

Field Trial of Alcohol-Server Training for Prevention of Fetal Alcohol Syndrome*

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ABSTRACT. Objective: An alcohol-server training program to prevent fetal alcohol syndrome was developed, implemented, and evaluated in a comparison study of public drinking establishments in New Mexico and Oregon. **Method:** The management and serving staffs of 148 establishments licensed for on-premise alcohol sales in the two states studied were trained to discourage alcohol consumption by pregnant customers. Pre- and post-tests of server responses to pregnant-appearing “pseudo-patron” actors ordering alcohol in experimental ($n = 148$) and comparison ($n = 183$) establishments were a key method of evaluating the efficacy of this intervention. **Results:** Within-group chi-square analyses compared rates of service refusal at baseline with 1-month, 6-month, and 12-month follow-up points for both the trained (experimental) and the comparison establishments. No differences were found between ex-

perimental and comparison establishments at baseline at either site, but significant differences were found for New Mexico at each posttraining measurement point. In Oregon, the refusal rate at baseline increased from 1.5% at baseline to 8.3% at 1 month, which only approached significance. In New Mexico, at baseline the refusal rate was 8.6%, and it rose to 39.2% at 6 months ($p < .0001$, odds ratio = 6.83) and remained high at 28.2% at 12 months ($p < .001$, odds ratio = 4.15). No similarly significant gains were recorded at control establishments. **Conclusions:** Supplemental responsible beverage service training for alcohol servers to aid in the prevention of fetal alcohol exposure can be effective in reducing the serving of alcohol to visibly pregnant women, with robust effects continuing over the subsequent year in the New Mexico establishments. (*J. Stud. Alcohol Drugs*, 72, 490–496, 2011)

RESPONSIBLE BEVERAGE SERVICE practices have reduced dangerous consumption of alcohol by patrons of on-premise establishments (Coutts et al., 2000; Holder and Wagenaar, 1994; Saltz, 1987; Saltz and Hennessy, 1990), with a primary goal of preventing driving under the influence (Saltz, 1997). Responsible beverage service strategy is also frequently targeted at reducing youth access to alcohol by training servers and managers of alcohol retail outlets. Despite laws in every state prohibiting the sale of alcohol to persons younger than age 21, research shows that 34%–74% of alcohol retail outlets sell alcohol to underage buyers (Britt et al., 2006; Paschall et al., 2007). To reduce alcohol sales to underage persons, many states have implemented responsible beverage service training for alcohol sellers (including store clerks and managers). Some research demonstrates the effectiveness of training managers and servers in reducing sales to underage buyers (Buka and Birdthistle, 1999; Preusser et al., 1994; Saltz, 1997; Toomey et al., 2001), whereas other

research indicates that enforcement checks (in which underage buyers attempt to purchase alcohol, and if successful, penalties are levied against the seller and possibly the establishment) have greater effectiveness than training (Grube, 1997; Grube and Nygaard, 2005; Scribner and Cohen 2001; Wagenaar et al., 2005).

A major public health risk exists from alcohol consumption by pregnant women, and a neglected area of study is alcohol service to pregnant women in on-premise establishments. Alcohol consumption during pregnancy may cause mild to severe preventable anomalies in the offspring. A range of symptoms can result from prenatal alcohol exposure (Institute of Medicine, 1996), now designated fetal alcohol spectrum disorders (FASD; Hoyme et al., 2005). The most severe disorder within this range is fetal alcohol syndrome (FAS; Aase, 1994; Jones and Smith, 1973; Jones et al., 1973). The prevention of alcohol exposure in the prenatal period, and therefore FAS, was the focus of this study. Prevention of FAS has been advocated in a variety of venues using multiple approaches targeting universal, selective, and indicated levels (formerly referred to as primary, secondary, and tertiary; Awopetu et al., 2008; Handmaker et al., 1999; Hankin, 1994, 2002; May, 1995).

It is important to initiate public health interventions in selected environments (Hankin et al., 1996) and in the substrata of society in which high-risk women are found, because universal strategies have minimal to no impact on those who drink most heavily during pregnancy (Armstrong

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et al., 2009; Hankin et al., 1996; Jacobson et al., 1996; Randall, 2001; Riley et al., 2003; Smith et al., 1987; Weiner et al., 1989). One of the universal approaches that has shown a modest impact is the alcoholic beverage warning label. Hankin et al. (1998) examined the results of the alcohol warning label on participants in an inner-city prenatal clinic. The results indicated a modest, short-term decline in alcohol consumption among subjects as the participants became informed and acknowledged the message contained in the beverage warning label. Research by Parackal et al. (2010) found that a majority of women of childbearing age surveyed in New Zealand gave a high rating for an alcohol warning label as a source of information on alcohol consumption in pregnancy. Interestingly, women younger than 30 years of age were more likely to give a high rating to the beverage warning label than women older than 30, a finding that is similar to the findings of Hankin et al. (1996). However, alcohol warning labels, like seat belt laws and advisories, may be most effective in educating people within specific, influential interpersonal networks and also the next generation of citizens who are exposed to the labels and information from a very young age (Kaskutas and Graves, 1994; Kaskutas et al., 1998).

Indicated interventions targeting alcohol-dependent women identified by health care providers may also be ineffective, especially because many of the highest-risk women present to prenatal clinics late in pregnancy after significant fetal damage has already occurred (Hankin et al., 2000; O'Connor, 1999). On the other hand, case management for indicated prevention can be quite effective in reducing drinking levels, initiating birth control, and eliminating FAS births in future or subsequent pregnancies if a woman is identified as a problem drinker before or early in a pregnancy (May et al., 2008). However, such programs of case management are very costly, labor intensive, and difficult for managers to maintain over long periods because the multiple problems of clients who drink heavily cause burnout of staff members.

The public drinking establishment may provide a promising venue for cost-efficient, relatively simple selective prevention. These are environments frequented by drinking women of childbearing age, large numbers of whom drink in public regularly and at levels that would endanger a fetus (Dresser, 2004; Wheeler et al., 2004). Alcohol servers are uniquely positioned to disseminate information on fetal alcohol exposure risks to the alcohol-consuming public and to directly intervene in the consumption of alcohol by pregnant women. This study trained servers to perform both selected and quasi-universal prevention functions, directly discouraging consumption of alcohol by pregnant women and providing educational materials to the public drinking population on the risks of fetal alcohol exposure.

The study sites addressed in this research—Oregon and New Mexico—are among the few states that mandate responsible beverage service training, and New Mexico may be

the only one to mandate the inclusion of an FAS component within the curriculum. Otherwise, the two state curricula are virtually identical. Despite this component in the New Mexico mandatory training, little has been done to provide alcohol servers with the specific behavioral skills to discourage alcohol consumption by pregnant patrons. This article describes and compares the experiences with and efficacy of server training as carried out in communities in Oregon and New Mexico.

Method

Five communities in New Mexico and five communities in Oregon were identified as training sites. Establishments licensed for on-premise consumption of alcoholic beverages, including bars, restaurants, and nightclubs, in the training sites were contacted through the mail about receiving additional responsible beverage service training for their staff. Staff at the chosen establishments were asked to mail back a separate prepaid postcard if they were interested in the additional training. Establishments for training were randomly selected from this pool, with equal numbers and license categories (e.g., restaurants, stand-alone bars, and nightclubs) of nonresponding establishments in the same communities randomly selected for comparison. The New Mexico cities were chosen as being socioeconomically and ethnically representative of the population in New Mexico. Cities in Oregon were selected to provide a representative balance among urban, suburban, and rural communities. Recognizing the potential nonequivalency of these samples in initial motivation, baseline data were collected in both samples.

The Oregon Research Institute and the Center on Alcoholism, Substance Abuse, and Addictions at the University of New Mexico developed similar FAS prevention training for alcohol servers. The training program provided the following: (a) medical and social cost information for servers, managers, and licensees on the nature, causes, and consequences of FAS; (b) discussion of legal issues in service or service refusal to pregnant women; and (c) the development of skills necessary to avoid alcohol service to pregnant women. The training included a blend of in-person training and videotaped intervention techniques. A written manual to supplement the video was included in the training. The manual and video were left with the establishment for future employee training and periodic review. Servers were encouraged to offer FAS information, promote nonalcoholic alternative beverages, respond respectfully to customer concerns with accurate information, enlist a pregnant customer's partner and peers to encourage her abstinence, invite customers to obtain additional information, and provide customers with informational brochures on FAS, which were supplied with display racks as part of the study. These brochures were resupplied on request by the project throughout the study period. Servers sometimes role-played the strategies in small

Facts about FAS	Strategies for servers
<ul style="list-style-type: none"> • There is no known safe level of alcohol consumption during pregnancy. 	<ul style="list-style-type: none"> • Offer FAS information to customers in a nonthreatening manner.
<ul style="list-style-type: none"> • FAS babies are born to nonalcoholic women as well as to women who have problems with alcohol. 	<ul style="list-style-type: none"> • Promote a variety of nonalcoholic beverages.
<ul style="list-style-type: none"> • There does not appear to be a “safe period” in pregnancy for drinking. 	<ul style="list-style-type: none"> • Listen to customers’ concerns. Respond respectfully and with accurate information.
<ul style="list-style-type: none"> • Alcohol passes easily from the placenta to the fetus. 	<ul style="list-style-type: none"> • Find out what customers know about drinking and pregnancy by asking questions.
<ul style="list-style-type: none"> • FAS is random and unpredictable. 	<ul style="list-style-type: none"> • Support pregnant customers who choose not to drink alcohol.
<ul style="list-style-type: none"> • FAS is the leading preventable cause of mental retardation in the United States. 	<ul style="list-style-type: none"> • Encourage a pregnant woman’s support network (partner, friends, and family) to remain alcohol free during the pregnancy and beyond if she will be nursing the child.
<ul style="list-style-type: none"> • All types of alcohol (beer, wine, liquor) can be equally harmful during pregnancy. 	<ul style="list-style-type: none"> • Invite customers to call toll-free 1-866-446-8500 for more information about FAS.

FIGURE 1. Card with fetal alcohol syndrome (FAS) facts and strategies for servers

groups. Managers and owners were encouraged to expand and develop in-house policies for informing customers and declining alcohol to pregnant women, including provision by the project of model house policy and cautionary menu statements.

In New Mexico, the comprehensive FAS prevention training was provided to 730 individuals who served alcohol, representing 81 establishments. A total of 101 establishments in the same cities in New Mexico were also chosen as controls, and no training occurred with them or their personnel. In Oregon, more than 600 servers and owners were trained in 67 establishments, and 82 establishments served as controls. Training sessions were conducted locally and were limited to individuals who were already state certified. Each person attending the 2-hour training session received a stipend and a laminated card with FAS facts and strategies for servers, as displayed in Figure 1.

Training effectiveness was evaluated by pretests and posttests of server responses to pregnant-appearing “pseudo-patrons” ordering alcohol in experimental (trained) and comparison (nontrained) establishments. Using pseudo-patrons to evaluate the effectiveness of various server training models is well established (Dresser, 1998; Glikman et al., 1993; McKnight, 1989, 1991, 1993; Russ and Geller, 1987; Saltz, 1989). This report describes the field test data using pseudo-patrons in Oregon, New Mexico, and the two sites combined.

Establishments included in the trial were selected to meet minimum safety and serving criteria. Each was judged to be

physically safe for the pseudo-patrons and had to serve beer on site without requiring an accompanying food order. Experimental establishments were matched by type of premise (i.e., restaurant, bar, or nightclub) with comparison establishments in the same community within each state. Women appearing to be about 8 months pregnant (wearing a concealed actor’s pregnancy harness) entered an establishment with a male companion. Pseudo-patrons were blind to whether establishments were experimental or comparison. Female pseudo-patrons were scripted to display very mild signs of intoxication because we wished to signal risk to the server while avoiding service refusal based on intoxication rather than on pregnancy. The female pseudo-patron ordered a beer in an opaque bottle and, if served, soon emptied the beer surreptitiously in the bathroom. She then quickly ordered another, suggesting that she might be a rapid and therefore risky drinker. If and when service was refused, the pseudo-patron and her companion thanked the server for his or her concern and withdrew the order. Server responses were scored on an ordinal scale reflecting the core elements of the training. The pseudo-patron protocol was repeated over four time-point assessments: before training and at 1 month, 6 months, and 12 months after training. No repeat visits by a particular team were made to any establishment.

Findings on a single binary dependent variable (whether the female pseudo-patron’s order was served or refused) are reported in this article. Analyses were performed on the variable “frequency of refusal” using chi-square and odds ratio

TABLE 1. Alcoholic beverage service and refusal rates over time at establishments that received FAST

Variable	n	% served		χ^2	p	OR
		Yes	No			
Oregon only						
Baseline	67	98.5%	1.5%			
1 month	67	91.7%	8.3%	3.39	.065	6.00
6 months	71	94.4%	5.6%	1.69	.193	3.94
New Mexico only						
Baseline	81	91.4%	8.6%			
1 month	80	65.0%	35.0%	16.44	<.0001	5.69
6 months	79	60.8%	39.2%	20.68	<.0001	6.83
12 months	78	71.8%	28.2%	10.12	<.001	4.15

Notes: FAST = fetal alcohol syndrome prevention training; OR = odds ratio.

(OR) analyses via EPI INFO and SPSS (SPSS Inc., Chicago, IL). Both between-group and within-group analyses were conducted and reported.

Results

Within-group, time series, chi-square analyses compared baseline results with each of the three follow-up periods for the trained establishments. Analysis of Oregon data did not reveal a significant difference from baseline at either 1 month or 6 months after training, even though the refusal rate went up to 8.3% at 1 month and then fell to 5.6% at 6 months. However, in New Mexico, at 1 month after training, a significant difference in service refusal was found from baseline, $\chi^2(1) = 16.44$, $p = .000$, OR = 5.69, as the refusal rate increased to 35.0%. Six months after training, the refusal rate was higher (39.2%) and also significantly better than at baseline, $\chi^2(1) = 20.68$, $p = .000$, OR = 6.83. A very slight decrease in refusal occurred after 12 months (28.2%), but a significant difference from baseline remained, $\chi^2(1) = 10.12$, $p = .001$, OR = 4.15. Comparability between trained and comparison establishments was indicated by the fact that there were no significant differences in the refusal rates at baseline for either state. These results are displayed in Table 1.

TABLE 2. Alcoholic beverage service refusal rates over time at FAST trained and control establishments

Variable	% refused (n)		χ^2	p
	Trained	Control		
Oregon only				
Baseline	1.5% (67)	6.1% (82)	2.02	.155
1 month	8.3% (72)	2.8% (71)	2.06	.151
6 months	5.6% (71)	2.9% (68)	0.610	.435
New Mexico only				
Baseline	8.6% (81)	7.9% (101)	0.031	.860
1 month	35.0% (80)	17.1% (76)	6.44	.011
6 months	39.2% (79)	13.5% (74)	12.89	<.001
12 months	28.2% (78)	10.3% (68)	7.32	.007

Notes: FAST = fetal alcohol syndrome prevention training.

Between-group chi-square analyses were also conducted on the New Mexico and Oregon data. In New Mexico, results at baseline found no significant differences in refusals between the subsequently trained and comparison establishments (8.6% vs. 7.9%; Table 2). At 1 month after training, a significant difference was observed between the two groups, $\chi^2(1) = 6.44$, $p = .011$, with an absolute differential refusal rate of 18% (35% vs. 17%). Six months after server training, refusal rates increased to 39.2% for the trained establishments, and this refusal rate continued to be significantly greater than for controls (13.5%), $\chi^2(1) = 12.89$, $p = .000$. Service refusal at 12 months was 28.2% for the trained establishments, lower than at 6 months, but it remained significantly higher than for the controls (10.3%), $\chi^2(1) = 7.32$, $p = .007$. Between-group chi-square analyses conducted on the Oregon data did not reveal significant differences in refusals between trained and control groups at baseline or at the 6-month posttraining follow-up (see Table 2 for results of these analyses). Similar to the results of the earlier within-group analyses, New Mexico demonstrated program effectiveness. The percentages of service refusal at the New Mexico and Oregon sites are detailed in Figure 2.

Discussion

Enhanced training for servers in bars and restaurants can be effective in reducing the service of alcohol to visibly pregnant women. Therefore, this may be one useful public health intervention to reduce fetal alcohol exposure. It is noteworthy that the posttraining rate of this intervention significantly surpassed intervention rates found in a previous study (Dresser, 1998), and the positive results were maintained even in the absence of ongoing training.

Our data identified a window of effectiveness of at least 6 months overall and 1 year in New Mexico. This is encouraging because it suggests that our prevention methods became integrated into establishment policies that remained constant despite changing personnel in the server workforce. To maintain and maximize public health benefits, it may be

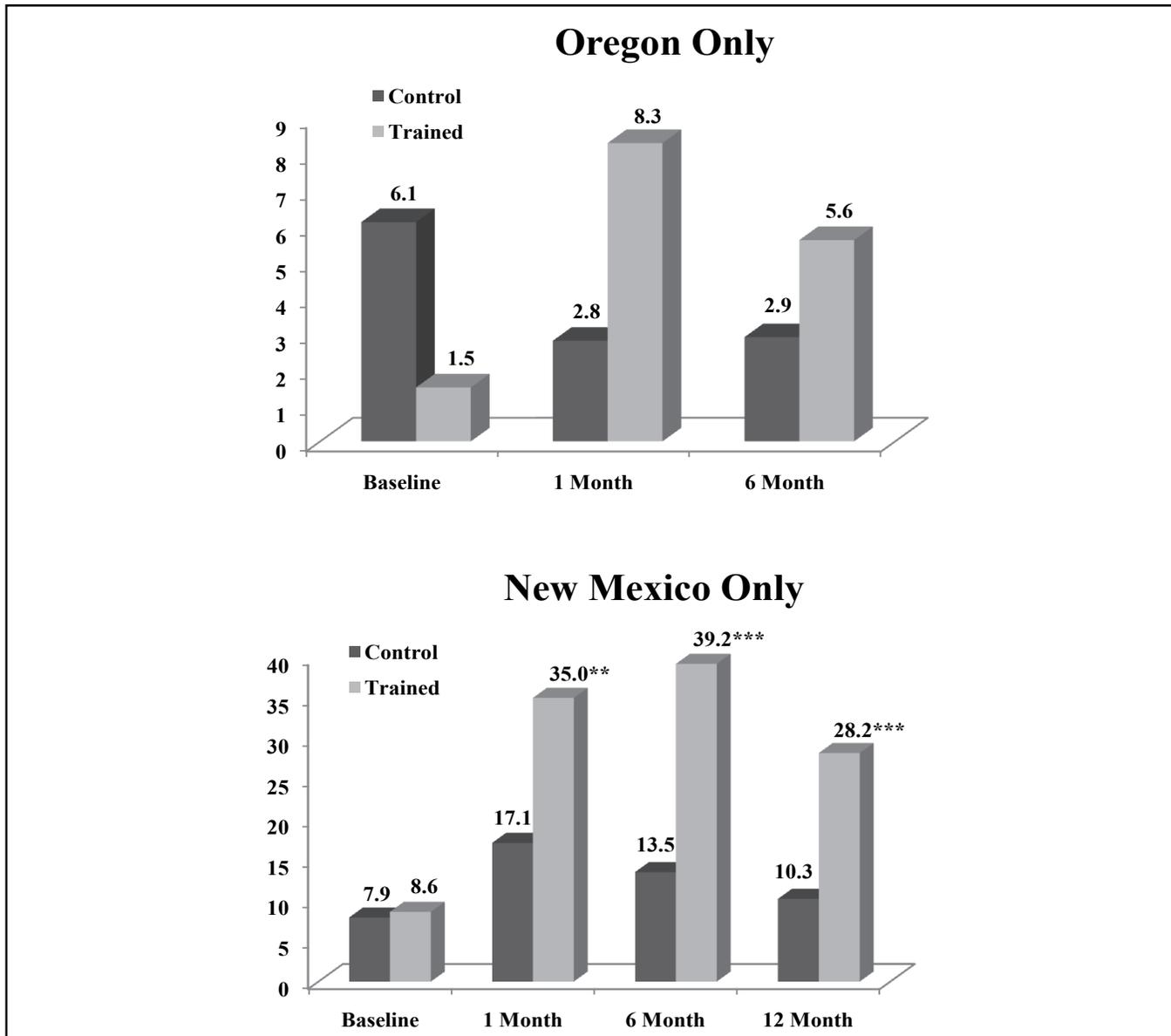


FIGURE 2. Frequency of refusal of trained prevention sites and control sites (first and second drinks are combined)

Significant difference at $p < .02$; *significant difference at $p < .01$.

advantageous to provide booster training, including resupply of materials, at periodic intervals to prevent decreasing FAS prevention awareness and server intervention skills. The timing of recommended booster awareness programs might correspond with findings in the driving while intoxicated (DWI) prevention literature. Ross (1982) found decay to consistently occur at 16-month intervals in DWI programs and therefore recommended new or revitalized approaches to DWI prevention at regular intervals. Repeating the server training similar to that provided in this project or exploring other methods for prolonging FAS awareness training are warranted. The brochures appeared to be popular with

servers. Including requested replacements, several thousand disappeared from the display racks, and servers reported that the brochures were useful in supplementing their discussions with patrons. We received requests for replacements even after the study period. It may be that server training enhanced the distribution of information pamphlets or that the pamphlets set the stage for server intervention. But the two may go hand in hand.

There are distinct limitations to this study and to the findings. First, we reported highly significant differences in server refusal rates once training was provided to servers in New Mexico. Even though gains were made over baseline

rates, significant differences were not found in the binary measure from baseline to any of the posttraining evaluations in Oregon. Second, the pseudo-patron studies may not be the best or only way that this prevention method can be evaluated. As described below, we are in the process of analyzing other types of data collected in this rather comprehensive effort. Third, the results presented here are averages of the efficacy of server training across a number of locales (urban and rural in various parts of a diverse state), establishments, and servers. However, as one might expect, there was substantial variation across sites. In some establishments and with some servers, the training was obviously very effective, whereas, with others, it seemed to be much less successful. But as these data indicate, the overall efficacy was found to be strong. Further research should attempt to determine the types and characteristics of successful sites and servers and those that might require a different or modified approach.

We have no data to fully explain the disparate findings between the two states, but this is probably attributable to differences in the state-mandated training under which subjects had been previously certified, possible differences in emphases by the trainers, and use of the binary outcome variable. In Oregon, we observed in our interactions with the alcohol-regulating agency (Oregon Liquor Control Commission) some staff who believed that service refusal to a pregnant woman might violate antidiscrimination laws and advised their trainers thusly. Many servers were therefore reluctant to risk outright refusal. In New Mexico, an FAS component is required in the standard, mandated training curriculum for all servers to obtain their licenses.

Our training program and video modeling demonstrated conversations with a pregnant customer to inform her about FAS and discourage alcohol use, not just on this occasion, but throughout the remainder of her pregnancy. It did not recommend or model direct refusal by the server. In Oregon, where this uncertainty prevailed, more training time was devoted to the legal issues and to interventions to discourage rather than refuse alcohol use. These more complex interventions occurred more often in Oregon than refusals, which may account for the differences in this outcome measure.

Areas deserving further study are how best to direct training and education into applied knowledge and how such effective transitions can be replicated. In addition, future research should seek to uncover what factors affect receptivity to FAS information and refusal skills among servers. Many servers in this study were enthusiastically receptive to the information on FAS, interested in their legal right to refuse service, and motivated to develop skills and strategies to refuse service or offer alternative beverages. It is encouraging that servers frequently provided the pseudo-patrons with verbal and written information on preventing FAS. Many servers and bar staff applied the knowledge learned in the training and became effective educators and agents in

promoting prevention of FAS among their personal and business associates. If these results are found to be replicable in other states and locales, then the technique of server training may represent a useful and efficacious tool for the selective prevention of FAS.

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