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Evaluating Retailer Behavior in Preventing Youth Access to Harmful Legal Products: A Feasibility Test*

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Abstract

This paper reports results from a feasibility study of a community effort to reduce the availability of legal products that youth can use to get “high”. The study evaluated the potential of youth purchase attempts to detect actual changes in retail availability of harmful legal products. These results were triangulated with self-reports from retailers themselves about their own policies and practices. Before the intervention less than half of retailers reported using any of six possible strategies identified as ways to reduce youth access to harmful products and less than 7% of baseline youth attempts to purchase potentially harmful legal products were refused or questioned. After the low dosage intervention, retailers reported increased use of three strategies and a statistically significant increase in the percentage of purchase attempts that were either questioned or refused by retail clerks. These findings (1) demonstrate the potential feasibility of retailer focused environmental strategies and (2) support continued use of youth purchase attempts as a measure of actual retailer behavior.

Keywords

Harmful legal products; environmental strategies; youth purchase attempts; Alaskan retailers

Introduction

Communities across the nation have become increasingly concerned about inhalant use and abuse of other harmful legal products (HLPs) among youth because of increasing prevalence rates and deleterious consequences of misusing these products. Youth inhale legal products such as gasoline, aerosol hairsprays and whipping cream, and solvent-based paints in order to

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get high. The 2006 Monitoring the Future survey results showed that just over 16% of 8th grade students, 13% of 10th grade students, and 10% of 12th grade students reported ever having used an inhalant (Johnston, O', Bachman, and Schulenberg 2006). Youth increasingly also ingest other types of legal products to get high—including nonprescription or over-the-counter drugs (Crouch, Caravati, and Booth 2004) and everyday household products such as cough syrup, aftershave (Egbert, Liese, Powell, Reed, and Liskow 1986) and Lysol (Vinje and Hewitt 1992). The use of harmful legal products (HLPs) that can be inhaled or ingested to get high is a particularly serious and growing problem in many rural Alaskan communities. Recent data has shown that the problem of inhaling and ingesting harmful legal products is especially concentrated among pre-teens in Alaskan rural communities (Saylor, Fair, Deike-Sims, Johnson, Ogilvie, and Collins 2007).

The increasing concern of communities about inhalant use has been coupled with increasing awareness and concern about ability of youth to access and abuse a variety of other legal retail products in order to get high. The Pacific Institute for Research and Evaluation, Akeela, Inc. of Anchorage, and the University of Alaska Anchorage (UAA) were awarded a grant from the National Institute on Drug Abuse to conduct a three-year project to test the feasibility of a multi-component community-based prevention approach (Harmful Legal Product (HLP) Prevention Project) in four rural Alaskan communities to reduce youth misuse of legal products in order to get high (see Johnson et al. 2007). A key component of this community prevention effort was the implementation of a retailer strategy to determine the potential of reducing the retail availability of potentially harmful legal products obtained through retail outlets.

A variety of previous studies have targeted retail availability as a means to address community public health problems such as youth alcohol and tobacco use and access to firearms. For example, efforts to target retailers have been successfully evaluated in previous prevention projects by using youth “pseudo” purchases as a means to evaluate reductions in retail availability (Holder et al. 1997; Holder et al. 2000; Wagenaar et al. 1999; Willner et al. 2000). Typically these purchase attempts have been undertaken by persons who are actually of legal age but who appear underage (and therefore should be likely to have their identification checked by the clerk when a purchase is attempted). Youth purchase attempts also have been successfully implemented in a number of other community-based programs designed to reduce youth access to alcohol (Forster et al. 1994; Wolfson et al. 1996; Wagenaar et al. 1999; Willner et al. 2000).

Youth purchase attempts also have served as an evaluation methodology in other types of prevention and evaluation projects. A community program that rewarded clerks for not selling tobacco (Biglan et al. 1995; 1996) was one of four components of an effective community intervention to reduce youthful smoking in a randomized controlled trial of 16 small Oregon communities. As with alcohol purchase attempts, this intervention used youthful-looking buyers to attempt to purchase tobacco products to determine if they would be required to show any age identification during the purchase attempt. More recently, Sundh and Hagquist (2004) used youth purchase attempts as part of an evaluation of a minimum age law for tobacco purchases in Sweden. Phone-based purchase attempts also were used successfully to measure firearm dealer willingness to sell handguns (Sorenson and Vettes, 2003).

However, because there are no public restrictions on youth purchases of harmful legal products, there were no precedents for implementing youth purchase attempts in this context or for evaluating whether a retailer intervention could reduce the retail availability of harmful legal products to youth. An earlier study (Courser et al. 2007) reported findings from the first (baseline) test of youth purchase attempts of harmful legal products as a measure of the availability of these products and found that conducting such purchase attempts was indeed feasible. The baseline study found that no purchase attempts were refused and that few youth

were questioned about their purchases—findings that closely matched the high levels of perceived retail availability of harmful legal products in these four communities.

This paper describes the further testing of the youth purchase attempt methodology, reports pre-post data on retail availability from the feasibility study, and complements these findings with data from retailer surveys that were a part of the evaluation of effects of the retailer prevention intervention. It should be noted that although the study below reports on the effects of a low-dosage retailer intervention, the focus of the present analysis is on the methodology of using youth purchase attempts—not on the merits or weaknesses of the low-dosage retailer intervention that was implemented.

Retailer Environmental Strategy to Combat HLP Use

The Alaskan HLP Prevention Project developed and implemented a retailer environmental strategy in order to test the feasibility of changing retailer behavior and reducing retail availability of legal products that could be abused by youth. The feasibility test was conducted as a central part of a local prevention intervention in four rural Alaskan communities (see project description in Johnson et al. 2007). As a feasibility study, the overall goal of the project was to determine the potential of implementing a multi-component prevention effort, and in the context of this study, to determine the potential for reducing retail availability of legal products that could be potentially harmful to youth if misused.

The four communities that participated in the project (two northwestern, two southeastern) represented secondary hubs that are service centers for Alaska Native villages in their respective catchment areas. The two northwestern communities are accessible primarily by air, while the other two in the southeastern region of Alaska can be reached by ferry or air. Two of the communities had populations between 3,000 and 4,000, and the other two had populations between 7,500 and 9,000.

The retail intervention developed as part of the HLP project engaged retailers as partners with their communities to undertake six practical actions that were designed to reduce the availability of harmful legal products to youth. Participation in the retail component was voluntary—though in practice many local business owners and managers recognized problems in their community with youth abusing harmful legal products and were interested in learning what they could do as retail owners/managers and as community members.

The retail environmental strategy had three primary components—first, informing retailers about the extent of the problem of youth abuse of HLPs in their community and the potential negative health consequences; second, meeting with retailers, providing them with a retailer guide, and engaging them in taking one or more actions to limit the availability of harmful legal products to youth; and, third, providing training and technical assistance to businesses on how to implement preventative actions to limit availability of these products. The strategy also was designed with a media component; however, the remote nature of these communities meant that there were few community-specific media outlets outside of scanner channels.

The first step in the HLP retail environmental strategy—ensuring that retailers were aware of the extent of HLP use by youth and of the deleterious health consequences that could result from misusing these products—was accomplished primarily through an in-person meeting with and presentation to individual retailers. In order to maximize access to retail outlets, the project hired two part-time staff members in each community—a prevention organizer and a data collection coordinator. As community members, these staff members were very familiar with community norms and how best to approach retail managers and owners about being part of the project.

The second step of the Alaskan HLP retail environmental strategy usually was conducted in conjunction with Step 1. As part of the meetings with retail managers and owners, community prevention organizers and data collection coordinators provided retail managers and owners with a guide that included an overview of the problem of HLP use by youth, and which provided details on actions retailers could take to limit youth access to these products. These managers and owners then were encouraged to implement one or more of the six preventive actions to reduce availability of HLPs: 1) identifying legal but harmful products in a retailer's inventory; 2) developing and implementing written store policies about the sale of these products to youth purchasers; 3) posting warning labels or signs near these products to highlight that the retail establishment was monitoring purchases of these products by youth; 4) controlling display and availability of legal products that could be abused; 5) substituting products that cannot be abused in place of products that are harmful (e.g., substituting Cool-Whip in place of aerosol whipped cream); and 6) restricting or prohibiting sales of legal products that could be abused to youth purchasers. The guide also included support materials such as signage, sample policies about sales of HLPs to youth, and shelf tags that indicated that store staff were monitoring sales of HLPs.

The third step of the retailer intervention involved providing technical assistance to retail staff to assist them in implementing one or more of the preventive actions. This was accomplished primarily through follow-up meetings with retail managers and staff, though some technical assistance also was provided via phone. Full details about the retail environmental strategy implemented as part of this project can be found in Courser et al. (2007).

Retail intervention activities were conducted over a four-month period of time in 2006. A total of 35 businesses across the four communities (a census of businesses that sold one or more harmful legal products in the four communities) were contacted by community members working on the project. Twenty agreed to a face-to-face meeting with project staff, and 18 of the 20 businesses (80%) agreed to participate in the project. Only two retailers explicitly refused. Obstacles to participation in the project included the additional demands during hunting and fishing seasons when staffing was sporadic and some stores were closed, as well as during the summer tourist season, when retail outlets were very busy. During these visits, on average, each retailer agreed to implement two of the suggested preventative actions. The most common action that retailers agreed to implement was to control the display and availability of harmful legal products. Thus, retailers generally were very supportive of the project and willing to be part of the retail environmental strategy.

The evaluation of the retailer intervention used a pre-post design and focused on the feasibility of changing actual levels of retail availability and retailer behavior without a full comprehensive trial but rather a part of a low-dosage feasibility test. Figure 1 (below) presents a graphical depiction of the retailer intervention and evaluation strategy implemented as part of this project.

Test of Evaluation Methods

Although retail environmental strategies have been included in other comprehensive community prevention programs for substances such as alcohol and tobacco, prior to this feasibility test it was unknown (1) whether purchase attempts and retailer self-report surveys could provide evidence of retail changes under less than full dosage conditions and (2) if the evaluation methodologies were sufficiently sensitive to detect even small changes in retailer behavior. Following the precedents from alcohol and tobacco, the evaluation of the HLP project retailer component included two key data collection activities: (1) youth attempts to purchase harmful legal products and (2) self reports of retailer actions based upon a telephone survey of retailers in each community that sold one or more harmful legal products. Although the actual

retail intervention activities were implemented over a four month period in 2006, data collection took place over a 12 month period, with baseline data being collected in December 2005 and January 2006, and post-test data being collected in November and December 2006.

Key evaluation variables were changes in (a) retailer knowledge about harmful legal products and their level of concern and responsibility for sales of these products, (b) specific actions taken by retailers to limit the availability of harmful legal products to youth, as well as (c) changes in successful youth purchase attempts in which no questions were asked of the youth by the retailer. If there was evidence of changes, the results from the retailer self reports and the independent youth purchase attempts should be relatively consistent with each other. If any changes were observed in these variables, such changes were expected to be modest in keeping with the low dosage of the feasibility test. In short, we wanted to know if it was feasible to change retail behavior and if the evaluation methods used were capable of detecting such changes.

Youth Purchase Attempts

The methodology for the youth purchase attempts of HLPs drew on the literature on youth alcohol and tobacco purchase attempts and was designed to measure the actual availability of these products to youth between 12 and 15 years of age both before the retail environmental strategy began and after strategy activities had been completed.

Prior to beginning the purchase attempts, each community data coordinator conducted an inventory of all businesses in their community. Only retail establishments that sold one or more of the targeted products were included in the sample for the purchase attempts. Across the four participating communities, a total of 35 businesses composed the sample. The types of businesses targeted included supermarkets, small “Mom and Pop” groceries, convenience stores (e.g. 7–11s), pharmacies, hardware stores, hobby shops, gas stations, and paint stores. Some retail establishments had multiple businesses within them and were considered two businesses for the purposes of the purchase attempts (i.e., a grocery store that also has a gas station attached or in the parking lot). These establishments were listed twice, as separate businesses. Purchase attempts were made by youth purchasers on a variety of weekday and weekend days and at a variety of day and evening times. Based upon preliminary interviews conducted in each community and on published research on inhalants, three purchase attempts were completed with each retail establishment that sold a targeted product in each community in order to provide a valid sample of actual availability.

For this feasibility test, all youth purchasers were community volunteers, male, and between the ages of 12 and 15. Before each wave of purchase attempts, youth purchasers in each community were trained by the project data coordinator on how to implement the purchase attempts. Topics covered in the training included how to dress, products being targeted for purchase, how to make the purchase attempt, how to respond to questions from retail staff, how to handle situations in which friends and/or relatives might be present in the retail establishment and what to do after the purchase attempt was complete. The training session for the youth purchasers also included a discussion facilitated by the community data collector on the danger of personal inhalant use. The goals of this training were to ensure that the purchase attempts were conducted in a standardized manner across youth volunteers and across communities and to ensure the safety and health of the youth volunteers.

The products targeted for purchase were commonly abused legal products (not limited to inhalants alone)—spray paint, correction fluid, cough syrup, aerosol whip cream, and gasoline. Youth purchasers attempted to purchase at least one of the following products in the amounts specified: Gasoline—½ gallon of gasoline, spray paint—12 oz. can of Krylon or Rustoleum (any color), aerosol whipped cream—7 oz. can of Redi-Whip, Glue—2-one oz. tubes of hobby

glue (or other glue such as Super Glue that contains the chemical toluene), and cough syrup—2-four oz. bottles of Robitussin DM. The quantities specified were such that, if the retailer was concerned about potential abuse of the product, the amount should stimulate the attention of the clerk.

The project's community data coordinators supervised the youth volunteers, provided transportation, and prior to each purchase attempt, told each youth purchaser where to make the purchase attempt and the specific product (brand, size, and quantity) to purchase. Although the field-based nature of this data collection activity made true random assignment impractical, the assignment of youth purchasers to businesses was done in a way that approximated random assignment. The coordinator also provided money to the youth to make the purchase and recorded the outcome of each purchase attempt, along with a summary of any questions asked by retail staff. Youth purchasers could not be related to staff members of any businesses being visited, and if a youth purchaser indicated that staff members in the business knew him, the purchase attempt was reassigned to another youth volunteer.

Because we expected that retail staff would question the youth purchasers about their purchase, the youth volunteers were provided with reasons for making the purchase (such as, "I am making a fort" as a reason for purchasing spray paint or "we are having a party" as a reason for purchasing aerosol whip cream). These reasons were designed to be plausible in Alaskan culture and were developed in consultation with community data coordinators in each community. Youth were trained to use their own words but to stick to the "story" in the scripted answers. Community data coordinators were encouraged to conduct a practice session with the youth purchasers to practice using the scripted responses and responding to possible questions. In a few instances, the youth volunteers or their parents were uneasy using the reasons listed above because they were not truthful. The research team asked those youth volunteers not to use scripted responses that they were uncomfortable with or to reply with something generic. In one largely Alaska Native community, the data coordinator, youth, and parents felt strongly that being asked to be untruthful was a significant problem. The data coordinator requested that the volunteers be able to reply, "My friend asked me to buy this" if asked why they were purchasing these products. The data coordinator reported that this generic and honest response ameliorated the concerns that had been expressed.

Two waves of purchase attempts were conducted in the four communities that participated in the project, with the first wave occurring during July, August, September, and October of 2005 and the second wave occurring between October and November of 2006. A total of 114 purchase attempts were carried out during the Wave 1 (2005) purchase attempts. These 114 attempts yielded a total of 95 usable cases (in 19 cases the youth purchaser was unable to complete the purchase attempt due to the retail outlet being out of stock of the targeted product and not carrying any of the other targeted products)¹. A total of 130 purchase attempts were carried out during the Wave 2 (2006) purchase attempts, yielding a total of 124 usable cases. In six cases the youth purchaser was unable to complete the purchase attempt due to the retail outlet being out of stock of the targeted product and not carrying any of the other targeted products.

Telephone Survey of Retailers

Telephone surveys of retailers were conducted using a survey instrument that measured: (1) knowledge about legal products that youth can use to get high, (2) perceived ability of youth

¹The number of purchase attempts that could not be completed due to a store being out of stock of the targeted product may seem unusually high. While this certainly would be the case for businesses in the continental United States, the businesses in the targeted Alaskan communities rely entirely on boat and air shipments of commodities and these shipments do not always occur at regular intervals or as frequently as they would in the continental United States.

to purchase or shoplift a number legal products that can be abused, (3) levels of concern and responsibility about legal products that can be inhaled or otherwise abused by youth to get high, and (4) specific actions taken or policies implemented by retailers to restrict availability to youth. The instrument was developed by drawing on previous survey instruments that had been successfully fielded with retailers and by adapting constructs and questions that had been used successfully in other types of surveys. For some constructs included in the instrument (such as specific actions taken by retailers) new questions had to be developed. The survey instrument was pilot tested with four businesses in Anchorage, Alaska prior to the start of the wave 1 field period. A variety of improvements were made to the questionnaire based on the pilot test.

Respondents for the survey were owners and managers of the 35 retail businesses in the four communities that sold legal products that youth could inhale or ingest to get high and the list-based sampling frame was developed as part of a business inventory conducted by community data coordinators in each community. Interviews were completed with a wide variety of different types of retail establishments, including craft stores, office supply stores, pharmacies, gas stations, grocery stores, and “big box” super-centers. The number of employees in these businesses ranged from three to 125.

Two waves of data collection were completed—one in December 2005, and one between December 2006 and January 2007. Wave 1 interviewing was conducted by the University of Anchorage Justice Center and wave 2 interviewing was conducted by the Washington State University Survey Research Center. For both waves of data collection, telephone survey interviewers were trained by project staff members using a question-by-question approach. This allowed the project staff to work directly with interviewers and to ensure that each question could be read exactly as it was written. This approach also allowed project staff to answer questions from interviewers and allowed project staff to provide background information on the survey and the Alaskan retail environment directly to interviewers. As a quality assurance check, project staff monitored interviews during each wave of data collection to ensure that the questionnaire was being administered with fidelity. At baseline, 29 interviews were completed (Response Rate=83%). A total of 18 interviews were completed as part of the follow-up retailer survey (Response Rate=62% of follow-up sample; 52% of original sample).

Findings

Findings from the youth purchase attempts and the telephone survey of retailers follow below.

Youth Purchase Attempts of Retail Products

Youth purchase attempts were used to test if the retail intervention produced a significant reduction in the availability of harmful legal products to minors over time. Table 1 (below) presents the results from both waves of purchase attempts that were conducted as part of the project.

As Table 1 shows, approximately 92% of purchase attempts were successful at baseline, i.e., the attempt generated no questions from the retailer. In only eight cases, (8%) retailers asked questions of the youth purchaser; however, in no case was the purchase of the inhalant or other harmful product refused. At wave 2, following the low dosage retailer intervention, retail staff either asked questions or refused the sale in 18% of the attempts. Generalized linear mixed modeling was used to analyze the results in order to take into account that multiple purchase attempts were nested within retailers. These analyses examined a dichotomous wave indicator as a predictor of purchase attempt outcomes. The intercept was posed as a random effect, which implies that non-independence occurs in purchase attempt outcomes due to multiple observations being nested within retailers. Although there is an additional level of nesting

(businesses within each wave of data collection), the sample sizes were insufficient for adequate treatment of a three-level model (see Radenbush and Bryk 2002). The models in this analysis indicated that there was a substantial level of non-independence due to nesting ($ICC=.291$). Moreover, the analyses indicated that retailers were 3.93 times more likely to sell at wave one relative to wave two $t(40)=-3.24, p<.01, r=.14$.

Telephone Survey of Retailers

Descriptive results are presented below for both waves of the telephone survey of retailers. Due to the inventory of businesses changing between 2005 and 2006 (as new businesses opened and others closed) and due to staff turnover within businesses, only 14 cases could be matched for repeated measures analyses. As a result, the data from both waves of the survey is treated as a repeated cross-section. Outcomes reported below from the telephone survey of retailers include a mixture of scores on scales and descriptive statistics drawn from single items included on the survey.

Retail knowledge about legal products that can be abused was measured by ten questions that asked whether youth could use a variety of specific products to get high; these questions functioned as a “knowledge quiz” in that the questions included both products that could be misused in order to get high and products that could not be misused by youth to get high. These questions were formed into an additive scale in order to assess overall retailer knowledge about harmful legal products. Reliability analyses showed that the ten knowledge items have an alpha value of .594. In both the baseline and follow-up waves of the telephone survey of retailers, retail managers and owners demonstrated a relatively high knowledge of legal products which can be abused, correctly answering on average eight of ten knowledge questions in the first wave of the survey and 7.7 out of ten in the second wave of the survey. This finding demonstrates that retailers already possessed considerable knowledge about the types of legal products which could be abused by youth, and this knowledge generally was maintained across both waves of the retailer survey.

Retailers also perceived that youth could easily purchase and/or shoplift legal products that they could abuse in order to get high. A series of questions asked retail staff to rate how easy or difficult it would be for youth to purchase a variety of harmful legal products. A second series of questions asked retail staff to rate how easy or difficult it would be for youth to shoplift these same harmful legal products. In both waves of the survey, respondents indicated that aerosol sprays, gasoline, and spray paint were the harmful legal products that could be most easily obtained by youth via purchase or theft.

Moreover, in both waves of the survey, retailers expressed a very high level of concern about legal products that could be abused by children and youth in order to get high. Table 2 (below) shows that when asked whether they were concerned about the problem of youth misusing harmful legal products in order to get high, 86.2% of retail managers/owners indicated in the wave 1 survey that they were “very concerned” or “somewhat concerned” about the problem of youth abusing harmful legal products in order to get high. For wave 2 of the survey, this proportion increased slightly to 88.2% of the 14 retail managers/owners interviewed for both waves of the retailer survey.

Retail managers and owners also tended to feel that retail establishments had some responsibility to prevent youth from obtaining harmful legal products. For example, a majority of retail managers/owners across both waves of surveys agreed with the statement that, “Retailers are responsible for asking questions when youth purchasers attempt to purchase legal products that can be abused.” Additionally, a majority of retail managers agreed with the statement, “Retailers are responsible for taking actions to prevent youth from purchasing legal products that can be abused.”

The results from the telephone survey of retailers helps explain the high levels of cooperation from retail managers and owners. The results above show that retailers generally were aware of the problem of HLP abuse, were concerned that it could happen in their communities, and that many retailers felt that they had some responsibility to take action to prevent HLP abuse by youth in their communities.

The development of store policies related to sales of harmful legal products to youth was a central target for the retailer intervention. Items included in both waves of data collection asked whether businesses had such a policy, whether the policy had been put into writing, whether procedures existed to guide the implementation and use of the policy, whether the policy was posted publicly, and whether compliance with the policy was monitored by retail staff. Table 3 (below) presents descriptive findings for these items.

As can be seen from Table 3, the proportion of businesses that reported having a policy in place regarding sales of harmful legal products to minors increased from 31.0% at baseline to 38.9% at wave 2. In addition, three other actions associated with having a policy—putting the policy in writing, posting it publicly, and developing procedures to assist staff in implementing the policy—also increased between the first and second waves of the retailer survey. However, the percentage of respondents indicating that policy was shared formally with staff decreased modestly between the survey waves and the outcome of monitoring compliance with policies really did not change between waves 1 and 2.

A second central goal of the retail intervention was to engage retail staff and managers in taking actions to reduce youth access to harmful legal products. Questions included on the telephone survey of retailers asked whether retail establishments used any of six possible strategies to reduce youth access to harmful legal products. Prior to the retail intervention, self-reported use of possible strategies to reduce youth access to harmful legal products varied from a low of 6.9% (for product substitution) to a high of 44.8% (for asking questions of youth). See Table 4. After contact with project staff and participation in the retail intervention, there were increases in the use of three strategies (product placement, use of shelf tags and signage and refusing sales).

Discussion

The results presented above show that it is feasible to achieve a reduction in availability of harmful legal products which can be used by children and youth in order to get high as measured via youth purchase attempts. There was a statistically significant increase in the percentage of purchase attempts (pre and post intervention) either questioned or refused by retailers by youth. This is particularly important since the test was conducted with a low dosage retail intervention that included a single visit to retailers without formalized subsequent visits or structured booster activities. The positive results achieved provide considerable support for future tests of retailer interventions under full dosage conditions (at least 2–3 years of contacts, training and technical assistance, following the protocols used successfully in alcohol and tobacco).

The change in retail availability found through the purchase attempts was in the desired direction and was confirmed by retailers' self-reports of changes they had made following the program contact as part of the low dosage intervention. Before the retail environmental intervention, less than half of retailers reported using any practical strategies to limit youth access to harmful legal products. As described above, after a single visit with project staff and the provision of project materials, participating retailers reported increases in the use of three of the targeted strategies.

This is the first reported retail environmental strategy that targeted the availability of harmful legal products to youth. All previous studies of retail availability have focused on alcohol,

tobacco, or firearms—products which have clear age restrictions and which are clearly illegal for youth to purchase (Grube 1997; Willner et al. 2000; Biglan et al. 1995, 1996; and Sorenson and Vittes 2003). Since there are no existing age limits on sales of legal but harmful products to children and youth, undertaking youth purchase attempts appears to be a valid means to document changes in retail availability of such products. Retailers in any community may view the abuse of their legal products as “not their problem” or as a problem that affects only parents and schools. While these results demonstrate the potential efficacy of enlisting retailers as partners in altering availability, achieving real changes in actual sales practices to reduce availability of harmful legal products remains a considerable challenge.

The methodological implications of this study are even more important, in that they describe how a multi-method approach can and should be used to evaluate the impact of retailer environmental strategies. Both of the evaluation methods used in this analysis—the telephone survey of retailers and the youth purchase attempts—are complementary and increase confidence about the actual impact of the retailer environmental strategy. The results from the telephone survey of retailers, which showed positive changes in both retailer perceptions and retailer behavior from pre-test to post-test, were based on retailer self-reports and suffered from modest response rates at Wave 2. Based upon retailer self-reports alone, one would be uncertain as to potential effectiveness of a retailer intervention in reducing actual retail availability. However, results from the youth purchase attempts, independent of the retailer survey, provided an actual measure of availability and increased confidence that the low-dosage intervention actually had some success in reaching its distal outcome of reducing availability. However, youth purchase attempts by themselves are not sufficient as an evaluation methodology because while they provide a measure the actual behavior targeted by a retail availability component (i.e., interventions as point of sale), they cannot measure other important pre-sale efforts, including labeling, warning signs, product placement, locked cabinets or substitution. Other evaluation methodologies—such as retailer surveys in this case—were needed to understand changes in other immediate outcomes, and thus, to understand why the level of actual availability changed from wave 1 to wave 2.

The pre- and post-intervention findings from the youth purchase attempts demonstrate the feasibility of implementing purchase attempts for measuring actual availability of legal products in retail outlets and show sensitivity to detect modest effects under low dosage conditions. The mixed-mode evaluation methodology used in this study also helps validate the use of youth purchase attempts as an evaluation methodology for full-scale retailer prevention interventions, in that the results from the telephone survey of retailers and the youth purchase attempts were generally consistent across both waves of data collection.

Although the present study has important methodological and substantive implications, it should be noted that a definitive statement cannot be made about the impact of the retailer environmental strategy without a comparison group. Unfortunately, in this feasibility study, there was insufficient funding to utilize comparison communities for either the purchase attempts or retailer surveys. Utilization of comparison groups in future studies also would increase confidence in youth purchase attempts as a valid and reliable methodology for evaluating the impact of retailer environmental strategies.

In addition, it should be noted that the retail environmental strategy was implemented in a real-world context that made it impossible for the research team to have complete control over external conditions, since all intervention activities were implemented by community-indigenous staff. However, systematic efforts were made to ensure that data collection activities were conducted in a standardized manner for both the telephone survey of retailers and the youth purchase attempts. Important quality assurance checks such as in-depth training for both telephone interviewers and youth purchasers, monitoring of telephone survey interviews, and

debriefing meetings with community data coordinators were used to help ensure that all data collected as part of the evaluation of the retail environmental strategy was done with high levels of fidelity to the research protocols. As a result, while we are unable to completely rule out alternative explanations such as youth purchasers interacting with retail staff differently across waves of purchase attempts, all information we have points to the changes reported in this paper being actual changes in behavior by retailers and not just artifacts of the data collection process.

Because the study reported above was not a full test of retailer behavior as part of a community trial, the next research challenge is to implement the retail environmental strategy described above in other communities under a full dosage condition to test the effects of this intervention as a mechanism for reducing youth retail access to harmful legal products. Our feasibility study involving four communities in Alaska demonstrates the potential to both change retailer behavior as well as to utilize youth purchases and retailer surveys as complementary measures of the actual availability of legal products subject to abuse. Since children and youth also can obtain harmful legal products for abuse from home and school environments in addition to retail outlets, such a retailer environmental strategy is most potentially effective as part of a comprehensive community approach to reduce the abuse of legal products to get “high”.

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Figure 1.
Conceptual Framework of the AK HLP Project Retailer Component

Table 1

Wave 1 to Wave 2 Comparison

	2005	2006
Product sold with no questions or restrictions	87 (91.6%)	101 (81.5%)
Questions asked or sale refused	8 (8.4%)	23 (17.7%)
N	95	124

W1-W2 Difference significant at the .01 level

Effect size: $r = .14$, which is a small effect (Cohen, 1988)

Table 2
Retailer Concern About Harmful Legal Products

	% of Respondents indicating that they were “very concerned” or “somewhat concerned”
Wave 1	86.2%
Wave 2	88.2%

Wave 1 n=29; wave 2 n=18.

Table 3

Retailer Policies for Sales of Harmful Legal Products to Youth: Percentage of Businesses

	W1 Overall (n=29)	W2 Overall (n=18)
Business has a policy about sales of HLPs to youth*	31.0%	38.9%
Policy has been put into writing	3.4%	16.7%
Policy is posted publicly	3.4%	11.1%
Procedures have been developed to guide use of the policy	3.4%	16.7%
Policy is shared formally with staff	27.6%	22.2%
Compliance with policy is monitored	27.6%	27.8%

Table 4

Retailer Strategies Used At Baseline to Limit Sales of Harmful Legal Products to Youth: Percentage of Businesses Using Each Strategy

	W1 Overall (n=29)	W2 Overall (n=18)
Product Placement	37.9%	38.9%
Shelf Tags/Signage	10.3%	17.6%
Asking Questions	44.8%	44.4%
Calling Parents/Calling Home	17.2%	16.7%
Product Substitution	6.9%	5.6%
Refusing Sales	41.4%	44.4%