



Indiana University Health

Alcohol Withdrawal Assessment & Management: Conquering Change Across a Health Care System

NACNS 2017 Annual Conference Symposia

2/17/2017

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Symposia Overview



Mission Statement:

- Improve the health of our patients and community through excellence in care, education, research, and service
- Alcohol withdrawal syndrome can be life threatening for our patients if undetected or mismanaged

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Symposia Overview



Symposium Focus:

- 1) Define clinical presentation and best practice approaches to treatment
- 2) Review assessment tools used to manage alcohol withdrawal and describe the validity and reliability of an existing evidence based tool
- 3) Describe the role of the CNS within all spheres of influence to standardize the care of patients experiencing alcohol withdrawal across a health care system

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Symposia Objectives



- 1) Discuss prevalence, symptom presentation, and best practice treatment for alcohol withdrawal
- 2) Explain the reliability and validity of the Alcohol Withdrawal Assessment Tool (AWAT)
- 3) To describe a framework useful for driving a standardized approach to manage alcohol withdrawal across a health care system

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Alcohol Withdrawal: A Ticking Time-bomb

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Prevalence



- Alcohol is the most frequently abused drug throughout the world (Sarff & Gold, 2010)
- 77% of the annual \$185 billion cost of alcohol misuse is health related (Puz & Stokes, 2005)
- 8.2 million people are dependent on alcohol (Puz & Stokes, 2005)

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Acute Care Setting



- Alcohol dependence occurs in 15-20% of hospitalized patients in some settings (Mayo-Smith et al., 2004)
- Alcohol-related illness and injury account for at least 8% of all emergency department visits (Puz & Stokes, 2005)
- Patients often develop withdrawal symptoms when hospitalized for other physical problems (Kattimani & Bharadwaj, 2013)

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Pathophysiology



Alcohol Dependence (McKinley, 2005)

- Neuronal adaptation, continued presence of alcohol required for normal functioning
- Permanent metabolic & cellular changes
- Removal of alcohol = rebound stimulatory effect

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Pathophysiology



- Normal state of homeostasis



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Pathophysiology



- Acute ingestion of alcohol
 - Causes activation of the GABA-A receptors (inhibitory)
 - Inhibits NMDA receptors (excitatory)
 - Depression of behavioral inhibitory centers in the brain
 - Decreased motor function
 - Sedation
 - CNS depression



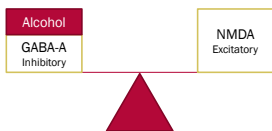
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Pathophysiology



- Chronic alcohol ingestion
 - Brain compensates to restore equilibrium by
 - GABA receptors decrease
 - NMDA receptors increase
 - Tolerance = increased consumption



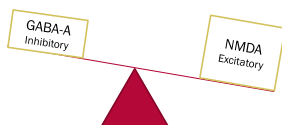
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Pathophysiology



- Alcohol withdrawal syndrome (AWS)
 - The presence of alcohol is eliminated from the compensation process
 - Brain shifts into an excitatory state



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Symptoms: Minor Withdrawal



- Most common first seen symptoms (Eastes, 2010).
- **6-24 hours** (Burns, 2015)
 - Tremor
 - Anxiety
 - Nausea
 - Vomiting
 - Insomnia

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Symptoms: Major Withdrawal



- **10-72 hours** (Burns, 2015)
- Alcoholic hallucinations
 - Visual & auditory hallucinations
 - Whole body tremor
 - Vomiting
 - Diaphoresis
 - Hypertension

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Symptoms: Withdrawal Seizures



- **6-48 hours** (Burns, 2015)
- Risk for seizures increases with prolonged heavy alcohol intake, history of withdrawal seizures, multiple detoxification episodes
- Seizures usually brief and general

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Symptoms: Delirium Tremens



- **3-10 days** (Burns, 2015)
- Most severe manifestation of alcohol withdrawal
- Manifests over a short period of time as a rapid change in cognition & LOC (Eastes, 2010)
- Hallmark: profound global confusion (Burns, 2015)
 - Agitation, disorientation, hallucinations, fever, hypertension, diaphoresis, autonomic hyperactivity

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Complications



Acute

- Wernicke-Korsakoff Syndrome
- Pneumonia
- Sepsis
- ARDS
- GI Bleed
- Pancreatitis
- Intracranial Hemorrhage

Chronic

- Hepatic Encephalopathy
- Pancreatitis
- Cirrhosis
- Hepatic Failure
- Esophageal and gastric varices
- Immunosuppression
- Cardiomyopathy

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Screening Tools



- CAGE questionnaire (Ragasis, 2004)
- Alcohol Use Disorders Identification Test (AUDIT) (Donnovan, Kivlahan, Doyle, Longabaugh & Greenfield, 2006)
- Predication of Alcohol Withdrawal Severity Scale (PAWSS) (Maldonado et al., 2015)

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Withdrawal Assessment Tools



- Shortened Alcohol Withdrawal Scale (SAWS)
(Gossop, Keaney, Stewart, Marshall & Strang, 2002).
- Glasgow Modified Alcohol Withdrawal Scale (GMAWS)
(Benson, McPherson, & Reid, 2012)
- Alcohol Withdrawal Syndrome (AWS) Type Indicator
(Regalasis, 2004)
- Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)
(Pittman et al., 2007)

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Treatment



Half-Life	Actions/Considerations
Short half-life Oxazepam: 4-14 hours Lorazepam: 10-20 hours	<ul style="list-style-type: none"> • Rapid drug level changes in blood • May need to be given Q4 to prevent drug level fluctuation • Recommended in treatment of patients with advance cirrhosis or acute alcohol hepatitis • High abuse potential
Long half-life Diazepam: 20-90 hours Chlordiazepoxide: 24-48 hours	<ul style="list-style-type: none"> • Maintain even therapeutic levels = more effective control • Less risk for withdrawal seizures

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Treatment



- Symptom-triggered treatment (STT) approach is recommended with benzos
(Hoffman, 2016)
 - Goal: administer enough drug to relieve symptoms & decrease dose as symptoms subside
(McKinley, 2005)
 - Individualized therapy
(McKinley, 2005)
 - Requires close monitoring in-patient
(Kattimani, 2013)
 - Past hx seizures/DT: consider combination of scheduled and STT
(Kattimani, 2013)

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Treatment: Refractory Withdrawal



Medication	Action	Considerations
Phenobarbital	GABA agonist	-clinical benefits as initial dose prior to benzo therapy or second line option -low addiction potential compared to other barbituates
Dexmedetomidine	Selective alpha2-agonist; sedation agent	-oversedation and respiratory depression major concerns -controls sympathetic symptoms of AWS (tremor, HTN, tachycardia) without respiratory depression -no antiepileptic activity or GABA -may be adjunct to benzos for symptom management and reduce benzo intake short-term
Propofol	GABA agonist, NMDA antagonist	-quick onset, rapid duration; allows for rapid titration -short half life
Baclofen	GABA _B agonist	-promising option as adjunct or reduce benzo requirement; further studies needed
Ketamine	NMDA antagonist	-does not appear to have impact on benzo requirements -more data needed regarding efficacy & safety

Dixit, D. et al. (2016). Management of acute alcohol withdrawal syndrome in critically ill patients. Pharmacotherapy, 36(7): 797-822.

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Supportive Care



- Supportive Care
 - Keep the patient safe
 - Alleviate symptoms
 - Prevent progression of symptoms
 - Treat underlying comorbidities

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An Alcohol Withdrawal Assessment Tool (AWAT): Validity & Reliability Testing in Acute Care Patients

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Assessment Tool Comparison



CIWA-Ar

- 10 items
 - revised from 30-10
- Asks patients to report symptom experience
- Score range 0-67 (maximum)
- Scores < 10, usually do not require medication

AWAT

- 4 items
- Can be used with nonverbal patients
- Score range 0-14 (maximum)
- Scores of 0-1 usually do not require medication

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Development of AWAT Tool



- Interdisciplinary team approach
- Review of evidence completed
- CIWA-Ar used as cross-reference, comparison
- Initial pilot completed 2005
- More validation, psychometric testing needed

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AWAT Assessment Tool



- Assesses 4 s/sx of alcohol withdrawal
 - Pulse and BP
 - Agitation/tremors
 - Confusion/hallucinations
 - Diaphoresis
- Frequency of assessment is determined by the Total Score

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Research Aims



1. Establish the content validity of the AWAT
2. Examine the criterion related validity of the AWAT using the CIWA-Ar
3. Test the Inter-rater reliability of the AWAT Tool
4. Assess the usability of the AWAT by the end user

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Methods



- Inclusion criteria:
 - 18 years of age or older
 - Male or female
 - Active symptoms of active or suspected alcohol withdrawal as diagnosed by Physician, Nurse Practitioner, or Physician Assistant
 - Admitted to IU Health-Bloomington Hospital
 - English speaking
- Exclusion criteria:
 - Current use of psychotropic or anticonvulsant medications per review of the Electronic Medication Administration Record
 - Current dependence upon other drugs as outlined in the Physician history and physical progress note and Medication Reconciliation
 - Non-English speaking

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Methods



- Descriptive study
- IU Health-Bloomington (IU Health University later added as data collection site)
- Acute Medical-Surgical unit
- Sample size=28
- Study investigators were trained on the use of each tool by the Principle Investigator

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Data Analysis (Aim #1)



- Content Validity
 - 5 content experts selected
 - Completion of validity survey
 - Mailed to the participants
 - Level of agreement (CVI) calculated

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Data Analysis (Aim #2)



- Criterion-related validity
 - Determined using the CIWA-Ar (known gold standard)
 - Completed same point in time as AWAT
 - Research data collector will complete one assessment after the other, independently recording responses using the data collection forms

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Data Analysis (Aim #3)



- Inter-rater reliability
 - The two research data collectors to complete simultaneously
 - Patient is observed and responses recorded using AWAT assessment tool

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Data Analysis (Aim #4)



- Usability
 - Tested among 5 diverse Registered Nurse staff
 - Experience caring for patient population
 - Varying expertise from novice to expert

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Study Demographics



Characteristic	Result	
Age	56 (Average)	27-87 (Range)
Sex	16 (Males)	12 (Females)
Race	26 (White)	2 (African American)

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Results (Aim #1)



- Content Validity
 - Computed via Polit and Beck's (2006) method
 - Calculated the portion of items judged content valid by the expert reviewers
 - CVI= 1.0

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Limitations



- Small sample size
- Subjects experienced mild-moderate symptoms
- Medical Surgical population

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Conclusions



- Initial psychometric testing demonstrated inter-rater reliability and content validity
- Data supports continued use of tool in clinical setting
- Larger sample size is needed to power the study for further statistical analysis to include measurement of internal consistency and construct validity

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Future Research



- IRB approval for phase II data collection- *in process*
- Multisite retrospective research examining outcomes associated with use of the tool in conjunction with the evidence based order set
- Evaluate in specialty populations

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Implications for Practice



- Findings from study have led to system wide assessment of tools used to identify and treat s/sx of alcohol withdrawal
- Opportunities have been identified to standardize care and consolidate best practice approaches to treatment
- Simple tool for use and can be used in non verbal population

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The Secrets of a CNS That Every Organization Wants: System Coordination of Alcohol Withdrawal Management

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Retrieved from <https://www.ihconnect.org/Indiana-Hospitals>

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- ▲ Indiana University Health Starke Hospital, Knox
- ▲ Indiana University Health Tipton Hospital
- ▲ Indiana University Health University Hospital, Indianapolis
- ▲ Indiana University Health West Hospital, Avon
- ▲ Indiana University Health White Memorial Hospital, Monticello
- ▲ Riley Hospital for Children at Indiana University Health, Indianapolis
- ▲ Rehabilitation Hospital of Indiana, Indianapolis (co-owner)
- ▲ Jay County Hospital, Portland (manage)



Overcoming the Silos that Separate

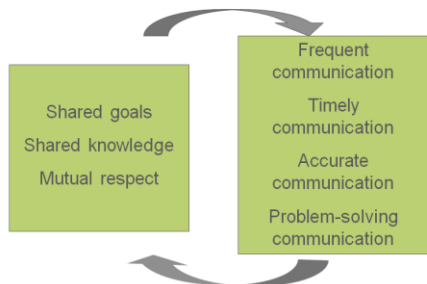


- **Relational Coordination-** A mutually reinforcing process of communication and relating for the purpose of task integration
 - Shared Goals
 - Shared Knowledge
 - Mutual Respect
- **Psychological Safety-** Creating an alternative culture of trust and respect

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Relational Coordination



Gittel, J. H., Godfrey, M., & Thistlethwaite, J. (2013). Interprofessional collaborative practice and relational coordination: Improving healthcare through relationships. *Journal Of Interprofessional Care*, 27(3), 210-213.

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Psychological Safety

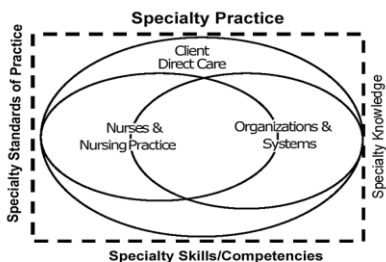


- Part of the organizational learning structure
- Creating a safe place for members to express disagreements
- In this space members feel comfortable enough to identify and questions current processes
- Open honest dialogue in the best interest of the consumer

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CNS Competencies and Conceptual Model



Sphere of Influence: Patient/Client



Competencies of CNS Practice

- Identifying need for new or modified assessment methods or instruments within specialty area (Assessment)
- Collaborates with multidisciplinary professionals to integrate nursing interventions into a comprehensive plan of care to enhance patient outcomes (Intervention)

Statement on Clinical Nurse Specialist Practice and Education, 2004

Sphere of Influence: Nurses/Nursing Practice



Competencies of CNS Practice

- Identifies, in collaboration, with nursing personnel and other health care providers, needed changes in equipment or other products based on evidence, clinical outcomes, and cost effectiveness (Assessment)
- Collaborates with nurses to assess the processes within and across units that contribute to barriers (Assessment)

Statement on Clinical Nurse Specialist Practice and Education, 2004

Sphere of Influence: Organization/System



Competencies of CNS Practice

- Assesses the professional climate and multidisciplinary collaboration within and across units for their impact on nursing practice and outcomes (Assessment)
- Diagnosis variations in organizational culture that can + or – affect outcomes (Diagnosis)
- Solidifies relationships and multidisciplinary linkages that foster the adoption of innovations (Intervention)

Statement on Clinical Nurse Specialist Practice and Education, 2004

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The Journey



The Research

- Persistence
- Collaboration
- Teamwork

Standardizing Assessment

- Identification of system stakeholders (at each local level)
- Vetting through system councils for review and approval

Treatment Plan Consolidation

- Identification of system stakeholders (at each local level)
- Vetting through system councils for review and approval

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The Journey...Behind the Scenes



Education

- Identifying partners to create and develop
- Vetting through system councils for review and approval

Clinical Informatics

- Identifying partners to modify, create, and develop
- Vetting through system councils for review and approval

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In Summary...our Secrets



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Questions?



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