

# Frequency of Alcohol Use Among Injured Adult Patients Presenting to a Ghanaian Emergency Department



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**Study objective:** Injuries are the cause of almost 6 million deaths annually worldwide, with 15% to 20% alcohol associated. The frequency of alcohol-associated injury varies among countries and is unknown in Ghana. We determined the frequency of positive alcohol test results among injured adults in a Ghanaian emergency department (ED).

**Methods:** This is a cross-sectional chart review of consecutive injured patients aged 18 years or older presenting to the Komfo Anokye Teaching Hospital ED for care within 8 hours of injury. Patients were tested for presence of alcohol with a breathalyzer or a saliva alcohol test. Patients were excluded if they had minor injuries resulting in referral to a separate outpatient clinic, or death before admission. Alcohol test results, subject, and injury characteristics were collected. Proportions with 95% confidence intervals were calculated.

**Results:** Injured adult patients (2,488) presented to the ED from November 2014 to April 2015, with 1,085 subjects (43%) included in this study. Three hundred eighty-two subjects (35%; 95% confidence interval 32% to 38%) tested alcohol positive. Forty-two percent of men (320/756), 40% of subjects aged 25 to 44 years (253/626), 42% of drivers (66/156), 42% of pedestrians (85/204), 49% of assault victims (82/166), 40% of those seriously injured (124/311), and 53% of subjects who died in the ED (8/15) had positive results for presence of alcohol.

**Conclusion:** The frequency of alcohol-associated injury was 35% among tested subjects in this Ghanaian tertiary care hospital ED. These findings have implications for health policy-, ED- and legislative-based interventions, and acute care. [Ann Emerg Med. 2016;68:492-500.]

Please see page 493 for the Editor's Capsule Summary of this article.

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## INTRODUCTION

### Background

Injury and associated alcohol use pose a global health concern. Worldwide, injuries account for 10% of the global disease burden and almost 6 million deaths annually, with more than 90% of this mortality occurring in low- and middle-income countries.<sup>1-3</sup> Alcohol is associated with 15% to 20% of these fatal and nonfatal injuries because both volume and pattern of consumption increase risk.<sup>4-6</sup>

Injury is responsible for 8% of all mortality in Ghana, with road traffic injuries the most frequent cause of injury presenting to the emergency department (ED).<sup>7,8</sup> The World Health Organization (WHO) alcohol and health status report for the general Ghanaian population describes below-average per capita alcohol consumption compared with that of the WHO Africa Region because almost 77% of Ghanaians report having abstained for at least the past

12 months.<sup>4</sup> Yet one study, using roadside testing in Accra, Ghana, found that 21% of all drivers tested positive for alcohol.<sup>9</sup> A preliminary study at the Komfo Anokye Teaching Hospital ED in Kumasi, Ghana, showed a prevalence of 29% among injured persons.<sup>10</sup> We are aware of no other studies that describe the frequency of alcohol-associated injury in Ghana.

### Importance

Identifying alcohol use among injured patients in the ED is important because such information can be used to inform policies and interventions to reduce the burden of alcohol-associated injury.<sup>11</sup> Clinical management is also affected because alcohol is associated with greater injury severity, a negative effect on clinical evaluation, more invasive procedures, and increased risk for ED recidivism with new injuries.<sup>12-15</sup> Yet the level of alcohol-associated

### Editor's Capsule Summary

#### *What is already known on this topic*

Worldwide, 15% to 20% of injuries are attributable to alcohol use. The types and frequency of alcohol-attributable injuries vary by country. No reliable estimates of alcohol-related injury in Ghana exist.

#### *What question this study addressed*

This cross-sectional chart review evaluated the frequency of alcohol use among patients presenting to a single Ghanaian emergency department (ED) within 8 hours of injury.

#### *What this study adds to our knowledge*

Among the 43% of Ghanaian ED patients eligible for the study, 35% were alcohol positive. A higher percentage of alcohol-positive than alcohol-negative patients were men, assault-injured, and aged 25 to 44 years.

#### *How this is relevant to clinical practice*

Although this study is observational, was conducted at a single site, and excluded a large percentage of injured patients, it suggests that alcohol use is common among injured ED patients in Ghana. This finding may have both clinical and policy implications.

injury in many low- and middle-income country settings remains uncertain; known rates in the African region range from 16% in Mozambique to 46% in South Africa.<sup>6,16</sup> Therefore, without direct investigation, it is difficult for individual low- and middle-income countries to confidently specify their rate of alcohol-associated injury.

### Goals of This Investigation

Anecdotal evidence from clinicians in the Komfo Anokye Teaching Hospital ED, as well as preliminary study, suggests that injured patients have a higher rate of alcohol positivity than might be expected from the WHO data or the roadside evaluation mentioned above. We implemented a study to determine the frequency and characteristics of alcohol-associated injuries presenting to the Komfo Anokye Teaching Hospital ED.

## MATERIALS AND METHODS

### Study Design and Setting

This is a cross-sectional chart review of consecutive injured patients aged 18 years and older treated in the

Komfo Anokye Teaching Hospital ED from November 3, 2014, through April 11, 2015. The hospital is a 1,200-bed academic medical center located in Kumasi, the second largest city in Ghana, with a population of 2 million persons.<sup>17</sup> Annually, the ED cares for roughly 35,000 patients of all ages.<sup>18</sup> It is estimated that 40% of these patients have injuries, coming directly from the scene of the injury and lower-level hospitals.<sup>7</sup> The ED is staffed by attending faculty and resident physicians training in emergency medicine. Personal medical records are documented in paper format and accompany patients throughout their hospital admission.

All patients are triaged with the South African Triage Scale to assign urgency of care needed. The scale is a validated 5-level triage tool that assigns each patient a color-coded acuity tier: red=emergency, orange=very urgent, yellow=urgent, green=not urgent, and blue=dead on arrival.<sup>19</sup> Patients triaged to the green category are not managed by the ED and are referred to a separate clinic. Triage activities include testing for the presence of alcohol by trained nurses among all injured patients aged 18 years and older who are triaged with the South African Triage Scale from yellow through red and present within 8 hours of injury. Triage nurses identify patients eligible for testing by identifying chief complaint and mechanism of injury either from the patient or persons accompanying the patient, in accordance with a simplified Centers for Disease Control and Prevention (CDC)-promulgated *International Classification of Diseases, 10th Revision (ICD-10)* injury matrix.<sup>20</sup> Then nurses ascertain time from injury to admission to the ED to test patients injured within 8 hours of presentation.

### Selection of Participants

This study included patients aged 18 years or older with an injury defined by the CDC-promulgated *ICD-10* injury matrix who presented within 8 hours to the Komfo Anokye Teaching Hospital ED.<sup>20</sup> This included patients presenting directly to the ED and those transferred from another facility. The promulgated matrix standardized cause and intent of injury categories for both the triage nurse screening process and data collection during the study.<sup>20</sup> Patients were excluded if there was copious blood in the mouth that interfered with alcohol testing or if they were triaged to South African Triage Scale green (minor injuries not managed by the ED) or blue (deceased and no care provided).

### Data Collection and Processing

Full-time trained research assistants collected all measures from paper medical record data of consecutive patients, using Epi Info 7 software (Atlanta, GA) on ASUS

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