

A Critical Analysis of Youth Access Laws



Canadian Cancer Society **Société canadienne du cancer**

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Acknowledgments

This paper represents the views of the Canadian Cancer Society on the issue of the effectiveness of laws that attempt to reduce the ability of young people to gain access to tobacco products. The purpose of the paper is to facilitate informed debate and policy-making on an important tobacco control issue.

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The Canadian Cancer Society is a national, community-based organization of volunteers, covering 3,000 urban and rural communities Canada-wide. The Society's mission is the eradication of cancer and the enhancement of the quality of life of people living with cancer. Thirty percent of all cancer deaths are caused by tobacco use.

The Canadian Cancer Society achieves its mission through research, education, patient services, and influence on public policy, supported by volunteers and funds raised in communities across Canada.

An electronic copy of this report is available at: www.cancer.ca

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A Critical Analysis of Youth Access Laws

I. Introduction

Goal of the Research

The purpose of the paper is to inform public policy decision-making regarding the value of implementing and enforcing youth access laws.¹ The paper examines the effectiveness of such laws in reducing youth access to tobacco products and the resultant impact, if any, on youth smoking behaviours. The analysis is based on research evidence, policy arguments, and the positions of major national and international organizations involved in tobacco control.

Scope of the Research

1. A literature review was performed of the major health, applied health, public policy, and tobacco control journals on the following issues:
 - a) the recommended legislative provisions of access laws;
 - b) the components of an effective enforcement strategy;
 - c) the extent to which access legislation is effectively enforced;
 - d) the impact of access laws on youth access to tobacco products;
 - e) the impact of reduced retail access to tobacco products on youth tobacco use;
 - f) the tobacco industry's "Operation ID" program;
 - g) other tobacco industry interventions related to youth access laws;
 - h) the role of access laws in a comprehensive approach to tobacco control.

The literature review focused on documents dating from 1996, since the results of earlier research were included in review studies published after 1996.

2. The discussion over GLOBALink's relevant electronic conferences ("General," "Youth," and "Legislation") for the past 4-5 years was reviewed regarding the value

¹ Most "youth access laws" prohibit tobacco sales to minors by retailers, although some also include a prohibition on giving or supplying tobacco to youth. Some laws also include provisions that make it illegal for underage youth to purchase, possess, and/or use tobacco products.

and role of access laws and other youth-oriented strategies in a comprehensive tobacco control plan.

3. The views of key informants in the international tobacco control community were solicited on the relative value of access laws and other youth initiatives and the repercussions of not including such policies in a comprehensive plan.
4. The official position of major national and international health and tobacco control organizations on the value of youth access laws was researched.
5. Canadian federal and provincial access laws were reviewed.
6. Officials with Health Canada were interviewed to develop an understanding of the practices and policies related to the enforcement of access laws across Canada.

Overview

Laws prohibiting tobacco sales to minors have been implemented and enforced in jurisdictions across North America since the late 1980's,² on the plausible assumption that youth smoking would decline if a sufficiently high proportion of retailers refused to supply tobacco to minors. As a result, a wealth of research has accumulated regarding the provisions and practices needed to maximize the effectiveness of the laws in achieving a high rate of retailer compliance. (This research is described in detail in Appendix A.) There is limited research, however, concerning the impact of youth access laws on tobacco use by young people.

Significant controversy thus remains within the tobacco control community on three issues in particular:

1. Whether a threshold level of compliance exists above which compliance has an impact on youth smoking behaviour;
2. Whether, assuming a threshold exists, the level of spending necessary to get compliance rates above that level is a cost-effective tobacco control intervention;
3. Whether there are other costs to or benefits from investing in youth access interventions.

² Such laws were on the books in many places decades earlier, but were seldom enforced. In Canada, for example, there was virtually no enforcement of the federal *Tobacco Restraint Act* (which prohibited tobacco sales to minors under the age of 16) from its passage in 1908 until its replacement in 1994 by the *Tobacco Sales to Young Persons Act*.

II. The Federal Government's Access Program

From the substantial body of research on the access laws in North America and other countries such as Australia and New Zealand, it is evident that virtually no jurisdiction has implemented and adequately enforced a comprehensive program to prohibit youth access to tobacco.³ Canada is no exception.

Legislative Provisions

The federal government has been enforcing a prohibition on sales to minors since enactment of the 1994 *Tobacco Sales to Young Persons Act*. The provisions of this legislation were encompassed by the 1997 federal *Tobacco Act*:

- No one may “furnish” a tobacco product to a youth under the age of 18 years “in a public place.” The definition of “furnish” includes selling or giving tobacco.
- Vending machines are permitted only in bars, taverns, or beverage rooms if they have a prescribed security mechanism.
- Self-service tobacco displays are prohibited.
- Tobacco sales (other than between manufacturers and retailers) may not be delivered by mail. Inter-provincial tobacco deliveries (other than between manufacturers and retailers) are also prohibited. A loophole in the legislation is that nothing prohibits intra-provincial sales that are delivered by courier.
- Only four types of government-issued identification are acceptable proof of age.
- Mandated signs at retail indicate the legal age of sale only, although the government has the authority to mandate point-of-sale health warnings.
- The maximum penalty for conviction on a first offence is \$3000.
- Retailers may lose their right to sell tobacco products for a specified period of time upon second or subsequent conviction. The imposition of the sales suspension is at the discretion of the judge.

Enforcement

There are more than 500 prosecutions/tickets a year that are initiated/issued for alleged violations to the youth access provisions of the federal *Tobacco Act*. According to a

³There are a few notable exceptions, such as Woodridge, Illinois, and the Minnesota TPOP intervention communities.

senior Health Canada official, no other acts are enforced to that level within the department. In addition, the education and warning components of Health Canada's program are very extensive compared to other enforcement programs (Personal communication with Denis Choinière, Health Canada, September 2002).

Since 1997, Health Canada has spent between \$5-7 million per year on enforcement of restrictions on tobacco sales to minors. To put this into perspective, in 1997 total federal funding for tobacco control was \$10 million per year, primarily for enforcement of the *Tobacco Act* and educational initiatives (57). This sum was doubled to \$20 million per year for five years in 1998.

In April 2001, the federal government announced a new tobacco strategy, with a five-fold increase in funding to a total of \$480 million over five years. Almost half of the funding or \$210 million was earmarked for mass media campaigns, and \$55 million was directed to various measures to monitor and assess the impact of the tobacco tax changes on smuggling (56). The remaining \$215 million (\$43 million/year) covers all other anti-tobacco initiatives, including the legal costs of defending the *Tobacco Act*, education, and enforcement. The amount spent on enforcement of the youth access provisions amounts to approximately 7% of the total federal tobacco control budget.

Although the exact number of tobacco vendors in Canada is not known because tobacco retailers are not registered, Health Canada's best estimate is that there are about 60,000 tobacco retailers.⁴ With 60,000 retailers, seven million dollars per year in enforcement funding represents about \$117 per compliance check per retailer, or basically only enough funding to conduct one compliance check per retailer each year. (The U.S. Centers For Disease Control (CDC) estimates a cost of \$125 per compliance check.⁵) Meeting the CDC recommendations for state funding of enforcement of youth access restrictions would require annual expenditures of \$20-\$42 million per year, roughly three to six times what the federal government currently spends (17).

Six provincial governments (BC, Manitoba, and the Atlantic provinces) have Contribution Agreements with the federal government to ensure a "single window" approach to enforcement of the sales-to-minors provisions of both the provincial legislation and the federal legislation. For the past two years, the province of Ontario and the federal government have not been able to reach a mutually acceptable agreement. Health Canada has maintained its federal inspectors in Ontario, and they have continued to work with several of the Public Health Units. (In Ontario the Public Health Units have responsibility for enforcing the provincial access provisions.) Only federal inspectors

⁴ Health Canada's estimate that 80,000 compliance checks per year are needed to attain a rate of 1.2-1.4 checks per vendor indicates their belief that the total number of points of sale in Canada is between 57,000-66,000, although this may include outlets with vending machines only (Personal communication with Denis Choinière, Health Canada, December 2001, September 2002).

⁵ The CDC figures cited here have been converted to Canadian dollars based on an exchange rate of \$1.00 US = \$1.56 CAD.

operate in Alberta, Quebec, and Saskatchewan, although both Quebec and Saskatchewan have been discussing setting up their own Contribution Agreements with the federal government (Personal communication with Denis Choinière, Health Canada, August 2002).

Under the current enforcement program, between 35,000-50,000 compliance checks are performed each year—less than one compliance check per retailer per year. Health Canada's target is to increase the number of compliance checks to an average of two per retailer per year, starting in 2002. Health Canada's ten-year goal is to increase the average compliance rate among retailers across Canada to 80%; the long-term goal is to attain 90% compliance. Health Canada officials acknowledge, however, that according to the research at least two compliance checks per retailer per year are needed to achieve 80% compliance and four per year are necessary to achieve 90% compliance (Personal communication with Denis Choinière, Health Canada, September 2002). Health Canada is also considering the development of a mass media or social marketing campaign directed at social sources of tobacco for youth.

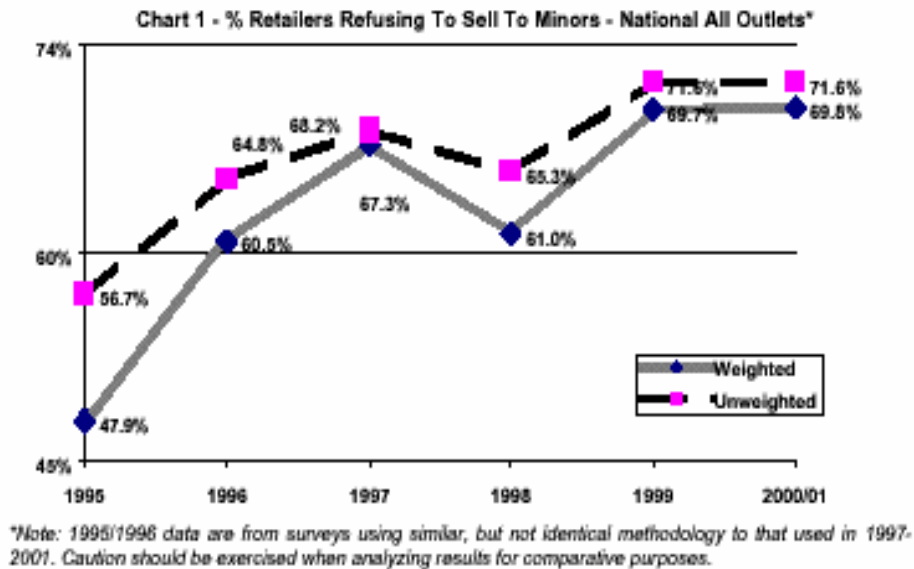
There is no standard enforcement protocol across Canada. Health Canada officials believe that it is important to adapt the protocol to the regional situation. Variations in procedure include the following:

- whether a retailer is issued a warning letter or an information letter on a first offence;
- whether or not the test shopper completes the sale;
- whether a ticket is issued at the time of the violation or later;
- whether a ticket is given by an inspector alone or with a police officer;
- whether or not the inspector accompanies the test shopper into the store.

Health Canada has been working to update its compliance check protocol, for example by having the test shoppers complete the sale more often. A pilot is being conducted in one region whereby test shoppers are instructed to be vague about their age, without actually lying to the retailer. In 2002, a new, standard protocol was implemented (Personal communication with Denis Choinière, Health Canada, August 2002).

Achievements

After six years of enforcing new federal restrictions on tobacco sales to youth, retailer compliance with the law has increased by twenty-two percentage points, from 47.9% in 1995 to 69.8% in 2001, according to annual surveys conducted by AC Nielsen. Aggregate compliance increased in four of the six years surveyed, declining in 1998 and remaining constant in 2000. The improvement in compliance has been slow and unsteady, with 30% of retailers continuing to sell tobacco to minors (93).



Assessing the Federal Program

While the federal legislation contains a number of provisions recommended in the research, it falls short in several important areas.

- The legal age of sale is 18 under federal law (which applies to Alberta and the territories), as well as under provincial law in Quebec and Saskatchewan. This means that youth of high school age (CEGEP in Quebec) can legally be sold tobacco. The research has shown that older youth in this age group are an important source of tobacco for younger teens. Six provinces, however, have set the legal age of sale at 19 (BC, ON, NB, NS, NF, PEI).
- Tobacco retailers are not required to obtain a licence to sell tobacco, and as a result the federal government does not know with certainty the number of tobacco vendors in the country and it has no means of tracking who the vendors are and where they are located. (Tobacco companies, on the other hand, have precise databases of tobacco retailers.⁶) The mandatory licensing of all tobacco vendors would make possible the

⁶ “RBH sells its tobacco products through a highly efficient wholesale distribution infrastructure to approximately 36,000 retail outlets across Canada. More than 90% of domestic tobacco products are sold through about 24,000 retailers. . . . The sales force makes more than seven thousand in-store sales calls per week, and transmits market and performance data to the central sales planning department nightly. These tools have enabled RBH to redeploy investment from lower volume stores to more valuable retail customers. . . .” (104b). Imperial Tobacco Canada Ltd., with 68% of the Canadian market, distributes their products to a slightly higher number of tobacco vendors: “Our products account for an important share of revenues for over 38,000 retailers ranging from supermarkets to corner stores throughout the country” (64b).

development of a computerized database of retailers, permitting much more effective work planning and targeting of enforcement efforts (53). Furthermore, a licensing system could provide revenue to help fund enforcement efforts. Several provinces do licence retailers under their own tobacco or taxation legislation (Manitoba, Quebec, New Brunswick, Nova Scotia, PEI, and Newfoundland).

- Enforcement efforts would be facilitated and harmonized if the federal government had Contribution Agreements with all of the provinces/territories. Furthermore, the Contribution Agreements that have been arranged are not being used to their maximum potential as a lever/incentive to ensure that the access strategy, and in particular the enforcement plan, of the provinces follows best practices. Several organizations have recommended that funding be tied to the achievement of specific performance measures.
- The federal government is not able to issue tickets in all provinces. The federal *Contraventions Act*, which allows for ticketing under federal law, is not in force in Alberta, Saskatchewan, British Columbia, and the territories. Rather than issuing tickets, enforcement officers must lay a charge. The time involved (an estimated 20-25 hours for one charge) and the related costs of going to court for each violation are substantially greater, meaning that fewer enforcement activities can be carried out (Personal communication with Denis Choinière, Health Canada, December 2001).
- Health Canada has established a target of 80% compliance over the next ten years. There is no evidence in the research that 80% is a meaningful compliance target. In fact, although there is little evidence of any threshold effect (i.e. a compliance rate above which there is a measurable impact on youth tobacco use), the research suggests that if there is a compliance threshold, it is closer to 90% (103; 36).
- Despite convincing evidence that suspending a retailer's ability to sell tobacco is a much stronger deterrent than a fine, Health Canada has only sought a sales suspension a few times and has not yet been successful in obtaining one (Personal communication with Denis Choinière, Health Canada, December 2001). Under the current system, a retailer is warned at least once and charged at least once before a sales suspension can be sought. Given the federal government's limited enforcement resources, enforcement officers do not often get to this stage with a given retailer. Furthermore, judges have shown a reluctance to grant the request for a tobacco sales suspension, believing it to be too punitive.

III. Access Laws in Other Countries

USA

In the U.S. as in Canada, youth access restrictions are imposed by all three levels of government—local, state, and federal. As of August 2001 some 1139 local governments had passed youth access laws (43). All fifty states have also enacted a law prohibiting the sale of tobacco to minors, in keeping with their requirements under the federal Synar Amendment which came into effect in 1996. Under the Synar Amendment, states are also required to enforce the laws, to conduct annual random compliance checks, and to develop a strategy and timeframe for achieving the target compliance rate of 80%, in order to qualify for their annual Substance Abuse and Prevention Treatment block grants.

Numerous problems with the implementation of Synar have been documented, including the use of inaccurate and incomplete lists of tobacco vendors and vending machines. Forty-three of fifty states allow minors younger than sixteen years to be used for compliance checks, even though research indicates that this can artificially increase compliance rates. Test shoppers do not carry identification and are instructed not to lie about their age. States have been allowed to validate their own inspection results. Only slightly more than half of states have imposed fines and licence suspensions for violations, since the Substance Abuse and Mental Health Services Administration (SAMHSA) does not require the use of penalties as an enforcement tool (34; 49). (SAMHSA officials indicated that up to now they have not focused as much on enforcement actions because they had relied on the FDA to enforce its tobacco control regulation.) The lack of a uniform compliance check protocol across states also limits the usefulness of the data (34; 49). In his review of the states' implementation of the Synar requirement, DiFranza found that "as a whole there was no significant national progress toward reducing the availability of tobacco to youths. This failure can be attributed to inadequate resources devoted to enforcement and reliance on merchant education in lieu of bona fide law enforcement" (29b).

Australia

There are no national restrictions on tobacco sales to minors. All states prohibit tobacco sales to youth under 18 and restrict the placement of vending machines. The penalties for non-compliance under the legislation vary widely among the states (92). Western Australia and New South Wales have comprehensive programmes, focusing on compliance monitoring, enforcement, community education, and community action. In 1999 Western Australia conducted a thorough review of the issue and produced two reports: *Western Region Tobacco Project – Reducing Sales to Minors* and *Tobacco Act Enforcement Protocol*. The protocol is designed to standardize and improve the effectiveness of enforcement operations, including compliance checks. Other states and

territories have a range of implementation strategies, focusing on education rather than enforcement.

In Southern Australia minors may be fined \$200 for providing false identification, making a false statement, or refusing to show identification when attempting to purchase tobacco. These are the only penalties imposed on minors in Australia related to the purchase or possession of tobacco products.

In 1999, the Commonwealth of Australia approved a comprehensive four-year tobacco strategy which defines six key goals, including “reducing the availability and supply of tobacco” (22; 23). To reduce the accessibility of tobacco to youth, the following objectives were established:

- review the feasibility and potential public health benefits of licensing schemes for tobacco outlets;
- develop a national model identifying best practices in sales-to-minors programs, addressing community and retailer education, legislative options, penalty systems, monitoring, using effective compliance checks, and enforcement;
- evaluate the effectiveness of access strategies in reducing the illegal sale and supply of tobacco to minors; and
- prohibit self-service vending machines.

New Zealand

New Zealand’s *Smoke-Free Environments Act 1990, Section 30*, includes a range of policies to restrict the sale of tobacco to youth:

- Sales and distribution of tobacco to minors under 18 are prohibited;
- Retail signage is specified;
- Vending machines are restricted to places where minors are prohibited by law;
- Free distribution of tobacco is banned;
- The minimum pack size of cigarettes is 20;
- Retailers can be fined a maximum of \$2000 for selling to a minor, having a vending machine in a place frequented by minors, or not having a sign.

The legislation does not require retailers to verify the purchaser’s age. In addition, there are no restrictions on the age of the clerk, on self-service displays, on the place of sale, or on mail order or electronic sales. There are no penalties for minors attempting to purchase tobacco.

According to Dr. Murray Laugesen, with Health New Zealand, the youth access provisions are not effective “unless possibly it would have been worse otherwise.”

Although enforcement means that fewer youth buy tobacco from retailers, more are getting it from social supplies. The law is being amended in 2002 to include a prohibition on supplying tobacco to youth, but Laugesen believes a media campaign is needed to dissuade families from supplying tobacco to kids (Personal communication with Murray Laugesen, February 2002).

Dr. Laugesen contends that the need for more radical measures has been obscured by the fact that tobacco sales-to-minors restrictions are supported by parents and have produced a marginal reduction in illegal sales. Laugesen is advocating for tobacco sales to be limited to specially licenced stores in urban centres only and via mail order. (Permitting mail order sales is not expected to be a problem in New Zealand, because youth under 18 don't get credit cards or chequebooks, and there is only one mailroom for incoming overseas mail.) By eliminating tobacco sales from the suburbs, enforcement could be concentrated on 300-500 outlets, rather than the current 8000. Laugesen postulates that this policy would cut in half the smoking prevalence of fifteen year-olds in households where neither parent smokes (Personal communication with Murray Laugesen, March 2002).

Nordic Countries

Norway, Sweden, and Finland have similar approaches to the issue of youth access to tobacco (92). All three countries have legislation prohibiting the sale of tobacco to youth under the age of 18 years and no penalty for youth who attempt to purchase, purchase, or possess tobacco. As well, all three countries have no restrictions on place of sale, sale of single cigarettes, package size, self-service displays, mail order or electronic sales. Both Norway and Finland prohibit the free distribution of tobacco. There are some variations in other legislative provisions, however.

Norway's *Act Relating to the Prevention of the Harmful Effects of Tobacco* is the most restrictive, prohibiting cigarette sales through vending machines and the sale of imitation tobacco products, and requiring that clerks under 18 be supervised by an adult and that the age of purchaser be verified. Retail signage is specified in the legislation. Retailers are fined for selling tobacco to minors, but the level of fine is not specified in the *Act*.

The Swedish Tobacco Act, Section 12, contains no restrictions on cigarette sales by vending machine, but the law requires retailers to verify the purchaser's age. Retailers convicted of selling tobacco to a minor may be fined, jailed for a maximum of six months, and/or the product may be confiscated. No signage at retail is mandated. In the first two years after passage of the sales-to-minors provision, retailer compliance increased from 9% in 1996 to 28% in 1999. It is important to note, however, that compliance checks using underage youth are not performed in Sweden, as under the law this would be considered "inciting" minors to break the law. In 2002, the *Act* was amended to require any enterprise that sells tobacco to register with its municipality,

which is authorized to levy a licensing fee from tobacco vendors. The revenue raised by this fee can be used to "provide information" or "supervise" retailers (114b).

In Finland, *Section 10* of the *Act on the Measures to Reduce Tobacco Smoking* restricts vending machines to licensed restaurants and other outlets that hold a permit and continuously supervise the machines. Retail signage is specified in the *Act*. The legislation allows for retailers to be issued a conditional fine for selling tobacco to minors, but the process is complicated and as a result very few retailers have been fined. The prohibition against tobacco sales-to-minors is enforced primarily on the basis of complaints (Personal communication with Mervi Hara, Director, ASH Finland, April 2002).

IV. Research on the Impact of Sales-to-Minors Laws

The following section provides an analysis of the research concerning the impact of sales-to-minors laws on key outcomes including illegal sales, the accessibility of tobacco products to youth, and youth smoking behaviour. A table summarizing the studies reviewed here can be found in Appendix B. Other pertinent research questions are also addressed in this section, including whether there is a compliance threshold above which the laws have an impact on youth smoking, what contribution sales-to-minors laws make to a comprehensive tobacco control strategy, and whether the implementation and enforcement of such laws is cost-effective laws compared to other prevention/cessation interventions.

Because much of the early research on sales-to-minors laws focused on the impact of different types of intervention on the level of retailer compliance, a great deal is now known about what legislative provisions, enforcement practices, and community supports are necessary to maximize retailer compliance with the law. (See Appendix A for a summary of this research.) Thus, the quality of the access intervention itself should be taken into account when interpreting whether or not the intervention had an impact on youth smoking attitudes and behaviour.

The fact that most studies of youth access interventions are based on measurements of retailer compliance with the law raises concerns, since various studies have demonstrated that the protocol followed during the compliance tests influences the outcome of the compliance testing. The following factors have all been shown to have an impact on the results of the compliance testing:

- the age, gender, and ethnicity of the test shopper;
- the self-confidence and believability of the test shopper;
- the time of day and day of the week;

- whether an adult supervisor enters the store with the test shopper;
- whether another adult is present in the store during the attempted purchase;
- whether the tobacco sale is completed;
- whether the test shopper lies about his/her age or shows identification;
- whether a random sample of stores is studied;
- whether the aggregate compliance rate is based on one or more checks of the same outlet.

In his audit of the implementation of the requirements under the Synar Amendment, DiFranza found that even though the “confounding impact of age is well established,” adolescents were used for compliance testing who ranged in age from 10 to 19 years. DiFranza concluded that “states have a strong financial incentive to paint a rosy picture,” given that they risk the loss of federal funding for failure to meet the legislated compliance targets (34). The bottom line is that the significant variability in compliance testing protocols and their impact on the results mean that the data can be manipulated. Compliance tests are thus not a fair or accurate measure of either retailer compliance with the law or youth access to tobacco products.

In addition to the compliance check protocol used, there are other issues related to methodology that should be kept in mind when considering the findings of the individual studies, including the sample size and whether the study was controlled or uncontrolled. Controlled studies should be given the most weight, since they match intervention “communities” with “communities” of similar characteristics that do not undergo the intervention and then compare outcomes. Such scientifically rigorous comparisons help to identify changes that may be the result of confounding influences and not the intervention itself.

Illegal Sales

There is solid evidence that sales-to-minors laws that are adequately enforced do produce a significant decline in the proportion of retailers that sell tobacco to underage youth (48b; 103; 110). The programs that have proven most successful in reducing retail sales to minors have included stronger penalties and substantial community involvement (45; 71).

A systematic review by Stead and Lancaster of 27 studies including 13 *controlled* studies found that interventions with vendors can lead to large decreases in the number of retail outlets that sell tobacco to minors (110). Six of eleven controlled studies that assessed the impact of the intervention on illegal sales found that the intervention (warnings, active enforcement, education, media coverage) increased compliance. Five controlled studies did not show a difference in the level of retailer compliance between intervention sites and controls. However, the authors of several of these studies acknowledge that news of the enforcement operations had likely spread to the control communities, accounting for

the significant increase in compliance among retailers in control communities as well as intervention sites (26; 46).

Following the access intervention, illegal sales declined in all 14 *uncontrolled* studies reviewed by Stead and Lancaster, but the size of the impact varied, and there is some evidence that the impact declined over time.

Accessibility of Tobacco Products

Increasing retailer compliance does not necessarily mean reducing youth access to tobacco. Most research shows that even a significant increase in retailer compliance has little or no impact on young people's *perceived* access to tobacco products. The research indicates that youth access to tobacco in a given jurisdiction includes far more than the proportion of tobacco vendors that sell to minors. Other factors that determine youth access to tobacco include the availability of tobacco from the following sources:

- retailers in neighbouring communities;
- self-service tobacco displays;
- vending machines;
- theft from smoking parents, self-serve displays, stores;
- social sources, including friends and parents;
- third party sales, including older friends, acquaintances, and strangers (32).

Various studies show that in communities where high levels of retailer compliance have been achieved, third party sources of tobacco become more important (25; 32; 46; 52).

Stead and Lancaster postulate that the density of vendors in a given community may be a factor in determining the availability of tobacco to youth (110). Cummings likewise suggests that efforts to increase retailer compliance rates may have a greater impact on youth smoking behaviour in smaller, more isolated communities (25).

A controlled study by Rigotti and colleagues of six Massachusetts communities found that enforcement substantially increased retailer compliance and reduced illegal sales to minors but did not change adolescents' perceived access to tobacco. Although compliance in the enforcement communities reached 82%, just over half of youth (53%) in enforcement communities said they hardly ever failed to buy tobacco when they tried, and 70% of youth claimed to be successful most of the time (103).

In contrast to other studies, a detailed analysis of the 1996 and 1999 California Tobacco Surveys by Gilpin and colleagues found a significant decline in adolescents' perceived ease of obtaining cigarettes, either a few at a time or by the pack, across all demographic groups and all categories of teen smokers (50). During this period, several things changed

which could have affected youth access to tobacco—the state conducted compliance checks; fines were increased; youth smoking decreased, and both the state Tobacco Control Program and the tobacco industry conducted media campaigns focusing public attention on the law prohibiting minors’ access to tobacco. Local interventions to reduce tobacco sales-to-minors were also an integral part of the Tobacco Control Program.

The greatest decrease in the perceived ease of buying a pack (61% decrease) occurred among the youngest age group, 12- and 13-year-olds. In 1999 only half of experimenters and occasional smokers thought it would be easy to buy a pack (vs. 73% and 87%, respectively, in 1996). The authors conclude that “the decrease in perceptions that it is easy to buy cigarettes may play a role in preventing progression from experimentation to daily smoking.”

According to the 1999 California tobacco survey, less than 10% of ever-smokers *usually* bought their own cigarettes, significantly fewer than in 1996. Almost all adolescents (95%) who were *given* cigarettes got them from individuals under 21 years old. Gilpin and colleagues conclude that “until peer approval of smoking and sharing cigarettes is reduced, it will be difficult to significantly reduce adolescents’ access to cigarettes.”

Based on their simulation model of youth access interventions, Levy and Friend conclude that “the ability to substitute these non-retail sources for retail access sets limits to the extent to which youth access policies can be expected to reduce youth smoking.” The model found that total retail compliance produces a reduction in youth tobacco use of only 10%. However, when alternative sources are eliminated—via a ban on vending machine sales and/or self-service sales—the impact on youth tobacco use is far greater. Levy and Friend estimate that a ban on vending machine and self-service tobacco sales would produce a 7.6% drop in youth smoking. (These conditions have existed in Canada since 1997, when the federal *Tobacco Act* limited vending machines to adults-only establishments and prohibited self-service tobacco sales.) According to the model, complete retailer compliance together with a vending machine ban would produce a 22% drop in youth consumption, and total compliance plus elimination of both vending machine and self-serve sales would result in a 30% drop in youth tobacco use (82).

Focus groups of youth smokers conducted by DiFranza and Coleman corroborate the conclusion that a ban on self-serve displays contributes to reduced access. “Youths reported that shoplifting was much easier before local laws restricted self-service displays.” Without self-serve displays, the theft of tobacco requires the clerk as the perpetrator or accomplice (32).

Youth Smoking Behaviour—Prevalence, Consumption, Initiation

To date, only a handful of studies have attempted to assess the impact of interventions to control youth access to tobacco on youth smoking behaviour. This section provides a

summary of these studies, organized by type of study. In addition to five controlled and seven uncontrolled studies, Fichtenberg and Glantz conducted a meta-analysis of eight studies, which includes all five of the controlled studies. Stead and Lancaster undertook a major review of 27 studies of access interventions, eight of which are relevant to the question of the impact of access interventions on youth smoking rates. Levy and Friend's simulation model predicts the impact of changes in various youth access policies on different outcomes, including changes in youth tobacco use. One study by Siegel addresses the impact of access intervention on smoking initiation among adolescents.

Meta-analyses

Fichtenberg and Glantz conducted a meta-analysis of studies on youth access interventions in order to estimate the association between these programs and youth smoking prevalence (43). The criteria for inclusion were studies that either reported both compliance and prevalence data and/or reported youth smoking rates in intervention and control communities. Eight studies fit the criteria and were included in the meta-analysis (3b; 7b; 25; 38b; 45; 71; 103; 109). All eight studies measured retailer compliance using "sting operations," in which underage teens attempted to buy cigarettes, and measured youth smoking rates using school-based surveys.

The interventions varied from simple enactment of a law, to retailer and community education, to education combined with active enforcement of the law. Three of the eight interventions analyzed did not have an enforcement component. Fichtenberg and Glantz found no relationship between the level of retailer compliance and either 30-day or regular smoking prevalence. They found no evidence that an increase in compliance is related to a decrease in either 30-day or regular smoking among youth. They also found no evidence of a compliance threshold. The authors found no significant difference in youth smoking in communities with access interventions compared with control communities. They recommend that tobacco control advocates abandon this strategy.

Controlled Studies

In a two-year controlled study, Rigotti and colleagues assessed the impact of active enforcement of tobacco sales laws in three Massachusetts communities on youth access and smoking behaviour and compared the results to three matched communities with no active enforcement (103). Rigotti found that compliance was considerably higher in the intervention communities than in the control groups (82% vs. 45%), but self-reported access to tobacco declined only slightly and did so in both intervention and control communities. Contrary to what was expected, prevalence of current tobacco use increased marginally in the intervention communities but remained stable in the controls.

Rigotti emphasizes that although her study found no difference in smoking behaviour in communities with greatly increased compliance, “this cannot be interpreted as evidence that enforcing tobacco-sales laws doesn’t alter young people’s smoking behavior, because enforcement also failed to reduce young people’s self-reported access to tobacco.”

A three-year controlled study by Altman and colleagues of four rural communities in Monterey County, California, found retailer compliance increased to 100% in the intervention communities and 61% in the controls (3b). The intervention included merchant and community education, a series of test purchases, positive publicity for compliant retailers, but no enforcement. Smoking prevalence among those who were in 7th grade at baseline was lower in the intervention communities at years one and two, but the impact was not sustained to the end of the study.

Biglan and colleagues conducted a four-year, randomized, controlled trial of a comprehensive community-wide program to prevent youth tobacco use in eight pairs of small Oregon communities. “Project SixTeen” sites received either a school-based tobacco and other substance use prevention program in grades 6-12 or the prevention program *and* a comprehensive community program. A campaign to reduce youth access to tobacco was a major part of the community program, which also included media advocacy, youth anti-tobacco activities, and family communications about smoking. The access module included the mobilization of community support, retailer education, rewards for compliant clerks, positive publicity for compliant vendors, and feedback to store owners. Retailers were not penalized for non-compliance. Outcomes were measured by five annual surveys of 7th and 9th grade students (aged 12-15 years).

The Biglan study found that at years 1 and 4, weekly smoking rates were significantly lower in the sites receiving the community intervention than in sites receiving school-based education only. At year 4, sites receiving the community program had a 3.8% net decrease in youth smoking prevalence. Overall, there was no significant change in prevalence in sites receiving the comprehensive community intervention, versus a significant increase in youth smoking prevalence in the sites that received school-based education only. Biglan concludes that “the effect of the intervention was to prevent an increase in prevalence.” In addition, adolescent attitudes toward tobacco became more negative over time in the community intervention sites, but did not change in the education only sites.

In a randomized study by Forster and colleagues of fourteen Minnesota communities, the seven intervention communities with comprehensive access policies showed lower prevalence of daily, weekly, and monthly smoking among adolescents than the control communities (46). The intervention included community awareness and mobilization campaigns to gain support for a local ordinance prohibiting tobacco sales to minors and active monitoring of the enforcement effort after the ordinance was passed. Although the ordinances varied among the seven intervention communities, all included vendor

licensing, progressive penalties for non-compliance, and a vending machine ban. Most included a ban on self-service displays, a penalty for the clerk as well as the store owner, and mandatory compliance checks.

During the study period, compliance increased from 61% to 95% in the intervention communities. Among adolescents perceived availability of tobacco from commercial sources decreased; purchase attempts dropped; and daily smoking decreased by 28%. Forster concludes that the magnitude of change in daily smoking rates due to the access intervention was “considerably larger than the average effect sizes reported for school-based programs using social influence or social or other skills-focused curricula and equal to the effects reported by the most effective programs.”

Staff and colleagues conducted a prospective study in Australia’s Northern Sydney region to evaluate the impact of non-prosecutory enforcement of the law prohibiting tobacco sales to minors (109). Baseline and post-intervention surveys were administered to 12,500 students aged 12-17 from high schools in both the intervention and control regions. The intervention had a significant effect in reducing smoking prevalence among year seven students only.

Uncontrolled Studies

A small, uncontrolled study by Bagott and colleagues in Gateshead, UK, aimed to measure the impact of compliance checks on purchase success and smoking rates of minors (7b). A cross-sectional survey of grade 10 students in two schools (one intervention, one acting as the control) was conducted at baseline in May 1995 and post-intervention in May 1996. The intervention consisted only of a series of compliance checks of retail stores near the intervention school, with no consequence for non-compliant retailers. Although the test purchases found 100% compliance, few students reported ever having been refused a tobacco sale. (The article provides no information on the compliance check protocol followed.) There was no change in smoking prevalence at either school.

Several uncontrolled studies have found significant reductions in youth tobacco use as a result of access interventions that produced high rates of retailer compliance. The most often cited of these is the experience in Woodbridge, Illinois, where Jason found a sustained reduction in prevalence among high school students five years after implementation. Eighteen months post-implementation, compliance had increased by 30% to 95%, and the percentage of youth who smoked had dropped by 50%. Two years after the law was passed, prevalence among 7th and 8th grade students had fallen from 16% to 5%. Five years later the rate of regular smoking among high school students was 8.1%, just over half the rate found in neighbouring communities that did not regularly enforce access laws (69; 71). Critics of the Woodridge studies emphasize the unique

circumstances of this intervention, including the personal commitment of the police officer in charge and the small size of the community, which made it feasible to conduct quarterly compliance checks of each tobacco vendor.

Cummings et al examined the relationship between retailer compliance and smoking behaviour among 9th grade students in twelve communities in Erie County, New York between 1992 and 1996 (25). Following an aggressive enforcement program, six of the twelve communities achieved retailer compliance rates above 80%, with an average compliance rate of 89%. The study found that youth smoking rates were lower in communities whose level of retailer compliance exceeded 80%:

- Prevalence of past 30-day smoking remained stable in the six communities that achieved 80% compliance or greater, while increasing 18% in the others;
- Prevalence of frequent smoking declined 16% in the six communities with a compliance rate above 80%, while increasing 28% in the others.

The authors recommend that their findings be interpreted with caution as the communities with compliance rates above 80% include the smallest and most isolated communities in this study.

An intensive six-year intervention by Tutt and colleagues conducted an in the Central Coast region of New South Wales, Australia, involving retailer education, extensive publicity, and enforcement (119). The intervention produced significant changes in retailer compliance and youth smoking rates:

- Compliance increased from 69.1% in 1993 to 100% in both 1996 and 1999.
- The percentage of youth aged 12-17 who reported smoking at least monthly dropped 34% from 1993 to 1999 (from 25.9% to 17.1%). This compares to a marginal increase in the proportion of monthly smokers aged 12-17 in the state of NSW from 1993 to 1996 (from 24.7% to 25.1%). (At time of writing, monthly smoking figures for 1999 were not available.)
- Prevalence rates dropped significantly among all age groups, except 16-year-olds.
- The greatest reductions were among youth who smoked less than one cigarette a day or 1-5 cigarettes a day.

Early evaluations of the Florida Tobacco Program found substantial declines in current tobacco use among youth in the first two years of the Program—a 40% decline among middle school students and an 18% drop among high school students (8). For both middle and high school students, the greatest decreases in prevalence occurred among youth living in counties with the highest enforcement of access laws. This effect was not explained by demographic differences. In addition, 64% of middle school students and 42% of high school students reported that they were less likely to use tobacco products because of possible penalties. (Florida's law includes a variety of sanctions against minors for tobacco purchase and possession (123b).) Although not a controlled study, the

authors contend that the quasi-experimental design used for the study was as close to a true experimental design as may be possible to measure community wide interventions.

Similar to the findings in Florida, Chaloupka and Pacula analyzed data from the 1994 Monitoring the Future Surveys of over 37,000 adolescents and found enforcement of access laws to be an important contributor to a reduction in youth smoking. The authors determined that youth are less likely to smoke and that those who smoke consume less in states that have adopted comprehensive approaches to measuring retailer compliance with youth access laws (122). Chaloupka and Pacula estimate that “an ideal implementation of [the] Synar [Amendment] could reduce youth smoking by up to 18 percent” (126).

Reviews and Simulations

Stead and Lancaster conducted a systematic literature review involving 27 studies; of these, eight studies provided data to assess the impact of reduced tobacco sales to minors on youth smoking behaviour. Stead and Lancaster found that the intervention had a positive impact on youth smoking in 3 of 5 controlled studies (Altman 1999; Forster 1998; Staff 1998) and 3 of 3 uncontrolled studies (Jason 1991, 1996, 1999; DiFranza 1992; Hinds 1992). They found no impact in 2 of 5 controlled studies (Rigotti 1997; Bagott 1998) (103). Stead and Lancaster caution against concluding that access interventions are ineffective if no impact on prevalence is observed, since “effectiveness can only be assessed if tobacco sales are reduced.” The intervention needs to be rigorous enough to have a real impact on tobacco sales to youth (110).

Levy and Friend developed a computer simulation model, based on empirical research and the theory of perceived risk (to the retailer), to assess the impact of youth access policies (81; 82). The model includes substitution for other sources of tobacco, as retail sales to youth are restricted. The model predicts that a comprehensive youth access policy that includes sufficient compliance checks (four times per outlet per year), substantial penalties, and significant community involvement will reduce youth smoking rates by a maximum of 25%, when self-service displays and vending machines are also banned. The access policies were found to have the most impact on youth aged 10-17 within the first few years of implementation. The widespread availability of substitute sources, however, means that the ability of retail policies to reduce youth smoking is limited. Levy and Friend note that the effectiveness of one type of youth access policy depends on the presence and magnitude of other policies. “Differences in where youth obtain cigarettes as well as differences in their ability to substitute other sources may explain some of the variations in the results of studies of youth access policies” (82).

Smoking Initiation

A four-year longitudinal study by Siegel found that youth (aged 12-15 at baseline) living in a community with a tobacco sales ordinance were significantly less likely to progress to established smoking (18%) than youth living in a town without an ordinance (27%). An interesting paradox is that the study found no relationship between living in a town with a sales-to-minors law and adolescents' perceived access to tobacco products. Siegel speculates that the impact of the law is likely due more to differences in attitudes and social norms related to youth smoking among communities that passed a sales-to-minors ordinance, rather than a result of the expected reduction in youth access to tobacco in those communities (108).

Compliance Threshold

Some researchers have concluded that there is a “threshold” level of retail compliance above which there is an impact on youth tobacco use. Based on their simulation study, Levy and Friend conclude that high levels of retailer compliance (> 90%) are necessary before youth tobacco use is reduced, especially in urban areas with many tobacco outlets, because of the widespread availability of alternative sources of supply. According to their simulation, total retail compliance would produce only a ten percent reduction in availability of tobacco. Rigotti's Massachusetts study suggests that if there is such a threshold, it must be greater than 80% compliance (103). DiFranza concludes that “an enforcement program is not successful until merchant compliance exceeds 90%” (36). Likewise Forster postulates that “the level of reduction in purchase success achieved in our study [95%] [may be] what is necessary to effectively reduce youth access...” (46). Tutt and colleagues found that four years of sustained retailer compliance above 90% affected smoking rates among adolescents in all age groups (119). The meta-analysis conducted by Fichtenberg and Glantz, however, found “no visible evidence of a threshold effect after compliance reached a certain level (e.g. 90%)” (43).

Cost Effectiveness

DiFranza modeled the cost-effectiveness of implementing a vigorous Woodridge-style enforcement program in every state (33). The analysis included four different estimates of the cost per retailer for four compliance checks per year—\$50, \$150, \$250, \$350 (US dollars). Under the most expensive scenario, inspecting an estimated 543,000 tobacco vendors each quarter would cost a maximum of US\$190 million annually. Four different impacts on youth smoking rates were estimated—5%, 10%, 25%, 50%. The minimum

effectiveness required of enforcement programs to be cost-competitive with smoking cessation and screening for breast and colorectal cancers was calculated.

The cost effectiveness of implementing smoking cessation guidelines has been estimated at US\$2,587 per year of life saved discounted at 3%.⁷ Enforcement programs would exceed this level of cost-effectiveness for all but one combination of cost and efficacy. DiFranza and colleagues conclude that “to compete in cost-effectiveness with implementing smoking cessation guidelines, enforcement would have to produce a 5% reduction in adolescent smoking at a cost of no more than [US]\$250 per vendor.” Under the most costly enforcement scenario, an enforcement program that reduced youth prevalence by only 1% would cost US\$41,000 per year of life saved (discounted at 5%), comparing favourably to the cost of colorectal cancer screening (US\$47,000 per year of life saved, also discounted at 5%) but less favourably to the cost of mammography (US\$35,000 per year of life saved).

It should be noted that DiFranza’s estimates of the reduction in youth smoking prevalence due to enforcement of access laws are hypothetical and thus so too is his calculation of the cost-effectiveness of enforcement programs. Moreover, enforcement costs are compared to the cost of medical procedures performed under the American health care system. The costs for these procedures under a publicly-funded health care system as in Canada could be substantially different. The fact that these costs come from two entirely different budgets—health promotion/tobacco reduction vs. health care in Canada or private insurance companies in the U.S.—is a political reality that should also be taken into consideration.

Critics of DiFranza’s calculations argue that if such cost-effectiveness modelling is relevant at all, the real comparison to be made is between the cost-effectiveness of enforcement programs and other anti-tobacco interventions, such as tobacco tax increases, smoking bans in public places or workplaces, mass media counter-advertising, and cessation programs. With respect to cessation, for example, the Institut national de la santé publique du Québec (Public Health Institute of Quebec) estimates that a provincial toll-free quit line would cost \$325,000 and would result in 559 smokers having quit at one year, for a cost per ex-smoker of \$581. To match this level of cost per additional non-smoker/ex-smoker, enforcement of sales-to-minors laws would need to reduce youth smoking prevalence by approximately 15%, assuming enforcement costs of US\$150 per vendor per year. To match the cost-effectiveness of high-intensity counselling by a physician, enforcement would need to bring down youth prevalence by 18%. To match a Quebec Quit & Win contest, retail enforcement would need to bring down prevalence by

⁷ When estimating the cost-effectiveness of medical interventions, health economists take into account the fact that people (and governments) are less willing to pay for a benefit that is far off in the future than for a benefit that is immediate. For example, a patient might be prepared to sell off all their possessions and use up every last cent of their savings to avoid dying immediately, but refuse to spend any money at all to avoid dying from the same illness in 40 years' time. To reflect this time preference, economists traditionally discount future benefits at a set annual rate, such as 3%, 5%, or even 10%.

37%.⁸ With respect to taxation, a 10% increase in the price of cigarettes would cost government nothing and would produce an estimated 33,883 fewer smokers at one year!

Contribution of Access Laws to Comprehensive Approach

There is a growing body of evidence that comprehensive approaches that include prevention, protection, and cessation interventions *do* produce measurable reductions in smoking rates among adults and teens (9; 12; 122; 126). The most comprehensive and successful programs have been implemented in California, Massachusetts, and Florida, where changing the social norms related to tobacco use was a key goal of the programs. In all three states, interventions at both the state and local levels to reduce youth access to tobacco have also been a major component of the programs (8; 12; 126).

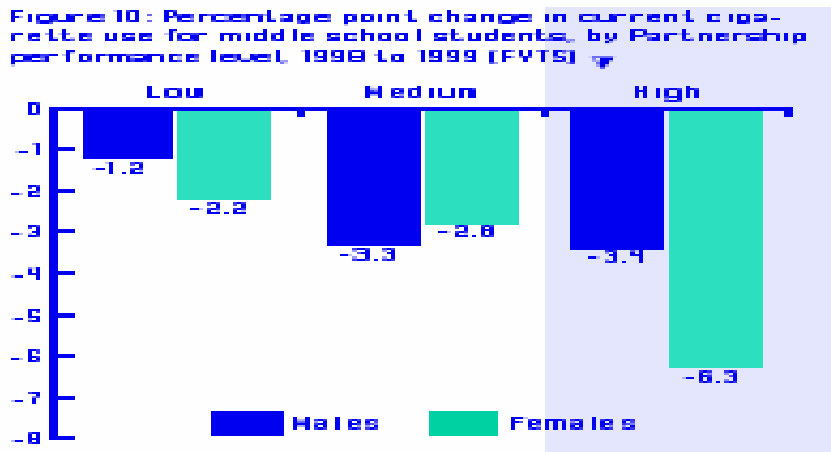
Early evaluations of the Florida Tobacco Program have found that the declines in smoking prevalence among youth correlate to the effectiveness of the community coalitions. The greatest declines in smoking rates occurred among middle and high school students living in a county whose Community Partnership was rated “excellent” or “average” (122). Community Partnerships in each county are required to develop an annual work plan with action steps corresponding to each of the four goals of Florida’s Tobacco Program, including reducing the availability and accessibility of tobacco to youth.

⁸ We base these comparisons on several simplifying assumptions:

- a) That young people who have not begun to smoke by age 17 will not begin to smoke later (the assumption DiFranza makes to allow comparison with non-tobacco clinical interventions);
- b) That smokers who quit and who have not relapsed at 12 months have in fact quit permanently;
- c) That it is equally cost-effective to prevent one case of tobacco addiction as to get one smoker to quit.

In fact, none of these assumptions is entirely correct:

- a) Some people do begin to smoke at age 18 or later, so DiFranza’s scenarios understate the cost of sales-to-minors interventions.
- b) Relapse does occur after 12 months, so the INSP numbers underestimate the cost of getting a smoker to quit permanently.
- c) Cessation in middle age has a much more immediate impact on mortality than prevention of smoking uptake by youth, so by normal accounting principles, interventions to prevent youth uptake need to be substantially discounted for comparison purposes. On the other hand, a lifelong non-smoker will have a longer life expectancy than an ex-smoker, biasing the comparison in the other direction.



Some researchers postulate that implementing access programs may have a greater impact on decreasing the social acceptability of youth smoking than on reducing youth access to tobacco. The findings in Forster's Minnesota study, for example, "suggest that refusals by sellers at the time of purchase attempts by young people do not account for the lower adolescent smoking rates observed in the intervention communities." Forster concludes that "in addition to the policy and practice changes and law enforcement efforts, the mobilization process changed perceptions of availability and (very likely) community norms about tobacco sales to and use by youth" (46).

In assessing a range of interventions to reduce youth smoking, Willemsen and de Zwart conclude that a combination of six measures would produce the greatest impact on youth smoking: a major increase in the price of tobacco; a complete advertising ban; intensive mass media education aimed at youth; state-of-the-art school-based education; the restriction of tobacco sales to tobacco-only stores and a ban on vending machine sales; and improving product labelling and banning sales in small packages (130). Based on a review of only three studies (Jason 1991; DiFranza 1992; and Rigotti 1997), Willemsen and de Zwart recommend that age-of-sale laws should not be implemented, finding that they are difficult to enforce and therefore have little impact and that they give rise to the "forbidden fruit" phenomenon among adolescents. Two of the three studies Willemsen and de Zwart reviewed, however, did show a positive impact on youth smoking and there is no evidence in the literature of a "forbidden fruit" effect of access interventions.

Another key element of the comprehensive approach that has been added in recent years to the traditional goals of prevention, protection, and cessation is that of denormalization of the tobacco industry (111; 122). Efforts to reduce youth access to tobacco could also reinforce the goal of denormalizing the industry by emphasizing how tobacco companies profit from illegal sales to minors, continue to supply delinquent retailers with tobacco products, undermine campaigns for effective local sales-to-minors laws, and support

sham programs like “Operation I.D.” and “It’s the Law” that are designed to have no real impact on youth tobacco use.

Other Impacts

Studies show that how youth obtain their cigarettes varies with their age. Younger adolescents are more likely to get cigarettes from social sources, vending machines, and shoplifting and are less likely to purchase than older teenage smokers (45). Forster observed that few 8th grade ever-smokers relied on retail purchases, whereas almost half of 10th grade ever-smokers have bought tobacco from a store. However, analyses of social sources reveal an important link to retail sales. As Forster emphasizes “the apparently high reliance on social sources among this group masks the contribution of businesses to social avenues of acquisition... [T]obacco obtained from commercial sources by underage youths has an effect on teenage smoking greater than just the buyer, because it serves as a source for nonbuyers as well.” Adolescents whose most recent source of tobacco was commercial were 73% more likely to give to another adolescent than those acquiring tobacco from a social source (47). DiFranza likewise points out that retail sales are important indirect sources of tobacco for younger smokers, since they typically get cigarettes from older adolescents who in turn buy them from stores. A survey of 539 adolescents found that 90% of the adults who purchased tobacco for minors were less than 21 years old (32). Levy and Friend conclude that social sources may be affected by retail access policies in several ways: they may discourage adults and youth aged 18-20 from smoking; they may discourage parents from sharing cigarettes with their children; and they may result in more public support for fining older adolescents who give or sell tobacco to minors (81).

Summary of Findings

There are very few studies that examine the impact of interventions to prevent tobacco sales to minors on youth smoking behaviours. Furthermore, there is considerable variation in the quality of the interventions studied, despite the fact that the research has shown for some time that substantial and sustained increases in retail compliance require regular enforcement with stringent penalties. The large number of tobacco vendors in most communities suggests that retail compliance must approach 100% to reduce the accessibility of tobacco to youth. Moreover, the widespread availability of alternative sources of tobacco—vending machines, theft, and social sources—means that it is very difficult to reduce youth *access* to tobacco products by controlling over-the-counter retail sales alone.

A thorough review of the research leads to the conclusion that the evidence regarding the impact of access interventions on youth tobacco use is mixed and inconclusive. Most access interventions did not have any impact on youth smoking rates. The access

interventions that did produce a decrease in youth smoking prevalence achieved very high rates of retailer compliance (greater than 90%) and were comprehensive community-based initiatives, involving a well-drafted law, regular compliance checks, meaningful penalties for non-compliance, and strong community involvement and support.

V. Arguments Raised By Tobacco Control Advocates

In addition to reviewing the scientific literature on youth access interventions, the research included reviewing the related discussions over the tobacco-specific, controlled listserve, GLOBALink, over the past few years, posting a set of questions over GLOBALink and reviewing the responses, and discussing the issues with tobacco control advocates. This section provides a summary of the other factors that tobacco control advocates believe should be taken into account when assessing the merits of interventions to reduce youth access to tobacco.

In Support of Access Interventions

1. Existing programs in most jurisdictions are inadequate.

Various researchers and advocates emphasize the fact that very few jurisdictions have either implemented or sustained a comprehensive program to reduce tobacco sales to minors, despite the existence of a significant body of research that defines the critical elements of such a program. Most jurisdictions have failed in one or more of the following areas:

- the legislative provisions are not comprehensive or undermine effective enforcement;
- enforcement is inadequate for one or more reasons—failure to base enforcement on regular, announced compliance checks; too few compliance checks conducted; unrealistic compliance check protocol;
- the penalties are not severe enough to serve as a deterrent.

The belief is that a comprehensive program to control tobacco sales to minors, based on best practices, would increase compliance sufficiently to affect youth smoking behaviours. The advocates of this belief point to the interventions that achieved retailer compliance of at least 90% and also produced a measurable reduction in youth tobacco use.

2. Access laws must be implemented as part of a comprehensive plan.

Supporters of sales-to-minors laws believe that they are held to a higher standard than other interventions, since they are often rejected for failing to show single-handedly a direct impact on youth smoking. When implemented alone, most youth-focused interventions—including school-based education and prevention programs; peer education and counselling; community-based activities such as prevention education, youth advocacy/empowerment programs, youth coalitions; school smoking restrictions; and youth cessation—likewise do not significantly impact youth smoking prevalence.

3. Tobacco industry interventions minimize the effectiveness of access programs.

In the U.S. the tobacco industry has been very active on the issue of youth access to tobacco, working to ensure state-level laws are ineffective and enforcement is hampered and to pre-empt communities from passing more stringent local ordinances. In Canada, the tobacco industry has been involved through its Operation I.D. and Operation I.D./ School Zone programs. The programs focus on retailer education and include no sanctions for violations, and thus have no meaningful impact on youth access to tobacco products. Numerous activists believe that the involvement of tobacco companies in the youth access issue is not an argument to abandon the issue to their complete control, but rather an indication that the health community needs to work harder on this front to ensure that the interventions put in place are not weakened or rendered meaningless by industry interference.

While some activists believe that the tobacco industry advocates for youth access interventions because they generate positive publicity and goodwill for the companies while being ineffective in deterring youth smoking, the opposite argument can also be made. It is conceivable that tobacco companies have been so active on this issue because they recognize the potential of an effective access program to reduce youth smoking, and they want to ensure that effective measures are not implemented.

4. Youth access interventions are politically palatable.

Interventions focused on preventing tobacco sales to minors are popular with both the public and policy-makers. They avoid many of the controversies to which other tobacco control interventions are often subject, such as the autonomy of adults to choose their own behaviours and the rights of non-smokers versus those of smokers (45). The issue can also be framed as one of child protection, attracting a different and much broader constituency of support than traditional tobacco control issues.

Thus access interventions can serve as a relatively easy way to get policy-makers to support tobacco control measures. As Matt Myers, President of the National Center for

Tobacco-Free Kids states, “programmes that highlight the impact of the tobacco industry’s actions on children heighten public concern about tobacco and increase the willingness of government officials and civic leaders to act” (90). While acknowledging that current access programs are inadequate, some advocates see them as a valuable stepping stone to more stringent restrictions on tobacco sales. There is a logical policy progression from enactment of a “basic” law prohibiting tobacco sales to minors to approval of more rigorous controls on tobacco sales, such as banning self-service displays and limiting the type or number of retail outlets.

5. There is a false dichotomy between youth and adult interventions.

Various researchers and activists argue that pitting “youth” strategies against “adult” strategies is counterproductive and not supported by the research, since virtually all interventions affect both youth and adults, although not necessarily equally. Even interventions designed to prevent youth access to tobacco products also affect adults, such as merchants, parents, and other adult family members who are sources of tobacco for minors. Some activists believe that the political palatability of interventions aimed at youth smoking help to increase public and governmental concern about tobacco use in general.

6. Access programs could be made self-financing.

The cost of enforcement, both in actual dollars and relative to the cost of other tobacco control interventions, is a concern for many within the tobacco control community. However, the high cost of effective enforcement could be addressed by the establishment of a self-financing enforcement system:

- by requiring all tobacco retailers to be licensed and setting the licence fees high enough to cover a significant proportion of enforcement costs;
- by increasing penalties for non-compliance and earmarking the fines to pay for enforcement; or
- by imposing financial penalties on tobacco distributors and manufacturers who continue to supply tobacco to non-compliant retailers and directing the fees to the enforcement budget.

7. There are other potential downsides of curtailing access programs.

Many members of the tobacco control community believe that laws that prohibit the sale and supply of tobacco to youth send an important message regarding the dangers of the product, and thus if nothing else, the enforcement of such laws serve as a form of risk communication. By the same token, weakening the enforcement of access laws could send the message to young people that tobacco use is not a serious health issue.

Some tobacco control activists believe that curtailing or ending enforcement of sales-to-minors laws could result in a net loss of funding for tobacco control. They argue that given the intense competition for limited government funding in general, and funding for health interventions in particular, the money earmarked for enforcement would not necessarily be redirected to other tobacco control interventions.

In Opposition to Access Interventions

1. *The cost of enforcement is not justified by the questionable efficacy of access laws.*

Various researchers and activists argue that because the research does not demonstrate a causal relationship between compliance with sales-to-minors laws and reductions in youth smoking, the considerable amount of money devoted to the implementation and enforcement of access laws should be redirected to strategies that have proven effective.

Even researchers who find some correlation between increased compliance and decreased youth tobacco use nonetheless question the balance between the efficacy and the feasibility of implementing programs aimed at increasing retailer compliance with sales-to-minors laws. In contrast, they point to the availability of several *proven* tobacco control strategies that cost very little or nothing to implement.

2. *Access strategies convince policy-makers and the public that the problem of youth smoking has been addressed.*

Sales-to-minors laws are highly supported by both policy-makers and the public, making them relatively easy to put in place. However, the passage of a law prohibiting tobacco sales to minors does not necessarily even mean that tobacco sales to youth will be diminished, let alone the larger problem of youth smoking addressed. For one thing, the tobacco industry plays a large role in lobbying for counterproductive access laws and in setting up retailer programs ostensibly designed to increase retailer compliance with the law but known to be completely ineffective. These programs lead politicians to believe that the problem of youth smoking and its solution lie with the retailers not the tobacco manufacturers, putting the focus on the wrong source of the epidemic. Furthermore, the presence of a law to prohibit tobacco sales to minors and the high visibility of the tobacco industry's campaign promising the cooperation of retailers in keeping tobacco away from minors can deter policy-makers from supporting tougher interventions targeting the tobacco companies, such as higher tobacco taxes, that have been proven to work.

3. *The tobacco industry's involvement in access interventions undermines effective tobacco control policies.*

For many tobacco control advocates, the fact that the tobacco industry is an active supporter of interventions ostensibly designed to prevent youth access to tobacco raises a red flag. The tobacco industry's involvement is a problem on several fronts:

- a) Industry-run programs such as "Operation I.D." and the U.S. equivalent "It's the Law" give the tobacco-makers credibility as good corporate citizens. Legislators and the public are less likely to support strict or punitive measures against tobacco companies when they are regarded as responsible manufacturers who are genuinely concerned about youth smoking.
- b) Programs such as "Operation I.D." also provide tobacco companies with the opportunity to co-opt respected community leaders, such as the Chambers of Commerce and the Boys and Girls Club, into becoming members of their local coalitions. In the process, the tobacco companies win credibility and often succeed in neutralizing local tobacco control coalitions.
- c) The tobacco industry has succeeded in weakening the provisions of access laws in the U.S., in particular by advocating for state preemption of local policy initiatives. Preemption provisions prevent communities from enacting more stringent policies and an important "testing ground" for new measures is lost (3).
- d) Arguably the most troubling outcome of tobacco industry involvement in access issues is the industry's establishment of a grassroots network through their retailer training programs. This network of local retailers has provided the industry with a broad-based and effective early warning system to identify emerging tobacco control policy developments. In addition, the retail network provides the industry with a legitimate and sympathetic 'front group' to advocate against policy measures (85b).

4. *Very few jurisdictions have implemented and sustained effective enforcement of sales-to-minors laws.*

Although many jurisdictions have passed sales-to-minors laws with ease, it is a much greater challenge to pass a law with adequate legislative provisions and to put in place and sustain over time effective enforcement practices. This challenge should not be underestimated, since very few jurisdictions have passed comprehensive access laws and supported them with stringent enforcement, and the relatively few jurisdictions that have succeeded in doing so are almost exclusively small- to medium-sized communities. The challenges include convincing the public and policy-makers of the need for such strict policies that require significant annual expenditures. The challenge is even greater in face of organized opposition from retailers and more "reasonable" proposals from "concerned" tobacco companies that are spending millions of dollars to be seen as part of the solution.

5. Tobacco control should focus on interventions that affect adult smoking.

A significant proportion of the tobacco control community believe strongly that teenage smoking rates are unlikely to decrease substantially until adult rates do so first. Because adolescence is a period of transition to adulthood, any message or strategy that will be successful with adolescents must *not* be seen to be specifically targeting youth (61). Thus any strategy that stresses the importance of not smoking simply because you are not old enough (still a teenager) is doomed to fail. Glantz, for example, believes that the message ‘we don’t want kids to smoke’ is translated by adolescents into the message ‘kids shouldn’t smoke, but if you want to look and act like an adult, then do it.’

6. Interventions that target the population as a whole have the most impact on youth.

Many tobacco control activists believe that there is a lesson to be learned from the war on illegal drugs, where supply side approaches have proven not to work. Rather than focusing on keeping retailers from supplying tobacco to kids, the focus should be on keeping kids from *wanting* tobacco. Since adolescents strive to be like adults, one of the best ways to reduce *demand* for tobacco among youth is to change the social norms regarding tobacco use. Public place and workplace smoking restrictions have proven very effective at diminishing the social acceptability of smoking and reducing tobacco use among both youth and adults. Likewise tobacco tax increases have proven to lead to measurable decreases in prevalence and consumption among both youth and adults..

VI. Considerations for Further Research

Stead and Lancaster recommend that a prospective study be conducted to test the hypothesis that there is a threshold level of compliance (greater than 80%) above which youth access to tobacco products can be decreased (110).

The published studies are inconsistent on the subject of whether enforcement has a differential impact on youth who smoke occasionally versus those who smoke regularly (25). Siegel found that the presence of a local sales-to-minors law had the greatest deterrent effect on youth at the earliest stage of smoking initiation (108). The simulation by Levy and Friend found a greater impact on younger smokers (81; 82). Clearly more research is needed to understand better the impact of the presence and enforcement of a sales-to-minors law on youth according to their smoking status (non-smoker, experimenter, occasional smoker, regular smoker).

Similarly some research suggests that enforcement of sales-to-minors laws may have a greater impact on youth living in places where there are fewer tobacco outlets, such as in rural or smaller communities. More research is needed to understand the differential impact of increased retailer compliance on youth depending on whether they live in an urban or rural environment. Some researchers believe that the density of retailers in a given jurisdiction is a key variable, and thus the proportion of retailers willing to sell tobacco to minors in a given area is less important than the absolute number of retailers willing to sell (110, 119). This hypothesis also calls for further study.

Some research has documented an apparent paradox in that youth smoking declines following the implementation of an access intervention, while perceived access to tobacco does not. Researchers speculate that the drop in youth smoking is due to the changed social acceptability of youth tobacco use as a result of the effort to pass the local sales-to-minors law or as a result of its implementation. Research is needed to explore these *demand-side* impacts of what is ostensibly a *supply-side* intervention.

VII. Conclusions

From the extensive research that has been done in preparation of this report, it is apparent that there are more questions than answers concerning the impact of interventions to prevent tobacco sales to minors. Nonetheless, it is possible to draw some meaningful conclusions from the research that can inform future policy-making on this issue. The conclusions below are listed in order of their scope, from the most specific to the most comprehensive.

1. The research is clear on what legislative and enforcement provisions are necessary to maximize retailer compliance with tobacco sales-to-minors laws. However, in most jurisdictions the legislative provisions and/or the enforcement procedures followed have failed to comply with identified “best practices” and thus have failed to increase retailer compliance to the extent that youth access to tobacco products is reduced. (See Appendix A for more information.)
2. The focus in most studies of youth access interventions has been on retailer compliance. There are two technical problems with this approach:
 - a) Compliance is measured using underage youth as test shoppers. The protocol used in these compliance checks rarely reflects real life, and therefore the results seldom produce a realistic measure of the willingness of retailers to sell tobacco to minors.
 - b) Retail sales are only one component of the problem of youth access to tobacco. Access includes the availability of other options such as self-serve displays; vending machines; social sources, including parents, older teens of legal age, and strangers; and theft. These sources need to be included in interventions and research.
3. The most significant shortcoming of the current reliance on retailer compliance as the outcome of youth access interventions is that the studies do not assess the most important outcome, that is, the impact of the youth access intervention on youth smoking behaviours.
4. Studies show that where high levels of retailer compliance are achieved, youth rely more heavily on social sources of tobacco. Most research, however, fails to address the apparent contradiction inherent in the findings of these studies whereby
 1. youth rely more on social sources when tobacco is less accessible from commercial sources, but
 2. social sources ultimately had to purchase their tobacco, and yet
 3. the actual (or perceived) accessibility of tobacco to youth did not decline despite a significant decline in availability from retail outlets.

The relationship between reduced commercial availability of tobacco to minors and the availability of tobacco to minors through social sources needs closer examination.

5. Very little research has examined the attitudes and beliefs that underlie the community norms related to youth smoking and to the sale and supply of tobacco to minors. It is known, for example, that parents are a primary social source of cigarettes for adolescents, but it is not known what beliefs contribute to the parents' willingness to give tobacco to their children. A greater understanding of these attitudes and beliefs could facilitate the development of more effective interventions to control youth access to tobacco in the broadest sense.
6. A number of studies have shown that broad-based community interventions aimed at reducing youth access to tobacco tend to have the greatest impact, but the impact on youth smoking does not always correlate to a decrease in actual or perceived access to tobacco among adolescents. Researchers speculate that the change in youth smoking may be the result of changed community norms. Interventions need to be designed to better exploit the possible demand-side effects arising from this supply-side intervention.

The Bottom Line

A thorough review of the research leads to the conclusion that the evidence regarding the impact of access policies on youth tobacco use is mixed and inconclusive. Most access interventions did not have any impact on youth smoking rates. The interventions that did produce a decrease in youth smoking prevalence achieved very high rates of retailer compliance (greater than 90%) and were comprehensive community-based interventions, involving a well-drafted law, regular compliance checks, meaningful penalties for non-compliance, and strong community support and involvement.

Given the limited evidence of the effectiveness of youth access interventions in reducing youth smoking, the cost of implementing and sustaining a comprehensive, community-based access intervention, including the cost of regular enforcement, must be weighed against the cost-effectiveness of other interventions and approaches.

Appendix A: A Model Program to Decrease Tobacco Sales to Minors

This section summarizes what the research has found to be the necessary legislative provisions, enforcement practices, and community supports to maximize retailer compliance with laws prohibiting tobacco sales to minors. While most of the recommendations focus on encouraging retailers to obey the law, several other measures have been found to further impede youth access to tobacco products.

In 1994, the influential document *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youth* devoted a chapter to access issues. The long list of recommendations build on the model access law developed by the U.S. Department of Health and Human Services in 1990 (65):

1. The federal government should set national goals for reducing youth access and should provide resources to help states and communities reach these goals.
2. A federal agency should serve as a resource centre for information, models, and technical assistance for implementing access restriction programs.
3. State eligibility for CDC grants for tobacco control activities should be tied to their enforcement of youth access restrictions. The states should set up an independent evaluation of retailer compliance.
4. State laws should *not* pre-empt local governments from adopting stronger laws.
5. States should set the minimum age of sale at 18. Minors should not be penalized for the purchase or possession of tobacco products.
6. States should establish a licensing system for tobacco vendors. Licensing fees should be earmarked for enforcement and should be set high enough to cover those costs.
7. Merchant education programs should be part of the access strategy.
8. Enforcement should include a graduated penalty system that includes licence suspension and revocation for repeat violations. Penalties should be imposed against business owners, not against store clerks.
9. The state public health agency should be given responsibility to administer the licensing system, collect fees, monitor compliance, and administer civil penalties for violations. State enforcement plans should maximize local participation.
10. Compliance checks, using 16- and 17-year-olds, should be the primary vehicle for monitoring compliance.

Other provisions

11. Tobacco vending machines should be banned.
12. Self-service tobacco displays should be prohibited.
13. Single cigarettes sales should be banned.
14. States and communities should adopt long-term strategies for reducing the number of tobacco outlets. Initial steps should include establishing tobacco-free zones around schools and banning tobacco sales in pharmacies.
15. Congress should enact a limited ban on the distribution of tobacco products through the mail. At a minimum, the law should prohibit *free* distribution, as well as redemption of tobacco coupons.
16. Research should be done on the following issues:
 - (a) retailers' motivation to comply with the law or to sell tobacco to minors;
 - (b) the cost-effectiveness of various enforcement approaches being developed in response to the Synar Amendment; and
 - (c) the sources and cost of tobacco products to youths.

Legislative Provisions

There is widespread consensus in the tobacco control community that legislation to prohibit tobacco sales to youth must include the following provisions (65; 135; 2):

- a prohibition on sale and supply to minors under the age of 18;
- a ban or severe restrictions on vending machines sales;
- a graduated schedule of civil penalties, including fines and other penalties;
- penalties primarily targeted at store owners;
- regular, mandatory compliance checks for each outlet that sells tobacco; and
- licensing of tobacco retailers, with licence suspension and ultimately revocation for repeated violations.

Licensing Tobacco Retailers

There is strong support within the tobacco control community for the mandatory licensing of all retailers who sell tobacco products for several reasons—for administrative efficiency, for policy consistency, and for enforcement efficacy (135; 2; 17; 49). It goes without saying that performing regular compliance checks of all tobacco vendors requires knowledge of who the vendors are. Officials with the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) believe that tobacco licensing programs that require regular renewals “afford states the best opportunity to develop accurate and complete statewide lists of over-the-counter and vending machine tobacco outlets” (49).

Australian researcher and tobacco control advocate Simon Chapman provides a persuasive rationale for the licensing of all tobacco retailers by making a tongue-in-cheek comparison between the current licensing requirements of other retailers and those of tobacco merchants:

“If you want to put up a shingle to file people’s corns and cut ingrown toenails, the NSW government doesn’t mind hitting you with an impost: it will charge you a podiatry registration fee of \$147. Somehow, podiatrists are small businesses that need this regulatory attention. If you want to sell alcohol in your restaurant, you have to apply for a liquor license, allow local businesses to appeal, go before a licensing magistrate, attend a course in the responsible service of alcohol and then pay \$500 in application and licensing fees. If you want to sell liquor in a pub, the government is comfortable creaming off an annual fee based on the volume you sell. If you want to sell nicotine patches or gums to help people give up smoking, you have to spend four years at University to train in pharmacy. But if you want to join in selling a product that kills more Australians each year than breast cancer, AIDS, suicide, murder, road deaths, diabetes and illicit drugs combined, the government has just made it easier for you [by eliminating the mandatory license requirement for tobacco vendors].” (Posting by Simon Chapman to GLOBALink, 17/11/99.)

There is widespread belief in the tobacco control community that suspending a retailer’s licence to sell tobacco products has a greater deterrent value than a monetary fine because the retailer stands to suffer a greater financial penalty—from the loss of tobacco sales as well as non-tobacco products, as smoking customers go elsewhere to buy their tobacco and other goods. As well, the public nature of the penalty sends a strong message regarding the importance of not supplying tobacco to minor (71; 95).

Enforcement

Protocol

Research has proven that regular, unannounced compliance tests using supervised and trained teens are the cornerstone of an enforcement program that is effective in increasing retailer compliance. Gilroy documented that “the only clear pattern or linkage between enforcement activities and compliance is in relation to compliance checks and compliance.... Jurisdictions which utilized ...compliance checks...experienced an increase in compliance” (52).

The age of the minors used as test shoppers, however, has been shown to have a significant impact on the level of compliance measured during compliance tests, with

retailer much more likely to sell to older teens. Jason strongly recommends that sixteen and seventeen year-olds be used where the legal age of sale is eighteen (69).

Concerns regarding the protocol used during compliance checks have been raised in the research for some time. A recent study by DiFranza concludes that “commonly used compliance check protocols are too artificial to reflect accurately the experience of underage smokers.” DiFranza recommends that test shoppers should be able to lie about their age and to show ID, and that they should either be smokers or non-tobacco users who are able to mimic the self-assurance of actual smokers attempting to buy cigarettes (30).

Funding

Various organizations have stressed the importance of an adequate and stable source of funding for enforcement, whether through general state or local tax revenues, tobacco licensing fees, tobacco taxes or surcharges, or other sources (65; 135; 2). In its seminal report on *Best Practices For Comprehensive Tobacco Control Programs*, the U.S. Centers For Disease Control (CDC) recommends that states spend between US\$0.43 and US\$0.89 per capita for the enforcement of youth access restrictions, retailer licensing, and other policies such as clean indoor air laws. States should also budget US\$150,000-\$300,000 per year for interagency coordination and integration of enforcement programs. This funding is in addition to federal enforcement funds (under FDA contracts this funding totalled between US\$400,000-\$600,000 per state or about US\$80 per compliance check). Actual costs per state vary depending on the number of retail outlets, the proportion of outlets in rural areas, and the proportion of outlets that are non-compliant and thus require follow-up checks (17).

In addition to the level of funding, another issue is the conditions under which funding is granted. The U.S. Institute of Medicine, the Synar Regulation, and Goss Gilroy Consultants all recommend that federal funding to the states/provinces for enforcement of access laws be tied to the achievement of specific performance measures (65; 53).

Frequency

There is considerable evidence in the research that compliance checks must be done regularly, since the deterrent value of any law is the result of the probability of getting caught times the penalty for violation. Radecki found that cities that enforced their legislation quarterly had higher compliance rates than those performing compliance checks only once per year. According to Radecki, compliance checks must be carried out at least twice per year to obtain acceptable levels of compliance:

“No community anywhere in the nation has routinely achieved buy rates of 20% or less, with checks (surveys) less than twice per year for ... tobacco sales to minors. However, 15 of 19 cities with checks two or

more times have achieved this. The other four are all twice per year cities and are all under 30%” (69).

Jason found that purchase success is inversely related to frequency of enforcement efforts and concluded that the most cost-effective enforcement schedule involves compliance checks of retailers every three to four months. Under a four-month enforcement schedule, illegal sales decreased by 60% (70).

Another reason for multiple compliance checks of each retailer is the finding that single measurements of compliance are not an accurate reflection of the proportion of retailers who sell tobacco to minors. A small study by DiFranza, for example, found that youths were successful in 33% of their attempts to purchase tobacco, suggesting that 67% of merchants complied with the law. However, the study included six compliance checks of each merchant, revealing that only 28% consistently obeyed the law by refusing to sell tobacco to minors (29b; 38).

Penalties For Non-Compliance

Retailers clearly benefit from selling tobacco to underage youth in terms of profits and the avoidance of negative reactions from customers who are refused a sale or asked for identification. Thus the penalties for non-compliance must be high enough that they serve as a real deterrent and are *not* considered merely another cost of doing business.

According to a study by the National Governors’ Association of state agencies involved in enforcing the Synar requirements, “the single most effective factor in reducing tobacco access to minors is the establishment of a statewide inspection and enforcement program that holds merchants and clerks accountable for their actions.” Some state officials believe that aggressive penalties assessed against retailers can be very effective in changing merchant behavior. The state of New York, for example, plans to begin confiscating merchants’ lottery licences for failure to comply with laws prohibiting the sale of tobacco products to minors (49).

Suspension of the retailer’s ability to sell tobacco is an important adjunct to monetary fines. Because cigarettes can be highly profitable, a licence suspension has a greater impact than a fine (71). The Ontario Ministry of Health believes that an individual sales suspension serves as a powerful means of educating the community at large:

“An automatic prohibition is more than just a penalty to the individual tobacco vendor; it can set the community agenda around tobacco access and use among minors. Local media can amplify prohibitions so they signal a clear message to other vendors and to the community that selling to minors will not be tolerated. The consequence is a shift in attitudes and the creations of conditions that lead to voluntary compliance” (95).

Experience has shown that if the community considers the penalties to be too severe, however, enforcement efforts may be discouraged and the judiciary may be reluctant to impose the penalties. In one community intervention, for example, Feighery found that judges suspended the sentences of merchants found guilty of selling to minors and either issued a nominal US\$50 fine or no fine at all. When interviewed, the judges explained that they were reluctant to establish criminal records for individuals with no prior history (in California selling to a minor is a misdemeanour), and they believed that a US\$200 fine was an unfair burden on store employees many of whom earned minimum wage (42).

Enforcement officers are frequently frustrated by the lack of understanding among judges of the seriousness of the offence. The case of a repeat offender in Saskatchewan provides a particularly telling example. Convicted of selling tobacco to a minor and fined \$500 in the morning, the retailer repeated the offence that same afternoon, even counselling the minor to hide the cigarettes. Given the vendor's blatant disregard for the law and the fact that the fine was clearly insufficient to act as a deterrent, the Crown asked for a \$2000 fine and a sales suspension or a \$3000-\$5000 fine for the second offence. The judge compared the offence to that of impaired driving, which he considered much more dangerous, with potentially much more serious repercussions. Accordingly, the judge issued the same fine for the second offence as he typically would for an impaired driving offence—\$750 (Personal communication with Lynn Koehler, Health Canada, March 2002). Despite the legislative provision providing for suspension of sales upon a second or subsequent offence and several requests from the Crown that one be imposed, no retailer in Saskatchewan has ever been issued a suspension.

While it is accepted that penalties for non-compliance need to be severe enough to serve as a deterrent, the correlation, if any, between the penalties imposed and the level of compliance achieved is not well understood. Research is needed to understand better what level of fine or length of sales suspension has the most impact on the willingness of tobacco vendors to obey the law and whether the impact varies according to the retailer's class of trade or other vendor characteristics.

Community Supports

Community support for access policies has been shown to play an important role in enhancing the impact of such policies. AC Nielsen observed that smaller-surface retailers, particularly gas stations and independent convenience stores, are less likely to sell tobacco to minors when another adult is present at the counter, suggesting a concern over potential reprisals from these customers (93). The consequences to non-compliant retailers are magnified if the retailers lose customers and community goodwill.

Community support also can influence how vigorously the enforcement agency undertakes enforcement and the severity of the penalties issued by judges (81). Howard found that local enforcement agencies are more likely to enforce access laws if they believe that

youth access to tobacco is a problem in their community; if there is more collaboration with other community agencies to enforce the law; and if they perceive fewer barriers to enforcement (62).

Forster speculates that the lower daily, weekly, and monthly smoking rates among youth in the seven intervention communities in her study may be due to the high level of community involvement in the issue of youth access to tobacco: “[I]t may be that an intensive community mobilization intervention is needed to change the perceptions and behaviours of young people” (46).

Looking at the flip-side of the issue, Landrine found that “community indifference to smoking among children may play an important but neglected role in minors’ access to tobacco.” Although adults were present in 66% of purchase attempts by minors (1686 attempts), they intervened only 10 times, and half of those interventions were to *help* the minor obtain cigarettes (77b).

Media Publicity

There is some evidence that community programs that provide positive reinforcement to merchants for complying with the law, including positive media exposure, improve retailer compliance rates, at least in the short term (11).

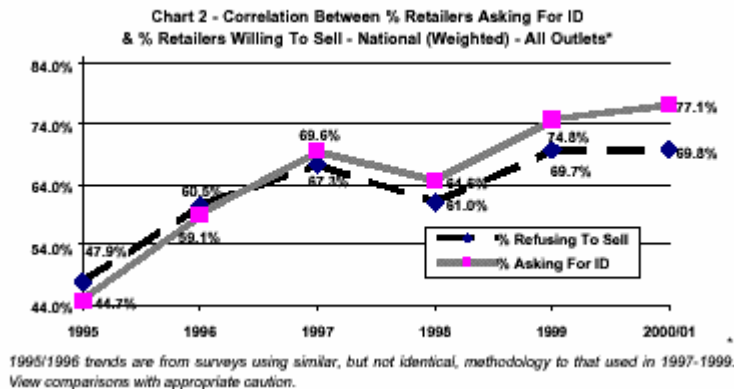
Likewise, negative publicity for retailers who break the law has been found to be a cost-effective means of enhancing enforcement efforts. Feighery concludes that using the media to demonstrate concern among parents and other community leaders over the problem of tobacco sales to youth sensitizes the police, prosecutors, and judges to the importance of the issue and the need for strong penalties (42). Goss Gilroy found that negative publicity for non-compliant retailers “plays an important role in improving compliance rates” (52).

In Western Australia, the protocol developed to assist Environmental Health Officers effectively enforce the sales-to-minors provisions of the law includes advising the media of a hearing and issuing a news release when a retailer is convicted of violating the law (63). (See Appendix B for sample news release.) According to Doug Tutt with the Central Coast Areas Health Services in NSW, publicity about the law, the reasons for it, and the results of enforcement are critical: “If you haven’t told the public story, you haven’t done the intervention.” Tutt believes the formula for success in achieving high rates of retailer compliance is simple. “[T]he first thing you need is commitment and courage.... And beyond that you need publicity, real enforcement, publicity and publicity and publicity and start the cycle again” (118).

Other Factors That Influence Compliance

Requesting Identification/Asking Age of Buyer

Numerous studies have observed a direct correlation between whether or not the clerk asks for identification and their compliance with the law. In Canada, national surveys of retailer compliance by AC Nielsen have consistently reported that “the first defense against retailers improperly selling tobacco to minors is getting them to demand proper age ID. Over the last four annual surveys, roughly ninety percent of those retailers asking for identification refused to sell when none was produced.” A troubling finding of recent surveys, however, is that the correlation between asking for ID and compliance has begun to weaken (93).



Landrine found a highly significant decline in sales to minors when retailers asked for ID and asked for age, although asking for ID had a greater impact (77b). Similarly Arday and colleagues found that only 8% of purchase attempts were successful when minors were questioned (usually about their age) compared to a 96% success rate when retailers asked no questions (6). A study by DiFranza yielded similar results (31). Several researchers have recommended that retailers be mandated to obtain identification from anyone appearing to be under the age of 25-30 years (6; 94; 103). This requirement was mandated by the FDA before its authority to regulate tobacco was struck down by the U.S. Supreme Court.

Age of Clerk

DiFranza found that teenage store clerks are a major source of tobacco for high school age smokers. “Teenage clerks sell to other teenagers, steal tobacco, and help their friends steal from their employers.” DiFranza observed that teenage clerks are six times more likely to sell tobacco to minors and recommends that consideration be given to prohibiting the sale of tobacco by individuals under 21 years of age (32).

Likewise AC Nielsen surveys have consistently shown that “clerks who are teenagers remain the most likely to sell tobacco to their underage peers,” with compliance rates for this age group only exceeding 50% for the first time in 2000 (93).

Type/Location of Store

In a review of 21 studies measuring the ability of minors to purchase tobacco, Forster and Wolfson found that purchase rates are highest in gas stations and convenience stores (45). This finding is corroborated by numerous other studies (50; 93). AC Nielsen surveys have consistently documented lower compliance rates in gas stations and independent convenience stores (93). In focus groups with adolescent smokers, DiFranza and Coleman reported that “subjects believed that it is easier to buy from gas stations and ‘mom and pop’ convenience stores.” Furthermore, “there was universal agreement that next to stores where their friends worked, stores owned by recent immigrants are the easiest places to buy tobacco” (32).

Of particular note is the consistent finding in the AC Nielsen surveys that “the stores’ proximity to schools or malls [does] not affect the outcome.” In other words, stores close to schools are *not* more likely to sell tobacco to minors (93). The tobacco industry’s Operation I.D. School Zone program, which targets retail stores within a one-kilometre radius of schools, is based on the false premise that these retailers are more likely to supply tobacco to minors.

Appendix B: Position of Key National and International Organizations

Ontario Expert Panel to the Ontario Minister of Health

In February 1999, the Expert Panel on the Renewal of the Ontario Tobacco Strategy issued its report to the Ontario Minister of Health (96). The Panel made several recommendations under the category of “Retail Controls” to further reduce youth access to tobacco:

- “14. Increase enforcement resources, fines and other penalties for non-compliance with the *Tobacco Control Act*.
15. Amend the *Tobacco Control Act* to make it easier to prosecute vendors and prevent senior courts from diluting the *Act’s* intent.
18. Require public disclosure by the tobacco industry of ... listings of retail outlets and wholesale distributors.”

NSTRTU and Advisory Committee on Population Health

In their 1999 collaborative document *New Directions for Tobacco Control in Canada—A National Strategy*, the Steering Committee of the National Strategy to Reduce Tobacco Use and the Advisory Committee on Population Health give a modest endorsement for youth access initiatives (111). In outlining past activities, including “reducing access to tobacco products by minors (through federal and provincial laws),” the Committee concludes that “all of these initiatives have had a measure of success and should be continued, although the focus may shift to reflect the current learnings....”

In addressing priority actions for the new National Strategy, the Committee makes a general recommendation under the strategic direction of “Policy and Legislation” that encompasses access interventions, among others, although does not specifically name them:

- “Enforce tobacco control legislation by adopting a comprehensive approach which includes traditional enforcement measures, as well as citizen engagement to influence community practices.”

U.S. Campaign For Tobacco-Free Kids

The Campaign believes that strict enforcement of sales-to-minors laws reduces youth smoking and is an important component of any comprehensive campaign to prevent tobacco use. Furthermore, failing to enforce such laws constitutes a wasted opportunity

and gives youth the message that laws need not be taken seriously—a message that undermines other tobacco-reduction efforts in the media, schools, and communities (13).

U.S. Surgeon General

The 2000 *Surgeon General's Report*, which provides a comprehensive examination of efforts to reduce tobacco use, concludes that restricting minors' access to tobacco products “contribute[s] to a changing social norm with regard to smoking and may influence prevalence directly” (122). Understanding the precise impact of access restrictions on smoking prevalence, however, requires further evaluation.

With regard to the *relative* merit of interventions to control youth access, the report cautions that it is difficult to construct “a hierarchy of effectiveness” regarding the various approaches to reducing tobacco use and emphasize that the measured impact of individual efforts is likely to be underestimated because of the synergistic effect of different interventions. “The potential for combined effects underscores the need for comprehensive approaches.”

The report also emphasizes the important countervailing influence of tobacco industry activities which not only undermine efforts to reduce tobacco use but also complicate attempts to evaluate the effectiveness of interventions. Understanding the role of the industry is of particular relevance to the study of access interventions, as the tobacco industry has been an active stakeholder in the issue, promoting its own versions of legislation and enforcement programs.

The report points out that local solutions to access problems may be more effective than provincial or federal. Tobacco interests tend to be less influential at the local level and policy implementation tends to be more consistent, since local advocates monitor progress and enforcement officials have often played a role in the development of the policy.

U.S. Centers For Disease Control and Prevention (CDC)

In its seminal report on *Best Practices for Comprehensive Tobacco Control Programs*, the CDC strongly endorses access interventions under two of nine recommended program elements, community programs and enforcement (17).

Community programs that involve individuals and organizations working on local tobacco use reduction education and training programs and policies are an essential element of an effective comprehensive approach. The success of local coalitions and community youth programs in both Massachusetts and California in reducing underage tobacco sales is cited as one example of what can be achieved by funding local initiatives.

Funding enforcement of laws that prohibit tobacco sales to minors is endorsed by CDC as “an important and essential element of a comprehensive effort to reduce young people’s use of tobacco.” In addition, the report emphasizes the need to broaden the focus beyond retailer interventions to include interventions that reduce social sources of tobacco and limit the demand for tobacco products.

Warsaw Declaration For a Tobacco-Free Europe

In February 2002, the Ministers and other high-ranking representatives from the 48 countries that participated in the WHO European Ministerial Conference for a Tobacco-free Europe unanimously endorsed the Warsaw Declaration for a Tobacco-Free Europe (127). The signatories pledged to develop and implement a fourth comprehensive tobacco control strategy for Europe with specific targets to be achieved by 2007. The declaration identifies the following interventions as “the most important components” of the comprehensive strategy:

- high taxes;
- bans on tobacco advertising, sponsorship and promotion;
- protection against involuntary exposure to environmental tobacco smoke in public places and workplaces;
- access to cessation measures; and
- strict controls on smuggling.

Notable by their exclusion from the list are interventions to reduce youth access to tobacco.

World Health Organization (WHO)

A review of best practices conducted during the International Consultation on Tobacco and Youth in Singapore in September 1999 convened by the WHO Tobacco Free Initiative concluded that “the more effective measures associated with restrictions on sales to minors appear to be those that extend beyond targeting youth alone and promote informed, responsible action by parents, retailers and the general public” (137).

Conference participants concluded that access laws, including those that penalize youth for purchase, possession or use of tobacco products, may contribute to reduced availability of tobacco to youth and can be effective in shaping community norms around tobacco. However, compliance rates must be very high to contribute to a reduction in youth smoking. Experience in some developed countries indicates that access measures can be strengthened by broader strategies comprising education campaigns targeted at retailers and the public and designed to build a supportive environment for tobacco control generally.

Two of the recommendations in the conference report that do not specifically address access issues are nonetheless particularly relevant to an assessment of access interventions:

- the strong call to “reject partnerships with the tobacco industry on tobacco control and prevention measures”; and
- the urge to recognize that although a comprehensive approach is required, “there are cascading levels of impact of various measures,” and therefore it is vital to prioritize policies and programs in order to maximize effectiveness.

World Bank

In its 1999 report *Curbing the Epidemic: Government and the Economics of Tobacco Control*, the World Bank recommends a six-point strategy to reduce tobacco use:

- increase tobacco taxes;
- disseminate research on the health effects of tobacco use;
- add prominent warnings to cigarette packs;
- adopt comprehensive bans on tobacco advertising and promotion;
- restrict smoking in workplaces and public places; and
- increase access to nicotine replacement and other cessation therapies (136).

The report discusses measures to reduce the supply of tobacco in their broadest sense, including prohibition; restrictions on youth access; crop substitution and diversification; price supports and subsidies on tobacco production; international trade restrictions; and controls on smuggling. Only one paragraph addresses youth access measures, concluding that “In their existing form, such restrictions have not been shown to be successful.” The report makes a distinction between high-income and low-income countries and points out that the infrastructure and resources to implement and enforce access restrictions is much less available in developing countries where tobacco consumption is increasing. It is important to note that the chapter does not reference any studies on interventions to prevent youth access to tobacco.

Appendix C: Summary of Studies

<i>Controlled Studies</i>	<i>Uncontrolled Studies</i>	<i>Reviews</i>	<i>Meta-Analyses</i>	<i>Simulations</i>
<p>Biglan et al 2000; #10</p> <ul style="list-style-type: none"> - Project SixTeen, randomized, controlled trial of intervention in 8 pairs of small Oregon communities - outcomes measured by five annual surveys of 7th, 9th grade students (12-15 years) - sites received school-based prevention program or prevention program + comprehensive community program - community program included media advocacy, youth anti-tobacco activities, family communications about smoking, campaign to reduce youth access - access module included mobilization of community support; retailer education; rewards for compliant clerks; positive publicity for compliant vendors; feedback to store owners; but no penalties for non-compliance - at years 2 and 5, youth smoking rates lower in sites receiving community intervention than in education only sites - overall youth smoking prevalence increased significantly in sites receiving school-based education only vs. no significant change in prevalence in sites receiving comprehensive community-based intervention - youth attitudes toward tobacco became more negative over time in community intervention sites; no change in education only sites 	<p>Cummings et al 2001; #25</p> <ul style="list-style-type: none"> - 4-year ecological study (1992-96) - 12 communities, Erie County, NY - same access law in all 12 sites - exposure to active enforcement differed in 6 of 12 communities, but did not result in different level of compliance (all 12 communities aware of enforcement program) - compliance checks of retailers in fall 1994 (1) and fall 1996 (3, used average compliance rate) after aggressive enforcement program - surveys of tobacco use of 9th grade students in 1992 and 1996 - in 1995, compliance > 80% in 6/12 communities—average 89% vs. 71% in other 6 communities - reported ease of obtaining cigarettes >80% in all communities and unchanged during intervention - reported ease of obtaining tobacco unrelated to compliance rate - proportion of 9th graders relying on retailer as usual source declined in 11/12 communities by avg of 52% - past 30-day smoking rates stable in sites with >80% compliance, but increased by 18% in sites with compliance below 80% - frequent smoking rates declined 16% in communities with >80% compliance, but increased 28% in sites with <80% compliance - high compliance had small but significant impact on teen smoking especially frequent smoking - interpret results with caution since sites with compliance rates above 80% were smallest, most isolated 	<p>Stead and Lancaster 2000; #110</p> <ul style="list-style-type: none"> - 13 controlled trials <i>Skretney et al 1990</i> <i>Altman et al 1991</i> <i>Keay, Wildey et al 1993, 1995</i> <i>Chapman et al 1994</i> <i>Jason et al 1991, 1996; #68, #69</i> <i>Bagott et al 1997; #7b</i> <i>Forster et al 1997; #46, #47</i> <i>Schofield et al 1997</i> <i>Rigotti et al 1997; #103</i> <i>Gemson et al 1998</i> <i>Cummings et al 1998; #26</i> <i>Staff et al 1998; #109</i> <i>Altman et al 1999; #3b</i> - 14 uncontrolled trials (pre/post data) <i>Naidoo and Platts 1985</i> <i>Feighery et al 1991; #42</i> <i>DiFranza et al 1992; #38b</i> <i>Forster et al 1992</i> <i>Hinds 1992</i> <i>Abernathy 1994</i> <i>Junck et al 1994</i> <i>Jason et al 1996; #69</i> <i>Dovell et al 1996</i> <i>Biglan et al 1996</i> <i>Schensky et al 1996; #105</i> <i>Mawkes et al 1997</i> <i>Campbell 1997</i> <i>McDermott et al 1998</i> - vendor educ. alone has no impact - enforcement improves compliance but sustained compliance requires regular enforcement - intervention increased compliance in 6/11 controlled + all uncontrolled studies - intervention decreased youth smoking in 3/5 controlled, 3 uncontrolled trials 	<p>Fichtenberg and Glantz 2001, #43</p> <ul style="list-style-type: none"> - 8 studies, 5 controlled: <i>Jason et al 1991; #71</i> <i>DiFranza et al 1992; #38b</i> <i>Rigotti et al 1997; #103</i> <i>Forster et al 1998; #45</i> <i>Bagott et al 1998; #7b</i> <i>Staff et al 1998; #109</i> <i>Altman et al 1999; #3b</i> <i>Cummings et al 2001; #25</i> - omitted cross-sectional studies based on aggregate data - 3 of 8 studies had no enforcement component - calculated correlation between merchant compliance and youth smoking prevalence - conducted random effects meta-analysis on controlled studies to assess change in prevalence associated with access interventions - no statistically significant relationship between compliance and 30-day smoking prevalence - no statistically significant relationship between compliance and regular smoking prevalence - no evidence of threshold compliance rate 	<p>Levy et al 2001; #81</p> <ul style="list-style-type: none"> - computer model of youth access policies based on empirical research and theory of perceived risk - model includes substitution for other sources as retail sales are restricted - model predicts that comprehensive access policy that includes sufficient compliance checks, penalties, and community involvement will reduce youth smoking rates - greatest impact on youth 10-17 years, within first few years of implementation - impact on retailer compliance due to synergistic effects of comprehensive policies i.e. frequent compliance checks plus significant penalties plus merchant education - high retailer compliance necessary before youth tobacco use reduced, especially in urban areas with many outlets - ability of retail policies to reduce youth smoking limited because of availability of substitute sources

<i>Controlled Studies</i>	<i>Uncontrolled Studies</i>	<i>Reviews</i>
<p>Altman et al 1999; #3b</p> <ul style="list-style-type: none"> - 3-year randomized study - 4 rural CA communities - retailer education, community education, voluntary policy change; threatened enforcement - retail sales dropped from 75% at baseline to 0% at post-test in intervention vs. decline from 64% to 39% in control - outcome measure was past 30-day tobacco use - grade 7 students in intervention sites significantly less likely to smoke during study; grade 7 students in control more likely to smoke - no effect on youth in grades 9 or 11 - females in intervention communities less likely to smoke post-intervention than in control 	<p>DiFranza and Coleman 2001; #32</p> <ul style="list-style-type: none"> - 10 focus groups, 68 students aged 12-19 years, all smokers - youth from 10 Mass. communities with compliance $\geq 90\%$ - parents and other older relatives overwhelmingly primary source of tobacco during initiation - knowing clerk prime factor predicting purchase success - teenage clerks major contributor to illegal sales - smokers use variety of tactics to improve purchase success - highest success rates: gas stations, independent convenience stores, stores owned by recent immigrants; male clerks; female buyers; older minors; purchase at night 	<p>Gilpin et al 2001; #50</p> <ul style="list-style-type: none"> - analysis of 1996, 1999 California Tobacco Surveys to assess impact of state law, <i>Stop Tobacco Access to Kids Enforcement Act (STAKE Act)</i> - up to 1996, vast majority of teens got their cigarettes from friends - since 1996, drop in number of youth who smoke; media campaigns by both state and tobacco industry focused on sales-to-minors law; local campaigns against youth access - retailer compliance increased from 63% in 1995 to 84% in 1999 - lowest rate of compliance in gas stations (68%) - 1996-1999, significant decrease in percentage of youth of all demographics who consider it easy to get cigarettes, either few at a time (social sources) or by the pack (retail) - perception that is easy to buy a pack decreased by more than 50% among teens 12-15 - significant decrease in percentage of 15-17 year-old experimenters, occasional smokers, and daily smokers who believe is easy to buy a pack - 23% decrease in susceptible never smokers who thought is easy to get a few cigarettes - sources of cigarettes for ever-smokers relatively constant from 1996-99; in 1999 61% obtained tobacco from friends or others, without paying for them - in 1999, 23% got friends/others to buy tobacco for them - drop in percentage ever-smokers who usually bought own cigarettes—from 16% to 9% - majority of those who give cigarettes to youth are minors or 18-20 year-olds - majority of those who buy cigarettes for minors are 18-20 years old (57%) or over 21 years (25%) - authors conclude that decrease in perception that is easy to buy cigarettes may play a role in preventing progression from experimentation to daily smoking - authors conclude that until peer approval of smoking and sharing cigarettes is reduced, will be difficult to significantly reduce minors' access to tobacco - authors conclude that raising age of sale/purchase to 21 years may reduce access by increasing age gap between those who can legally buy cigarettes and those who get cigarettes from others

<i>Controlled Studies</i>	<i>Uncontrolled Studies</i>	<i>Reviews</i>
<p><i>Forster et al 1998; #46</i></p> <ul style="list-style-type: none"> - randomized trial of 14 Minn. communities (7 controls) - 32-month intervention - organizer + local teams to lead advocacy activities for ordinance passage, effective enforcement - pre- and post-intervention surveys of 6000 students in grades 8-10; two compliance checks of all retailers both pre- and post-test - all 7 communities adopted comprehensive ordinance, including vending machine ban, graduated penalties, licence fee covers administrative costs; 6/7 required two compliance checks per retailer per year - substantial increase in retailer compliance in intervention sites (61% to 95%) and control sites (58% to 87%) - increase in vendors who stored tobacco behind counter - decrease in perceived availability of cigarettes from retail sources in intervention communities - no decrease in perceived availability from social sources - decrease in purchase attempts in intervention communities - daily, weekly, monthly smoking prevalence increased sharply in all control communities; - much lower increase in prevalence in intervention communities—5% less for daily, 6% less for weekly and 7% less for monthly smoking 	<p><i>Tutt et al 2000; #119</i></p> <ul style="list-style-type: none"> - 6-year intervention to increase retailer compliance - Central Coast region, NSW, Australia - phase 1, 1993-94: retailer education, public education, media publicity, public phone-ins to report non-compliant vendors, twice-yearly compliance checks of all retailers within 3-mile radius of high schools (until mid 1996) - phase 2, 1995: active enforcement, publicity re enforcement actions, annual compliance checks of min. 10% of retailers - surveys of high schools in 1993, 1996, 1999 - compliance increased from 69% in 1993 to 92% in 1996 to 100% in 1999 - greatest reduction in smoking among minors who smoked “less than 1 a day” or “1 to 5 a day” 	<p><i>Chaloupka and Pacula 1997; #20</i></p> <ul style="list-style-type: none"> - nationally representative sample of 37,000 adolescents in grades 8, 10, 12 from 1994 Monitoring the Future surveys - study overcomes limitations of community studies—nonrandom sample design, purchase attempts in bordering communities not accounted for, - study controls for variety of other state/local tobacco control policies/activities that may influence effectiveness of access intervention - study weaknesses—reliance on cross-sectional data and use of state-level measures of monitoring + compliance rates that may not reflect situation in each community - teens less likely to smoke and smoke less in states that adopt comprehensive, aggressive approaches to measuring retailer compliance and that achieve high compliance rates - probability of smoking and average cigarette consumption both significantly higher in states that preempt communities from adopting stronger sales-to-minors laws
<p><i>Rigotti et al 1997; #103</i></p> <ul style="list-style-type: none"> - 2-year study of 6 Mass. communities - 3 intervention communities—retailer education and active enforcement; 3 control sites—no enforcement - compliance tests twice/year - compliance in intervention group increased from 32% to 82% vs. 45% in control - compliance never reached study goal of 90% (study protocol was quarterly compliance tests) - decrease in access similar for intervention and control; therefore not attributable to enforcement - no meaningful difference in changes in tobacco use between intervention and control - authors conclude that test purchases do not reflect teens’ self-reported access; - authors conclude 80% compliance insufficient to decrease youth access or tobacco use 	<p><i>Siegel et al 1999; #108</i></p> <ul style="list-style-type: none"> - 4-year longitudinal study - randomized telephone survey of 592 youths age 12-15 - youths living in community with sales-to-minors law at baseline significantly less likely to proceed to established smoking (18%) than youths in towns with no law (27%) - established smoking = smoked 100 cigarettes in lifetime - effect strongest among youth at earliest stages of initiation - magnitude of odds ratio suggests dose-response relationship between strength of law and smoking initiation, although not statistically significant - no relationship between existence of ordinance and teens’ perceived access to tobacco - authors speculate that effect due to differences in social norms related to passage and/or implementation of law 	

<i>Controlled Studies</i>	<i>Uncontrolled Studies</i>	<i>Reviews</i>
<p>Staff et al 1998; #109</p> <ul style="list-style-type: none"> - Sydney, Australia - prospective study of impact of non-prosecutory enforcement of law banning tobacco sales to minors under 18 - survey of 12,500 students aged 12-17 from intervention and control sites <p>intervention had significant effect in reducing smoking prevalence among year 7 students only</p> <ul style="list-style-type: none"> - 	<p>University of Miami 1999; #123b</p> <ul style="list-style-type: none"> - Florida Youth Tobacco Surveys—baseline 1998, one-year post-implementation 1999 - representative sample 20,000 middle, high school students - reduce accessibility of tobacco to youth one of four goals of Florida Tobacco Pilot Program (FTPP) - enforcement one of five FTPP program components - 30% decrease in proportion of middle school students who usually bought cigarettes from store - no change in proportion of high school students who usually bought cigarettes - awareness of enforcement correlated with tobacco use - quasi experimental design of series of enforcement studies - smoking rates lower in high enforcement counties than in low enforcement counties—16% vs. 20% for middle school students, 31% vs. 35% for high school students; effect not explained by demographic differences (race, gender) - 64% of middle school students, 42% of high school students less likely to smoke because of possible penalties 	
	<p>Bagott 1997; #7b</p> <ul style="list-style-type: none"> - Gateshead, UK—cross-sectional survey of all year 10 students in two schools in May 1995, 1996 - intervention consisted of compliance checks of all retailers near one school - compliance checks found 100% compliance, but only three students in 1995 and five in 1996 ever had clerk refuse sale - no change in youth smoking rates in either school - authors conclude that compliance checks not useful measure of availability of tobacco to youth 	
	<p>DiFranza et al 1992; #38b</p> <ul style="list-style-type: none"> - single community study, 1989-1991, Leominster, Mass. - baseline survey of 501 students in grades 7-12; follow-up surveys in June and Dec. 1991 - merchant education, active enforcement - compliance checks using youth aged 10-16 - drop in smoking rates in all cohorts except 14-15 year olds - 44% drop among 12-13 year olds; 41% drop among 16-17 year olds; 33% drop among 18-19 year olds (not significant) 	

<i>Controlled Studies</i>	<i>Uncontrolled Studies</i>	<i>Reviews</i>
	<p><i>Jason et al 1991; #71</i></p> <ul style="list-style-type: none"> - single community study, 1989-1991 - Woodridge, Illinois - pre and post-intervention compliance checks and smoking surveys of approx. 650 7th and 8th grade students - bylaw; retailer licensing; quarterly compliance checks; penalties; \$25 fine for possession - illegal sales to minors decreased from 70% to 5% 18 mos. after implementation - regular smoking by 7th and 8th grade students decreased from 15% to 5% - experimentation among 7th and 8th grade students dropped from 46% to 23% 	

Appendix D: Sample Media Release



Sample Media Release

For Environmental Health Officer

To Publicise Results of *Tobacco Act* Prosecution

LOCAL RETAILER FINED \$ _____ FOR ILLEGAL CIGARETTE SALES

On date, local proprietor, name of proprietor or name of business in municipality was fined \$_____ for illegally selling cigarettes to a person under 18 years old.

Name of proprietor appeared in the Magistrates Court on date and was found guilty of offence.

In the decision, magistrate _____ (name) said:

Name of Council stated that the Council is particularly concerned about cigarette sales to minors. By refusing to sell cigarettes to teenagers, retailers have a key contribution to make in protecting the health of young people in the name of area community.

Include more detail eg: sold to x age child, 1st, 2nd 3rd offence etc.

This prosecution came about after Name of Council adopted the *Tobacco Act Enforcement Protocol*. The Protocol was developed by the Tobacco Steering Committee of Melbourne's Western Metropolitan Region. The Protocol provides Environmental Health Officers with clear guidelines for enforcing the *Tobacco Act*. It recognises that:

- Eighty per cent of smokers begin smoking before the age of 18 years.
- If children can be prevented from buying cigarettes, it is more likely they will not become regular smokers.
- Education alone is not enough to stop retailers selling cigarettes to children.

There is broad-based support for local government and community based measures against tobacco sales to minors as shown in a survey of 1,200 residents in the Western Metropolitan Region of Melbourne in May 1998.

END

Media enquiries: Local spokesperson's contact details.

Bibliography

1. Action on Smoking and Health. *Enforcement Action to Reduce Underage Tobacco Sales to Young People*. Taken from <http://www.ash.org.uk/html/conduct/html/underage.html>. October 2000.
2. Advocacy Institute. *State Tobacco Control Policy Briefing Papers: Policies to Reduce Youth Access to Tobacco*. Taken from <http://www.scarcnet.org/pubs/briefs/youthaccess.htm>. Based on a paper by JR DiFranza and NA Rigotti, 1998.
3. Alciati MH, Frosh M, Green SB, *et al.* "State laws on youth access to tobacco in the United States: measuring their extensiveness with a new rating system." *Tobacco Control* 1998; 7(4): 345-52.
- 3b. Altman D, Wheelis A, McFarlane M, *et al.* "The relationship between tobacco access and use among adolescents: a four community study." *Social Science & Medicine* 1999; 48(6): 759-775.
4. Altman D, Carol J, Chalkley C, *et al.* "Report of the Tobacco Policy Research Study Group on Access to Tobacco Products in the United States." *Tobacco Control* 1992; 1(suppl): S45-S51.
5. Americans for Non-Smokers' Rights. "Restricting Youth Access to Tobacco: Does It Reduce Youth Tobacco Consumption? A Summary of Research Findings." 1999.
6. Arday DR, Klevens RM, Nelson DE, *et al.* "Predictors of Tobacco Sales to Minors." *Preventive Medicine* 1997; 26: 8-13.
7. ATRA (Alberta Tobacco Reduction Alliance). *Youth Possession Laws and Youth Access*. 2000.
- 7b. Bagott M, Jordon C, Wright C, Jarvis S. "How easy is it for young people to obtain cigarettes and do test sales by trading standards have any effect? A survey of two schools in Gateshead." *Child: Care, Health and Development* 1998; 24(3): 207-16.
8. Bauer UE, Johnson TM, Hopkins RS, Brooks RG. "Changes in youth cigarette use and intentions following implementation of a tobacco control program: findings from the Florida Youth Tobacco Survey, 1998-2000." *Journal of the American Medical Association* 2000; 284(6): 723-28.

9. Biener L, Harris JE, Hamilton W. "Impact of the Massachusetts tobacco control programme: population based trend analysis." *British Medical Journal* 2000; 321: 351-354.
10. Biglan A, Ary DV, Smolkowski K, *et al.* "A randomised controlled trial of a community intervention to prevent adolescent tobacco use." *Tobacco Control* 2000; 9(1): 24-32.
11. Biglan A, Ary D, Koehn V, *et al.* "Mobilizing positive reinforcement in communities to reduce youth access to tobacco." *American Journal of Community Psychology* 1996; 24(5): 625-38.
12. California Department of Health Services, Tobacco Control Section. *A Model For Change: The California Experience in Tobacco Control.* 1998.
13. Campaign for Tobacco-Free Kids. Fact Sheet. "Enforcing Laws Prohibiting Cigarette Sales To Kids Reduces Youth Smoking." 2001. Taken from <http://tobaccofreekids.org/research/factsheets/pdf/0049.pdf>.
14. Canadian Cancer Society. *Enhancing the Effectiveness of Access Laws to Reduce Tobacco Sales to Minors.* 1998.
15. Carol J. "It's a good idea to criminalise purchase and possession of tobacco by minors—NOT!" *Tobacco Control* 1992; 1(4): 296-97.
16. Centers for Disease Control and Prevention. *State Tobacco Activities Tracking & Evaluation System.* 2000. Taken from <http://www2.cdc.gov/nccdphp/osh/state/>.
17. Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs.* 1999.
18. Centers for Disease Control and Prevention. "State Laws on Tobacco Control—United States, 1998." *Morbidity and Mortality Weekly Report, CDC Surveillance Summaries* 1999; 48(SS-3): 22-62.
19. Centers for Disease Control and Prevention. "Estimates of retailers willing to sell tobacco to minors--California, August-September 1995 and June-July 1996." *Morbidity and Mortality Weekly Report* 1996; 45(50): 1095-9.
20. Chaloupka FJ, Pacula RL. "Limiting Youth Access to Tobacco: The Early Impact of the Synar Amendment on Youth Smoking." Prepared for the Economic Analysis of Substance Use and Abuse II session, 3rd Biennial Pacific Rim Allied Economic Organizations Conference, Bangkok, Thailand, 14 January 1997.
21. Cismoski J. "Blinded by the light: The folly of tobacco possession laws against minors." *Wisconsin Medical Journal* 1994; 93(11): 591-98.

22. Commonwealth of Australia. *National Tobacco Strategy 1999 to 2002-03: A Framework for Action*. Endorsed by the Ministerial Council on Drug Strategy (MCDS). June 1999.
23. Commonwealth of Australia. *Background paper: A companion document to the National Tobacco Strategy 1999 to 2002-03*. Endorsed by the Ministerial Council on Drug Strategy (MCDS). 1999.
24. Cummings KM. "Tobacco Use Prevention: What works and what makes sense?" Presentation to National Tobacco Conference, New Orleans. November 2001.
25. Cummings KM, Hyland A, Perla J. "Is the Prevalence of Youth Smoking Affected by Efforts to Increase Retailer Compliance With a Minors' Access Law?" Unpublished draft. September 2001.
26. Cummings KM, Hyland A, Saunders-Martin T. "Evaluation of an enforcement program to reduce tobacco sales to minors." *American Journal of Public Health* 1998; 88(6): 932-6.
27. Currie C, et al. *Health behaviour in school-aged children: a WHO cross-national study*. WHO Regional Office for Europe. 2000. Taken from http://apps.nccd.cdc.gov/nations/nations/country_specific_indicators.asp.
28. DeBon M, Klesges R. "Adolescents' perceptions about smoking prevention strategies: a comparison of the programmes of the American Lung Association and the Tobacco Institute." *Tobacco Control* 1996; 5: 19-25.
29. de Guia NA, Cohen JE, Ashley MJ, et al. "Short Report. How provincial and territorial legislators view tobacco and tobacco control: findings from a Canadian study." *Chronic Diseases in Canada* 1998; 19(2): 57-61.
- 29a. DiFranza JR. "Letter. Is it time to abandon youth access programmes?" *Tobacco Control* 2002; 11(3): 282-284.
- 29b. DiFranza JR. "Has Youth Access to Tobacco Changed Over the Past Decade?" Chapter 11, in *Changing Adolescent Smoking Prevalence: Where It Is and Why*, Smoking and Tobacco Control Monograph No. 14, U.S. Department Of Health and Human Services Public Health Service, National Institutes of Health, National Cancer Institute, November 2001.
- 29c. DiFranza JR. "State and Federal Compliance with the Synar Amendment." *Archives of Pediatrics & Adolescent Medicine* 2001; 155: 572-578.
30. DiFranza JR, Savageau JA, Bourchard J. "Is the standard compliance check protocol a valid measure of the accessibility of tobacco to underage smokers?" *Tobacco Control* 2001; 10: 227-32.

31. DiFranza JR, Celebucki CC, Mowery PD. "Measuring statewide merchant compliance with tobacco minimum age laws: the Massachusetts experience." *American Journal of Public Health* 2001; 91(7): 1124-25.
32. DiFranza JR, Coleman M. "Sources of tobacco for youths in communities with strong enforcement of youth access laws." *Tobacco Control* 2001; 10(4): 323-28.
33. DiFranza JR, Peck RM, Radecki TE, Savageau JA. "What is the potential cost-effectiveness of enforcing a prohibition on the sale of tobacco to minors?" *Preventive Medicine* 2001; 32(2): 168-74.
34. DiFranza JR. "Are the Federal and State Governments Complying With the Synar Amendment?" *Archives of Pediatrics & Adolescent Medicine* 1999; 153: 1089-97.
35. DiFranza JR, Rigotti NA. "Impediments to the enforcement of youth access laws." *Tobacco Control* 1999; 8(2): 152-55.
36. DiFranza JR, Celebucki CC, Seo HG. "A Model for the Efficient and Effective Enforcement of Tobacco Sales Laws." *American Journal of Public Health* 1998; 88(7): 1100-01.
37. DiFranza JR, Godshall W. "Tobacco industry efforts hindering enforcement of the ban on tobacco sales to minors: actions speak louder than words." *Tobacco Control* 1996; 5: 127-131.
38. DiFranza JR, Savageau JA, Aisquith BF. "Youth access to tobacco: the effects of age, gender, vending machine locks, and 'it's the law' programs." *American Journal of Public Health* 1996; 86(2): 221-24.
- 38b. DiFranza JR, Carlson RR, Caisse RE. "Reducing youth access to tobacco." *Tobacco Control* 1992; 1: 58.
39. Dovell RA, Mowat DL, Dorland J, Lam M. "Tobacco access to youth: beliefs and attitudes of retailers." *Canadian Journal of Public Health* 1998; 89(1): 17-21.
40. Emery S, Gilpin EA, White MM, Pierce JP. "How adolescents get their cigarettes: implications for policies on access and price." *Journal of the National Cancer Institute* 2000; 91(2): 184-86.
41. Everett SA, Warren CW, Sharp D, *et al.* "Initiation of cigarette smoking and subsequent smoking behavior among high school students." *Preventive Medicine* 1999; 29(5): 327-33.
42. Feighery E, Altman DG, Shaffer G. "The Effects of Combining Education and Enforcement to Reduce Tobacco Sales to Minors." *Journal of the American Medical Association* 1991; 266(22): 3168-3171.

- 42a. Fichtenberg CM, Glantz SA. "Authors' replies. Is it time to abandon youth access programmes?" *Tobacco Control* 2002; 11(3): 282-284.
- 42b. Fichtenberg CM, Glantz SA. "Youth Access Interventions Do Not Affect Youth Smoking." *Pediatrics* 2002; 109(6):1088-1092.
43. Fichtenberg CM, Glantz SA. "Youth Access Interventions Do Not Affect Youth Smoking." Pre-publication draft. 2001.
- 43b. Florida Dept. of Health. "Highlights from Pilot Program Areas — at the end of year 1." *Florida Youth Tobacco Survey Report* 1999; 2(2).
44. Food and Drug Administration (FDA). "FDA FY2001 Performance Plan; Section 2.7, Tobacco." Taken from www.fda.gov/ope/fy01plan/tobacco01.html.
45. Forster JL, Wolfson M. "Youth access to tobacco: policies and politics." *Annual Review of Public Health* 1998; 19: 203-35.
46. Forster JL, Murray DM, Wolfson M, *et al.* "The effects of community policies to reduce youth access to tobacco." *American Journal of Public Health* 1998; 88(8): 1193-98.
47. Forster JL, Wolfson M, Murray D, *et al.* "Perceived and Measured Availability of Tobacco to Youths in 14 Minnesota Communities: The TPOP Study." *American Journal of Preventive Medicine* 1997; 13(3): 167-74.
48. Forster JL, Komro KA, Wolfson M. "Survey of city ordinances and local enforcement regarding commercial availability of tobacco to minors in Minnesota, United States." *Tobacco Control* 1996; 5(1): 46-51.
- 48b. Gemson DH, Moats HL, Watkins BX, *et al.* "Laying Down the Law: Reducing Illegal Tobacco Sales to Minors in Central Harlem." *American Journal of Public Health* 1998; 88(6): 936-939.
49. General Accounting Office. *Report to the Ranking Minority Member, Committee on Government Reform, House of Representatives. SYNAR Amendment Implementation Quality of State Data on Reducing Youth Access to Tobacco Could Be Improved.* November 2001.
50. Gilpin EA, Emery SL, Farkas AJ, *et al.* "Chapter 9: Access To and Ease of Purchase of Cigarettes." *The California Tobacco Control Program: A Decade of Progress. Results from the California Tobacco Surveys 1990-1998.* 2001.
51. Glantz SA. "Preventing tobacco use--the youth access trap." *American Journal of Public Health* 1996; 86(2): 156-58.

52. Goss Gilroy Inc. *Evaluation of the Enforcement Program for Federal Tobacco Legislation*. October 1997.
53. Goss Gilroy Inc. *Addendum: Audit of the Contribution Agreements Under the Enforcement Program for Federal Tobacco Legislation*.” October 1997.
54. Gratias EJ, Krowchuk DP, Lawless MR, Durant RH. “Middle school students' sources of acquiring cigarettes and requests for proof of age.” *Journal of Adolescent Health* 1999; 25(4): 276-83.
55. Harrison PA, Fulkerson JA, Park E. “The relative importance of social versus commercial sources in youth access to tobacco, alcohol, and other drugs.” *Preventive Medicine* 2000; 31(1): 39-48.
56. Health Canada. News Release. “Government Announces Comprehensive Strategy to Discourage Smoking.” 5 April 2001.
57. Health Canada. News Release. “Government announces comprehensive tobacco control strategy.” 28 November 1996.
58. Health Canada. *Survey on Smoking in Canada, Cycle 1*. “Fact Sheet 5: Profile of Youth Aged 15-19.” August 1994.
59. Heyman RB. “Turning the tide: tobacco and the 21st century.” *Adolescent Medicine* 2000; 11(1): 69-78.
60. Hill D, *et al*. “Tobacco use among Australian secondary students in 1996.” 1999. Taken from http://apps.nccd.cdc.gov/nations/nations/country_specific_indicators.asp.
61. Hill D. “Why we should tackle adult smoking first.” *Tobacco Control* 1999; 8: 333-335.
62. Howard KA, Ribisl KM, Howard-Pitney B, *et al*. “What factors are associated with local enforcement of laws banning illegal tobacco sales to minors? A study of 182 law enforcement agencies in California.” *Preventive Medicine* 2001; 33(2 Pt 1): 63-70.
63. Human Services Victoria. *Tobacco Act Enforcement Protocol for Section 12(1) of the Tobacco Act 1987 (Victoria)*. An Initiative of the Western Region Tobacco Project, ‘Reducing Tobacco Sales to Minors.’ 1999. Taken from <http://www.dhs.vic.gov.au/phd/tobacco.htm>.
64. Hye-ryeon L, MacKinnon D, Ranger-Moore J, *et al*. “Effectiveness of a Comprehensive Community Intervention in Reducing Youth Tobacco Use: Results from Tucson Full Court Press, 1996-1998.” Unpublished draft. 2000.

- 64b. Imperial Tobacco Canada Ltd. *Socio-Economic Contribution Report 2001*. Taken from http://www.imperialtobaccocanada.com/e/pdf/ITC_2001.pdf.
65. Institute of Medicine. *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youth*. 1994.
- 65b. Institut national de santé publique du Québec. Interventions en matière de cessation tabagique : description, efficacité, impact, coûts estimés pour le Québec. 2001. Taken from http://www.inspq.qc.ca/pdf/publications/057_Interv_tabagisme.pdf.
66. Jacobson PD, Wasserman J. "The Implementation and Enforcement of Tobacco Control Laws: Policy Implications for Activists and the Industry." *Journal of Health Politics, Policy and Law* 1999; 24(3): 567-98.
67. Jason LA, Katz R, Pokorny SB, *et al.* "The relationship between youth tobacco control enforcement and crime rates in a midwestern county." *American Journal of Health Promotion* 2000; 14(4): 229-31, iii.
68. Jason LA, Berk M, Schnopp-Wyatt DL, Talbot B. "Effects of enforcement of youth access laws on smoking prevalence." *American Journal of Community Psychology* 1999; 27(2): 143-60.
- 68b. Jason LA, Katz R, *et al.* "Long-Term Follow-Up of Youth Access to Tobacco Laws' Impact on Smoking Prevalence." *Journal of Human Behavior in the Social Environment* 1999; 2(3): 1-13.
69. Jason LA, Billows WD, Schnopp-Wyatt DL, King C. "Long-term Findings From Woodridge In Reducing Illegal Cigarette Sales To Older Minors." *Evaluation & the Health Professions* 1996; 19(1): 3-13.
70. Jason LA, Billows WD, Schnopp-Wyatt DL, King C. "Reducing the Illegal Sales of Cigarettes to Minors: Analysis of Alternative Enforcement Schedules." *Journal of Applied Behavior Analysis* 1996; 29: 333-44.
71. Jason LA, Ji PY, Anes MD, Birkhead SH. "Active Enforcement Of Cigarette Control Laws In The Prevention Of Cigarette Sales To Minors." *Journal of the American Medical Association* 1991; 266: 3159-61.
72. Kelder G. *The Perils, Promises and Pitfalls of Criminalizing Youth Possession of Tobacco*. Taken from www.tobacco.neu.edu/tcu/3-97/ypfinal.htm.
73. Klonoff EA, Landrine H, Alcaraz R *et al.* "An instrument for assessing the quality of tobacco-control policies the ACT-L scale." *Preventive Medicine* 1998; 27(6): 808-14.
74. Kropp, R. Letter to Melodie Tilson. December 2001.

75. Landrine H, Klonoff EA, Lang D, Alcaraz R. "Use of identification cards by underage youth to purchase tobacco." *Journal of the American Medical Association* 2001; 285(18): 2329.
76. Landrine H, Klonoff EA, Reina-Patton A. "Minors' access to tobacco before and after the California STAKE Act." *Tobacco Control* 2000; 9(Suppl II): ii15-ii17.
77. Landrine H, Klonoff EA, Campbell R, Reina-Patton A. "Sociocultural variables in youth access to tobacco: replication 5 years later." *Preventive Medicine* 2000; 30(5): 433-37.
- 77b. Landrine H, Klonoff EA, Alcaraz R. "Asking age and identification may decrease minors' access to tobacco." *Preventive Medicine* 1996; 25(3): 301-6.
78. Langer LM, Warheit GJ. "Teen Tobacco Court: A Determination of the Short-term Outcomes of Judicial Processes with Teens Engaging in Tobacco Possession." *Adolescent and Family Health* 2000; 1(1): 5-10.
79. Lantz PM, Jacobson PD, Warner KE, *et al.* "Investing in youth tobacco control: a review of smoking prevention and control strategies." *Tobacco Control* 2000; 9(1): 47-63.
80. Laugeson M, Swinburn B. "New Zealand's tobacco control programme 1985-1998." *Tobacco Control* 2000; 9: 155-162.
81. Levy DT, Friend K, Holder H, Carmona M. "Effect of policies directed at youth access to smoking: results from the SimSmoke computer simulation model." *Tobacco Control* 2001; 10(2): 108-16.
82. Levy DT, Friend KB. "A simulation model of tobacco youth access policies." *Journal of Health Politics, Policy and Law* 2000; 25(6): 1023-50.
83. Levy DT, Cummings KM, Hyland A. "A simulation of the effects of youth initiation policies on overall cigarette use." *American Journal of Public Health* 2000; 90(8): 1311-14.
84. Levy DT, Chaloupka F, Slater S. "Expert opinions on optimal enforcement of minimum purchase age laws for tobacco." *Journal of Public Health Management Practices* 2000; 6(3): 107-14.
85. Lichtenstein E, Thompson B, Nettekoven L, Corbett K. "Durability of tobacco control activities in 11 north American communities after the Community Intervention Trial for Smoking Cessation (COMMIT)." *Health Education Research* 1996; 11(4): 527-34.

- 85a. Ling PM, Landman A, Glantz SA. "Authors' replies. Is it time to abandon youth access programmes?" *Tobacco Control* 2002; 11(3): 282-284.
- 85b. Ling PM, Landman A, Glantz SA. Editorial. "It is time to abandon youth access tobacco programmes." *Tobacco Control* 2002; 11(1): 3-6.
86. Livingood WC, Woodhouse CD, Sayre JJ, Wludyka P. "Impact study of tobacco possession law enforcement in Florida." *Health Education Behavior* 2001; 28(6): 733-48.
87. Luke DA, Stamatakis KA, Brownson RC. "State youth-access tobacco control policies and youth smoking behavior in the United States." *American Journal of Preventive Medicine* 2000; 19(3): 180-87.
88. Ma GX, Shive S, Tracy M. "The effects of licensing and inspection enforcement to reduce tobacco sales to minors in Greater Philadelphia, 1994-1998." *Addictive Behaviors* 2001; 26(5): 677-87.
89. Mosher JF. "The Merchants, Not the Customers: Resisting the Alcohol and Tobacco Industries' Strategy to Blame Young People for Illegal Alcohol and Tobacco Sales." *Journal of Public Health Policy* 1995; 16(4): 412-32.
90. Myers M. "Debate. Adults versus teenagers: a false and dangerous choice." *Tobacco Control* 1999; 8: 336-38.
91. National Cancer Policy Board. *State Programs Can Reduce Tobacco Use*. 2000. Taken from <http://www.nap.edu/books/NI000240/html/>.
92. National Tobacco Information Online System (NATIONS). Country profiles. Taken from http://apps.nccd.cdc.gov/nations/nations/country_specific_indicators.asp.
93. Nielsen AC. *Final Report of Findings 2000-01. Measurement of Retailer Compliance With Respect to the Tobacco Act and Provincial Sales-to-Minors Legislation*. March 2001. Taken from http://www.hc-sc.gc.ca/hecs-sesc/tobacco/pdf/tobcompfinal2000_01.pdf.
94. O'Grady B, Asbridge M, Abernathy T. "Analysis of factors related to illegal tobacco sales to young people in Ontario." *Tobacco Control* 1999; 8(3): 301-05.
95. Ontario Ministry of Health, Health Promotion Branch. "*The Tobacco Control Act: Information Bulletin No. 16*. 1 May 1998.
96. Ontario Tobacco Research Unit. *Evaluating the Renewed Ontario Tobacco Strategy. Report on Year 1 Ending Fall 2000*. December 2000.

97. Orleans CT, Cummings KM. "Population-based tobacco control: progress and prospects." *American Journal of Health Promotion* 1999; 14(2): 83-91.
98. Pentz MA, Sussman S, Newman T. "The conflict between least harm and no-use tobacco policy for youth: ethical and policy implications." *Addiction* 1997; 92(9): 1165-73.
99. Post CM, Bell AJ, Finlan CA. "Sources of Cigarettes for High School Students in Two Ontario Counties: Implications for Developing a Community Response." *Canadian Journal of Public Health* 1999; 90(6): 395-96.
100. Radecki T. "16 cities: Merchant responsibility. 3-4/yr. checks better." *Drug Free Youth News*; 7: 1-2, as found in Jason LA, *et al.* "Long-term Findings From Woodridge In Reducing Illegal Cigarettes Sales To Older Minors." *Evaluation & the Health Professions* 1996; 19(1): 3-13.
101. Radecki T. "State Synar Update #8 (1994)." Doctors and Lawyers for a Drug-free Youth, as quoted in Joanne Curran *et al.* "Controlling Youths' Access to Tobacco—One Community's Approach." *Public Health and Epidemiology Report Ontario* 1995.
102. Ribisl KM, Norman GJ, Howard-Pitney B, Howard KA. "Which adults do underaged youth ask for cigarettes?" *American Journal of Public Health* 1999; 89(10): 1561-64.
103. Rigotti N, DiFranza JR, Chang Y, *et al.* "The Effect of Enforcing Tobacco Sales Laws on Adolescents' Access to Tobacco and Smoking Behavior." *The New England Journal of Medicine* 1997; 337: 1044-51.
104. Robinson LA, Klesges RC, Abikowski SM. "Gender and ethnic differences in youth adolescents' sources of cigarettes." *Tobacco Control* 1998; 7: 353-59.
- 104b. Rothmans Inc. *Annual Report 2001*. Taken from <http://www.rothmansinc.ca/English/2001/2001%20Annual%20report%20English.pdf>
105. Schensky AE, Smith SS, Icenogle DL, Fiore MC. "Youth tobacco sale compliance checks: impact on vendor practices and community policy." *Wisconsin Medical Journal* 1996; 95(11): 775-78.
106. Schwartz IM, Wong C. "Preventing and Stopping Children From Smoking and Using Tobacco Products: Promising Policies and Strategies." Center For the Study of Youth Policy, School of Social Work, University of Pennsylvania. 1999-2000. Taken from http://www.ssw.upenn.edu/CSYP/pub9_full.html.
107. Shive S, Ma GX, Shive E. "A study of young adults who provide tobacco products to minors." *Journal of School Health* 2001; 71(6): 218-22.

108. Siegel M, Biener L, Rigotti NA. "The effect of local tobacco sales laws on adolescent smoking initiation." *Preventive Medicine* 1999; 29(5): 334-42.
109. Staff M, March L, Brnabic A, *et al.* "Can non-prosecutory enforcement of public health legislation reduce smoking among high school students?" *Australia and New Zealand Journal of Public Health* 1998; 22(3 Suppl): 332-35.
110. Stead LF, Lancaster T. "A systematic review of interventions for preventing tobacco sales to minors." *Tobacco Control* 2000; 9(2): 169-76.
111. Steering Committee of the National Strategy to Reduce Tobacco Use in Canada in partnership with Advisory Committee on Population Health, *New Directions for Tobacco Control in Canada—A National Strategy*, 1999.
112. Stevens KR, Barron AM, Ledbetter CA, *et al.* "Legislation, policy, and tobacco use among youth: implications for health care providers." *Journal of School Health* 2001; 71(3): 89-95.
113. Substance Abuse and Mental Health Services Administration (SAMHSA). "Implementing the SAMHSA Tobacco Regulation for the Substance Abuse Prevention and Treatment Block Grant." 1998. Taken from <http://www.samhsa.gov/centers/csap/SYNAR/require.htm>.
114. Substance Abuse and Mental Health Services Administration (SAMHSA). *Reducing Tobacco Use Among Youth: Community-Based Approaches—A Guideline for Prevention Practitioners*. Prevention Enhancement Protocols System (PEPS). ND. Taken from <http://www.health.org/govpubs/PHD745/>.
- 114b. Sundh M, *et al.* *Ungdomars möjlighet att köpa tobak. Resultat från provinköpsstudier genomförda före respektive efter införandet av 18-årsgräns för tobaksinköp. (Young people's ability to buy tobacco. Results of test purchase studies conducted before and after the introduction of the 18-year-old minimum age for the purchase of tobacco.)* Karlstad University Studies. 2001. Taken from http://www.kau.se/forskning/pdf/rapporter/KUS01_27.pdf.
115. Sutton C. "Editorial. A hard road: finding ways to reduce teen tobacco use." *Tobacco Control* 2000; 9: 1-2.
116. Talbot B. "Adolescent smokers' rights laws." *Tobacco Control* 1992; 1(4): 294-95.
117. Tobacco Control Resource Center, Northeastern University. "Compliance Monitoring: A Report on the Tobacco Retailer Responsibility Training Project. Executive Summary." Taken from http://stic.neu.edu/trri/Compliance_exec_sum.htm. April 2000.

118. Tutt D. "Enforcing prohibition of tobacco sales to minors: an update." Presentation to 12th Winter School in the Sun, Alcohol and Drug Foundation, Brisbane 2000.
119. Tutt D, Bauer L, Edwards C, Cook D. "Reducing Adolescent Smoking Rates. Maintaining High Retail Compliance Results in Substantial Improvements." *Health Promotion Journal of Australia* 2000; 10(1).
120. Unger JB, Rohrbach LA, Howard KA, *et al.* "Attitudes toward anti-tobacco policy among California youth: associations with smoking status, psychosocial variables and advocacy actions." *Health Education Research* 1999; 14(6): 751-63.
121. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. *Changing Adolescent Smoking Prevalence: Where It Is and Why*. Smoking and Tobacco Control Monograph 14. November 2001. Taken from <http://cancercontrol.cancer.gov/tcrb/monographs/14/m14.pdf>.
122. U.S. Department of Health and Human Services. *Reducing Tobacco Use: A Report of the Surgeon General*. 2000.
123. U.S. Department of Health and Human Services. *Preventing Tobacco Use Among Young People: A Report of the Surgeon General*. 1994.
- 123b. University of Miami. Youth Tobacco Prevention in Florida: An Independent Evaluation of the Florida Tobacco Pilot Program. First Annual Summary Report of Activities Conducted from July 1998 to June 1999. December 1999.
124. VicHealth Centre for Tobacco Control. *Tobacco Control: A Blue Chip Investment in Public Health*. Anti-Cancer Council of Victoria. 2001.
125. Voorhees CC, Yanek LR, Stillman FA, Becker DM. "Reducing cigarette sales to minors in an urban setting: issues and opportunities for merchant intervention." *American Journal of Preventive Medicine* 1998; 14(2): 138-42.
126. Wakefield M, Chaloupka F. *Effectiveness of Comprehensive Tobacco Control Programs in Reducing Teenage Smoking: A Review*. July 1999.
127. Warsaw Declaration for a Tobacco Free Europe. Taken from http://www.euro.who.int/eprise/main/WHO/Progs/TOBCONF/ConfDocs/20020219_1.
128. Weinbaum Z, Quinn V, Rogers T, Roeseler A. "Store tobacco policies: a survey of store managers, California, 1996-1997." *Tobacco Control* 1999; 8(3): 306-10.
129. Wildey MB, Woodruff SI, Agro A, *et al.* "Sustained effects of educating retailers to reduce cigarette sales to minors." *Public Health Reports* 1995; 110(5): 625-29.

130. Willemsen MC, De Zwart WM. "The effectiveness of policy and health education strategies for reducing adolescent smoking: a review of the evidence." *Journal of Adolescence*. 1999 Oct; 22(5): 587-99.
131. Wolfson M, Hourigan M. "Unintended consequences and professional ethics: criminalization of alcohol and tobacco use by youth and young adults." *Addiction* 1997; 92(9): 1159-64.
132. Wolfson M, Forster JL, Claxton AJ, Murray DM. "Adolescent smokers' provision of tobacco to other adolescents." *American Journal of Public Health* 1997; 87(4): 649-51.
133. Woodhouse LD, Sayre JJ, Livingood WC. "Tobacco policy and the role of law enforcement in prevention: the value of understanding context." *Qualitative Health Research* 2001; 11(5): 682-92.
134. Woodward S. "Youth & Policy: Access, Possession, Criminalization—How Far Should We Go?" Presentation to the 11th World Conference on Tobacco or Health, Chicago, Illinois, 8 August 2000.
135. Working Group of State Attorneys General. *No Sale: Youth, Tobacco and Responsible Retailing: Findings and Recommendations for Developing Responsible Retail Sales Practices and Legislation to Eliminate Illegal Tobacco Sales to Minors*. 1994. Taken from http://www.sailor.lib.md.us/docs/tobacco/no_sale/no_sale.htm.
136. The World Bank. *Curbing the Epidemic: Governments and the Economics of Tobacco Control*. 1999.
137. World Health Organization, UNICEF, Singapore Ministry of Health, Singapore Cancer Society. *Final Conference Report: International Consultation on Tobacco and Youth: What in the World Works?* Singapore. 28-30 September 1999.
138. "World's best practice in tobacco control." *Tobacco Control* 2000; 9: 228-36.