

Has Youth Access to Tobacco Changed over the Past Decade?

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In this chapter, the relationship between the availability of tobacco and the prevalence of adolescent tobacco use will be addressed. This chapter will discuss, in turn, how youths obtain tobacco, how the availability of tobacco is measured, the evidence concerning an impact of reduced availability on tobacco use rates, and national trends in the availability of tobacco.

SOURCES OF TOBACCO Youths obtain tobacco from a variety of sources. Noncommercial sources of tobacco include friends, siblings, parents, relatives, and even baby sitters (DiFranza *et al.*, 1994). Youths most commonly obtain their first cigarettes from friends or siblings, although it is not uncommon for youths to steal their first cigarettes from parents (DiFranza *et al.*, 1994). After the first cigarette, those who continue to smoke will typically rely upon same-aged friends as their first steady source (Stanwick *et al.*, 1987). Sharing cigarettes among friends is very common. In one study, 99 percent of young smokers reported having, at some time, obtained tobacco from friends (DiFranza *et al.*, 1994). The youths who are most likely to supply tobacco to their friends are those who are getting it from a commercial source (Wolfson *et al.*, 1997). In one survey, youths who obtained their most recent cigarettes from a commercial source were 73 percent more likely to provide tobacco to another adolescent (Wolfson *et al.*, 1997).

However, generosity does have its limits. With increasing levels of cigarette consumption, young smokers will be expected to pay for their own tobacco (DiFranza *et al.*, 1994). A developing dependence on nicotine with the accompanying need for a reliable source is another factor that encourages youths to begin to purchase their own tobacco (DiFranza *et al.*, 1994). Many youths begin to purchase tobacco soon after starting to smoke (DiFranza *et al.*, 1994; Forster *et al.*, 1997). Within ten weeks of the first cigarette, half of the young smokers in one survey had purchased their own tobacco (DiFranza *et al.*, 1994).

Youths may have several options for purchasing tobacco. They may do so directly from a commercial source, such as a store or vending machine, or they may give money to a peer or someone who is older to buy the tobacco for them (DiFranza *et al.*, 1994; Forster *et al.*, 1989). In one survey, 66 percent of young smokers reported having asked someone older to buy them tobacco at least once (DiFranza *et al.*, 1994). In communities where tobacco is easier to purchase, youths start to purchase their own tobacco sooner after starting to smoke (Forster *et al.*, 1997). Youths who are older and those who smoke more regularly are also more likely to purchase their own tobacco (Stanwick *et al.*, 1987; Forster *et al.*, 1997; Wolfson *et al.*, 1997;

Leopardi *et al.*, 1989). These youths then become sources for their friends. In addition, shoplifting is a common practice and is relied upon most heavily by younger smokers and boys (Forster *et al.*, 1997; Wildey *et al.*, 1995; CDC, 1996). Self-service displays in stores greatly facilitate shoplifting and are a common promotional strategy used by tobacco companies (Wildey *et al.*, 1995; Caldwell *et al.*, 1996).

The proportion of youths who buy their own tobacco probably varies from community to community, depending in part upon how difficult it is for underage youths to purchase tobacco. The 1995 Youth Risk Behavior Survey inquired of youths under age 18 as to their usual source of tobacco (CDC, 1996). For 40.9 percent of the youths, the usual source was a direct purchase from a commercial source, 32.9 percent borrowed from others, and 15.8 percent gave money to someone else to buy for them (CDC, 1996). Illegal sales are a primary source of cigarettes for underage smokers, either through direct purchase or through borrowing from friends who bought them. These facts underlie the supply side approach to tobacco use prevention. In theory, if the illegal sale of tobacco from retailers to youths could be stopped, the availability of tobacco to youths might be seriously diminished and fewer youths would use tobacco. Skeptics argue that other sources would be developed to replace commercial sources, thus negating the impact of the intervention. Also, restricting the sale of tobacco to minors might increase the temptation to smoke by painting tobacco as a forbidden fruit.

**MEASURES
OF TOBACCO
AVAILABILITY**

In 1987, the compliance test was introduced as a research tool for measuring the availability of tobacco to minors from commercial sources (DiFranza *et al.*, 1987). In the compliance test, an underage youth attempts to purchase tobacco from a commercial outlet in order to measure its compliance with tobacco sales laws. Since its introduction, the compliance test has been used extensively as an evaluation tool in studies concerning both tobacco and alcohol. It is also federally mandated as the official method by which state compliance with federal regulations is measured (DiFranza *et al.*, 1992; Jason *et al.*, 1991; Hinds, 1992; Forster *et al.*, 1998; Rigotti *et al.*, 1997; Center for Substance Abuse Prevention, 1996; Williams *et al.*, 1994; U.S. DHHS, 1997). Compliance tests are now performed in every U.S. state and territory, Canada, Britain, and Australia (U.S. DHHS, 1998; Radecki and Zdunich, 1993; Andrews *et al.*, 1994; Bagott *et al.*, 1997). However, despite its widespread adoption, the validity of the compliance test as a measure of retailer compliance or as a measure of the availability of tobacco has yet to be established.

The author has concerns that the methods used to conduct compliance tests are too artificial to accurately represent the interaction between the store clerk and the underage customer. Compliance test protocols employed for enforcement and evaluation purposes have always placed constraints on the behavior of the underage shopper (Riggotti *et al.*, 1997). Typical protocols prohibit the participation of youths who appear older than average; the use of measures, such as makeup or jewelry, to present a mature appearance; the misrepresentation of age; presentation of true or false proof of age; or the use of any story, plea, or conversation intended to persuade the

clerk. Some protocols prohibit the youth from completing the purchase (Cummings *et al.*, 1996). When the compliance test was first introduced, merchants had no reasonable concern about being penalized for making illegal sales (DiFranza *et al.*, 1987; Kirn, 1987). In areas where the law is enforced through the use of underage decoys, merchants may be more careful about who they will sell to. Compliance tests conducted with unfamiliar, inexperienced, non-smoking youths adhering to an artificial protocol may raise the suspicion of leery merchants. Compliance tests conducted under these circumstances may seriously overestimate actual merchant compliance. Unfortunately, the validity of the compliance test has never been assessed by comparing compliance rates obtained by underage smokers behaving naturally and those obtained by non-smokers following a protocol.

In addition to the behavior of the youth used for compliance testing, several other factors can introduce bias into the measurement of compliance. For example, many studies have demonstrated that girls are more often sold tobacco than are boys and that older youths are more successful than younger youths (CDC, 1996; DiFranza *et al.*, 1996; Forster and Wolfson, 1998). Tests conducted with young boys can be expected to yield much higher compliance rates compared to tests conducted with older girls (DiFranza *et al.*, 1996). Since merchant behavior is related to the characteristics of the buyer, it is not consistent over time. In other words, many merchants will refuse some youths, but sell to others. This has important implications for the interpretation of community compliance rates (the proportion of merchants who obey the law during a compliance test). Community compliance rates are typically determined by performing a survey in which all merchants are tested once (a census) or in which a random sample of merchants is tested (Williams *et al.*, 1994). In either case, individual merchants are tested only once. For example, in one survey, 33 percent of attempted purchases resulted in illegal sales (DiFranza *et al.*, 1996). From this, it might be deduced that 33 percent of merchants break the law. In fact, the actual proportion of law breakers was twice as high—this survey included six attempts to purchase tobacco from each merchant and, over the course of six attempts, 72 percent of merchants broke the law (DiFranza *et al.*, 1996). Community compliance rates based on single measurements of merchant compliance do not accurately reflect the proportion of merchants who are obeying the law.

Perhaps the greatest concern over the interpretation of compliance tests is that they cannot mimic how youths select the outlets from which to make their purchase attempts. Although there are no relevant published studies, common sense would suggest that youths do not attempt to obtain tobacco by conducting either a census or a random sample of merchants. It is more likely that youths ask their friends where they buy their cigarettes. Common sense would also suggest that youths would continue to patronize outlets where they have already been successful rather than try a new store every time they want to make a purchase. From the merchants' standpoint, it would be much safer to sell a pack of cigarettes to a particular youth if the first sale to that same youth did not result in legal action. Thus, youths

who live in the community—and are known to the merchants—may have a much higher success rate at purchasing tobacco than would be suggested by the community compliance rate.

In theory, it takes only one merchant in a community to supply a high school with cigarettes. Law enforcement and merchant education interventions are intended to shut off the supply of tobacco to youths by convincing all merchants to obey the law. For the many reasons outlined above, compliance tests may underestimate how frequently young smokers are refused a sale. Thus, compliance tests may seriously overestimate the impact of interventions on merchant behavior.

Another approach to assess the availability of tobacco is by surveying youths (DiFranza *et al.*, 1994; Stanwick *et al.*, 1987; Cummings *et al.*, 1992; Cismoski and Sheridan, 1994). Approaches that have been employed include asking youths how hard it is to purchase tobacco, whether they have ever purchased tobacco, how often they try to buy, and how often they are turned down (Forster *et al.*, 1998; Rigotti *et al.*, 1997; Johnston *et al.*, 1998). Two studies have obtained self-reports of tobacco availability and measured community compliance rates at the same time (Forster *et al.*, 1998; Rigotti *et al.*, 1997). In both studies, youths reported much greater ease at purchasing tobacco than would be suggested by the community compliance rate. In the first study, compliance rates averaged 82 percent across three communities, but the vast majority of young smokers in those communities reported never, or hardly ever, being refused a sale (Rigotti *et al.*, 1997). In the second study, with a measured community compliance rate of 97 percent, 77 percent of youths perceived a high availability of tobacco from commercial sources and 19.5 percent of male smokers still reported that their most recent cigarette came from a commercial source (Forster *et al.*, 1998). Whether community compliance rates or self-reports are the more accurate measure of availability is unknown since self-reported availability has not been validated. However, these self-reports raise further concern that community compliance rates seriously overestimate how hard it is for youths to buy tobacco from stores. If this were true, it would be reasonable to hypothesize that actual and measured community compliance rates would have to be very high in order to reduce the availability of tobacco to minors.

EVIDENCE THAT AVAILABILITY AFFECTS USE Given the extent of the effort to reduce youth access to tobacco, there have been relatively few studies of the impact of such efforts on tobacco use rates (DiFranza *et al.*, 1992; Hinds, 1992; Forster *et al.*, 1998; Rigotti *et al.*, 1997; Jason *et al.*, 1991, 1999a & 1999b). In the first study to assess the effects of an enforcement intervention, Jason was able to demonstrate a 69-percent reduction in youth tobacco use rates in Woodridge, IL (Jason *et al.*, 1991). This effect has persisted for 8 years, despite a dramatic increase in the prevalence of smoking in the rest of the nation (Johnston *et al.*, 1998). Although the initial study consisted of before and after assessments, there were no control communities included. The investigators were able to expand this study into a controlled experiment with the inclusion of another intervention community and control com-

munities (Jason *et al.*, 1999b). The prevalence of tobacco use among youths was nearly 50 percent lower in communities that had instituted enforcement against the merchants (Jason *et al.*, 1999b). Community compliance rates between 90 percent and 100 percent were documented in Woodridge (Jason *et al.*, 1991).

This report was followed by another single-community study conducted in Leominster, Massachusetts, in which compliance rates over 90 percent were also associated with a significant drop in underage smoking rates (DiFranza *et al.*, 1992). This study also lacked a control condition. A third study reported a 22-percent drop in smoking prevalence in a community in the state of Washington after the enactment and enforcement of a ban on tobacco sales to minors (Hinds, 1992). Compliance rates were not measured in this study and a control group was not included. A well-controlled, multi-community trial in Minnesota reported a 28-percent reduction in tobacco use in communities with compliance rates of 97 percent compared to communities with compliance rates of 91 percent (Forster *et al.*, 1998). Reductions in smoking among younger, but not older, adolescents were reported in a four-community controlled trial in rural California, where compliance rates reached 100 percent (Altman *et al.*, 1999).

A sixth study, also a well-controlled, multi-community trial, failed to demonstrate any impact of an enforcement program on tobacco use (Rigotti *et al.*, 1997). This last study has been widely misinterpreted to show that vigorous enforcement has no impact. The investigators actually report that enforcement did not occur as planned. This study was designed to evaluate the impact of the 90-percent community compliance rates seen in the successful interventions (Rigotti *et al.*, 1997). Political considerations resulted in a scaling back of enforcement efforts in all intervention communities and, as a result, community compliance rates peaked at 82 percent. With 82 percent compliance rates, the vast majority of young smokers reported never, or hardly ever, being refused a sale (Rigotti *et al.*, 1997). The proportion of young smokers who purchased their own tobacco decreased very little in the intervention communities. The authors conclude that, rather than demonstrating the futility of enforcement efforts, the study indicates that 82-percent compliance rates are inadequate to impact on the ability of youths to purchase tobacco (Rigotti *et al.*, 1997).

Existing literature is consistent with the conclusion that curtailing illegal tobacco sales to minors can reduce tobacco use rates, but very high compliance rates are probably necessary in order to see any effect since compliance rates seriously underestimate the commercial availability of tobacco to minors. In each of the successful intervention studies in which compliance rates were measured, the rates were all above 90 percent. It is important to note that no enforcement intervention has resulted in increased tobacco use either by inadvertently portraying tobacco use as a forbidden fruit or through any other mechanism.

TRENDS IN THE AVAILABILITY OF TOBACCO TO MINORS

In 1987, it was demonstrated that illegal sales were made to an 11-year-old girl in 75 out of 100 attempts to purchase tobacco (DiFranza *et al.*, 1987). At that time, only 38 states had laws concerning the sale of tobacco to children, but enforcement was almost unheard of (DiFranza *et al.*, 1987; Kirn, 1987; U.S. DHHS, 1990). Several years later, not much had changed. In a survey of 93 U.S. communities in 1991–1992, 77 percent of merchants made illegal tobacco sales (Radecki and Zdunich, 1993).

To provide a picture of the magnitude of the problem, it was estimated that underage smokers consumed 924 million packs of cigarettes in 1998. These cigarettes were worth \$1.86 billion at retail and generated \$222 million of federal tax revenues and \$293 million of state tax revenues (U.S. DHHS, 1990). Given the financial incentives of tobacco sales, it might not be too surprising that merchant education programs to discourage illegal sales have produced disappointing results (DiFranza and Brown, 1992; DiFranza and Librett, 1999; DiFranza *et al.*, 1996). Sustained success in reducing the availability of tobacco to minors has been achieved only through tough enforcement, typically through the frequent inspection of all retail outlets with underage decoys followed by penalties and re-inspection (Jason *et al.*, 1991; DiFranza *et al.*, 1992, 1998).

To encourage state level enforcement, Congress in 1992 enacted Public Health Service Act 398, which stipulates that states are entitled to block grants from the Substance Abuse and Mental Health Services Administration (SAMHSA). The grants are given contingent upon states enacting and enforcing a prohibition on the sale of tobacco to minors (State law regarding sale of tobacco products to individuals under age of 18. 106 STAT. 394, Public Law 102-321, July 10, 1992, Sec 1926. 42 USC 300x-26). States are required to conduct annual random surveys that measure statewide compliance to document the effectiveness of their enforcement efforts (U.S. DHHS, 1997). The limitations of this type of sampling have been discussed above. A recent review was conducted of the Federal Fiscal Year 1996 activities in 50 states, the District of Columbia, and 8 territories (DiFranza, 1999). Eighteen of these jurisdictions failed to provide a single example of a merchant being penalized for making an illegal sale during the previous fiscal year. Forty-seven states, eight territories, and the District of Columbia all reported compliance rates below the 82-percent rate that proved to be ineffective at significantly reducing the availability of tobacco or its use (Rigotti *et al.*, 1997; U.S. DHHS, 1998). Only three states reported compliance rates above 82 percent, and only one state—Florida—reported a compliance rate above 90 percent (U.S. DHHS, 1998). Thus, even though there are isolated communities where compliance rates are above 90 percent, only one state as of 1996 had enforced its law at the state level with sufficient vigor to achieve a level of compliance that could potentially impact on tobacco use rates.

Given the reported levels of compliance across all states and territories, it can be concluded that, with the possible exception of Florida, youth access to tobacco has not changed during the recent past. This conclusion is

supported by longitudinal tracking data from the Monitoring the Future study (Johnston *et al.*, 1998). In annual surveys, high school students have been asked to judge how easy it would be to obtain tobacco. Although the validity of this measure has not been established, 89.1 percent of 10th graders in 1992 felt that tobacco would be “fairly easy” or “very easy” to obtain and 89.6 percent felt this way in 1997.

It is interesting to note that, despite long-standing tobacco control programs in California and Massachusetts, these states had not achieved the 82-percent compliance rate (U.S. DHHS, 1998). While California, Massachusetts, and Florida all had anti-tobacco media campaigns, only Florida had implemented effective enforcement of tobacco sales laws and only Florida has reported an actual reduction in teen smoking rates (Connolly and Robbins, 1998; Pierce *et al.*, 1998; CDC, 1999). Surveys conducted by the Florida Department of Health in 1998 and 1999 demonstrated a decline in the proportion of underage smokers who obtained cigarettes from a store or friend or by giving someone money to purchase for them. This at least suggests that the decreased availability of tobacco to youths in Florida may have contributed to the observed decline in tobacco use (CDC, 1999). Another possible explanation is that this very recent downturn in adolescent tobacco use in Florida is part of a national trend.

CONCLUSION Except in the state of Florida and in scattered communities where laws are being vigorously enforced, there is no evidence that there has been any meaningful reduction in the availability of tobacco to youths and, hence, no impact on youth tobacco use would be expected.

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