

OJJDP JUVENILE JUSTICE BULLETIN

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Jeff Slowikowski, Acting Administrator

Underage Drinking

Underage drinking is a widespread offense that can have serious physical, neurological, and legal consequences. Problematically, it has become quite commonplace. The Office of Juvenile Justice and Delinquency Prevention (OJJDP) works to eliminate underage consumption of alcohol and provide guidance for communities developing prevention and treatment programs.

OJJDP created the underage drinking bulletin series to educate practitioners and policymakers about the problems youth face when they abuse alcohol and to provide evidence-based guidelines. The series presents findings from a study on preventing underage drinking in the Air Force and a literature review of the effects and consequences of underage drinking, best practices for community supervision of underage drinkers, legal issues surrounding underage drinking, and practice guidelines for working with underage drinkers.

The series highlights the dangers of underage drinking. Hopefully, the information it provides will support communities in their efforts to reduce alcohol use by minors through the use of evidence-based strategies and practices.

Reducing Drinking Among Underage Air Force Members in Five Communities

Christopher Spera, Keita Franklin, Kazuaki Uekawa, John F. Kunz, Ronald Z. Szoc, Randall K. Thomas, and Milton H. Cambridge

Highlights

In 2006, the Office of Juvenile Justice and Delinquency Prevention provided grants to five communities with local Air Force bases to implement the agency's Enforcing Underage Drinking Laws (EUDL) initiative. This bulletin presents findings from an evaluation of EUDL activities in these communities. The study in this bulletin focused on comparing the rates of problem drinking in each of the EUDL communities to five control communities and the Air Force overall. The following are some of the key findings of the evaluation:

- Although all sites showed some success, sites that implemented their interventions early, had task forces on underage drinking at the program's onset, collaborated with local partners, and followed guidance from the federal agencies sponsoring the evaluation had the best results.
- The two Arizona communities that implemented the EUDL initiative following the practices cited above saw the highest reductions in junior enlisted members at risk for problem drinking.
- EUDL communities located in urban areas had more success finding alternative activities to drinking than communities in rural areas.
- The percentage of Air Force enlisted personnel at risk for a drinking problem decreased 6.6 percent from 2006 to 2008.





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Preventing alcohol abuse by minors and young adults remains a challenge to most communities, particularly on military bases, where junior enlisted personnel face a high-stress work environment. They may turn to heavy drinking in off-duty hours, particularly during times of combat or when they have returned home from a deployment (Ames et al., 2007).

In the fall of 2006, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) awarded discretionary grants to five communities¹ in four states as part of the Enforcing Underage Drinking Laws (EUDL) initiative. States designed and implemented a set of interventions using an environmental strategies approach to reduce drinking and associated alcohol-related misconduct among active-duty Air Force members ages 18 to 25, with a focus on underage drinkers (ages 18 to 20). Each community partnered with a local Air Force base and worked with a community coalition to implement the initiative across the 3-year grant period.

One year after the grants were awarded, the National Institute on Alcohol Abuse and Alcoholism (NIAAA), in collaboration with the U.S. Air Force and OJJDP, selected ICF International to evaluate the EUDL activities implemented in these five communities. The evaluation measured the effectiveness of the interventions on drinking behavior and associated alcohol-related misconduct by active-duty personnel.

The study described in this bulletin sought to address the following overarching research question: Did the activities that each of the five communities implemented influence the rate of problem drinking as compared with rates in a comparison community and the Air Force as a whole? This bulletin presents findings from year 1 of the evaluation on self-reported drinking behaviors.

Background

The military has taken a number of steps to address the alcohol dependence problems of junior enlisted personnel. This section describes some reasons enlisted recruits may turn to alcohol and explains the Air Force's policy on drinking.

The Air Force faces problems associated with excessive drinking and alcohol-related misconduct among its personnel.² These include driving under the influence (DUI) incidents, domestic violence, and sexual assault (Hoge, Castro, and Messer, 2004; Rosen, 2007). In fact, an Air Force report indicated that 33 percent of suicides, 57 percent of sexual assaults, 29 percent of domestic violence incidents, and 44 percent of motor vehicle accidents among Air Force personnel are alcohol related (U.S. Air Force, 2006).

Drinking Among Junior Active-Duty Members

Despite the national minimum legal drinking age of 21, alcohol remains the drug of choice among adolescents, with 18- to 20-year-olds having the greatest incidence of alcohol dependence of any age group (U.S. Department of Health and Human Services, 2007). Most research on underage drinking focuses on college students (Goldstein and Flett, 2009; LaBrie, Lamb, and Pedersen, 2009). The junior enlisted ranks of the U.S. Air Force share many demographic similarities with college students. This population is composed predominantly of young men and women between 18 and 25 years old who come from urban, suburban, and rural communities across the United States. After basic training, they reside in dormitory-style housing that is similar to college facilities.

In other ways, junior enlisted active-duty members are quite different from their civilian counterparts. Most

notably, active-duty recruits experience intense levels of stress, particularly during wartime. They perform in jobs at a fast pace, often working long hours in combat environments. Researchers have found that working in a stressful and intense work environment, such as the military, is a risk factor for increased alcohol consumption (Bray et al., 2006).

Air Force Policy on Underage Drinking

The Air Force has a “zero tolerance” policy toward underage drinking and problem use of alcohol. When problems arise, the Air Force offers treatment and prevention options. An integral part of this prevention approach is the Culture of Responsible Choices (CoRC) program, a prevention and awareness campaign that emphasizes drinking as one of many lifestyle choices active-duty members make that could affect combat readiness (U.S. Air Force, 2006). The program strives to prevent underage drinking and eliminate DUI incidents. It also provides guidance for drinking responsibly, suggesting one drink per hour, with a maximum of three drinks per night, for an average man weighing 175 pounds and an average woman weighing 135 pounds.

Environmental Strategies To Reduce Underage Drinking

Underage and problem drinking can place a strain on the resources of any community. Key organizations—hospitals, law enforcement, and community service agencies—devote countless resources to the intervention in and treatment of incidents that irresponsible alcohol consumption causes. Community-based prevention programs, especially those that are environmental in nature, can help reduce underage and problem drinking.³

Environmental approaches have increased in popularity over the past 15 years and include interventions aimed at the whole community that ultimately have an impact on the individual drinker. As opposed to traditional prevention and treatment initiatives that focus on the individual, environmental approaches emphasize solving the problem at a macro-level, focusing on cultures, policies, establishments, or social networks that perpetuate attitudes or behaviors toward drinking.

Gruenwald and colleagues (2003) have identified three overarching principles of an environmental approach:

- Targeting media efforts toward policymakers.
- Creating collaborations within the community among various stakeholders such as neighborhood coalitions, religious organizations, and other social entities.
- Monitoring and limiting the supply of alcohol using various methods, including checking liquor establishments’ compliance with laws, increasing driving while intoxicated (DWI)/DUI checkpoints, and greater enforcement by police departments.

Anecdotal evidence indicates that, with an increased focus from senior military leadership and the community at large, underage drinking and the associated consequences among active-duty members can decrease. Senior leadership at F.E. Warren Air Force Base first demonstrated this concept beginning in 2004 when they implemented environmental strategies (such as reaching out to community agencies inside and outside the gates, sending letters to local bars asking for policy compliance, and offering alternative activities) to curb drinking among junior enlisted personnel. Over a 2-year period, the intervention activities

ENVIRONMENTAL PROGRAMS FOR REDUCING UNDERAGE DRINKING

A number of environmental programs have shown success in reducing underage drinking and related misconduct:

- The Saving Lives Project (Hingson et al., 2006), a 5-year Massachusetts program, resulted in a 39-percent reduction in fatal injuries from vehicle crashes among 16- to 25-year-olds, as compared with the rest of the state.
- The Community Trials Project in California and South Carolina, sponsored by NIAAA, which matched three experimental communities with three comparison communities, reduced nighttime crashes involving an alcohol-related injury by 10 percent, alcohol-related assault injuries by 43 percent, and community members’ self-reports of driving after “having too much to drink” by 49 percent (Holder et al., 2006; Treno and Lee, 2002).
- The Communities Mobilizing for Change on Alcohol Project in Minnesota and Wisconsin focused on getting citizens to actively pursue changes in local policies and practices. The project decreased the likelihood that 18- to 20-year-olds would purchase alcohol, frequent bars, and drive under the influence. It also decreased bar and restaurant sales of alcohol to minors (Wagenaar et al., 2000).
- The Safer California Universities Project, which used an environmental approach to mitigate drinking by college students (i.e., by increasing DUI checkpoints and compliance checks of liquor establishments, and breaking up student parties), led to a significant decline in several key outcomes, including alcohol consumption (California State University–Chico, 2007).

resulted in a 74-percent decline in alcohol-related incidents, 81 percent fewer cases of underage drinking, and 45 percent fewer DWI cases among underage Air Force personnel (Office of Juvenile Justice and Delinquency Prevention, 2005).

Based on these encouraging results, OJJDP funded EUDL programs in the five communities in this study and asked them to implement a similar set of interventions across a 3-year period. Each community strove to create an environmental intervention where citizens and the military collaborated to reduce drinking on and off the local Air Force base.

Implementing EUDL Activities

In October 2006, five demonstration sites received grant awards to implement EUDL activities in their communities. The sites selected were Phoenix, AZ/Luke Air Force Base; Tucson, AZ/Davis-Monthan Air Force Base; Honolulu, HI/Hickam Air Force Base; greater Sacramento, CA/Beale Air Force Base; and Great Falls, MT/Malmstrom Air Force Base. The demonstration sites were awarded OJJDP funding for 3 years. They spent the first 6 to 12 months of the funding period developing their community coalitions and creating a detailed work plan. Sites began implementing their interventions in the summer or fall of 2007, starting with Arizona and Montana; the last site (Hawaii) received approval of its work plan from OJJDP in January 2008. Intervention activities over the grant period are intended to increase awareness and educate active-duty recruits about the dangers of underage drinking.

Each demonstration community implemented a set of environmental strategies to reduce drinking among 18- to 20-year-old (underage) active-duty Air Force members. Intervention activities at all sites included:

- Enforcement aimed at reducing the social availability of alcohol (e.g., shoulder-tap drinker identification operations, controlled party dispersal operations).
- Compliance checks using covert underage buyers to ensure that establishments were not selling alcohol to underage active-duty members.
- Enhanced impaired-driving enforcement (increased number and frequency of DUI checks in the community).
- Development of local policy and education of state legislators on underage drinking issues that might lead to changes in state policy.
- Community-based media campaigns to reduce underage drinking.
- Alternative activities to drinking, such as sports, recreational, and arts activities.

All communities received intensive training and technical assistance from the Underage Drinking Enforcement Training Center at the Pacific Institute for Research and Evaluation.⁴ The center disseminated publications about best practices for reducing alcohol use with environmental approaches, hosted teleconferences, and helped communities develop work plans and implement intervention efforts. NIAAA funded the evaluation of the five demonstration sites.

Evaluation Methods

To evaluate the results of EUDL activities in the five communities, the research team at ICF International selected comparison communities, collected data, and analyzed results. Methods are described below.

Selecting Comparison Communities

Evaluators worked in conjunction with the federal partners (OJJDP, U.S. Air Force, and NIAAA) to select comparison communities based on:

- Geography (i.e., urban or rural location).
- The mission of the Air Force base.
- The population of the Air Force base and surrounding community.
- The rate of problem drinking among junior enlisted personnel at the initial survey in spring 2006.

Detailed information about the demonstration sites and their comparison communities can be found in table 1.

Data Collection

Data for the current study were collected as part of the Air Force Community Assessment Survey, a biannual anonymous survey of active-duty personnel that was conducted in spring 2006 (pretest) and in spring 2008 (posttest) across all Air Force communities. This bulletin focuses on Community Assessment Survey data from junior enlisted members within the five demonstration sites and the five comparison communities ($n=2,008$ in 2006 and 2,112 in 2008), as well as in the Air Force overall ($n=11,964$ in 2006 and 12,993 in 2008) (see table 1). In both years, the research team selected a sample of active-duty members and invited them to complete the survey via the Web.⁵ In 2006, the final response rate across all bases for active-duty members was 48.5 percent; in 2008, it was 49.0 percent.

Data were weighted by rank, gender, deployment status, and base. Approximately 16.5 percent of junior enlisted personnel skipped the questions about alcohol use. Although data for all items could be analyzed by including only those individuals who fully completed the surveys,

the researchers imputed the missing data so that they could analyze all cases.⁶

The researchers measured the rate of alcohol problems reported on the Community Assessment Survey using the Alcohol Use Disorders Identification Test (AUDIT) developed by the World Health Organization (Babor et al., 2001). AUDIT consists of 10 questions and has proven to be valid in detecting alcohol dependence in persons ages 18–25 (Fleming, Barry, and MacDonald, 1991). Participants received a score between 0 and 40; a score of 8 or more signified individuals at risk for problem drinking.

The research team then classified each participant as either a “problem drinker” or “not a problem drinker.”

The calculation of the AUDIT percentages was based on the number of junior enlisted personnel with a score of 8 or more, divided by the total number of junior enlisted personnel at the base. The research team averaged the percentages from each of the five imputed data sets to obtain the AUDIT percentages. They then conducted two sample proportion tests (i.e., z-tests) to evaluate the group differences in the percentages.

Table 1. Description of the Communities

	Site	Comparison Community
Site 1: Great Falls, MT/Malmstrom Air Force Base		
Urban/Rural	Rural	Rural
Mission	Operational missile base	Combat, support, and operations
Population	3,379	2,148
Problem Drinking in 2006	24.6%	20.8%
Site 2: Honolulu, HI/Hickam Air Force Base		
Urban/Rural	Urban	Urban
Mission	Combat and support	Combat and operations
Population	3,738	2,067
Problem Drinking in 2006	18.9%	22.3%
Site 3: Phoenix, AZ/Luke Air Force Base		
Urban/Rural	Urban	Urban
Mission	Combat, operations, and training	Combat and operations
Population	4,782	3,604
Problem Drinking in 2006	21.5%	17.5%
Site 4: Sacramento, CA/Beale Air Force Base		
Urban/Rural	Rural	Rural
Mission	Combat, support, and operations	Combat, support, operations, and training
Population	3,172	3,151
Problem Drinking in 2006	20.0%	17.8%
Site 5: Tucson, AZ/Davis-Monthan Air Force Base		
Urban/Rural	Urban	Urban
Mission	Combat, support, and operations	Combat, support, and operations
Population	6,005	4,727
Problem Drinking in 2006	22.3%	21.4%

Source: Air Force Personnel Command.



Analyzing Results From the Demonstration Sites

To determine the effects of the intervention, the authors questioned participants to examine whether the prevalence rate for problem drinking among junior enlisted personnel changed over time and differed among sites. Researchers analyzed each demonstration site separately, for the following reasons:

- Some demonstration sites started implementing their intervention earlier than others because their work plans were submitted to and approved by OJJDP earlier.
- Although each demonstration site conducted the same set of intervention activities, each community implemented the intervention based on the size of their respective populations (e.g., larger communities conducted more DUI checks).
- Each demonstration site had different characteristics.
- Demonstration sites started at different points on the AUDIT continuum, with some having higher drinking rates than others at baseline.
- Researchers selected each comparison community to best match a specific demonstration site in a one-on-one comparison.

Results

Analysis of the AUDIT survey data showed early effects of the EUDL intervention on problem drinking in the five demonstration sites. The prevalence of problem drinking (AUDIT percentages) for the demonstration site, comparison site, and Air Force (overall) are reported below. These prevalence rates are compared over time, between 2006 and 2008. The authors include p -values for communities where EUDL activities significantly lowered prevalence rates or problem drinking percentages.⁷

In the Air Force overall, the rate of individuals classified as problem drinkers dropped by 6.6 percent from pretest to posttest, with a rate of 20.4 percent in 2006 and 13.8 percent in 2008. This decrease was statistically significant at the $p < 0.001$ level.

Great Falls, MT/Malmstrom

In the Great Falls, MT/Malmstrom Air Force Base community, the percentage of problem drinkers was not significantly different from either the comparison site or the Air Force overall in 2006. In 2008, the percentage of problem drinkers was 12.8 percent less than the comparison site ($p < 0.01$) but 5.5 percent more than the Air Force overall. When comparing the changes across time, the Great Falls, MT/Malmstrom Air Force Base community had a decrease of 5.3 percent in problem drinkers, compared with an increase of 11.3 percent for the comparison site and a decrease of 6.6 percent for the Air Force overall (see figure 1). When comparing these decreases across time, the prevalence rate of problem drinking dropped in the Great Falls, MT/Malmstrom Air Force Base community to a larger degree than in the comparison community ($p < 0.05$).

Honolulu, HI/Hickam

In the Honolulu, HI/Hickam Air Force Base community, the percentage of problem drinkers was not significantly different from either the comparison site or the Air Force overall in 2006. In 2008, the percentage of problem drinkers was 7.0 percent less than the comparison site ($p < 0.05$) and 4.3 percent less than the Air Force overall. When comparing the changes across time, the Honolulu, HI/Hickam Air Force Base community had a decrease of 9.4 percent in problem drinkers ($p < 0.05$), compared with a decrease of 5.8 percent for the comparison site and 6.6 percent for the Air Force overall (see figure 2). When comparing these decreases across time, the prevalence rate of problem drinking in the Honolulu, HI/Hickam Air Force Base community was not significantly different from the comparison site and the Air Force overall.

“Analysis of the AUDIT survey data showed early effects of the EUDL intervention on problem drinking in the five demonstration sites.”

Phoenix, AZ/Luke

In the Phoenix, AZ/Luke Air Force Base community, the percentage of problem drinkers was not significantly different from either the comparison site or the Air Force overall in 2006. In 2008, the percentage of problem drinkers was 7.7 percent less than the comparison site ($p < 0.05$) and 5.9 percent less than the Air Force overall ($p < 0.001$). When comparing the changes across time, the Phoenix, AZ/Luke Air Force Base community had a decrease of 13.6 percent in problem drinkers ($p < 0.001$), compared with a decrease of 1.9 percent for the comparison site and 6.6 percent for the Air Force overall (see figure 3). When comparing these decreases across time, the prevalence rate of problem drinking dropped in the Phoenix, AZ/Luke Air Force Base community to a larger degree than in the comparison community ($p < 0.05$) and the Air Force overall ($p < 0.05$).

Sacramento, CA/Beale

In the Sacramento, CA/Beale Air Force Base community, the percentage of problem drinkers was not significantly different from either the comparison site or the Air Force overall in 2006 or 2008. When comparing the changes across time, the Sacramento, CA/Beale Air Force Base community had a decrease of 8.1 percent in problem drinkers ($p < 0.05$), compared with a decrease of 9.3 percent for the comparison site and 6.6 percent for the Air Force overall (see figure 4). When comparing these decreases across time, the prevalence rate of problem drinking in the Sacramento, CA/Beale Air Force Base community was not significantly different from the comparison site and the Air Force overall.

Figure 1. Changes in the Prevalence of Problem Drinkers in the Great Falls, MT/Malmstrom Air Force Base Community

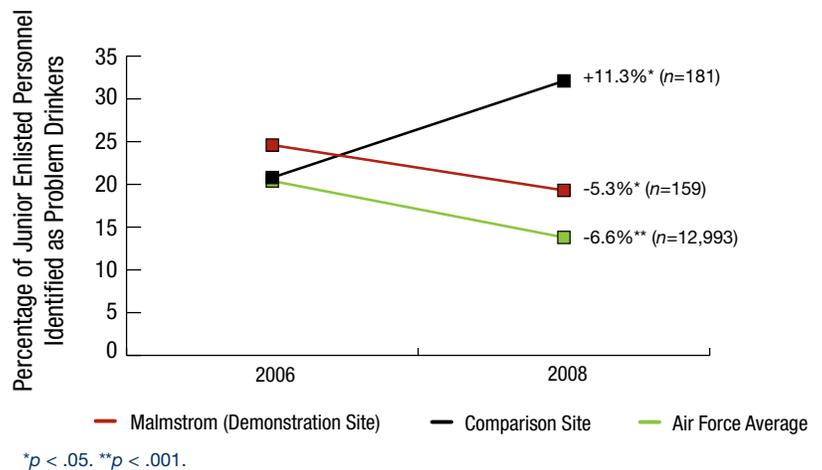
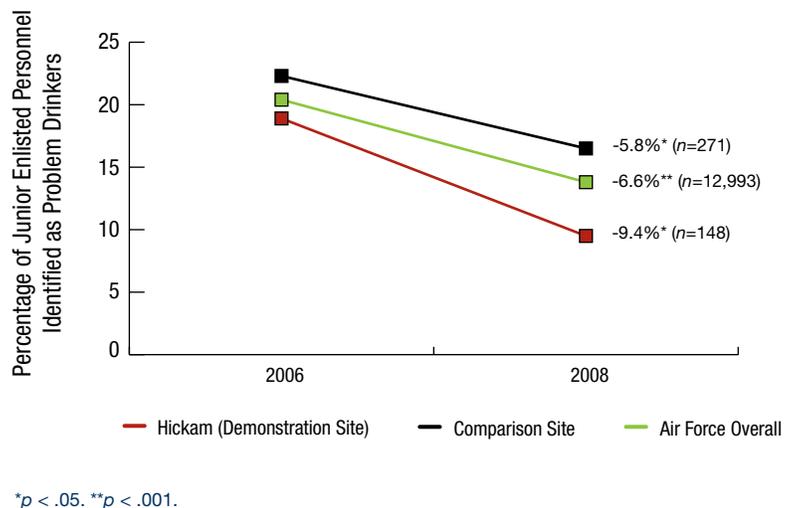


Figure 2. Changes in the Prevalence of Problem Drinkers in the Honolulu, HI/Hickam Air Force Base Community



Tucson, AZ/Davis-Monthan

In the Tucson, AZ/Davis-Monthan Air Force Base community, the percentage of problem drinkers was not significantly different from either the comparison site or the Air Force overall in 2006 and 2008. When comparing the changes across time, the Tucson, AZ/Davis-Monthan Air Force Base community had a decrease of 9.8 percent in problem drinkers ($p < 0.01$), compared with a decrease of 11.2 percent for the comparison site and 6.6 percent for the Air Force overall (see figure 5). When comparing these decreases across time, the prevalence rate of problem drinking in the Tucson, AZ/Davis-Monthan Air Force Base community was not significantly different from the comparison site and the Air Force overall.

Discussion

The current study describes the early effects of EUDL interventions in five Air Force communities. The evaluation shows that the percentage of Air Force junior enlisted personnel at risk for a drinking problem has decreased significantly overall—by 6.6 percent from 2006 to 2008. In 2006, approximately one in five junior enlisted active-duty members (20.4 percent) were at risk for an alcohol problem; in 2008, only one in seven (13.8 percent) were at risk.

This sizeable decrease may be attributed, in part, to the Air Force's implementation of the CoRC program. The decrease in the rate of persons at risk for problem drinking may also be the result of decreased numbers of deployments within the Air Force from 2006 (during the height of the war in Iraq) to 2008 (O'Bryant and Waterhouse, 2008). Fewer deployments and less stress associated with deployment may have decreased the risk for active-duty members to resort to problem drinking. Finally, although researchers have found that military members report drinking accurately on anonymous surveys (Bell et al., 2003), the EUDL and CoRC programs have brought increased attention to the dangers of drinking since 2006, which may have reduced the number of junior enlisted personnel willing to report problem drinking behaviors in 2008.

Although the percentage of junior enlisted personnel at risk for problem drinking has decreased at all five sites over the past 2 years, some of the most promising early findings come from the two Arizona communities. Problem drinking in the Phoenix, AZ/Luke Air Force Base community decreased 13.6 percent, and decreased 9.8 percent

Figure 3. Changes in the Prevalence of Problem Drinkers in the Phoenix, AZ/Luke Air Force Base Community

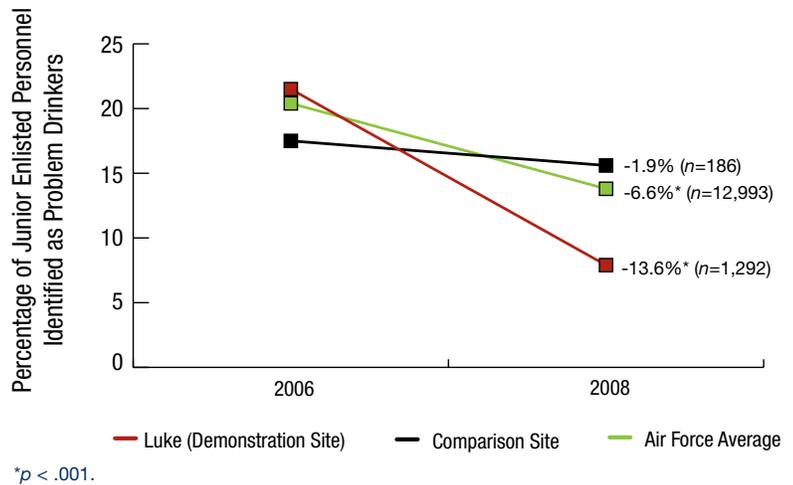


Figure 4. Changes in the Prevalence of Problem Drinkers in the Sacramento, CA/Beale Air Force Base Community

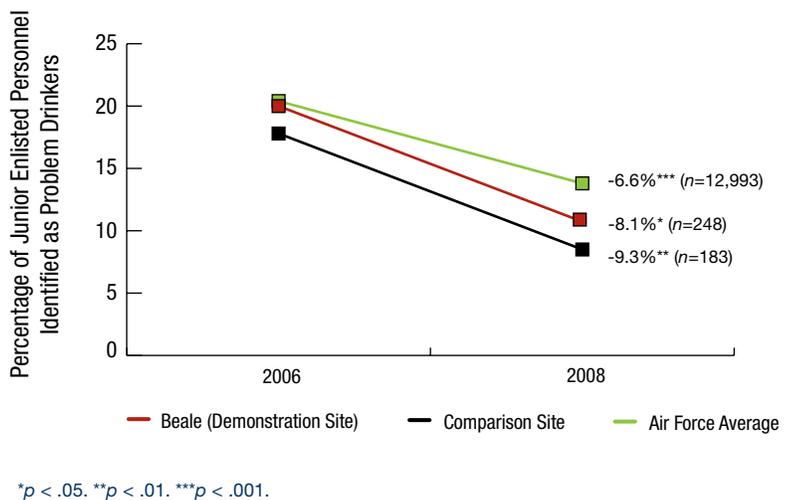
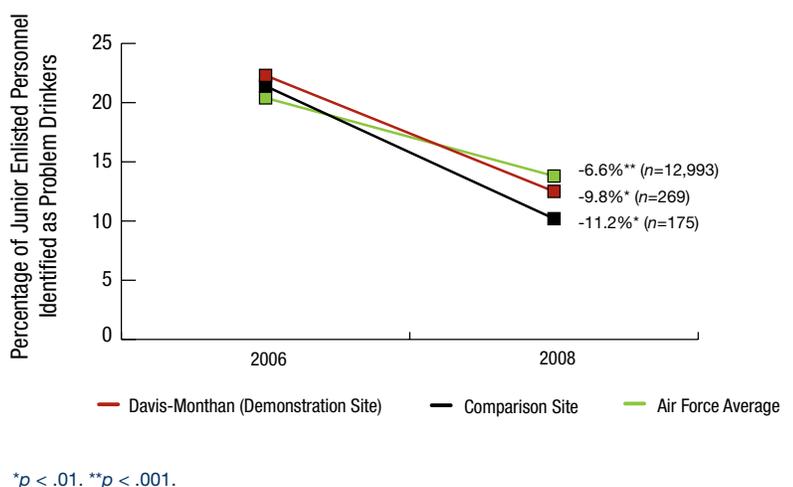


Figure 5. Changes in the Prevalence of Problem Drinkers in the Tucson, AZ/Davis-Monthan Air Force Base Community



in the Tucson, AZ/Davis-Monthan Air Force Base community over the past 2 years, compared with a decrease of 6.6 percent for the Air Force overall. These decreases in the percentage of individuals at risk for problem drinking represent promising relationships between the intervention and anonymous self-report data on drinking for junior enlisted personnel.

To better understand and explore why the early results seem to be so promising in these two Arizona communities, the authors reviewed the work plans and meeting minutes that the coalitions that implemented the interventions in both communities prepared. From a review of this information, a few unique themes emerged:

- Arizona and Montana were the first states to develop their coalition(s), receive OJJDP approval of their work plan(s), and begin implementing their intervention activities.
- The two Arizona communities used guidance from the Underage Drinking Enforcement Training Center (www.udetc.org/Publications.htm), input from the federal partners (OJJDP, NIAAA, and the U.S. Air Force), and “best practice” guidelines from the Substance Abuse and Mental Health Services Administration (2006; <http://store.samhsa.gov/home>). This guidance helped them build state-based coalitions to promote community prevention using a social network analysis.⁸ Other communities did not use this guidance.
- Arizona had an existing underage drinking state task force before the EUDL/Air Force grant project began. Thus, the state had an existing network to build on.
- Both Arizona communities hired an outside local partner, Pima Prevention Partnership, to help them implement their activities.
- Both Arizona communities are in urban areas (Phoenix and Tucson), so they identified and offered more alternate activities to drinking compared with sites in more rural areas, where the possibilities for alternative activities may be limited.
- Both Arizona communities have received strong support from base-level leadership on the EUDL project. The wing commanders and senior officers at both Arizona Air Force bases were vocal and visible in their support.

The Great Falls, MT/Malmstrom Air Force Base site also showed a significant decrease in risk for problem drinking when compared with a comparison community of equal size, but not when compared with the Air Force overall. The lack of significant difference in risk rates for the base



and the Air Force overall may have to do with the fact that the Air Force was not an optimal comparison for this community. For most typical Air Force communities, using the Air Force average as the benchmark for the demonstration sites may be optimal because averaging all Air Force communities accounts for any variance and measurement error across sites. However, for a site such as Great Falls, MT/Malmstrom Air Force Base, a small city within a larger rural area, comparisons with the Air Force average may be misleading. The best benchmark, in fact, might be another community that has an Air Force base with a similar mission and that is in an area with a similar small city/rural profile (e.g., the comparison site).

Although these early findings are promising for EUDL within communities containing a large population of active-duty Air Force members, the authors remain cautious when interpreting these findings. Future results may help researchers better understand how all five sites fared. First, given the quasi-experimental nature of the study, the researchers could not establish cause-and-effect relationships or indicate that the interventions are the sole cause of the drop in the rate of problem drinkers.⁹ Prevalence rates should be measured over time to see if the effects reported in this bulletin remain stable or change. Second, because CoRC has been implemented across the Air Force, the communities in this study were implementing both CoRC and EUDL. Therefore, the authors could not fully tease out the effects from CoRC versus the effects from EUDL. Finally, the findings presented in this bulletin focus solely on rates of problem drinking and do not include data on alcohol-related misconduct, such as DUIs, underage-drinking incidents, traffic accidents, emergency department visits, and domestic violence. The researchers are collecting these types of outcome data as part of the evaluation. When these data are available, the team will compare them with the findings obtained in this study to determine the extent to which they can corroborate these early evaluation findings.

Endnotes

1. In this bulletin, “community” is defined as the geographic area of the larger civilian community in which the U.S. Air Force Base lies; therefore, it includes both the base and the surrounding civilian community.
2. Researchers have documented the increased risk of excessive alcohol use among military members following deployment and exposure to combat. See, for example, Fear and Wessely (2009) and Dervaux and Laqueille (2008).
3. An environmental approach is one that emphasizes macro- or system-level entities such as policy influences, establishments that serve alcohol, and cultures or social networks that perpetuate attitudes or behaviors toward drinking. Changes at the macro level—such as decreasing access to alcoholic beverages by those younger than age 21—produce changes in an individual’s behavior.
4. The Pacific Institute for Research and Evaluation is OJJDP’s technical and training assistance provider for this initiative.
5. The sample was stratified by rank, gender, and deployment status within each Air Force base.
6. Multiple imputation is a statistical technique that estimates missing values by examining actual values entered by other respondents to the same survey items. The technique replaces missing values with several (typically from 3 to 10) simulated versions. Researchers analyze each complete data set simulated by standard methods and then combine the results to produce estimates and confidence intervals that incorporate statistical uncertainty. See Rubin (1987) for more information.
7. The “*p*-value” is an estimate of the probability that the results are due strictly to chance rather than any effects

of the intervention program. By convention, a *p*-value of .05, representing 5 percent, is used as a threshold. Most researchers accept that *p*-values less than or equal to .05 indicate that the results are due to program effects and not random variation.

8. The term “social network analysis” encompasses a number of related concepts. As used by the Arizona demonstration sites, the analysis views a community of individuals and organizations as interactive and interdependent. The analysis provides a guide for communities to form coalitions that better reflect the intentions of the community and the people connected to it.

9. The term “quasi-experimental” refers to research that has most of the characteristics of a true experiment. In most applied field studies, two experimental requirements that frequently cannot be met are a researcher’s control over the independent variables and random assignment of individuals to different experimental groups. In the EUDL demonstration sites described here, the independent variables are those activities constituting the EUDL program. However, the participants (i.e., Air Force personnel younger than age 21) cannot be assigned to a “drinking group” and a “nondrinking group” for ethical, legal, and practical reasons.

References

- Ames, G.M., Cunradi, C.B., Moore, R.S., and Stern, P. 2007. Military culture and drinking behavior among U.S. Navy careerists. *Journal of Studies on Alcohol and Drugs* 68:336–344.
- Babor, T.F., Higgins-Biddle, J.C., Saunders, J.B., and Monteiro, M.G. 2001. *AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care*, 2d ed. Geneva, Switzerland: World Health Organization.

NOTES

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Correspondence may be sent to Christopher Spera at cspera@icfi.com.

- Bell, N.S., Williams, J.O., Senior, L., Strowman, S.R., and Amoroso, P.J. 2003. The reliability and validity of the self-reported drinking measures in the Army's Health Risk Appraisal Survey. *Alcoholism: Clinical and Experimental Research* 25:826–834.
- Bray, R.M., Hourani, L.L., Olmstead, K.L.R., Witt, M., Brown, J., Pemberton, M.R., Vandermaas-Peeler, R. 2006. *2005 Department of Defense Survey of Health-Related Behaviors Among Active Duty Military Personnel*. Research Triangle Park, NC: RTI International.
- California State University–Chico. 2007. *Safer California Universities Study: A Multi-Campus Alcohol Prevention Study*. Berkeley, CA: Pacific Institute for Research and Evaluation, Prevention Research Center. Available online: www.csuchico.edu/cadec/CaliforniaSaferSite/index.shtml.
- Dervaux, A., and Laqueille, X. 2008. Military combat deployment and alcohol use. *Journal of the American Medical Association* 300(22):2606–2607.
- Fear, N.T., and Wessely, S. 2009. Combat exposure increases risk of alcohol misuse in military personnel following deployment. *Evidence Based Mental Health* 12(2):60.
- Fleming, M.F., Barry, K.L., and MacDonald, R. 1991. The Alcohol Use Disorders Identification Test (AUDIT) in a college sample. *International Journal of the Addictions* 26:1173–1185.
- Goldstein, A., and Flett, G. 2009. Personality, alcohol use, and drinking motives: A comparison of independent and combined internal drinking motives groups. *Behavior Modification* 33:182–198.
- Gruenwald, P.J., Holder, H.D., and Treno, A.J. 2003. Environmental approaches to prevention. In *Principles of Addiction Medicine*, 3d ed., edited by A.W. Graham, T.K. Schultz, M.F. Mayo-Smith, R.K. Ries, and B.B. Wilford. Chevy Chase, MD: American Society of Addiction Medicine.
- Hingson, R., McGovern, T., Howland, J., Heeren, T., Winter, M., and Zakocs, R. 2006. Reducing alcohol-impaired driving in Massachusetts: The Saving Lives Program. *American Journal of Public Health* 86:791–797.
- Hoge, C.W., Castro, C.A., and Messer, S.C. 2004. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine* 351:13–22.
- Holder, H.D., Gruenwald, P.J., Ponicki, W.R., Treno, A.J., Grube, J.W., Saltz, R.F., Roeper, P. 2006. Effect of community-based interventions on high-risk drinking and alcohol-related injuries. *Journal of the American Medical Association* 284:2341–2347.
- LaBrie, J., Lamb, T., and Pedersen, E. 2009. Changes in drinking patterns across the transition to college among first-year college males. *Journal of Child and Adolescent Substance Abuse* 18:1–15.
- O'Bryant, J., and Waterhouse, M. 2008. *U.S. Forces in Iraq*. Washington, DC: Library of Congress, Congressional Research Service.
- Office of Juvenile Justice and Delinquency Prevention. 2005. F.E. Warren Air Force Base tackles underage and hazardous drinking. *Success Stories: News from the Field*. Calverton, MD: Underage Drinking Enforcement Training Center. Available online: www.udetc.org/documents/success_stories/WY0205.pdf.
- Rosen, L. 2007. Rape rates and military personnel in the United States. *Violence Against Women* 13:945–960.
- Rubin, D.B. 1987. *Multiple Imputation for Nonresponse in Surveys*. New York, NY: J. Wiley and Sons.
- Substance Abuse and Mental Health Services Administration. 2006. *Focus on Prevention*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Available online: <http://store.samhsa.gov/home>.
- Treno, A.J., and Lee, J.P. 2002. Approaching alcohol problems through an environmental lens. *Alcohol Research and Health* 26:35–40.
- U.S. Air Force. 2006. *Establishing a Culture of Responsible Choices (CoRC)*. Washington, DC: U.S. Air Force. Available online: www.afcrossroads.com/websites/corc_docs/CoRC_CONOPS_Feb_2006.pdf.
- U.S. Department of Health and Human Services. 2007. *Results From the 2006 National Survey on Drug Use and Health: National Findings*. Rockville, MD: U.S. Department of Health and Human Services, Office of Applied Studies.
- Wagenaar, A.C., Murray, D.M., Gehan, J.P., Wolfson, M., Forster, J.L., Toomey, T.L., Jones-Webb, R. 2000. Communities mobilizing for change on alcohol: Outcomes from a randomized community trial. *Journal of Studies on Alcohol* 61:85–94.

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