South Africa - Alcohol Diagnostic Validation for Injury-Related Trauma

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Report generated on: November 3, 2026

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Identification

SURVEY ID NUMBER
AVIR20230V1

TITLE
Alcohol Diagnostic Validation for Injury-Related Trauma

COUNTRY

Name	Country code
South Africa	RSA

ABSTRACT
Background: Heavy episodic drinking amongst drinkers in South Africa contributes substantially to injury-related presentations in emergency rooms (ERs). Despite this injury burden on staff and ER resources, routine and reliable alcohol screening remains limited. This study aimed to validate non-invasive alcohol diagnostic tools against a gold standard blood test for injury-related trauma patients, to inform improved clinical practice and alcohol policy.
Methods: A cross-sectional study was conducted in a district hospital ER in Cape Town. Adult patients presenting with injuries within 8 hours of occurrence were recruited over a 3-month period. Four alcohol assessment methods were compared for each included patient: blood alcohol concentration (BAC) testing using enzyme immunoassay (as a gold standard), clinical observational assessment using ICD-10 Y91 codes, and active and passive breathalyser tests. Agreement between methods was assessed using weighted kappa statistics, alongside sensitivity and specificity analyses. Linear regression was used to evaluate the relationship between active breath alcohol concentration and BAC.
Results: A total of 595 patients met the inclusion criteria and 469 (79%) consented to being enrolled. The mean age was 31.8 years, nearly three-quarters were male and most injuries were violence-related (68%). The study found a high prevalence of alcohol involvement, with over 60% of injured patients testing positive (≥0.05 g/100ml) or above the legal limit for driving. Clinical assessment demonstrated substantial agreement with BAC, while the passive- and active breathalyser showed near-perfect agreement with high sensitivity and specificity. While the active breathalyser correlated significantly with BAC, it marginally underestimated the number of cases exceeding the legal limit.
Conclusion: This study highlights the value of routinely using validated alcohol screening tools, especially passive breathalyser testing, to monitor alcohol-related injuries in resource-constrained trauma settings. Reliable data can support healthcare planning, cost estimation, and policy evaluation. While blood alcohol testing remains the gold standard, non-invasive methods within health information systems would strengthen evidence for alcohol policy reform.

Version

VERSION DATE
2026-11-03

Producers and sponsors

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Data collection

DATES OF DATA COLLECTION

Start	End
2023-02-12	2023-06-12

TIME PERIODS

Start date	End date
2023-02-12	2023-06-12

Access policy

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Data Dictionary

Data file	Cases	Variables