state-run wholesale/liquor store model as being analogous. Specifically, I discussed what has been described as the plusses and minuses of using this approach. Has it really resulted in a per-capita consumption of alcohol and less by minors in the states adopting it? Chapter 3 provided additional details of the structures, models and reasonings behind the methods intended for the state-run store strategy, including a more detailed look into the potential backlash, hurdles, political implications, and other difficulties of the adoption and implementation of this model. Chapter 4 described my methodology of key informant interviews with

professionals working in tobacco control and Tobacco Endgame strategies. Specifically, I focused on interviewee reactions to the proposed model, changes they recommended, political hurdles it may encounter, and any factors they recommended changing about the model. Chapter 5 then concluded the concepts discussed throughout the thesis and provides my recommendations for the future of tobacco Endgame strategies in California.

At the beginning of this thesis, the solutions for effective nicotine control seemed easy. Take all the best practices across the world and bring them together by emulating the existing alcohol control structures post-prohibition. But there are striking differences between the approaches of addressing alcohol sales and the needs of communities addicted to nicotine. Nicotine is one of the most addictive drugs available and is legal to sell, even though nicotine products result in fifty percent of the user's dying from nicotine related illnesses and complications (Donny, 2014). When addressing the burden of nicotine on California's health system, consumers, and economy, the priority has to be the protection of consumers and individuals consumed by addiction.

There is no one solution that will work for every community. However, as long as the focus remains on protecting from youth initiation, ensuring reasonable access to cessation services to encourage quit attempts, and keeping the focus of policy measures on improving the environment for the consumers and not for an industry selling known deadly products, effective and feasible policy is possible. The nicotine sales environment in California is already changing, with a few cities already placing full bans on products, but that approach is not feasible for every community. A blanket policy, providing a baseline which can be surpassed, in which communities can wean out the nicotine, is a potentially successful approach.

References

- American Lung Association. 2019. *Tobacco Industry Marketing*. American Lung Association Scientific and Medical Editorial Review. Web.
- Caporale, A, et. al. 2019. *Acute Effects of Electronic Cigarette Aerosol Inhalation on Vascular Function Detected at Qualitative MRI*. Radiology; 190562.
- Center for Disease Control and Prevention (CDC). 2015. *Best Practices User Guide: Health Equity in Tobacco Prevention and Control*. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion. Atlanta GA.
- Center for Disease Control and Prevention (CDC). 2017. *Current Smoking Among Adult in 2017 (Nation)*. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion. Atlanta GA.
- Center for Disease Control and Prevention (CDC). 2018. *Smoking and Tobacco Use Fast Facts*. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion. Atlanta GA.
- Center for Disease Control and Prevention (CDC). 2019. *Outbreak of Lung Disease Associated with E-Cigarette Use, or Vaping*. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion. Atlanta GA.
- Donny, E., Hatsukami, D., Benowitz, N., et al. (2014). *Reduced nicotine product standards for combustible tobacco: Building an empirical basis for effective regulation*. Preventable Medicine. Elsevier.
- Harris, B. (2011). *The intractable cigarette 'filter problem'*. Tobacco Control Journal. Volume 20; Issue Suppl 1.
- Hays, T. (2017). *What is thirdhand smoke, and why is it a concern?* Mayo Clinic; Healthy Lifestyles, Adult Health.
- Jabba, S., Jordt, S. (2019). *Risk analysis for the carcinogen pulegone in mint and menthol flavored e-cigarettes and smokeless tobacco products*. JAMA International Medicine.
- McDaniel, P., Smith, E., Malone, R. 2016. *The tobacco endgame: a qualitative review and synthesis*. Tobacco Control Journal; 25; 594-604
- Moodie, M., Hoek, J., Scheffels, J., Gallopel-Morvan, K., Lindorff, K. (2019). *Plain packaging: legislative differences in Australia, France, the UK, New Zealand and Norway, and options for strengthening regulations*. Tobacco Control Journal. Volume 28; Issue 5.
- NABCA. (2019) *Control State Directory and Info*. National Alcohol Beverage Control Association. Alexandria, VA. Web.

- Surgeon General. (2016). *E-cigarette use among youth and young adults: A report of the surgeon general*. U.S. Department of Health and Human Services; Public Health Services. Office of the Surgeon General; Rockville, MD.
- Talbot, J. (2019). *Advancing tobacco prevention and control in rural America*. National Network of Public Health Institutes; Washington, DC.
- Thaler, R., Sunstein, C. (2009) *Nudge: Improving decisions about health, wealth, and happiness*. Penguin Books. New York, New York, USA.
- Truth Initiative (2017) *Where youth are getting tobacco*. Web.
- Vuong, TD. et. al. 2019. *California Tobacco Facts and Figures 2019*. California Department of Public Health: Sacramento, CA.
- Wallace, AM., Foronjy, RE. 2019. *Electronic cigarettes: not evidence-based cessation*. Translational Lung Cancer Research. U.S. National Library of Medicine; S7-S-10.
- Wilson, N., Thomson, G., Edwards, R., Blakely, T. (2013). *Potential advantages and disadvantages of an endgame strategy: a 'sinking lid' on tobacco supply*. Tobacco Control Journal. Volume 22; Issue suppl 1.
- World Health Organization. 2019. *Tobacco*. Web.