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Booze, Benzos and Barbiturates: Developing UCHealth Alcohol Withdrawal Therapy

Brandi Koepp, PharmD, BCPS
Pharmacy Clinical Coordinator
UCHealth Medical Center of the Rockies, Loveland, CO

Melanie Roberts, DNP, RN, CNS, CCNS, CCRN-K, FCNS
Critical Care Clinical Nurse Specialist, UCHealth, Loveland, CO

Ellen Seymour, MBA
Director of Clinical Strategy, UCHealth, Aurora, CO

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Learning Objectives

- Identify three subject matter experts included in the subgroup for protocol development.
- List three safety measures built into the system protocol to protect patients from oversedation.
- Describe a pilot success regarding patient intubation rates and escalation to severe withdrawal.

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UCHealth Approach to Alcohol Withdrawal Pathway

- Work with Senior Leadership to identify an Executive Sponsor
- Identify a project manager to ensure all facets of the project remain on task
- Develop a steering level group of subject matter experts to guide development and implementation
- Identify Electronic Health Record (EHR) resources to assist in development and leveraging of technology
- Involve stakeholders from nursing, physician/mid-level practitioners, and ancillary services to develop education
- Socialization of the protocol prior to implementation is key!

Alcohol Withdrawal Steering Committee

- Senior Medical Leadership Executive Sponsor
- Physician Subject Matter Experts (SMEs)
  - Addiction Medicine Physician
  - Critical Care Physician
  - Internal Medicine Physician
  - Emergency Department Physician
- Nursing SMEs
  - Critical Care Clinical Nurse Specialist
  - Acute Care Clinical Nurse Specialist
  - Emergency Department Clinical Nurse Specialist
- Pharmacy SMEs

Alcohol Withdrawal Working Group

- Difficult to reach consensus in large steering meetings without initial recommendations
- Create a small group of SMEs with diverse regional and level of care representation
  - Develop the recommendations to take to the steering group for approval and/or modifications
- Committee Working Group
  - Project Manager
  - Addiction Medicine Physician
  - Critical Care Clinical Nurse Specialist
  - Acute Care Clinical Nurse Specialist
  - Emergency Department Clinical Nurse Specialist
  - Pharmacist

Alcohol Withdrawal Assessment Tools

- Identified variability across UCHealth hospitals
- Consensus that Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) was not the ideal tool

UCHealth Region	Hospital	Assessment
Northern Colorado	Poudre Valley Hospital	Emergency Department (ED) – CIWA-Ar Acute Care (AC) – CIWA-Ar Critical Care (CC) – AWCA (Alcohol Withdrawal Clinical Assessment)
	Medical Center of the Rockies	
	Greeley Hospital	
Metro Denver	University of Colorado Hospital	ED – mMINDS (Modified Minnesota Detoxification Scale) AC/CC – CIWA-Ar • ICU project compared SEWS (Severity of Ethanol Withdrawal Scale) /MINDS/CIWA. Nurses identified MINDS as easiest and most reliable. MINDS was not implemented at that time due to the start of this system project.
	Longs Peak Hospital	CIWA-Ar
Southern Colorado	Memorial Hospital	CIWA-Ar • Committee was working on cleaning up order sets to reduce variability in nursing assessments prior to system project
	Grandview Hospital	
	Pikes Peak Regional Hospital	

Assessment Tool Comparison

	AWCA	mMINDS	SEWS
# Objective Questions	4	7	5
# Subjective Questions	2	2	2
Total score range	1-18	0-46	1-24
Vital Signs	No – frequently altered in ICU	Yes – pulse and diastolic blood pressure	Yes – pulse and diastolic blood pressure
Ability to use with non-verbal patients	No – Unable to ask about Auditory/Visual Disturbances, Anxiety, or orientation. Auditory and Anxiety scored as 0 and objective scoring would drive therapy	Yes – Does not require the patient to answer questions or respond to commands (score 0 on elements of hallucinations, delusions, agitation and orientation if patient sedated or mechanically ventilated; other elements still scored)	No – Unable to ask about anxiety, hallucinations

- Alcohol Withdrawal Clinical Assessment (AWCA) aka Highland Alcohol Withdrawal Protocol (HAWP) – Feeney et al. J Addict Med 2015;9:485-490
- Modified Minnesota Detoxification Scale (mMINDS) – Heavner et al. Pharmacotherapy 2018 Jul;38(7):701-713
- Severity of Ethanol Withdrawal Scale (SEWS) - Beresford et al. Alcoholism Treatment Quarterly,35(3) 232-242

Assessment Tool Comparison

	AWCA	mMINDS	SEWS
ED Considerations	Tool not tested in ED, lack of vital signs could be hindrance	Appreciate the objective scoring for altered patients / patients not able to respond and still need immediate intervention	Tool highly objective, easy to use. Successful implementation in ED setting
Acute Care Considerations	Tool is easy to use, existing Epic flowsheet, associated treatment protocol is complex and requires q15-30 min assessments	Tool is easy for staff to use and requires q 15 min–2 hr reassessment. More consistent scoring and less variance in dosing.	Tool highly objective. Successful implementation in acute care setting. When compared to CIWA, less benzos administered, shorter time required on withdrawal protocol
Critical Care Considerations	Low number of measurements make q15 min assessments faster for patient treatment and allow for the additional RASS measurement in a timely manner	Metro Denver credentialing project: RNs assessment of MINDS, SEWS, and CIWA rated MINDS most reliable and easiest to use	Tool not validated in ICU. Intubated or sedated patients cannot answer questions for a symptom-guided protocol

Modified Minnesota Detoxification Scale (mMINDS)

- The MINDS tool is an assessment tool that can be paired with a symptom-triggered approach to manage acute alcohol withdrawal
- It has been identified as a method for assessing withdrawal in all patient settings within the hospital
- The tool, which includes 9 assessment elements, calculates a severity score
- The Alcohol Withdrawal Pathway and the corresponding MINDS score will be used to guide interventions, evaluate effectiveness of treatment, and determine disposition to the appropriate level of care
- The goal of this approach is to initiate early interventions, preventing the need for advanced treatments, and return the patient to an improved state of health

Alcohol Withdrawal Pathway Medication Recommendations

- Literature supports benzodiazepines as the first line drug class for alcohol withdrawal treatment
- MINDS utilizes rapid escalation of dosing based on frequent MINDS reassessment
  - Symptom triggered therapy
- In cases of severe alcohol withdrawal and benzodiazepine resistance, adjunct medications such as phenobarbital are utilized to stabilize and aggressively control symptoms
- Medications:
  - ✓ Benzodiazepine
    - First line drug
    - Diazepam – use **unless** liver failure, age considerations, or pregnancy
    - Lorazepam – use only if liver failure, age considerations, or pregnancy
  - ✓ Phenobarbital
    - Second line drug

Final Decision Points

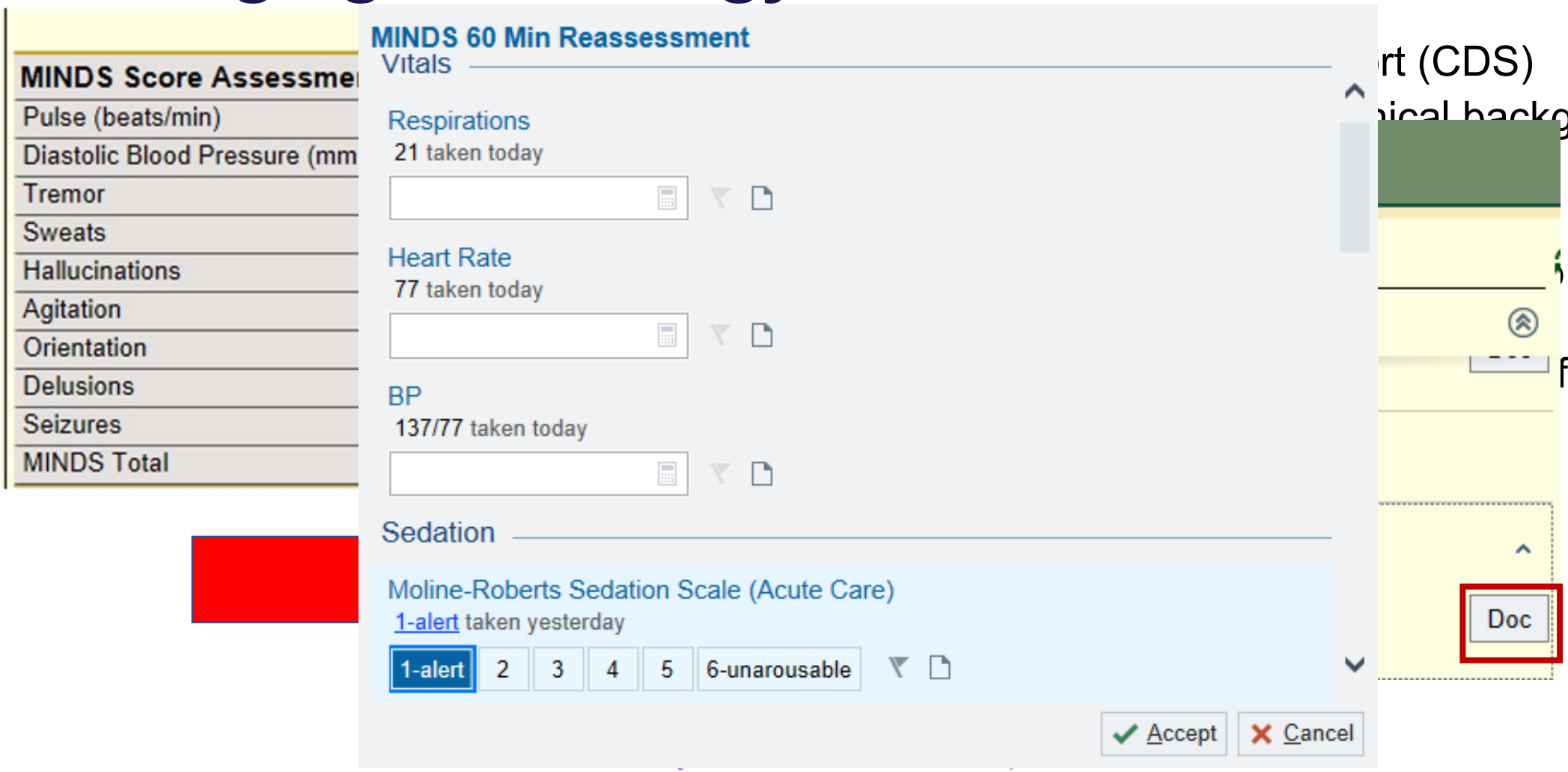
- mMINDS Assessment Tool

- Benzodiazepine symptom-management protocol
  - ED = Provider-driven protocol
  - Acute Care and ICU = Nurse-driven treatment protocol after physician orders
  - Still allowing for physician critical thinking in complex patient situations

- Reassessment and additional treatment based on mMINDs score (15-60 minutes)

- Escalation to phenobarbital quickly if patient meets criteria

Leveraging Technology



rt (CDS)
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****When to hold diazePAM/PHENobarbital:**

- Assess sedation (RASS or MRSS) level prior to medication administration.
  - If the sedation level indicates moderate to deep sedation level (MRSS 3 to 6, RASS -3 to -6) *OR* RR Less than 10, hold medication and contact provider.

OR

- **Acute Care:** 180 mg of diazepam within 12 hours, consider transfer for phenobarbital pathway initiation

Do any of the following apply to patient?

- Liver failure
- ≥ 70 years old
- Pregnant

YES → Follow Inpatient LORazepam Alcohol Withdrawal Pathway (MINDS)

Provider Notes

NO

Calculate Initial MINDS Score / Assess sedation (RASS or MRSS)

Consider supportive care for all patients (if not already ordered through UCHealth Adult Withdrawal Order Panel)

Agitation Score

MINDS	RASS
0	0
3	+1
6	+2
9	+3

This is an association of the MINDS agitation score vs the RASS (ICU only agitation score)

Initial MINDS score ≥ 20

DiazePAM 20 mg IV**

Proceed to Benzodiazepine Pathway in 15 min

Initial MINDS score 15-19

DiazePAM 10 mg IV x 1

Reassess sedation (RASS or MRSS) / RR in 15 min

DiazePAM 10 mg IV x 1 **

Proceed to Benzodiazepine Pathway in 15 min

DiazePAM 15 mg IV**

Esclalation of Symtpoms

1) **IF** patient is escalating ***AND*** MINDS 15-19 ***AND*** (RASS > +1 OR MRSS < 3), medicate Q 15 mins as needed x 2.
Notify provider to evaluate patient for potential escalation of care needs.

2) **IF** patient is escalating ***AND*** MINDS Agitation Score = 9 ***AND*** total MINDS <15 ***AND*** (RASS > +1 OR MRSS < 3), medicate Q 15 mins as needed x 2.
Notify provider to evaluate patient for potential escalation of care needs.

Benzodiazepine Pathway: Recalculate

YES

Sedation Assessment

- **Assess AND document for sedation prior to any medication administration**
  - If the sedation level indicates moderate to deep sedation level (MRSS 3 to 6, RASS -3 to -6) *OR* RR Less than 10, hold medication and contact provider.

Pilot Implementation

- Steering group determined pilot was needed to validate the new tool and protocol
- Goal was to provide additional data to support go-live at a system level
- Identified 3 locations in the system with populations who would provide a reasonable denominator for a 6-week review
- Post-implementation the following data was collected:
  - Intubation Rates
  - Protocol adoption and appropriate medication administration

Pilot Implementation Metrics

- Pilot data results:
  - 617 total patients with alcohol withdrawal orders in the pilot locations
    - 312 total inpatient encounters included patients
  - Number who experienced oversedation requiring higher level of care: 8 (1.3%)
  - Intubated patients: 21 (3%)
    - 17 intubated in ED
    - 4 intubated in IP
      - Oversedation and somnolence contributed to the need for intubation in 2 inpatients
  - Majority of patients received diazepam as the first line benzodiazepine

System Implementation – Education Rollout

- Socialization
  - Provider Education (PowerPoint)
  - Service Line Meetings
- Learning Platform
  - Nursing
  - Pharmacy
- SME support needed for go-live
  - CNS
  - Pharmacist
- Daily workgroup review during pilot
  - Identification of opportunities for improvement
  - Individual/focused feedback to staff

System Implementation

- System implementation occurred 8 weeks after pilot roll-out
- Implemented at 12 hospital locations, 3 hospital affiliate locations, and behavioral health locations
- Workgroup daily chart review for 2 weeks after implementation
- Transition to individual chart reviews when opportunities or concerns identified

System vs. Pilot Implementation Metrics

		Total Encounters	Max MINDS Score				Due To Withdrawal	
			< 5	5-14	15-19	≥ 20	Escalation in Level of Care	Intubation**
PILOT	Pilot Total	617	230	312	47	28		N/A
	Inpatient	312	85	168	32	27	11	3
	% of inpatients		27.2%	53.8%	10.3%	8.7%	3.5%	1% (MINDS>15=5%)
Post go-live*	Total	4826	1935	2348	328	221		N/A
	Inpatient	2454	930	1088	237	199	68	20
	% of inpatients		37.9%	44.3%	9.7%	8.1%	2.7%	0.8% (MINDS>15=4.5%)

*Includes patients admitted from 7/1/21 and discharged before 12/19/21

**Intubation after admission due to worsening withdrawal

Big Wins of Implementation

- First system wide clinical practice change
- Decreased number of alcohol withdrawal patients in the ICUs
- Early control of withdrawal symptoms
  - Low number of patients escalated to scores of 15 or more
  - Only 0.8% of the population required intubation
- Successfully standardized care for this population
  - mMINDS adopted as a reliable assessment tool by nursing across all care environments

Long Term Goals

- Transition from project ownership to system operations team ownership
- Outcome metrics for the system to drive any modifications to the protocol
- Yearly review of data and the protocol to ensure practice is based on most recent evidence
- Developing back-up plans for benzodiazepine shortages
- Expanding to other disease states such as Opioid Use Withdrawal Protocols, Treatment of Status Epilepticus, etc.

Lessons Learned

- Inadequate process identified for provider education
- Lack of system metrics prior to implementation
- Have system team ownership identified prior to start of the project
- Cultural beliefs around acceptance of systemization
- Steep learning curve and intense work-flow changes on implementation
- Comfort with medication dosing at roll-out

Key Takeaways

- It can be done!
- **A Project Manager is imperative**
- Symptom triggered management of alcohol withdrawal is safe and effective
- Don’t be afraid of the drugs or the doses
- Leverage your technology for efficiencies
- Standardized practice allows for faster identification and promotes consistent treatment of withdrawal patients
- Involving interdisciplinary groups at a system level has set the standard for future improvements

Questions?

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Contact:

Brandi Koepp, brandi.koepp@uchealth.org

Melanie Roberts, melanie.roberts@uchealth.org

Ellen Seymour, ellen.seymour@uchealth.org

Paige Clement, lesley.clement@uchealth.org