

# A model of big data linkage to monitor student emergency department visits with alcohol intoxication & associated risk markers in a United States public university

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## **Declaration of Interest**

The authors have no potential conflict of interest to report.

# INTRODUCTION

- ▶ To date, self-report surveys on a sample of students using the binge drinking threshold is the primary source of data to identify at risk drinkers and monitor the burden of alcohol misuse among university students.
- ▶ Surveys are subject to certain limitations due to refusal, non-response, reporting or recall bias, which is subject to misclassification of student drinking amount
- ▶ Limited research has focused on evaluating student hazardous drinking based on clinical data
- ▶ Our research presents a novel data linkage model to monitor the burden of alcohol intoxication associated with student emergency department (ED) visits ascertained from ED medical records in a US public university

# METHODS

An integrated student dataset capturing the entire university student population was created by linking the following student datasets:

- ▶ **Student Information System (SIS)** records data for every student at each enrollment, including demographic, academic, campus-related characteristics and organizational affiliation.
- ▶ Student data were linked to the electronic medical record (**Epic**) and subsequent ED visits with alcohol intoxication identified using ICD codes documented in the electronic medical records commencing in 2009-2010 academic year.
- ▶ Data were further linked to clinical risk markers (e.g., depression, anxiety, injury) and services access that were abstracted using ICD codes from the Student Health Medical Center electronic medical record (**Medicat**) – a primary healthcare facility.

## Student Information System

- Age
- Gender
- Ethnicity
- Academic Level
- Athletic scholarship
- Fraternity/Sorority
- Military Veteran
- First Generation
- Financial Status
- Transfer Student
- International Student
- Scholarship
- Grade Point Average
- Clubs
- Leadership Roles

## Student Health System Electronic Medical Record (Medicat)

- Primary Care Visits
- Counseling Visits
- Psychiatric Visits
- Disability Access Accommodations

## University Health System (Epic)

- Emergency Department Visits
- Inpatient Services
- Outpatient Services

## University Dean's Database (Safe Grounds)

- Interactions
- Threat Assessment Team
- Citations

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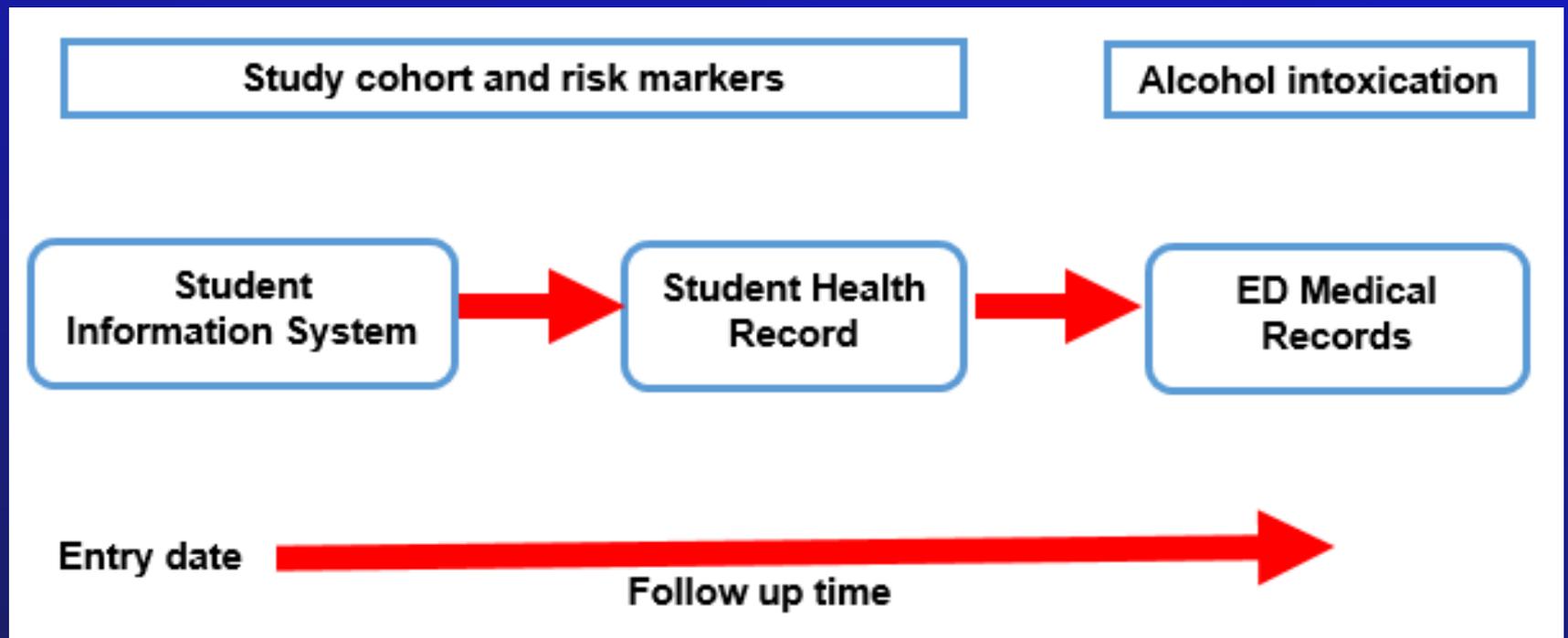
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# METHODS: DATA SOURCES AND DATA LINKAGE



# KEY MILESTONES

- ▶ As of 30 Jun 2017: an integrated dataset captured 277,694 students enrolled in the university in 8 (2009-2017) academic years, which were linked to 12,450 student ED visits (linkage rate =99%) of which 1,274 (10.2%) were associated with acute alcohol intoxication
- ▶ The dataset allows for:
  - ▶ Longitudinally follow up every student over the course of study at the university for any risky drinking event including alcohol intoxication resulting in ED visits
  - ▶ Tracking the temporal trends in prevalence and incidence rate of alcohol intoxication associated with student ED visits
  - ▶ Documenting a range of demographic, academic characteristics, organizational affiliation (fraternity member) and extra-curricular activities (athletic scholarship), and clinical histories (e.g., depression, anxiety, injury)
  - ▶ Developing a risk predictive model to generate a risk score for every student at the time of enrollment and identify students at higher risk for timely referral to available outreach education and services

# SEVEN YEAR TRENDS IN THE INCIDENCE OF STUDENT ALCOHOL INTOXICATION ASSOCIATED WITH ED VISITS

