

# Commentary on White and Colleagues: Trends in Alcohol-Related Emergency Department Visits in the United States: Results from the Nationwide Emergency Department Sample, 2006 to 2014 (*ACER*, 2018)

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**E**PIDEMIOLOGICAL RESEARCH HAS documented a puzzling disconnect between recent alcohol-related trends in the United States. Studies comparing year-to-year prevalence of alcohol use and binge drinking have shown that drinking has been decreasing among adolescents and young adults (Center for Behavioral Health Statistics and Quality, 2015; Miech et al., 2017; Schulenberg et al., 2017). In seeming contradiction to such decreasing use, trends in demand for alcohol-related hospital services—particularly for emergency department (ED) and inpatient services—have been increasing (National Institutes of Health, 2013). New research by White and colleagues (2018) has added further confirmation of increasing demand for alcohol-related health care, documenting that overall ED visits involving both acute and chronic alcohol consumption rose dramatically between 2006 and 2014.

The new results of White and colleagues (2018) also bring attention to a potential solution to the puzzle, by identifying divergence in age-specific trends of alcohol-related ED visits. Specifically, they report that between 2006 and 2014, the rate of change in overall, acute, and chronic alcohol-related ED visits significantly increased for all adult age groups (18 and older), with the greatest increases observed for middle-aged adults. Among adolescents (aged 12 to 17), overall and acute alcohol-related ED visits significantly decreased, while chronic alcohol-related ED visits significantly increased (White et al., 2018). Identification of different trends in alcohol-related ED visits for adolescents, young adults, and adults highlights the importance of understanding age-specific patterns in alcohol consumption.

Here, we comment on existing, age-specific data consistent with 2 working theories regarding what may explain the

trends in alcohol-related ED visits. These 2 theories may be complementary. First, increases in alcohol-related ED visits may be attributable to an increasing intensity of alcohol use among drinkers (Patrick, 2016; Patrick et al., 2013, 2017b; White et al., 2018). Second, increased coingestion of alcohol with other drugs may be exacerbating the risks and contributing to increases in alcohol-related ED visits.

## HIGH-INTENSITY DRINKING

One way to examine the intensity of alcohol use is to document the changes in high-intensity drinking, defined as consuming 2 or 3 times the typical binge drinking threshold of 5 drinks (or gender-specific thresholds of 4 for women and 5 for men) in a row (Patrick, 2016). Developmental trends indicate that the prevalence of high-intensity drinking increases with age from adolescence to young adulthood (Patrick et al., 2016). Based on U.S. data in 2016, having 10 or more drinks in a row in the past 2 weeks was reported by 1% of eighth graders (Patrick et al., 2017a), 3% of tenth graders (Patrick et al., 2017a), and 4% of twelfth graders (Miech et al., 2017). Data from 2005 to 2016 indicate that this level of drinking is reported by 11% of young adults, aged 19 to 30 (Schulenberg et al., 2017). From age 30 onward, the prevalence of 10+ drinking decreases with age (Linden-Carmichael et al., 2017).

Historical trends in high-intensity drinking do vary by age. High-intensity drinking among adolescents has decreased over time (Miech et al., 2017; Patrick et al., 2013), although the adolescent prevalence of very high-intensity drinking (15+ drinks in a row) has not decreased as quickly as the prevalence of 10+ drinking (Patrick et al., 2013). White and colleagues (2018) documented a corresponding significant decrease over time in overall and acute alcohol-related ED visits among those aged 12 to 17; however, the increase in chronic alcohol-related ED visits for this age group remains unexplained by available data regarding trends in high-intensity drinking.

Among adults, Monitoring the Future data have shown decreases in binge and high-intensity drinking among those aged 18 to 24, relative stability among those aged 25 to 28, and increases among those aged 29 to 30 (Patrick et al.,

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*Received for publication December 15, 2017; accepted December 29, 2017.*

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DOI: 10.1111/acer.13593

2017b). Data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) have shown increased prevalence of alcohol use, binge drinking, and high-intensity drinking in the past 12 months among adults overall when comparing prevalence levels from 2001 to 2002 with those from 2012 to 2013 (Grant et al., 2017; Hingson et al., 2017). When NESARC is examined by age group, adults aged 45 and above had greater increases (Grant et al., 2017). Overall, high-intensity drinking appears to be increasing particularly for middle-aged adults and is consistent with the particularly notable increases in acute and chronic ED visits among this age group.

### COMBINED ALCOHOL AND OTHER DRUG USE

Changes in alcohol-related ED visits may also be explained, in part, by changes in the simultaneous use of alcohol and other drugs. Simultaneous use—that is when the effects of alcohol and the other substance overlap—can exacerbate alcohol-related risk. Whether or not alcohol intensity has changed, changes in the prevalence or frequency of combining alcohol with other drugs could lead to changes in acute and chronic alcohol-related problems. White and colleagues (2018) reported that roughly 1 in 6 alcohol-related ED visits involved alcohol use in combination with other drugs. Current evidence points to 2 particular types of simultaneous use that may be on the rise among adults: use of alcohol with marijuana and use of alcohol with nonmedical prescription drugs.

Simultaneous alcohol and marijuana use is associated with increased alcohol use and negative outcomes including alcohol dependence, harms to self, and drunk driving (Midanik et al., 2007; Subbaraman and Kerr, 2015). Among twelfth-grade students, simultaneous alcohol and marijuana use also is associated with higher-intensity drinking (Patrick et al., 2017c). Preliminary trend analysis indicated that simultaneous alcohol and marijuana use has been increasing historically among most young adult age groups (Terry-McElrath and Patrick, 2016). Therefore, simultaneous use of alcohol and marijuana may help explain increases in acute and chronic ED visits, at least among young adults.

Coingestion of alcohol and nonmedical prescription drugs (i.e., opioids, sedatives, stimulants, or tranquilizers) is also significantly and positively associated with high-intensity drinking among twelfth-grade students in the United States (McCabe et al., 2017) and is associated with a range of negative outcomes including blackouts, driving under the influence, illness, and unplanned sex (McCabe et al., 2006). Existing data show that use of nonmedical prescription drugs in the United States has decreased in recent years for those aged 18 to 28 (Miech et al., 2017; Schulenberg et al., 2017), has remained generally stable for those aged 26 and older (Center for Behavioral Health Statistics and Quality, 2015), and has significantly increased for those aged 50 and older (Schepis and McCabe, 2016). It remains an open question whether trends for coingestion of alcohol with nonmedical

prescription drugs parallel those for the overall nonmedical use of prescription drugs. If so, increased use of alcohol with nonmedical prescription drugs may help explain the increase in alcohol-related ED visits, at least among middle-aged adults.

### SUMMARY AND FUTURE DIRECTIONS

Increased alcohol-related ED visits among adults aged 18 and older are consistent with historical increases in the prevalence of high-intensity drinking among those aged 29 and older (Grant et al., 2017; Patrick et al., 2017b), simultaneous use of alcohol and marijuana among young adults (Terry-McElrath and Patrick, 2016), and nonmedical prescription drug use among those aged 50 and older (Schepis and McCabe, 2016) that may co-occur with alcohol use. Increased drinking intensity and increased simultaneous use of alcohol with other substances provide 2 possible theories that support the observed increase in alcohol-related consequences among adults, although trends and explanations differ somewhat based on age. Future research should examine these and other possibilities as explanations for trends in alcohol-related ED visits among adults in the United States, with particular attention to the specific patterns among adolescents, young adults, middle-aged adults, and older adults.

### ACKNOWLEDGMENTS

Development of this manuscript was supported by National Institute on Alcohol Abuse and Alcoholism research grant R01AA023504 to M. Patrick. The content is solely the responsibility of the authors and does not necessarily represent the official views of the study sponsor. The authors declare no conflicts of interest.

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