Does Inpatient AUDIT-C Alcohol Screening Predict Postoperative Opioid Prescribing and 30-Day Outcomes?

A Real-World Retrospective Cohort Study of Adult Inpatient Surgical Admissions

Toby Chen, BS[1]; Anne C. Fernandez, PhD[2]; Sarah Evilsizer, BSN[1,3]; Chiao-Li Chan, MSW[1,3]; Vidhya Gunaseelan, MBA, MS, MHA[1,3]; Jennifer F. Waljee, MD, MPH, MS[1,4]; Mark C. Bicket, MD, PhD[1,5]

Affiliations: [1]Overdose Prevention Engagement Network, Institute for Healthcare Policy and Innovation, University of Michigan, Ann Arbor, MI; [2]Department of Psychiatry, Rutgers Robert Wood Johnson Medical School, Piscataway, NJ; [3]Department of Anesthesiology, University of Michigan, Ann Arbor, MI; [4]Division of Plastic Surgery, Department of Surgery, Indiana University, Bloomington, IN; [5]Departments of Anesthesiology and Health Management and Policy, University of Michigan, Ann Arbor, MI

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INTRODUCTION

- **Preoperative unhealthy alcohol use** is associated with infection, pulmonary complications, prolonged hospitalization, and ICU admission.[1]
- Alcohol and substance use disorders are associated **with new persistent opioid use after surgery.**[2]
- Prior studies linking AUDIT-C scores to surgical outcomes come from **VA cohorts of older men undergoing elective/scheduled surgeries.** Additionally, they were often **screened weeks to months before the operation**.[3,4]
- Many hospitals now **complete the AUDIT-C at admission**, but whether this score predicts **opioid prescribing or short-term outcomes** across surgical services and ultimately supports opioid stewardship is unclear.

OBJECTIVE

To evaluate whether at-risk alcohol use identified by inpatient AUDIT-C screening is associated with postoperative opioid prescribing and 30-day adverse outcomes, and whether it improves outcome prediction.

METHODS

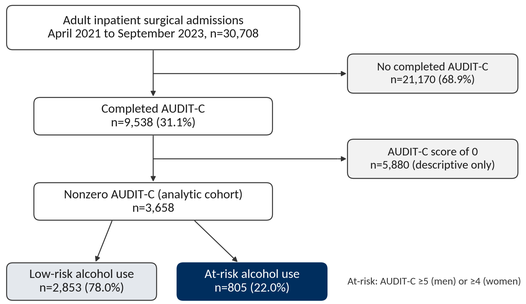
Design: Retrospective cohort of adult inpatient surgical admissions at a single tertiary academic medical center, April 2021 to September 2023

Exposure: AUDIT-C (3 items, score 0 to 12) in the admission navigator, typically completed by nursing[5,6]

- At-risk: ≥5 for men, ≥4 for women; low-risk: nonzero scores below thresholds
- Scores of 0 excluded from primary comparisons to reduce risk of J-curve bias

Outcomes: Opioid prescription at discharge and within 6 months; 30-day composite of complications, ED visits, readmission, or death; length of stay

Analysis: Multivariable logistic regression, AUC with and without AUDIT-C, Cox model for time to discharge, Heckman-style selection correction[7]



RESULTS

At-risk alcohol use was <u>not associated</u> with postoperative opioid prescribing or 30-day adverse outcomes, and adding AUDIT-C did not improve outcome prediction.

58.3% vs 58.9%
Opioid prescription at discharge
Low-risk vs at-risk

68.8% vs 70.1%
Any opioid prescription within 6 months
Low-risk vs at-risk

0.73 vs 0.73
AUC for 30-day composite outcome
With vs without AUDIT-C

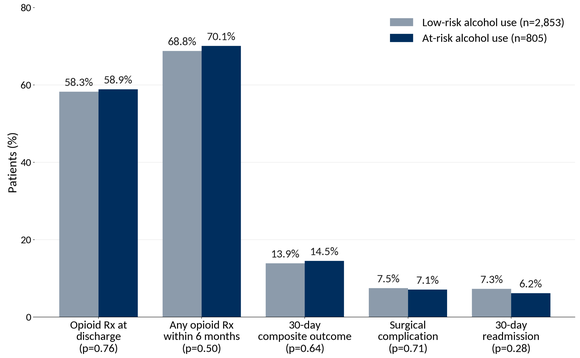


Figure 1: Opioid prescribing and 30-day outcomes by AUDIT-C risk category

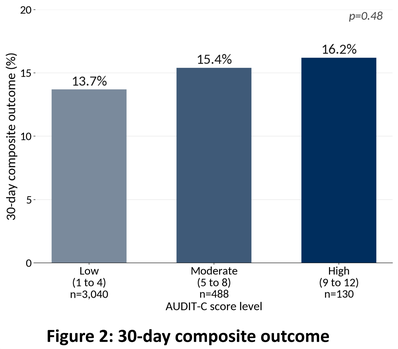


Figure 2: 30-day composite outcome by AUDIT-C score (three-tier)

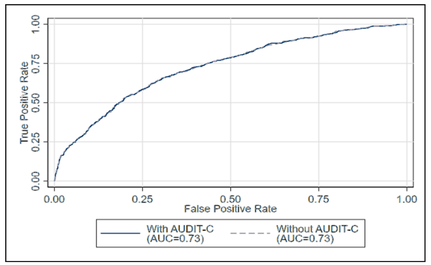


Figure 3: ROC curves for 30-day composite outcome with and without AUDIT-C

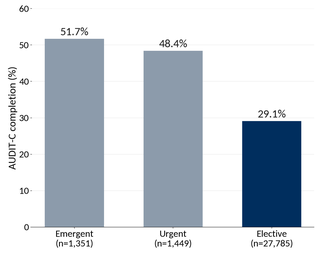


Figure 4: AUDIT-C completion by case urgency

ADDITIONAL RESULTS

- AUDIT-C was completed in 9,538 of 30,708 admissions (31.1%). Among 3,658 patients with a nonzero score, **805 (22.0%) reported at-risk alcohol use**.
- Completion was **lower for elective (29.1%) than urgent (48.4%) or emergent (51.7%) cases**.
- After adjustment, AUDIT-C category was **not associated with the composite outcome** (average marginal effect 0.01; 95% CI -0.02 to 0.03).
- Median length of stay was **3.0 days in both groups**. At-risk use was associated with a **modestly longer time to discharge** (HR for discharge 0.92; 95% CI 0.85 to 1.00).
- **Case status, comorbidity burden, and surgical service** ranked highest in feature importance.
- Results were similar when using **three AUDIT-C risk levels** (low 1-4, moderate 5-8, high 9-12), **when abstainers were included in the low-risk group,** and **after correcting for selective screening**.

CLINICAL IMPLICATIONS

- A single admission AUDIT-C score showed **limited standalone value** for predicting postoperative opioid prescribing or short-term outcomes.
- Alcohol screening may be most useful when **standardized earlier and integrated** with multimodal analgesia, opioid stewardship, withdrawal prevention, and SUD-informed perioperative care.[8,9]
- Positive screens may have greater impact when linked to **defined referral pathways**, including addiction medicine consultation, social work, and structured handoffs to outpatient treatment and recovery supports.[8]
- Leveraging AUDIT-C risk stratification may help identify candidates for structured perioperative alcohol interventions in the future, which may reduce postoperative complications.[10]

CONCLUSION

- In this **real-world cohort** spanning all surgical services, at-risk alcohol use identified at admission was **not associated with postoperative opioid prescribing or 30-day adverse outcomes.**
- By extending evidence beyond VA cohorts to women and to urgent and emergent surgery, these findings help define **where routine alcohol screening fits in perioperative pain care**.
- Because screening was incomplete and few patients were high risk, earlier and more complete screening linked to opioid dose and pain outcomes is the next step toward improving outcomes for surgical patients with unhealthy alcohol use.

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Full article

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Contact: ctoby@med.umich.edu or mbicket@med.umich.edu

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