February 13, 2008

Senator Marvin Riegsecker  
Chairperson, Committee for Bill 1118  
Indiana Statehouse  
Senate Chambers  
200 W. Washington St.  
Indianapolis, IN 46227

Dear Senator Riegsecker:

I am writing to you and members of your committee in my role as the Chair of the Indiana State Epidemiology and Outcomes Workgroup (SEOW). The SEOW was established in early 2006 in response to requirements of the Strategic Prevention Framework State Incentive Grant (SPF SIG) that was awarded to the Governor’s Office in 2005 by the U.S. Center for Substance Abuse Prevention. For the past two years, the SEOW has compiled data on substance abuse in Indiana in order to better understand and identify data-driven priorities for substance abuse prevention policymaking. The SEOW includes representatives from eight state agencies and several community organizations. As Chair of the SEOW, I oversee our monthly meetings and discussions and direct the research activities conducted by my staff at the Indiana University Center for Health Policy in Indianapolis. In both 2006 and 2007, we published epidemiological profiles of substance abuse in Indiana which are available at our Web site (www.healthpolicy.iupui.edu/SEOW).

As you may be aware, underage drinking continues to be a significant public health concern for Indiana. In 2007, 20.9% of 8th grade students, 33.0% of 10th grade students, and 42.2% of 12th grade students reported drinking at least once in the prior 30 days; and Indiana students in the 8th, 10th, and 12th grades reported binge drinking at least once during the prior two weeks at rates of 13.2%, 21.7%, and 28.6%, respectively (Indiana Prevention Resource Center, 2008). Annually, the cost of underage drinking in Indiana is approximately $1.3 billion. Statewide efforts need to be implemented in order to reduce underage drinking and its associated costs.

As part of the SPF SIG process, the Pacific Institute of Research and Evaluation (PIRE) developed a preliminary logic model for the many factors that influence underage drinking. Over the past six months, the SEOW has worked with staff at PIRE to adapt the model and apply it to our state. This comprehensive logic model is intended to provide a working framework for policymakers and program planners to use in considering community- and state-level strategies to reduce underage drinking (see attached figure). As you can see in this figure, there are many factors that contribute directly and indirectly to underage drinking. In general, the darker and thicker
the line, the more evidence exists for the connection between factors. As you can see, the five most significant factors are: retail availability, social availability, price of alcohol, underage drinking laws, and visible enforcement (Birckmayer, Boothroyd, Fisher, Grube, & Holder, 2008).

Retail availability refers to the ease of physical access to alcohol through commercial sources. This availability includes on-premise outlets such as bars or restaurants, as well as off-premise outlets such as grocery stores, liquor stores, and other retail outlets licensed to sell alcohol in a community. Retail alcohol outlets are one of the primary sources of alcohol for underage drinkers (Birckmayer et al., 2008). One aspect of retail availability is alcohol outlet density, defined as the number of alcohol outlets per capita population or per roadway mile. A higher number of alcohol outlets in the community is associated with overall alcohol consumption (Gruenewald, Ponicki, & Holder, 1993; Scribner & Cohen, 2001; Scribner, Cohen, & Fisher, 2000), automobile crashes and fatalities (Kelleher, Pope, Kirby, & Rickert, 1996; Scribner, Mackinnon, & Dwyer, 1994), violent crime (Speer, Gorman, Labouvie, & Ontkush, 1998), drinking norms (Scribner et al., 2000), self-reported injuries (Treno, Gruenewald, & Johnson, 2001), and self-reported driving after drinking among adults (Gruenewald, Johnson, & Treno, 2002). When looking specifically at youth, higher alcohol outlet density near colleges and universities is associated with more frequent drinking and more problem drinking among students under the age of 21 (Weitzman, Folkman, Folkman, & Wechsler, 2003). For young people under the legal drinking age, outlet density is associated with higher driving after drinking rates, higher rates of riding in a car with someone who has been drinking (Treno, Grube, & Martin, 2003), and higher rates of alcohol purchases (Freisthler, Gruenewald, Treno, & Lee, 2003).

A second factor of retail availability is the ease with which minors can purchase alcohol for both on-premise and off-premise consumption. A recent study using very young-looking 21-year-old decoys found that 38% of convenience stores, 36% of grocery stores, and 14% of liquor stores were willing to sell alcohol to the decoys without asking for identification (Paschall et al., 2007). Earlier studies have reported sales rates for off-premise consumption of 46% (Wolfson et al., 1996), 47% (Forster et al., 1994), and 52% (Forster, Murray, Wolfson, & Wagenaar, 1995). Forster et al., (1995) showed that decoys were able to purchase alcohol for on-site consumption in approximately 50% of their attempts. These studies show that minors can purchase alcohol with little effort and, judging by the most recent research, have the most success doing so in either convenience or grocery stores.

Social availability refers to the ease with which young people can get alcohol at social events or from peers, family, or other people who may or may not be of legal drinking age (Birckmayer et al., 2008). Research on underage drinking reports that parties, friends, and adult purchases are the most common sources of alcohol for adolescents (Harrison, Fulkerson, & Park, 2000; Preusser, Ferguson, Williams, & Farmer, 1995; Schwartz, Farrow, Banks, & Gisell, 1998; Wagenaar et al., 1996). Indiana youth are no different than the youth described in the research. Among Indiana youth who used alcohol in 2007, 57.1% of 8th graders, 63.6% of 10th graders, and 71.5% of 12th graders said that they got their alcohol at public events, had someone else buy it,
received it from someone who was 21 or older, or got it from a family member (Indiana Prevention Resource Center, 2008). Despite laws against such behavior, many adults appear to be willing to provide alcohol to youth. Toomey et al., (2007) found that 19% of young men asked by under-age-looking decoys to buy alcohol for them were willing to do so. Given the fact that young people get alcohol through many sources, social availability is a significant means for underage youth to obtain access to alcohol beyond commercial access (Holder, 1994).

*Price* refers to the retail price or direct monetary cost of alcohol. **Alcohol is a price-sensitive commodity.** As price increases, the demand for alcohol decreases and vice-versa (Birckmayer et al., 2008). **Early studies on the relationship between price and alcohol consumption and associated problems among youth have shown** that increasing taxation on alcohol in the US to keep pace with inflation would lead to a 19% reduction in heavy drinking by youth and a 6% reduction in high-risk drinking (Laixuthai & Chaloupka, 1993). It has been specifically estimated that increasing the price of beer (the typically preferred beverage of youth) to keep pace with inflation would reduce youth drinking by 9% and heavy drinking by 20% (Laixuthai & Chaloupka, 1993). Other studies, however, have not found evidence for the effects of taxation and price on alcohol consumption or alcohol-related traffic fatalities, either among youth or in the general population (Dee, 1999; Young & Likens, 2000). Although taxation and price increases may be effective prevention strategies in some cases, price elasticities are moderated by social, environmental, and economic factors. As a result, the price sensitivity of alcohol may vary considerably across time, states, and countries, depending on drinking patterns and attitudes and the presence of other alcohol policies (Birckmayer et al., 2008).

**Underage drinking and minors in possession laws** are the formal rules, regulations, and laws concerning purchase, possession, and use of alcohol by persons under a specifically defined age, uniformly 21 in the United States (Birckmayer et al., 2008). Significant research has shown that raising the minimum age of purchasing alcohol to 21 significantly reduces the number of alcohol-involved traffic crashes for youth below age 21 (US GAO, 1987). In a comprehensive review of the related literature, Wagenaar and Toomey (2002) concluded that overall, a higher legal drinking age is associated with reduced alcohol consumption among youth. Underage drinking laws, however, are only effective if they are enforced. As noted above, underage youth have little trouble purchasing alcohol either directly (Forster et al., 1994; Forster et al., 1995; Paschall et al., 2007; Wolfson et al., 1996) or through an intermediary (Toomey et al., 2007).

**Visible enforcement** refers to enforcing policies to decrease retail and social availability as well as youth use of alcohol through threat of sanctions. Official policies might call for arrest, prosecution, and punishment to help reduce alcohol availability and alcohol-related violations. Punishment might include fines to stores that sell alcohol to minors or stiff penalties for drinking and driving (Birckmayer et al., 2008). Research on various forms of enforcement have found that visible enforcement against sales to underage youth is associated with reductions in such sales (Grube, 1997; Wagenaar, Toomey, & Erickson, 2005a, 2005b). Increasing enforcement of minor-in-possession laws may also help reduce underage drinking since higher perceived enforcement
of such laws in a community has been associated with a reduction in self-reported alcohol use alcohol and binge drinking (Dent, Grube, & Biglan, 2005). Stricter enforcement of minor-in-possession laws, however, has also been associated with a self-reported increase in the use of social sources for alcohol (Dent et al., 2005).

While enforcement actions against those selling or providing alcohol to minors is particularly rare (Wagenaar & Wolfson, 1994), studies on the effects of increasing such enforcement show it to be a highly effective means to reduce alcohol sales to minors. Increasing enforcement, specifically compliance checks on retail alcohol outlets, typically cuts rates of sales to minors by at least half (Grube, 1997; Lewis et al., 1996; Preusser, Williams, & Weinstein, 1994). Even moderate levels of enforcement can reduce sales of alcohol to minors by as much as 35% to 40%, especially when combined with other community policy activities (Grube, 1997). Some states have enacted social host laws to deter adults from making alcohol available to youth. These laws allow third parties to sue social providers if the provision of alcohol leads to injury or death (Komro & Toomey, 2002). While policy analysts speculate that enacting such laws should reduce underage drinking, research currently does not exist to confirm this belief.

In closing, let me reiterate that the problem of underage drinking is affected by a variety of factors, and the most important of these—according to sound scientific research—are retail availability, social availability, price, underage drinking laws, and visible enforcement of alcohol-related laws. It is important to note that while specific legal or program interventions designed to target one of these factors may produce some reduction in underage drinking rates, the greatest benefit will be seen when a community-wide approach directed at multiple factors in the logic model is used (Holder, 2000).

Sincerely,

Eric R. Wright, Ph.D.
Chair, Indiana State Epidemiology and Outcomes Workgroup,
Director, Center for Health Policy, and
Professor, Indiana University School of Public and Environmental Affairs
References


Motives/Antecedents/Risk Factors:
(Hawkins, Catalano & Miller, 1992)

- Extreme economic deprivation+
- Neighborhood disorganization+
- Physiological/genetic factors+
- Poor and inconsistent family management practices+
- Family conflict+
- Low bonding to family+
- Early & persistent problem behavior+
- Academic failure+
- Low degree of commitment to school+
- Peer rejection in elementary school+
- Alienation and rebelliousness+
- Early onset of drug use+

Motives/Antecedents/Protective Factors: (Hawkins, Catalano & Miller, 1992)

- Strong parental bonding-
- Positive temperament-
- Strong external support system-
- Strong commitment to school-
- Involvement in church activities-
- Belief in generalized expectations, norms, values of society-

Conditions: Mediating/Moderating Variables

- Price of alcohol
- Retail availability of alcohol to youth
- Social availability of alcohol to youth
- Visible Enforcement
- Underage Drinking Laws
- Drinking beliefs
- Family, school, and peer influence
- Drinking context

Outcomes

- Alcohol-Related Problems (e.g., binge drinking, drinking & driving, alcohol-related violence, impaired school performance, impaired judgment)

Underage Drinking Logic Model

1The underage drinking logic model was developed by the Pacific Institute for Research under contract with the Center for Substance Abuse Prevention and adapted by the Center for Health Policy at Indiana University – Purdue University Indianapolis.