

# Surgeon General's Perspectives

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## PREVENTING AND REDUCING UNDERAGE DRINKING

In 2007, former Acting Surgeon General RADM Kenneth Moritsugu released *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking*<sup>1</sup> to let the American people know about the nature and extent of underage drinking and its consequences, defined in this article as alcohol consumption by people younger than the minimum legal drinking age of 21. Dr. Moritsugu also wanted to alert the public to recent scientific evidence indicating that the developing adolescent brain might be particularly susceptible to long-term negative consequences from alcohol use. He also focused on emerging developmental research that explains why adolescents use alcohol differently from adults, why they react uniquely to it, and why alcohol can pose such a powerful attraction to them with unpredictable and potentially devastating outcomes.

Following publication of the report, my office has worked closely with the spouses of governors who are members of the Leadership to Keep Children Alcohol Free, the National Institute of Alcohol Abuse and Alcoholism (NIAAA), and the Substance Abuse and Mental Health Services Administration (SAMHSA) to encourage states and communities across the country to work together to prevent and reduce underage drinking. As part of this effort, I have visited 13 states and helped to launch town hall meetings in more than 1,800 communities in all 50 states. My colleagues and I have undertaken this educational effort because underage drinking in America constitutes a major public health and safety problem that creates serious personal, social, and economic consequences for adolescents, their families, communities, and the nation.

Alcohol is the most widely used substance of abuse among America's youth, with a greater frequency of use than tobacco or illicit drugs.<sup>2</sup> Although alcohol consumption by adolescents is often regarded as a rite of passage, it is a serious threat to adolescent development and health that requires a broad collaborative effort to solve. Fortunately, new research sheds light on the nature of that problem and how to approach it in the most effective manner.

Underage alcohol consumption is best understood and addressed within a developmental framework, because it is directly related to the processes that occur during adolescence. Research indicates that adoles-



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cence is a time of particular vulnerability to alcohol use and its consequences for a variety of developmental reasons. Some factors that influence underage alcohol use include biological and cognitive changes, such as sexual development and differential maturation of specific regions of the brain that are common to all adolescents, and psychological and social changes, such as increased independence and risk-taking. Underage alcohol use is also influenced by the various social and cultural contexts in which adolescents live (e.g., family, peers, school, and community). Genetic, psychological, and social factors that are specific to each adolescent also play a role, as do environmental factors that influence the availability and appeal of alcohol. For example, enforcement of underage alcohol policies by schools and others, marketing practices, pricing, and the physical availability of alcohol all contribute to underage alcohol use.

Underage alcohol use has been shown to increase with age. Among adolescents who drink, the number of binge drinking days also increased with age. Although adolescents drink less frequently than adults, when they do drink, they drink more heavily than adults.<sup>3</sup> By age 15, approximately 50% of boys and girls have had a whole drink of alcohol; the figure rises to 90% by age 21. The highest prevalence of alcohol dependence as

defined by the Diagnostic Statistical Manual of Mental Health (DSM-IV) is among young people 18 to 20 years of age. Furthermore, adolescents do not react to alcohol in the same way adults do. For example, in the case of driving, each drink increases impairment more for adolescents than for adults.<sup>4</sup>

The short- and long-term consequences of underage drinking are astonishing in their range and magnitude. Underage alcohol use is a leading contributor to death from injury, which is the main cause of death for people younger than 21.<sup>5-9</sup> Alcohol plays a significant role in risky sexual behavior, including unwanted, unintended, and unprotected sexual activity, and sex with multiple partners. These behaviors increase the risks of unplanned pregnancy and of contracting sexually transmitted diseases (STDs), including infection with human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS).<sup>10,11</sup> Underage drinking increases the risk of physical and sexual assault<sup>12</sup> and of heavy drinking later in life.<sup>13,14</sup> It is associated with academic failure, illicit drug use,<sup>15</sup> and tobacco use. Alcohol can cause a range of physical consequences, from hangovers to death from alcohol poisoning.

New research indicates that underage alcohol use can also cause alterations in the structure and function of the developing brain, which continues to mature into the mid- to late-20s, and may have consequences reaching far beyond adolescence. Adolescent alcohol use has the potential to trigger biological changes that may alter an adolescent's development as well as affect the adolescent's immediate behavior. Early heavy alcohol use may also cause neurocognitive impairment.<sup>16</sup> Animal studies show that a sustained pattern of heavy, binge-like drinking in adolescence affects memory, alters sensitivity to motor impairment, and damages frontal-anterior cortical regions.<sup>17-19</sup> The frontal cortex is important in the development of self-regulation, judgment, reasoning, problem-solving, and impulse control.

The secondhand effects of underage alcohol use are also widespread, affecting not only the drinker, but others as well. For example, studies consistently indicate that about 80% of college students drink alcohol, about 40% engage in binge drinking, and about 20% engage in frequent episodic heavy consumption, which is bingeing three or more times during the past two weeks.<sup>20</sup> Among the consequences: approximately 600,000 students are unintentionally injured annually while under the influence of alcohol, approximately 700,000 are assaulted by other students who have been drinking, and approximately 100,000 students are victims of alcohol-related sexual assault or date rape.<sup>21</sup>

A developmentally based approach to addressing the public health problem of underage drinking takes into account the various social systems in which adolescents operate: family, peers, school, community, laws and policies, and culture. Each of these systems exposes adolescents to both positive and negative influences, potentially increasing or decreasing the risk of alcohol use. Because adolescents are involved in these multiple systems, all adults, including parents, must also be involved, working to contribute to positive outcomes. Such actions can build a protective "scaffolding" around the adolescent. Scaffolding<sup>22-24</sup> in this sense refers to the structured process through which positive development is facilitated and risk is minimized by creating a safer environment for the natural risk-taking, sensation-seeking tendencies of the adolescent. Scaffolding also promotes good decision-making, mitigating risk factors, and buffering against potentially destructive influences that draw adolescents to alcohol use.

Throughout childhood and especially during adolescence, effective scaffolding requires frequent readjustment because adolescents and their situations are continually changing. Effective scaffolding is developmentally based and culturally appropriate, inclusive of all the social systems in which adolescents operate, evolving as the child matures, initiated early, and continued over the long term until maturity is reached. Significant transitions within these social systems may increase the risk of adolescent alcohol use. Such transitions include obtaining a driver's license and the shift from elementary to middle school, middle school to high school, and high school to college. Other factors may include a parental divorce, early or late physical maturation, and stressors associated with sexual maturation. These transitions may require more intensive scaffolding.

The research data reported in *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking* places underage drinking in a developmental context. It also makes clear the extent of alcohol consumption by those younger than the legal drinking age of 21 and the pervasive negative consequences that can result. Those consequences include secondhand effects of underage drinking that affect individuals around the drinker and adolescents who do not drink.

Emerging research indicating potentially long-term adverse effects on the developing adolescent brain is disturbing. The preponderance of research shows that minimum legal drinking age laws have had positive effects, primarily in decreasing traffic crashes and fatalities, suicides, and alcohol consumption by those younger than 21.<sup>25</sup> On the basis of the available data,

drinking before age 21 is not worth the risk it entails. Therefore, the national effort to prevent and reduce underage drinking—and the public health and safety problems such drinking creates—is warranted. I urge you to read *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking* and to implement its strategies in your homes, schools, communities, and universities. Underage alcohol use is everybody's problem—and its solution is everybody's responsibility.



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