

# Evaluation of a Diazepam Tapering Regimen for Management of Alcohol Withdrawal in Critically Ill Trauma Patients

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## Introduction and Objective

- The development of alcohol withdrawal seizures and/or delirium tremens is associated with a high mortality rate<sup>1,2</sup>
- A clinical practice guideline was implemented for use in patients admitted to a surgical/trauma intensive care unit to optimize risk stratification and pharmacological management
- The objective of this study was to assess the use of diazepam for alcohol withdrawal syndrome (AWS) in critically ill trauma patients

## Methods

### Study Design

- Single center, retrospective study of adult trauma patients admitted to an intensive care unit between January 1, 2020, to June 30, 2021
- Approved by Atrium Health Institutional Review Board

### Inclusion criteria

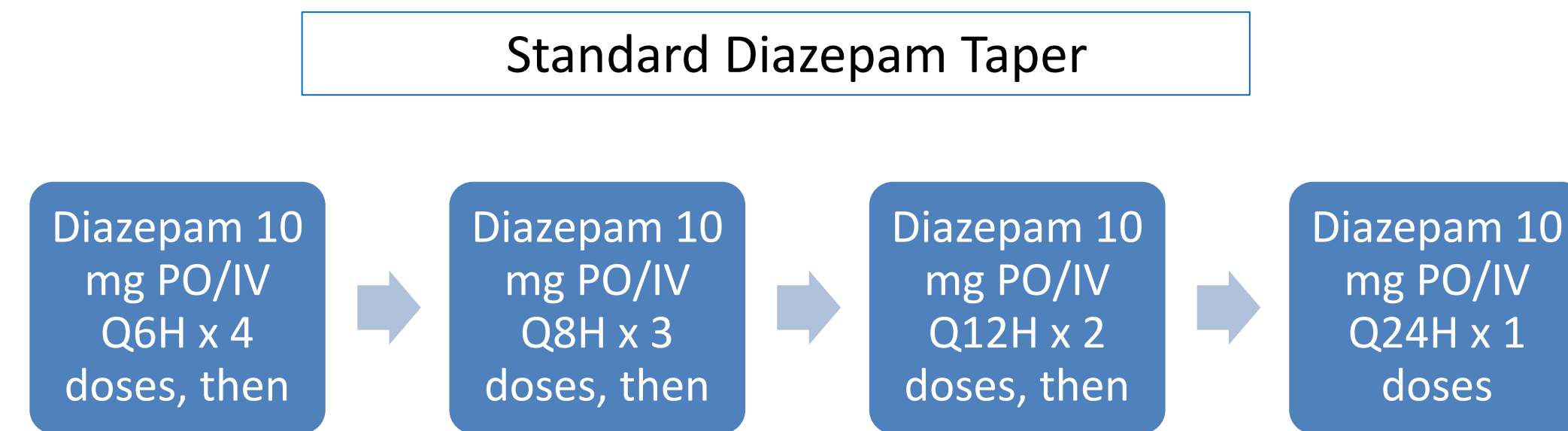
- Active "Diazepam for Surgical-Trauma Critical Care" order set
- Admitted to Carolinas Medical Center trauma service

### Exclusion criteria

- Not admitted to an intensive care unit
- Incomplete or no data in trauma registry
- Did not receive diazepam

### Data Collection

- Data were collected from the trauma registry and electronic medical record



### Outcome Measures

- Patient selection was optimal if an indication concordant with the alcohol withdrawal guideline was present
- Diazepam tapers were categorized as standard or customized
- Adjunctive symptom triggered lorazepam was assessed for optimal use in non-mechanically ventilated patients
- Development of alcohol withdrawal syndrome
  - Delirium tremens, alcohol withdrawal seizures
- Use of phenobarbital rescue
- Normalization of Clinical Institute Withdrawal for Alcohol, revised (CIWA-Ar) or Richmond Agitation Sedation Scale (RASS) scores
- Need for mechanical ventilation attributed to over-sedation

## Results

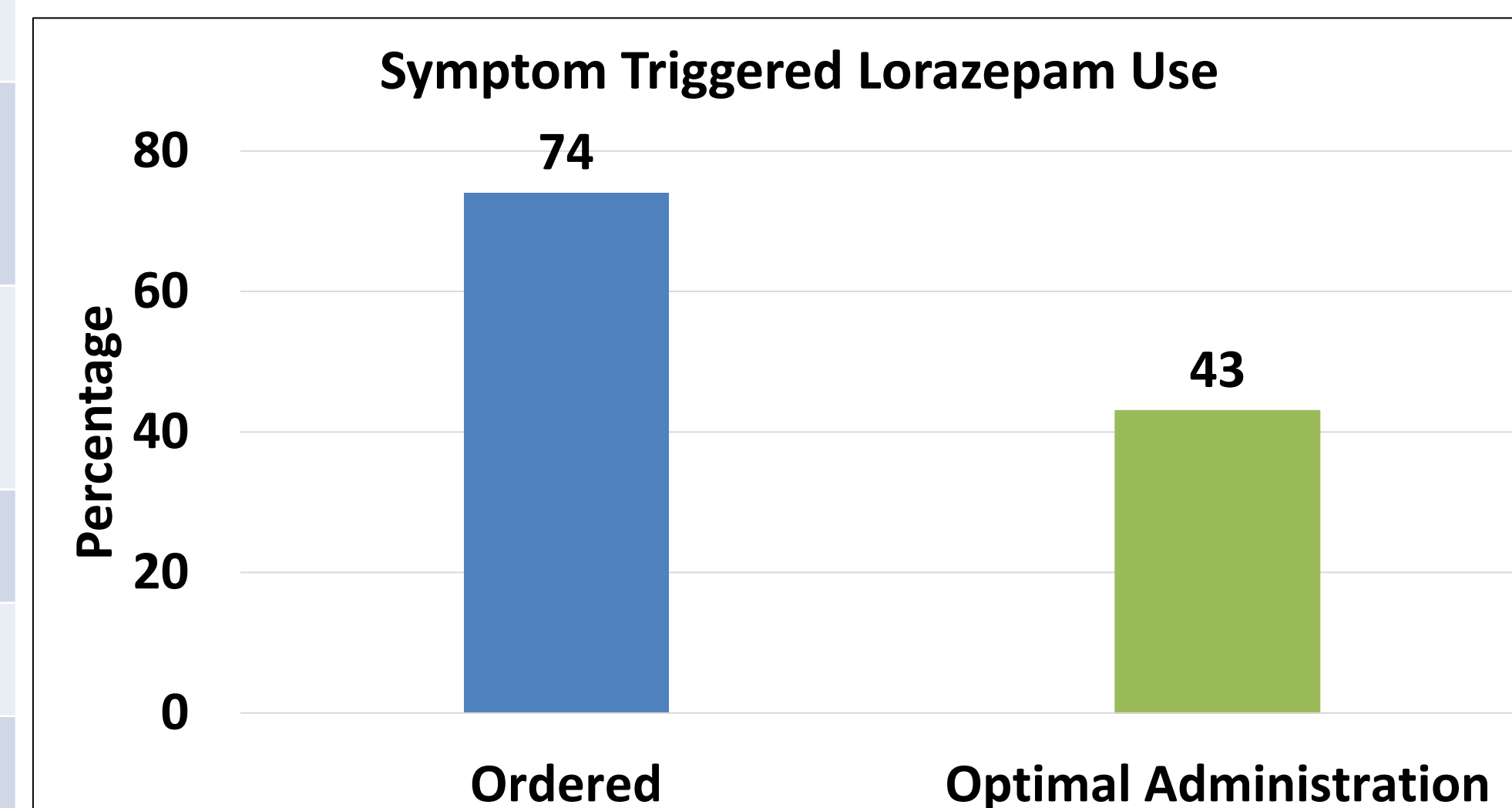
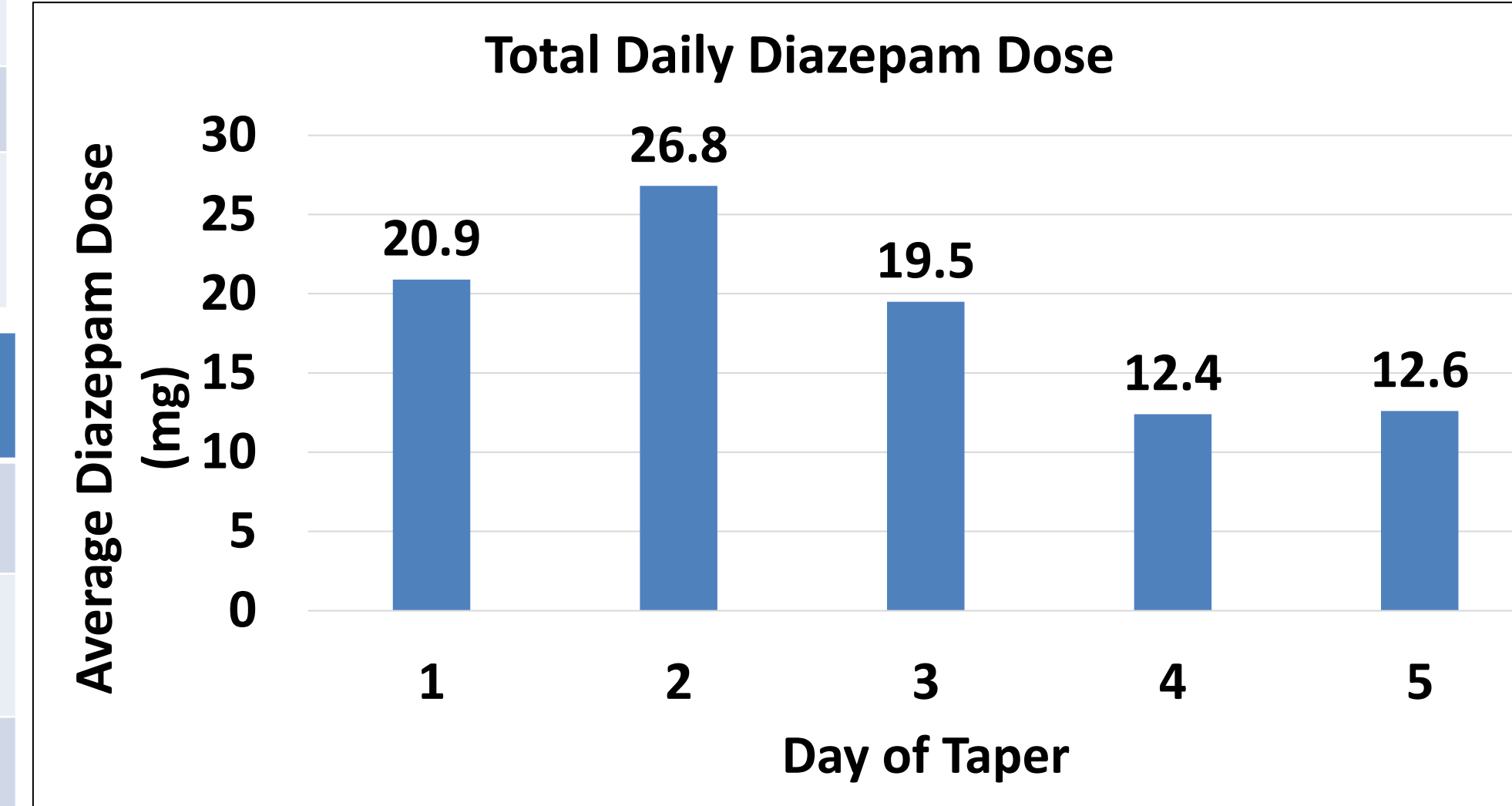
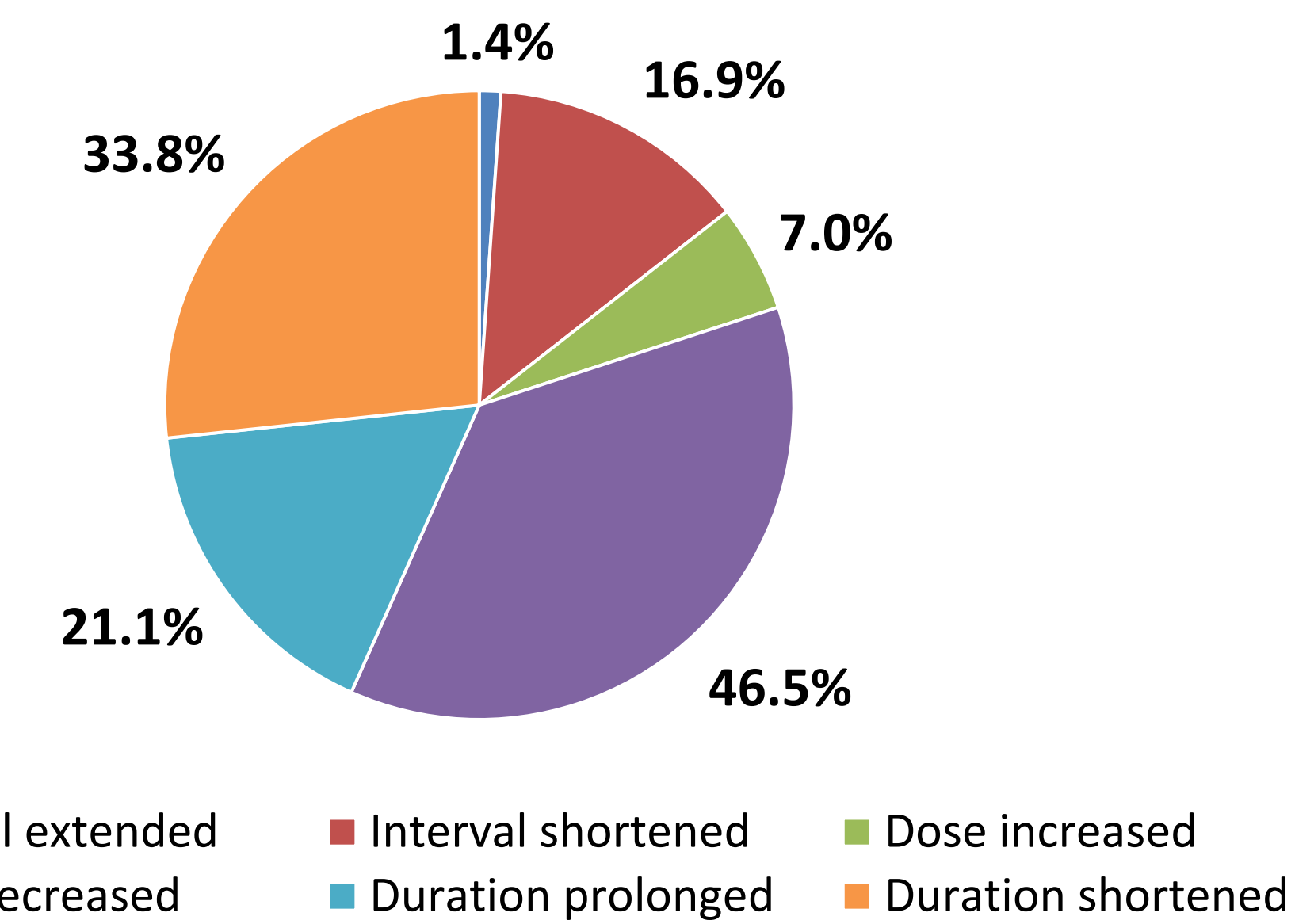
| Baseline Characteristics                              | N=91        |
|---|-------------|
| Age (yr), mean ± SD                                   | 50.4 ± 12.3 |
| Male, n (%)   | 78 (85.7)   |
| White, n (%)  | 63 (69.2)   |
| Injury Type   |             |
| Blunt, n (%)  | 82 (90.1)   |
| Head Injury, n (%)                                    | 64 (70.3)   |
| Severe head injury – max head AIS score ≥3            | 50 (78.1)   |
| Alcohol Use Disorder, n (%)                           | 56 (61.5)   |
| Total Intensive Care Unit Days, mean ± SD             | 6.7 ± 4.9   |
| Total Mechanical Ventilation Days, mean ± SD          | 6.9 ± 5.9   |
| Use of GABA Agent Prior to Diazepam, n (%)            | 50 (54.9)   |
| Use of Propofol at Diazepam Initiation, n (%)         | 23 (25.3)   |
| Mechanically Ventilated at Diazepam Initiation, n (%) | 29 (31.9)   |

Abbreviations – AIS: Abbreviated Injury Scale, GABA: gamma-aminobutyric acid, SD: standard deviation, Yr: years

### Characteristics of Diazepam Taper

|   |           |
|---|-----------|
| Time to Initiation (days), mean (SD)  | 1.4 (1.4) |
| Indication Concordant with Alcohol Withdrawal Guideline, n (%)                                | 37 (40.7) |
| History of alcohol withdrawal seizures  | 14 (37.8) |
| History of delirium tremens   | 13 (35.1) |
| History of concomitant alcohol and benzodiazepine abuse                                       | 4 (10.8)  |
| History of repeated encounters with high blood alcohol levels >150 mg/dL within the last year | 14 (37.8) |
| Persistent CIWA-Ar Scores >15 x3 assessments  | 9 (24.3)  |
| Standard Taper, n (%)   | 20 (22)   |
| ≥ 1 Missed Dose, n (%)  | 36 (39.6) |

### Customized Diazepam Taper (N=71)



## Results

| Outcomes   | N=91      |
|--|-----------|
| Alcohol Withdrawal Syndrome, n (%)   | 16 (17.6) |
| Standard diazepam taper  | 2 (12.5)  |
| Customized diazepam taper  | 14 (87.5) |
| Delirium tremens   | 13 (81.3) |
| Alcohol withdrawal seizures  | 0 (0)     |
| Phenobarbital Rescue, n (%)  | 1 (1.1)   |
| Normalization of CIWA-Ar or RASS Scores (N=62), n (%)                          | 42 (67.7) |
| Mechanical Ventilation Due to Over-Sedation Secondary to Diazepam Taper, n (%) | 0 (0)     |

## Limitations

- Discrepancies between trauma registry and electronic medical record
- Unable to assess CIWA-Ar and RASS scores two days after completion of diazepam in all patients
- Development of AWS prior to initiation of diazepam could have occurred

## Conclusions

- Preferential prescribing of a more conservative taper may be due to the high prevalence of head injuries and desire to avoid interfering with the neurological exam
- Initiation of diazepam for patients without an indication listed in the guideline was common
  - Integration of indications into electronic clinical decision support is recommended
- Consider therapy modifications based on missed doses of scheduled or symptom triggered therapy.

## References

- Schuckit, MA . Recognition and management of withdrawal delirium (delirium tremens). *N Engl J Med.* 2014;371:2109-2113.
- Schmidt KJ, et al. Treatment of Severe Alcohol Withdrawal. *Ann Pharmacother.* 2016;50(5):389-401.

## Disclosures

Authors of this presentation have no disclosures concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.