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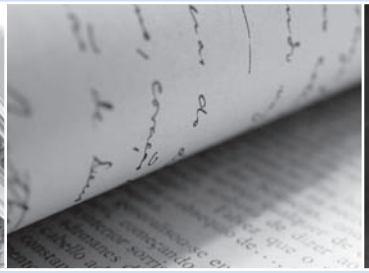

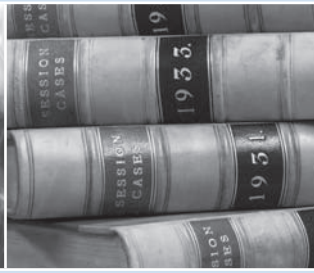

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Regulating Cigarettes for Fire Safety

Hillel R. Alpert

Introduction

Cigarettes are the leading cause of residential fire fatalities in the United States, resulting in 700 to 900 deaths per year.[1] Annual property damage is approximately $400 million, and the total annual economic loss is estimated to be nearly $4 billion including health care, lost productivity and pain and suffering.[2] Despite these costs, cigarette manufacturers have not significantly reduced the ignition propensity of their products even after conducting extensive research into the matter.[3] In response, several states have mandated reduced ignition performance standards for cigarettes.[4]

The first such law to regulate ignition propensity, indeed the first in the United States to regulate any aspect of tobacco product design, came into effect in the State of New York on June 28, 2004.[5] New York's Fire Safety Standards for Cigarettes (FSSC) requires cigarettes sold in state to meet an ignition propensity performance standard that makes cigarettes significantly less likely to cause fires if left unattended.[6] Cigarettes designed to comply with these standards are commonly referred to as fire-safe cigarettes or reduced ignition propensity (RIP) cigarettes.[7]

The FSSC was a turning point after approximately thirty years of scientific research and policy development. During the two years since enactment of the FSSC, five other states (California, Illinois, Massachusetts, New Hampshire and Vermont) enacted similar legislation, all of which require compliance with the FSSC performance standard.[8] Over 25 percent of the population will be covered when these laws go into effect,[9] and the percentage is likely to be much higher as more states consider adopting similar laws. In addition, Canada requires all cigarettes manufactured under its jurisdiction to comply with the FSSC performance standard.[10]

Thus far, all of the fire-safe cigarette legislation is predicated on significant scientific research and the expectation that self-extinguishing cigarettes are less likely to cause fires. These laws have the potential for saving many lives and averting substantial economic costs. As the trend in legislated fire safety standards continues, new issues arise and past issues must be reevaluated. Section I reviews the immense public

Key Points

- Fires caused by cigarettes result in 700 to 900 deaths, approximately $400 million in property damage, and $4 billion in total economic loss each year in the United States.
- First passed in New York in 2004, five other states and Canada have enacted fire-safe cigarette legislation.
- All of the states that have enacted fire-safe cigarette legislation and Canada have adopted the same testing standards and compliance protocols, which are widely considered to be comprehensive and effective although subject to review for possible technological improvements.
- The tobacco industry has sought to blame smokers for fires caused by cigarettes and seeks regulatory policies that mandate reductions in the ignition propensity of flammable substrates, such as home furnishings, but reductions in the ignition propensity of cigarettes is also an important step in reducing the harm caused by cigarettes.

harm resulting from cigarette-caused fires. Section II examines the regulatory structure, feasibility, compliance and implementation of fire-safe cigarette legislation in the United States. Section III discusses litigation involving cigarette-caused fires. Section IV examines industry rhetoric and its stance against voluntarily and comprehensively reducing the ignition propensity of cigarettes. Section IV highlights current policy concerns and the movement towards a national standard through either state or national legislation.

Section I – Cigarette-Ignited Fires

Most cigarette-caused fires are residential and occur at night or in the early morning hours when people are sleeping.[11] They often result when a smoker —who may also be impaired by alcohol and may have fallen asleep—drops, abandons or improperly disposes of his or her smoldering cigarette.[12] The cigarette can wedge between furniture cushions or in bed linens and lie smoldering for up to 30 to 45 minutes.[13] During this time, the cigarette can ignite surrounding materials and cause them to smolder and generate smoke.[14] The smoke contains carbon monoxide and other highly toxic gases that can render people semiconscious or unconscious, putting them at greater risk of injury or death from the ensuing fire.[15] In some cases, the smoke will suffocate people in the surrounding area without ever reaching flashover, the point when a room is rapidly engulfed by fire.[16]

Cigarettes are also a major cause of wildland fires. The Oregon Department of Forestry reports that in the past ten years cigarettes caused 673 wildland fires in Oregon.[17] A smoldering cigarette can easily ignite ground cover, such as dry vegetation or grasses, and accelerate into a quick-moving fire that spreads for hundreds or thousands of acres of land.[18]

The devastation of cigarette-caused fires is retold in news stories all too often. The Kearney family of Boston experienced such tragedy firsthand on Memorial Day weekend 1990.[19] That weekend, a four-alarm fire caused by a cigarette resulted in the deaths of five members of the Kearney family and one of their friends.[20] The fire was ignited early in the morning by a burning cigarette that had been accidentally dropped between the cushions of a chair located downstairs from where the Kearney family was sleeping.[21] The chair smoldered silently before suddenly igniting a fire that eventually engulfed the entire house.[22] Only two family members in the house were able to escape.[23]

In other examples, a recent fire suspected to have been caused by a smoldering cigarette broke out aboard the Star Princess ship in the Caribbean, scorched nearly 100 passenger cabins and led to the death of an elderly passenger and numerous other injuries.[24] In the summer of 2006, a wildland fire ignited by a cigarette in Cape Town, South Africa, killed a hiker and destroyed over 700 hectares, leaving some plant and animal life feared extinct.[25]

Section II – Regulating Cigarette Ignition Propensity

The New York Fire Safety Standards

The New York Fire Safety Standards for Cigarettes is model public health legislation. The FSSC increased the authority and responsibilities of the New York Office of Fire Prevention and Control (OFPC). The FSSC required the OFPC to promulgate performance standards for cigarettes to ensure "[t]hat such cigarettes, if ignited, will stop burning within a time period specified by the standards if the cigarettes are not smoked during that period" or "[t]hat such cigarettes meet performance standards prescribed by the [OFPC] . . . to limit the risk that such cigarettes will ignite upholstered furniture, mattresses or other household furnishings."[26]

Under the FSSC, cigarette manufacturers are responsible for testing each of their brands and for providing written certification to the OFPC and to the Attorney General that their cigarettes are in compliance with the performance standards developed by the OFPC.[27] Each company places a tiny mark on their cigarette packaging to indicate that they are in compliance.[28] The testing must be conducted at

least every three years for recertification.[29] Civil penalties include fines of up to $10,000 per sale of noncompliant cigarettes at the wholesale level, and between $500 and $1,000 per sale at the retail level.[30] False certification is subject to a civil penalty of up to $10,000.[31] All civil penalties collected under the FSSC are allocated to fire safety and prevention programs.[32]

Performance Standardization

Effective fire-safe cigarette regulation requires a standard test method for determining ignition propensity. Several years before passage of the FSSC, the Federal Fire Safe Cigarette Act of 1990 charged the National Institute of Standards and Technology (NIST) to develop a standard method to determine cigarette ignition propensity.[33] Although it did not provide any governmental agency the authority to regulate cigarettes to reduce their propensity to cause fires,[34] the Act resulted in the development of the first performance standards for measuring reductions in cigarette ignition propensity.[35] The first of these performance standards is the mock-up furniture ignition test method, which uses fabric and foam to simulate a piece of furniture and test whether a burning cigarette transfers enough heat to these substrates to cause ignition.[36] The second performance standard is the cigarette extinction method, which uses a set number of layers of filter paper as a heat absorbing substrate and measures whether a cigarette generates enough heat to continue burning without self-extinguishing when placed on this substrate.[37]

The NIST's research determined that cigarette performance on the mock-up ignition test was comparable to performance on full-scale upholstered furniture, the closest research conditions to real-world fires.[38] Furthermore, performance on the cigarette extinction method was correlated with the mock-up ignition method providing scientific evidence for the expectation that fire-safe cigarettes would prevent fires.[39]

The cigarette extinction method is the method identified for assessing ignition propensity in the FSSC and in the regulations of all states that have since adopted fire-safe cigarette legislation.[40] The cigarette extinction method has strong reproducibility and requires less time per test than the mock-up ignition test method.[41] The cigarette extinction method has been refined and is known as the ASTM E2187-04 Standard Test Method of Measuring the Ignition Strength of Cigarettes.[42]

Product Design and Feasibility

While the test method for assessing performance is dictated by law in adopting states, the means and technologies manufacturers use to attain the standard are unrestricted. Despite the tobacco industry's public stance otherwise, internal industry documents reveal that manufacturers could make fire-safe cigarettes commercially feasible and acceptable to consumers.[43] Furthermore, industry research described in industry documents and recent research conducted by the Harvard School of Public Health confirmed the validity of the NIST research, demonstrating that fire-safe cigarettes are technically feasible.[44] Academic, government, and industry research has also demonstrated that fire-safe cigarettes do not seem to be any more or less harmful to smoke than non-fire-safe cigarettes.[45]

The Federal Government began to address feasibility concerns in the early 1980s following the Cigarette Safety Act of 1984.[46] This Act required the creation of an advisory group to determine the technical, economic, and commercial feasibility of developing a cigarette with minimum ignition propensity. Released in 1987, the group's final report concluded: "[i]t is technically feasible and may be commercially feasible to develop cigarettes that will have a significantly reduced propensity to ignite upholstered furniture or mattresses."[47] Moreover, the report suggested that "the overall impact on other aspects of the United States society and economy may be minimal … [and thus] it may be possible to solve the problem at costs that are less than the potential benefits, assuming the commercial feasibility of the modified cigarettes."[48]

Further federal research was conducted analyzing the cigarette design features that increase or reduce ignition propensity.[49] The research examined a variety of product design questions.[50] The NIST identified key parameters for ignition propensity: cigarette diameter, tobacco density, cigarette paper porosity, and chemical additives (such as citrate) that allow cigarettes to continue to burn without being puffed.[51] Decreases among any of these features resulted in reduced ignition propensity.[52] The NIST found tobacco type (burley versus flue-cured) to be relatively unimportant to ignition propensity.[53]

Since the early 1970s, tobacco manufacturers and producers of cigarette paper already had research programs underway regarding cigarette combustion and factors associated with ignition propensity. For

example, Philip Morris started researching fire-safe cigarettes in 1974, but did not use fire-safe technology it had developed until 2000 in its *Merit* cigarette brand.[54] *Merit* cigarettes are made with paper that contains rings or bands that act as "speed bumps" to slow down the cigarette's burn rate.[55] The paper rings reduce the mass burn rate and air permeability in the regions surrounding them, which help lower ignition propensity.[56]

Industry-based research and development has resulted in other technological advances, and ongoing programs have continued beyond the NIST achievements and the currently adopted standards in New York.[57] Some of the patented fire-safe designs include very low porosity paper with added perforations, safe fire retardant added to the center of the tobacco rod, cellulose bands on the paper, application of safe chemicals to the outside of the paper, and intumescent powder added to the tobacco column. The addition of intumescent powder is used to reduce the ignition propensity of the tobacco by decreasing the density of the tobacco as it is heated.[58]

Regulatory Compliance

Harvard School of Public Health researchers studied New York's preliminary experience with fire-safe cigarettes in order to empirically examine the product's technical, economic, and commercial feasibility.[59] The researchers found that the major US manufacturers had designed fire-safe cigarettes to meet the FSSC, primarily through the use of paper bands or rings.[60] In fact, by mid-2006, cigarette manufacturers certified over 1,000 different styles of cigarettes as meeting the reduced ignition propensity standard required for sale in New York.[61] The researchers also confirmed that the fire-safe cigarettes were no more or less harmful than traditional cigarettes. Lastly, the researchers found that fire-safe cigarettes had no effect on consumer purchases of cigarettes in New York and cost no more than traditional cigarette brands sold in another state.[62]

Survey research conducted at Roswell Park Memorial Institute added to evidence of consumer acceptability.[63] While a significant minority of smokers in New York reported noticing changes in the performance of their cigarettes following the implementation of the FSSC, the law appears to have had no overall effect on the smoking habits of smokers in the state.[64]

Section II – Litigation and Cigarette-Caused Fires

Litigation is one way to hold companies responsible when their products harm consumers and others.[65] Litigation against tobacco companies in the United States has helped improve the public's awareness regarding the health effects of smoking and also could be used to address harm caused by cigarette-caused fires.[66] Andrew McGuire, the executive director of the Trauma Foundation at San Francisco General Hospital and a top activist on the issue of cigarette fires, has referred to burn cases as the "Achilles heel of the tobacco industry," stating "there's no way they can get around the fact that innocent children are burned and killed in these fires caused by their product."[67]

Litigation pertaining to cigarette-caused fires has included claims of strict liability, negligent design, and unreasonable or unexpected danger beyond what would be contemplated by an ordinary consumer.[68] The legal liability of cigarette manufacturers is based on the failure of the industry to convert to fire-safe designs when not doing so imposes a foreseeable, unnecessary, and unreasonable risk on smokers and those who live with them.[69] Public records and internal documents reveal a history of "refusal of the entire industry to make simple changes in its product that would save lives and prevent serious injuries yearly."[70]

Tobacco manufacturers have insisted on defending rather than settling personal injury claims fearing that settling them would lead to a deluge of lawsuits.[71] Manufacturers argue, in part, that smokers take responsibility for cigarette-related fires when they decide to smoke[72]; that smokers are negligent when

they leave unattended, burning cigarettes[73]; that the federal Cigarette Labeling and Advertising Act preempts such lawsuits[74]; and that the lawsuits simply lack the proof of causation.[75] Dissenting opinions in these cases have highlighted that some chemicals added to cigarettes, such as burn additives, may be unreasonably dangerous.[76] For example, sodium citrate or potassium citrate is generally added to cigarette paper to enable cigarettes to sustain burning when not being puffed.

Thus far, lawsuits against cigarette manufacturers based on cigarette-caused fires have been unsuccessful, even though proof that cigarettes cause fires seems relatively straightforward.[77] The first fire-safe cigarette case, *Lamke v. Futorian Corp.*, was dismissed by the lower court.[78] The Oklahoma Supreme Court upheld the dismissal and reasoned that the plaintiff, burned in a fire caused by a cigarette, was unable to prove the cigarette was dangerous to a degree not contemplated by the ordinary consumer.[79] The Court also found that "[t]here are no standards by which a cigarette manufacturer is required to make a cigarette that if left unattended will not burn … [n]or is a sofa maker required to manufacture a flame retardant product."[80]

In the intervening twenty years since *Lamke* was decided, many things have clearly changed, including the passage of the FSSC and other state fire-safe cigarette laws. Cigarette-caused fires might become a significant source of liability for manufacturers. This change was foreseen in a particularly insightful opinion by the dissenting judge in *Lamke*:

> I would hold that the general acceptance by an industry of a new standard of safety, and a corresponding rise in the expectation of consumers as to the safety of that industry's products, may cause the product of a particular manufacturer who does not accept the industry's standard of safety to fall below the community's expectations. Since the reasonableness of a product's dangerousness is defined by consumer expectations, a design once safe may become a defective design over time.[81]

As technology progresses, legislation continues, and public awareness changes, the legal landscape regarding injuries suffered by cigarette-caused fires also changes.

In the only fire-related lawsuit that has been settled, Philip Morris paid $2 million to Shannon Moore, a child who suffered disfiguring burns in a fire believed to be caused by a smoldering cigarette.[82] Twenty-one month old Shannon Moore was asleep in her mother's parked car when a smoldering cigarette was alleged to have ignited the seat and caused the car to erupt into flames.[83] The infant was burned over 77% of her body and had to have all her fingers amputated.[84] She also lost her hearing as a result of prolonged use of antibiotics that were prescribed to fight infections.[85] The litigants blamed the fire on the defective design of the cigarette and said that the industry had been slow to introduce fire-safe products.[86]

Section III – Tobacco Industry Stance on Cigarette-Caused Fires

Tobacco Industry Positions

Virtually all significant public debate on regulating cigarette ignition propensity focuses on with whom the burden of responsibility rests. The tobacco industry has responded in various ways since the first calls for fire-safe cigarette laws. First, it ignored the calls. Next, it shifted the responsibility to manufacturers of the most commonly ignited substrates and to smokers themselves. The industry also challenged the feasibility of designing, manufacturing and selling fire-safe cigarettes, all the while conducting private research and development.

In 1929, Representative Edith Nourse Rogers of Massachusetts called for the National Bureau of Standards to develop technology for a "self-snubbing" cigarette.[87] The Bureau reported success in developing such a cigarette, but said that a manufacturer would have to adopt it.[88] Later in 1947, the National Fire Protection Association called on cigarette manufacturers to take some responsibility for the problem of cigarette-ignited fires.[89] No manufacturer responded publicly to either of these appeals.

Instead, the tobacco industry successfully shifted the focus of the debate to the substrates that serve as the primary fuels of cigarette-caused fires − furniture, cushions, rugs and mattresses.[90] The tobacco industry lobbied for stricter standards for the flammability of upholstered furniture and mattresses rather than for regulation of the ignition propensity of cigarettes.[91]

Upholstery manufacturers responded in 1979 by adopting voluntary flammability standards.[92] The Federal Consumer Protection Safety Commission also established standards for the flammability of mattresses and mattress pads and prescribed a test to determine the ignition resistance to lighted cigarettes.[93]

A further strategy against fire-safe cigarette legislation has been to advance the concept that cigarette-ignited fires are neither the manufacturers' responsibility nor the fault of the product, but are rather due to careless behavior and mishandling of cigarettes.[94] This contention and the argument that fire-safe cigarettes will instill a false sense of security in consumers were advanced successfully to delay and thwart proposed fire-safe cigarette legislation.[95] The industry instead offered general fire prevention and public education for fire safety as the solution to the problem and the most effective ways to reduce fire losses.[96] In conjunction, the tobacco industry embarked on a program of working with firefighters and focusing on education and funding issues.[97]

"Careless behavior" according to proponents of fire-safe cigarette legislation is a euphemism that the tobacco industry primarily employs to blame the smoker and avoid scrutiny of its part in cigarette-caused fires.[98] In any event, according to the National Fire Protection Association, one in four deaths by cigarette-caused fires in the United States is not of the smokers themselves.[99] Of these victims, 34 percent are children of the smokers, 25 percent are neighbors or friends, 14 percent are spouses or partners and 13 percent are parents. Victims include firefighters as well.[100]

Cigarette manufacturers also have challenged the technical, economic and commercial feasibility of fire-safe cigarettes. They have argued that cigarettes could not be designed to be less prone to ignite fires, though the industry, for the most part, changed its position when it started manufacturing cigarettes that comply with the FSSC. Industry representatives have also contended at state and federal legislative hearings that fire-safe cigarettes would be more harmful to health than conventional cigarettes.[101] They also have challenged the validity of test methods for ignition propensity, and R.J. Reynolds continues to argue that no testing method can accurately predict whether a cigarette is fire-safe.[102] They even warned that an inadequate supply of materials, such as specialized cigarette papers, would be available to produce fire-safe cigarettes, the cost would be prohibitive, and cigarette sales and state cigarette tax revenue would decrease.[103]

The tobacco industry's resistance to cigarette fire safety standards and regulations is unsurprising given its historically consistent opposition to all product regulation. Tobacco has been exempt from the types of health and safety regulations imposed on other hazardous products.[104] Manufacturers may fear that a fire-resistance standard for cigarettes will break this pattern and lead to the encroachment of government regulation of their products.[105]

Section IV – Current Policy Considerations

Public Health Perspectives

Public health professionals are closely monitoring fire-safe cigarette legislation and evaluating future needs. The Harvard School of Public Health hosts an annual conference on the matter.[106] Now in its third year, the Fire Safe Cigarette Conferences bring together researchers, advocates and policymakers to assess the status of this issue and future scientific and policy needs.[107] Session topics have included the health and economic costs of cigarette-caused fires; recent research on the development of fire-safe cigarettes and testing standards; the FSSC in its development, implementation and acceptance; litigation; national and international policy development; and future research needs.[108]

Conference presenters have reported significant progress in scientific research and policy development and the growing momentum of legislative action in the United States and other countries.[109] Continued

surveillance and monitoring of fires and fire losses caused by cigarettes is critical in determining the success of the policies as well as the potential need for adjusting the standards that are being adopted.[110] The early indications are that the FSSC is working and reducing the number of deaths caused by cigarette-related fires.[111]

National versus State Legislation

In the previous congressional session, Representatives Edward Markey and Peter King introduced the Cigarette Fire Safety Act of 2005.[112] The Act would have required that all cigarettes sold in the United States adhere to the FSSC standards. Recognizing the importance of state involvement in public health protection, the Act also would not have preempted states from enacting even stricter requirements. This non-preemption would allow New York and other states to update and improve the FSSC and other fire-safe cigarette laws.

Philip Morris has stated it "supports federal RCIP [reduced cigarette ignition propensity] legislation that is equivalent to the standard adopted in New York."[113] However, Philip Morris might not support the type of legislation filed by Representatives Markey and King because it does not preempt states from enacting fire-safe cigarette laws that are stricter than the FSSC standards. Philip Morris' public position is that federal legislation must "preempt state and local … standards."[114] Philip Morris argues that state standards are costly to develop and burdensome to enforce.[115] State standards would force distributors within the state to maintain separate warehouse space and segregate delivery systems and would present a hidden cost and logistical burden on the private sector, according to Philip Morris.

Philip Morris' argument is undercut by the fact that all of the state fire-safe cigarette legislation to date follows the same standard, the FSSC. Furthermore, even if state fire-safe laws differ, the variation allows states to compare and contrast their approaches and identify which approaches are most effective and which should be avoided. As a way to harness this natural experiment, the FSSC in New York contains a "look back" provision, which enables OFPC to review new information such as fire incidence data and technological changes following a period of time (for example, three or four years) and to consider revising the standard.

Observers suggest that a significant concern of manufacturers with regard to state regulation is that cigarette companies could become more vulnerable to lawsuits filed in states without fire-safe cigarette regulations.[116] Others have pointed out that the tobacco industry generally prefers to fight policy battles at the national level where it has proven adept at opposing or gutting bills not to its liking.[117] Nevertheless, the Cigarette Fire Safety Act of 2005 introduced by Congressman Edward Markey and Representative Peter King would have mandated the FSSC standard and allowed states to enact even stricter requirements.[118]

Conclusion

Almost 27% of the U.S. population and all of Canada will soon be covered by fire-safe cigarette legislation.[119] With other states and countries, including Australia, New Zealand, and members of the European Union, potentially following suit, the trend may lead to total U.S.—and eventually nearly global—coverage.[120] Prior debate in the political, legal and public realms focused primarily on who bears the responsibility for cigarette-caused fires. While this issue has not been resolved, current debate has shifted more to the proper locus for regulation (state versus federal), inclusion of regulatory flexibility in legislation to be enacted, and whether the science and policy will allow standards, regulations, and testing protocols to continue to be based on the most advanced scientific research and surveillance data. Ultimately, while the extent to which cigarette-caused fires and the related losses can be diminished is still being assessed, the legislation of the ignition propensity of cigarettes remains a strong strategy to prevent unnecessary deaths and improve public health.

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73 *See* Halbert, *supra* note 13, at 30.
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About the Tobacco Control Legal Consortium

The Tobacco Control Legal Consortium is a network of legal programs supporting tobacco control policy change throughout the United States. Drawing on the expertise of its collaborating legal centers, the Consortium works to assist communities with urgent legal needs and to increase the legal resources available to the tobacco control movement. The Consortium's coordinating office, located at William Mitchell College of Law in St. Paul, Minnesota, fields requests for legal technical assistance and coordinates the delivery of services by the collaborating legal resource centers. Our legal technical assistance includes help with legislative drafting; legal research, analysis and strategy; training and presentations; preparation of friend-of-the-court legal briefs; and litigation support.

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