

**Name of Program/Strategy: Border Binge-Drinking Reduction Program**

**Report Contents**

1. Overview and description
2. Implementation considerations (if available)
3. Descriptive information
4. Outcomes
5. Cost effectiveness report (Washington State Institute of Public Policy – if available)
6. Washington State results (from Performance Based Prevention System (PBPS) – if available)
7. Who is using this program/strategy (if available)
8. Study populations
9. Quality of studies
10. Readiness for Dissemination
11. Costs
12. Contacts for more information

---

**1. Overview and description**

The Border Binge-Drinking Reduction Program provides a process for changing the social and community norms associated with underage and binge drinking that has proven effective at reducing alcohol-related trauma caused by young American's binge drinking across the U.S.-Mexican border. The program is a bi-national effort to curb irresponsible drinking practices, employing environmental management techniques including (1) regular surveys of youths returning from a night of drinking with anonymous blood alcohol concentration (BAC) breath tests; (2) strong media advocacy, using information from the surveys to characterize the problem, mobilize the community to action, and reframe the issue from an accepted norm to a health and safety issue for the bi-national community; (3) formation of the Bi-national Policy Council, which recommends policy changes on both sides of the border and provides spokespeople for the media advocacy and community organizing components; (4) increased enforcement of existing laws and policies, such as ID checks at border crossings and in bars in Tijuana, Mexico; and (5) implementation of policies and practices that impact the environment where dangerous cross-border drinking occurs.

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

## **2. Implementation considerations (if available)**

## **3. Descriptive Information**

<b>Areas of Interest</b>	Substance abuse prevention
<b>Outcomes</b>	1: Americans arrested in Tijuana, Mexico, for alcohol-related violations 2: Number of Tijuana bars with a majority of American patrons 3: Number of nighttime alcohol-related crashes 4: Number of youth crossing into Tijuana to drink 5: Number of youth returning from Tijuana with high BAC
<b>Outcome Categories</b>	Alcohol Crime/Delinquency Environmental Change
<b>Ages</b>	18-25 (Young adult) 26-55 (Adult)
<b>Genders</b>	Data were not reported/available
<b>Races/Ethnicities</b>	Data were not reported/available
<b>Settings</b>	Other community settings
<b>Geographic Locations</b>	Urban
<b>Implementation History</b>	Implementation of the Border Project in the San Diego-Tijuana border region began in 1997 and continues today. Significant project results were achieved by 1998. The project continues to work to ensure that changes are sustainable through ongoing policy changes and establishing community norms and standards that do not support or condone underage or binge drinking by American youth in Tijuana, Mexico.
<b>NIH Funding/CER Studies</b>	Partially/fully funded by National Institutes of Health: Yes Evaluated in comparative effectiveness research studies: No
<b>Adaptations</b>	The Border Binge-Drinking Reduction program was specifically designed to address the unique cultural and population factors associated with border communities in Mexico. Issue briefings, meeting documents, and other materials for this program have been provided in English and/or Spanish as appropriate.
<b>Adverse Effects</b>	No adverse effects, concerns, or unintended consequences were identified by the applicant.
<b>IOM Prevention Categories</b>	Universal

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

## **4. Outcomes**

### **Outcome 1: Americans arrested in Tijuana, Mexico, for alcohol-related violations**

<b>Description of Measures</b>	<p>This outcome was assessed from arrest records provided by the Tijuana police from 1998 to 1999.</p> <p>Cross-sectional and time-series analyses were applied to alcohol-related law violations by American visitors to Tijuana, Mexico. In addition, a monthly time-series analysis was applied to investigate the influence of Tijuana and San Diego policies on the number of Americans arrested in Tijuana for alcohol-related violations.</p>
<b>Key Findings</b>	<p>The number of Americans arrested in Tijuana for alcohol-related violations declined during the 2 years of analysis (1997-1999); the number arrested for other felonies and misdemeanors remained stable during the same period.</p>
<b>Studies Measuring Outcome</b>	Study 1,
<b>Study Designs</b>	Pre-Experimental
<b>Quality of Research Rating</b>	2.1 (0.0-4.0 scale)

### **Outcome 2: Number of Tijuana bars with a majority of American patrons**

<b>Description of Measures</b>	<p>The number of bars with a majority of American customers was determined by conducting bar surveys in Tijuana from 1997 to 1999 made on one randomly selected Wednesday, Friday, and Saturday night of each month. Bar surveys relied exclusively on visual inspection. The observer walked a route designed to cover as many bars as possible, monitoring early (midnight to 2 a.m.) and late (3 a.m. to 5 a.m.) activities. The observer also noted residence of patrons, ethnicity of American visitors, age group, gender, alcohol promotion (alcohol advertisements, sex-oriented attractions, signs encouraging high alcohol consumption), number of security guards, and size of crowd.</p>
<b>Key Findings</b>	<p>Over the 2 years of analysis (1997-1999), the percentage of Tijuana bars that were observed to have a majority of American patrons declined from about 80% to about 60%. Most of the decline was observed during the first year of the bar survey and coincided with a decline in the number of American weekend night</p>

## ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

	visitors to Tijuana.
<b>Studies Measuring Outcome</b>	Study 1
<b>Study Designs</b>	Pre-Experimental
<b>Quality of Research Rating</b>	2.3 (0.0-4.0 scale)

### **Outcome 3: Number of nighttime alcohol-related crashes**

<b>Description of Measures</b>	This outcome (also known as "had been drinking" crashes) was measured using the Statewide Integrated Traffic Reporting System (SWITRS), maintained by the California Highway Patrol. This system contains a record of all reported crashes occurring on the State's roads, including the officer's indication that a driver involved in the crash had been drinking. This outcome included all injury crashes occurring in San Diego County between midnight and 6 a.m. on weekends from January 1, 1996, through December 31, 1999, involving drivers 16-30 years old.
<b>Key Findings</b>	Increased media coverage of the Border Binge-Drinking Reduction Program was associated with a 45.3% reduction in the number of 16- to 20-year-old drivers who had been drinking alcohol and were involved in nighttime crashes ( $p < .04$ ). A similar association was not observed among 21- to 25-year-old drivers.
<b>Studies Measuring Outcome</b>	Study 1
<b>Study Designs</b>	Pre-Experimental
<b>Quality of Research Rating</b>	2.3 (0.0-4.0 scale)

### **Outcome 4: Number of youth crossing into Tijuana to drink**

<b>Description of Measures</b>	This outcome was measured using Immigration and Naturalization Services (INS) counts of pedestrians returning to the United States ("returnees") from Mexico. The INS uses turnstile counters at border stations to provide hourly totals of pedestrians entering the United States each day of the week. Their records from January 1, 1996, to December 30, 1999, between midnight and 4 a.m. were available to investigators, providing 14 months of pedestrian data before the program was initiated and 34 months after it began. A total of 208 weekly data points (Friday
--------------------------------	--

## ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

	and Saturday combined) covering 2,076,733 returnees was available.
<b>Key Findings</b>	Increased media coverage of the Border Binge-Drinking Reduction Program was associated with an estimated 31.6% decline in late-night border crossings ( $p < .001$ ). Two other factors also influenced the number of border crossings: rainfall ( $p < .01$ ) and Mexican election days ( $p < .001$ ).
<b>Studies Measuring Outcome</b>	Study 1
<b>Study Designs</b>	Pre-Experimental
<b>Quality of Research Rating</b>	3.3 (0.0-4.0 scale)

### **Outcome 5: Number of youth returning from Tijuana with high BAC**

<b>Description of Measures</b>	This outcome was measured using the Voluntary Breath Alcohol Survey (VBAS). Surveys were conducted at the San Diego-Tijuana border crossing on Wednesday, Friday, and Saturday nights 1 week each month from April 1997 to December 1999. Holiday weekends were explicitly avoided. The VBAS is a 5-minute interview by a trained interviewer in which a breath sample is collected with a handheld device (CMI Intoxilyzer SD400) that records the result internally. Interview questions included age, gender, residence, occupation, reason for visit to Tijuana, and method of transportation home. In addition to the collection of breath samples, team members recorded their observations on the subject's apparent level of alcohol consumption/intoxication (e.g., none, moderate, or high).
<b>Key Findings</b>	From June 1997 to December 1999, the ratio of pedestrians crossing the border between midnight and 4 a.m. with BACs of 0.08% or higher declined by 29% ( $p = .004$ ). During the same period, the number of underage drinking pedestrians declined by 39.8% ( $p = .001$ ).
<b>Studies Measuring Outcome</b>	Study 1
<b>Study Designs</b>	Pre-Experimental
<b>Quality of Research Rating</b>	3.4 (0.0-4.0 scale)

### **5. Cost effectiveness report** (Washington State Institute of Public Policy – if available)

# **Excellence in Prevention** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

**6. Washington State results** (from Performance Based Prevention System (PBPS) – if available)

**7. Where is this program/strategy being used (if available)?**

Washington Counties	Oregon Counties

## **8. Study Populations**

The studies reviewed for this intervention included the following populations, as reported by the study authors.

Study	Age	Gender	Race/Ethnicity
<b>Study 1</b>	18-25 (Young adult) 26-55 (Adult)	Data not reported/available	Data not reported/available

## **9. Quality of Research**

The documents below were reviewed for Quality of Research. Other materials may be available. For more information, contact the developer(s).

### **Study 1**

Lange, J. B., Lauer, E. M., & Voas, R. B. (1999). A survey of the San Diego-Tijuana cross-border bingeing. *Methods and analysis. Evaluation Review*, 23(4), 378-398.

Romano, E., Cano, S., Lauer, E., Jimenez, A., Voas, R. B., & Lange, J. E. (2004). Tijuana alcohol control policies: A response to cross-border high-risk drinking by young Americans. *Prevention Science*, 5(2), 127-134.

Voas, R. B., Tippetts, A. S., Johnson, M. B., Lange, J. E., & Baker, J. (2002). Operation safe crossing: Using science within a community intervention. *Addiction*, 97(9), 1205-1214.

### **Quality of Research Ratings by Criteria (0.0-4.0 scale)**

External reviewers independently evaluate the Quality of Research for an intervention's reported results using six criteria:

1. Reliability of measures
2. Validity of measures
3. Intervention fidelity
4. Missing data and attrition

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

5. Potential confounding variables

6. Appropriateness of analysis

For more information about these criteria and the meaning of the ratings, see Quality of Research.

Outcome	Reliability of Measures	Validity of Measures	Fidelity	Missing Data/Attrition	Confounding Variables	Data Analysis	Overall Rating
<b>1: Americans arrested in Tijuana, Mexico, for alcohol-related violations</b>	1.0	2.5	2.0	2.0	2.5	2.5	<b>2.1</b>
<b>2: Number of Tijuana bars with a majority of American patrons</b>	2.0	2.5	2.0	2.0	2.5	2.5	<b>2.3</b>
<b>3: Number of nighttime alcohol-related crashes</b>	1.5	2.0	2.5	2.5	2.5	2.5	<b>2.3</b>
<b>4: Number of youth crossing into Tijuana to drink</b>	3.5	3.5	3.0	3.5	3.0	3.5	<b>3.3</b>
<b>5: Number of youth returning from Tijuana with high BAC</b>	4.0	4.0	3.0	4.0	2.5	3.0	<b>3.4</b>

## **Study Strengths**

For outcome 1 (reduced arrests for alcohol-related violations), the measure used has face validity. The validity is also supported by the decline in the number of alcohol-related misdemeanors, along with the decline in the number of American visitors and the decline in the numbers of youth with high BACs. The data provide a source of criterion validity for other intervention effects found. While the reliability of the data (police arrest records) may be questionable, expected effects were documented by this external data source, and effects were specific to misdemeanors and alcohol-related misdemeanors.

For outcome 2 (reduced number of bars with a majority of American customers), reports conducted by one observer were corroborated 95% of the time by returning bar patrons, providing evidence of the reliability of the data (inter-rater reliability) and support validity. Similarly, Mexican intervention efforts were demonstrated by the bar surveys (e.g., changes in signage, increase in police security) and corroborated by returning visitors. The sampling strategy (visiting each bar early and late on three evenings 1 random week per month) should yield representative data over time.

For outcome 3 (reduced nighttime alcohol-related crashes), potential confounders like a broader downward trend in "had been drinking" crashes were addressed by analyzing crashes in surrounding

## ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

counties; effects were isolated to San Diego. The study used innovative methods to demonstrate the effects of intervention (outcome measures and media campaign) on the reduction of youth drinking and drinking-related problems. Carefully thought-out measures were implemented to control the quality of data collected. The researchers did a great job using a variety of data sources; the convergence of findings across all of these measures supports the efficacy of the program despite any individual measurement limitations. Thus, while each individual variable has limitations, it is the collective evidence across the set of diverse indicators that converges on a convincing argument supporting causal inference.

For outcome 4 (reduced number of youth crossing into Mexico to drink), direct recording of the outcome of interest was utilized. A lengthy baseline period was also available for comparison purposes to effectively isolate changes associated with the intervention period. Time series analysis, incorporating potential covariates like seasonality, is the most appropriate method for analyzing these data. The number of observations was more than adequate.

Outcome 5 (reduced number of youths returning from Tijuana with high BACs) used the Voluntary Breath Alcohol Survey (VBAS), a very reliable measurement of BACs for youths returning from Tijuana. The outcome utilized objective physiological data on BAC, correlated with interviewer ratings. Data collection procedures and reliance on objective BAC level support the validity of this measure. The detailed system for training and maintaining high level of fidelity to the data collection system, ongoing monitoring, and correspondence with interviewer ratings support fidelity. The authors demonstrated very sophisticated methods of handling missing data for this outcome. The use of BAC (as opposed to reliance on the survey) and high participation rates are strengths of this outcome.

Overall, the study had a relatively high participation rate, and measures were included to attempt to control missing data. Analyses appear appropriate for the outcomes.

### **Study Weaknesses**

For outcome 1 (reduced arrests for alcohol-related violations), arrest records may include non-alcohol-related violations. The measurements also heavily depend on the accurate record provided by the Tijuana police. A potential confound is whether police were either enforcing the law less or reporting arrests less over time as the novelty of the intervention and reporting wore off. It is unclear how reliable source the police records are, and there was no baseline period for comparison since data were not recorded prior to the onset of the intervention.

For outcome 2 (reduction in the number of bars with a majority of American customers), reduction in the number of bars with a majority of U.S. customers may be affected by other factors. The bar survey also depends on the quality of surveys conducted by local surveyors.

For outcome 3 (reduced nighttime alcohol-related crashes), records from California's Statewide Integrated Traffic Reporting System (SWITRS) are a rough indicator of the reduction in nighttime alcohol-related crashes caused by heavy drinking in Tijuana. Many other factors could contribute to traffic accidents. It is not clear how officers determine that drivers "had been drinking," and no data was presented as to whether this determination is reliable. No evidence was presented that



# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

the decline in "had been drinking" crashes is attributable to less drinking while in Mexico. There was no reference to missing data on this variable.

For outcome 4 (reduced number of youth crossing into Mexico to drink), INS turnstile counter records are a good measure but may not necessarily reflect all activities (i.e., nondrinking activities) of those crossing into Tijuana.

For outcome 5 (reduced number of youths returning from Tijuana with high BACs), the most likely confound is a broader downward trend in BACs among people returning from Mexico, and baseline BACs were not recorded.

Overall, the intervention is unique and innovative, but it is also difficult to control quality of all intervention measures for consistency and potential replication. Random selection might have been compromised due to uncontrollable factors (selection bias, response bias, and other social, economic, and legal factors). Some of the outcome measures may only be partially related to the intervention. With no experimental control, it is impossible to rule out other confounds.

## **10. Readiness for Dissemination**

The documents below were reviewed for Readiness for Dissemination. Other materials may be available. For more information, contact the developer(s).

### **Dissemination Materials**

Institute for Public Strategies. (n.d.). Action kit for environmental prevention [Binder].

Pacific Institute for Research and Evaluation. (2001). Interviewer training manual for the Border Project surveys.

Ryan, B. (Ed.). Spring 2001 issue of Prevention File, 16(2).

Ryan, B. (Ed.). Summer 2001 issue of Prevention File, 16(3).

### **Readiness for Dissemination Ratings by Criteria (0.0-4.0 scale)**

External reviewers independently evaluate the intervention's Readiness for Dissemination using three criteria:

1. Availability of implementation materials
2. Availability of training and support resources
3. Availability of quality assurance procedures

For more information about these criteria and the meaning of the ratings, see Readiness for Dissemination.

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

<b>Implementation Materials</b>	<b>Training and Support Resources</b>	<b>Quality Assurance Procedures</b>	<b>Overall Rating</b>
2.3	1.5	2.0	<b>1.9</b>

## **Dissemination Strengths**

Four key implementation areas are described in the materials. The sections on "Defining the Problem" and "Media Strategy" are well developed and provide good information to providers. The developer offers training and technical assistance to providers wishing to tailor this environmental program to communities outside the San Diego-Tijuana border area. Sample approaches, checklists, templates, and tools, including the community readiness assessment, provide some quality assurance.

## **Dissemination Weaknesses**

Few implementation materials are offered to support the sections on "Developing a Strategic Plan" and "Implementing the Strategic Plan." The interviewer training manual appears to focus only on breath-test surveys rather than the balance of the many other environmental prevention approaches covered in the larger program. No process appears to be in place for ongoing monitoring of implementation fidelity.

## **11. Costs**

The information below was provided by the developer and may have changed since the time of review. For detailed information on implementation costs (e.g., staffing, space, equipment, materials shipping and handling), contact the developer.

<b>Item Description</b>	<b>Cost</b>	<b>Required by Program Developer</b>
Breath-test device	\$900 each	Yes
2- to 5-day, on-site training on Environmental Prevention Project Design and Implementation Planning (includes all implementation materials)	\$1,200 per day plus travel expenses	Yes
On-site, 2-day survey training (includes technical assistance to implement breath test surveys)	\$7,500 per site	Yes
Intensive, on-site strategic implementation consultation	\$1,200 per day plus travel expenses	Yes
Quality control checks	Varies	Yes

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

---

## **Additional Information**

The estimated cost for implementing this program is \$25,000 to \$300,000 per year, depending on the size of the target community or region and the community's readiness for environmental prevention. This estimate includes project staffing; ongoing, on-site strategic implementation training/technical assistance; and \$5,000-\$75,000 per year for the data collection efforts required for use in media advocacy, policy formation, project evaluation, and general project direction.

## **12. Contacts**

### **For information on implementation or research:**

James Baker  
(619) 296-3355  
jamesbaker@publicstrategies.org

Kim Herbstritt  
(619) 296-3311 ext 11  
kherbstritt@publicstrategies.org

Robert Voas, Ph.D.  
(301) 755-2720  
voasr@pire.org

Eileen Taylor, M.S.  
(619) 955-6787  
taylore@pire.org