

## Using a syndromic approach to monitor alcohol-related visits of college-aged emergency department patients

Alejandro Cajigal\*, Kevin Konty and Daliah Heller

Bureau of Alcohol and Drug Use Prevention, Care, and Treatment, New York City Department of Health and Mental Hygiene, Long Island City, NY, USA

### Objective

To develop and implement a method for using emergency department records from a syndromic surveillance system to identify alcohol-related visits in New York City, estimate trends, and describe age-specific patterns. In particular, we are interested in college-aged morbidity patterns and how they differ from other age groups.

### Background

According to the Substance Abuse and Mental Health Services Administration's (SAMHSA) Drug Abuse Warning Network (DAWN) surveillance of drug-related ED visits, underage (<21 years) alcohol-alone visit rates have been increasing since 2004 to 2009 (1). Similarly, the "alcohol" syndrome for underage (12–20 years) ED visits also shows an overall increase from 2003 to 2009 in the percentage of alcohol-related visits (2). College-aged drinkers tend to binge drink at a higher frequency than the general population, putting them at greater risk for unintentional injuries and unsafe sex practices (3). Identifying college-specific patterns for alcohol-associated morbidity have important policy implications to reduce excessive drinking and associated harms on and around college campuses.

### Methods

An "alcohol" syndrome was developed based on alcohol-related chief complaint keywords sensitive and specific to acute or chronic alcohol ED visits, and validated by an ICD-9 field. The data were aggregated by day from 2008 to 2010, by age and age group. These data were analyzed using general linear modeling (PROC GENMOD), a time trend analysis, and a temporal SaTScan using age groups. Potential time periods of interest were major holidays, days of week, and college start and end periods.

### Results

Alcohol-related ED visits for college-age patients have increased since 2003. When analyzed with respect to holidays and days of week, college-age specific trends begin to emerge: college-aged ED visits differ from the general population by day of week (Fig. 1). Additionally, college age groups can be distinguished

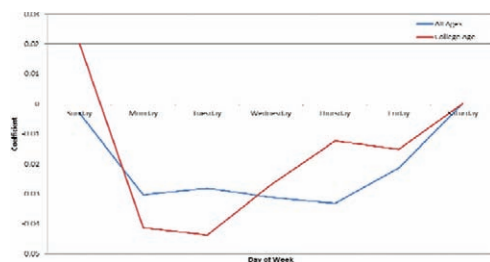


Fig. 1. Day of week coefficients for all age groups versus college-only ages.

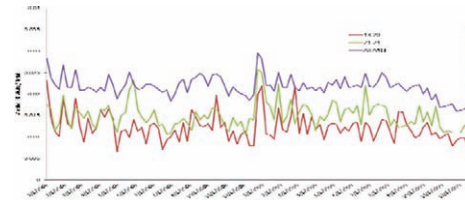


Fig. 2. Proportion of alcohol-related ED visits by week, 2009–2010

from other ages on certain days of the year. Most notably, early summer and early fall show these age-specific increases, and this age group drives some holiday spikes, such as New Year's Day/Eve.

### Conclusions

Further analyses need to be performed to refine a college drinker age group from syndromic data, as well as potentially identify this population spatially, such as in college-dense areas. In addition, a larger collaboration with the DiSTRIBuTE network as an extrapolation of this work (4). This would ideally help to improve the definition of an alcohol syndrome and expand the identification of these problem drinkers in other jurisdictions.

### Keywords

Alcohol; college drinking; emergency department data; temporal

### References

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\*Alejandro Cajigal

Email: [acajigal@health.nyc.gov](mailto:acajigal@health.nyc.gov)