



# EVIDENCE SEARCH RESULTS

<b>Question/subject of request:</b>	Delivering CIWA-AR training to MPH to manage and assess alcohol withdrawal. Risks of not completing it correctly. Benefits of completing it correctly.
<b>Date requested:</b>	20-09-2024
<b>Date completed:</b>	20-09-2024
<b>Compiled by:</b>	Roxanne Hart

## CITING THIS SEARCH

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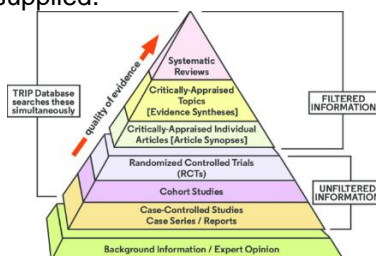
- Hart, R., (2024). *Evidence summary: CIWA-AR*, Taunton, UK: Somerset Foundation Trust Knowledge and Library Services.

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### **Comparison of CIWA to standardised reducing regime of benzodiazepine**

[Ward et al 2023](#) in 2020 the RD&E switched from a standardised reducing regime of benzodiazepines to using CIWA-AR. They found this change was associated with a significant reduction in benzodiazepine prescribing for patients with suspected alcohol withdrawal.

### **Comparison of CIWA to other tools**

[De Lemos et al 2024](#) tested use of the mRASS-AW as an alternative to CIWA-AR, they found that using mRASS-AW did not worsen length of stay or increase complications

[Lewis Wolfson et al 2024](#) compared CIWA to MINDS and found that MINDS resulted in a significantly shorter ICU LOS, less severe withdrawal and less mortality.

[Beresford et al 2023](#) compared SEWS to CIWA-AR and found EWS-driven treatment ( $n = 244$ ) reduced TOMP to 2.2 days versus 3.4 days for CIWA-Ar

[Bradley et al. 2023](#) Correlations between the three scoring tools in severe AWS are robust. Only mMINDS was considered easy to use by nurses. It was the preferred tool.

[Littlefield et al 2018](#) The correlation between the CIWA-Ar and mMINDS tools is strong and appears to be most robust in patients with CIWA-Ar scores of 10 or less.

[Schwartz et al 2018](#) compared BAWS to CIWA and found BAWS to be easier and faster, especially when working with patients who are delirious or who speak different languages

### **Benzodiazepine vs phenobarbital**

[Gupta et al 2023](#) looked at use of Benzodiazepine-based CIWA protocol vs phenobarbital in managing severe alcohol withdrawal.

### **Severe alcohol withdrawal**

[To et al 2023's](#) study concluded that when it came to identifying severe alcohol withdrawal neither benzodiazepine dosing nor CIWA score are effective measures.

### **Use of CIWA for follow up of alcohol withdrawal syndrome**

[Pribek et al 2021](#) this SR evaluated CIWA-Ar as a means of an objective follow-up of the course and treatment of AWS. They found the CIWA follows the course of AWS.

### **Acutely ill**

[Higgins et al 2019](#) looked at the reliability and validity of the SIWA for those who were acutely ill, the reliability and validity did not support use of the SIWA in this cohort.

### **Mechanisms to use the SIWA appropriately**

[Eloma et al 2018](#) The judicious use of CIWA-Ar protocols in general hospitals requires mechanisms to ensure assessment of validated alcohol withdrawal risk factors, exclusion of patients who cannot communicate, and continuity of care during transitions.





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#### **Examples of training from elsewhere:**

*Please note this training is not necessarily good quality or evidence based. I am including it for ideas and comparison purposes*

Health.wa.gov.au, [Toolbox Session, Alcohol Withdrawal & Clinical Institute Withdrawal Assessment of Alcohol Scale Revised Version \(CIWA-Ar\)](#) [undated]

Brigham Women’s and Children’s, [Alcohol Withdrawal and the CIWA-Ar Scale Nurse-Doctor Co-Teaching Session](#) [undated]

#### **Policies/Guidelines from other trusts:**

Oxford Health NHS Foundation Trust, [Guidelines for the Management of Alcohol Dependence and Acute withdrawal on inpatient wards](#), 2020

University Hospitals Sussex, [Alcohol Withdrawal Syndrome](#), 2023

#### **Consensus Guidelines**

Alvanzo, A., Kleinschmidt, K., & Kmiec, J. A. (2020). [The ASAM clinical practice guideline on alcohol withdrawal management](#). *J Addict Med*, 14(3S Suppl. 1), 1-72.

NICE, [Alcohol-use disorders: diagnosis and management of physical complications \(nice.org.uk\)](#), 2017

#### **Journal Articles**

de Lemos, J., Sharaf, M., Moadebi, S., LowBeer, S., Cassidy, B., Sutherland, J. M., . . . Nagendran, S. (2024). Replacing the Clinical Institute Withdrawal Assessment-Alcohol Revised with the Modified Richmond Agitation and Sedation Scale for alcohol withdrawal to support management of alcohol withdrawal symptoms: Potential impact on length of stay and complications. *Canadian Journal of Emergency Medicine*, 26(6), 431–435. For a copy of the full text please email [library@somersetft.nhs.uk](mailto:library@somersetft.nhs.uk)

Purpose: We evaluated impact on length of stay and possible complications of replacing the Clinical Institute Withdrawal Assessment-Alcohol Revised (CIWA-Ar) scale with a slightly modified Richmond Agitation and Sedation Scale (mRASS-AW) to support managing patients wardviewed as easier and quicker to use than CIWA-Ar, provided use of mRASS-AW does not worsen outcomes, it could be a safe alternative in a busy ED environment and offer an opportunity to release nursing time to care.

Lewis Wolfson, T., Switzer, M., Williamson, L., Joyner, K., & Morgan, K. (2024). [CIWA versus MINDS](#). Paper presented at the *Alcohol Withdrawal Syndrome: A Retrospective Cohort Analysis*. INTRODUCTION: Alcohol Withdrawal Syndrome (AWS) is primarily treated by symptom-triggered



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benzodiazepines. For many years, the Clinical Institute for Withdrawal Assessment (CIWA) protocol, based on subjective symptoms of AWS like agitation, tremor, and hallucinations, remained the mainstay of critical care symptom-triggered therapy. However, the Minnesota Detoxification Scale (MINDS) has grown in utilization in many intensive care units (ICU) because it includes more objective data like pulse and diastolic blood pressure to guide the use of benzodiazepines. There is limited research comparing CIWA versus MINDS protocols in the ICU. This study aims to compare clinical outcomes between the two protocols for patients in the ICU experiencing AWS.

**Beresford, T. P., Ronan, P. J., Taub, J., Learned, B., Mi, Z., & Anderson, M. (2023). [Working toward a gold standard: The severity of ethanol withdrawal scale \(SEWS\) versus the clinical institute withdrawal assessment alcohol scale \(CIWA-ar\). \*Alcohol and Alcoholism\*, 58\(3\), 324–328.](#)**

Aim: Proving the Severity of Ethanol Withdrawal Scale (SEWS) significantly reduces Alcohol Withdrawal Syndrome (AWS) treatment Time on Medication Protocol (TOMP).

Beresford, T., & Ronan, P. J. (2023). (2023). Measuring sympathetic nervous system effects in alcohol withdrawal: Severity of ethanol withdrawal scale (SEWS) vs clinical institute withdrawal assessment (CIWA-ar).

Background: Alcohol Withdrawal Syndrome (AWS) is a toxic recovery phenomenon referable to the autonomic nervous system (ANS), more specifically to the Sympathetic Nervous System (SNS) that mediates the fight-or-flight response. Most view SNS hyperactivity during AWS as a rebound phenomenon: heavy, sustained alcohol use produces a marked exaggeration of normal Parasympathetic Nervous System (PNS) activity. On sudden release of the PNS agonism, a symptomatic SNS response occurs as the two opposing systems (SNS and PNS) act to reset their normal equilibrium of function.

**Bradley, M., Kiser, T. H., Mueller, S. W., Reynolds, P. M., & MacLaren, R. (2023). Correlation between and nursing satisfaction with CIWA-ar, mMINDS, and SEWS scoring tools for the assessment of severe alcohol withdrawal syndrome in ICU patients. *Annals of Pharmacotherapy*, 57(2), 175–183. For a copy of the full text please email [library@somersetft.nhs.uk](mailto:library@somersetft.nhs.uk)**

Background: Management of alcohol withdrawal syndrome (AWS) requires bedside assessments of symptom severity to guide therapies. Commonly used assessment tools are the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar), the modified Minnesota Detoxification Scale (mMINDS) and the Severity of Ethanol Withdrawal Scale (SEWS).

**Gupta, S., Mohta, A., & Thameem, D. (2023). [Benzodiazepine-based ciwa protocol versus phenobarbital in managing severe alcohol withdrawal](#). Paper presented at the *Intensive Care Unit: A Retrospective Comparative Data Analysis*, (CHEST 2023 Annual Meeting Abstracts.)**

PURPOSE: Clinical institute withdrawal assessment (CIWA)- triggered benzodiazepine (BZD) administration forms the cornerstone of alcohol withdrawal management. Numerous recent studies have shown phenobarbital to be more effective and safer in patients undergoing severe alcohol withdrawal than CIWA-triggered BZD protocol. However, managing alcohol withdrawal is symptom-based, and outcomes may vary with experience in managing severe cases. Moreover, the small sample size of previous studies has limited extrapolation of the data, and CIWA-triggered BZD remains the mainstay of therapy. Our primary objective was to compare the standard of care, CIWA-triggered BZD administration, with phenobarbital infusion in patients undergoing severe alcohol withdrawal in the intensive care unit (ICU).

**To, D., Carey, K., Joyce, C., Salisbury Afshar, E., Edelson, D. P., Churpek, M. M., & Afshar, M. (2023). Clinical institute withdrawal assessment (CIWA) scores and benzodiazepine dosing for identifying severe alcohol withdrawal. For a copy of the full text please email [library@somersetft.nhs.uk](mailto:library@somersetft.nhs.uk)**





Introduction: Severe alcohol withdrawal syndrome (SAWS) is a serious manifestation of withdrawal that requires intensive care unit (ICU) level of care and can be deadly. Early identification and treatment for alcohol withdrawal may prevent progression and ICU admission. Previous studies have used a Clinical Institute Withdrawal Assessment (CIWA) score  $\geq 15$  or  $\geq 19$ , or  $\geq 8$ mg Lorazepam equivalent per hour to define SAWS. These criteria were arbitrarily determined by expert panels and may not be an accurate tool for identifying SAWS. The aim of this study is to determine the discriminative ability of CIWA or benzodiazepine dose for the identification of alcohol withdrawal leading to ICU admission or death.

**Ward, J., Dunn, L., & Hudson, B. (2023). [Evaluating CIWA-AR scoring and alcohol liaison referrals. Paper presented at the A Large Teaching Hospital: A Quality Improvement Project.](#)**

Introduction In August 2020, this policy was revised in our hospital for alcohol withdrawal was changed from a standardised reducing regiment of benzodiazepines to using the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar). The purpose of this quality improvement project therefore was to evaluate whether this change affected benzodiazepine prescribing and whether these patients also were referred to our liaison alcohol nurse. Methods We evaluated the efficacy of the CIWA-Ar led alcohol withdrawal management through comparison of total benzodiazepine dose per admission as the primary outcome measure. We also examined the number of days of an admission on which patients received benzodiazepines. We collected data from April-May 2021 (n=49) to assess our hypothesis. We also evaluated the rate of referral to alcohol liaison nurses. Results The average age of our sample was 55.9 years old, and our sample was 66% male. Full results are given in table 1. Our results demonstrate a significant reduction in cumulative benzodiazepine use from that which patients would receive under a reducing regiment (470mg chlordiazepoxide over 6 days). We also found that only 22% of patients were requiring more than 120mg in the first 24 hours of admission. Benzodiazepines were also required on 35.4% of the admission days. With respect to the rate of referral to alcohol liaison nurses, we found that only 46% of patients placed on CIWA-Ar were also referred or seen by alcohol liaison during the respective admission. Conclusions Our data demonstrate a significant reduction in benzodiazepine prescribing for patients with suspected alcohol withdrawal. A fixed dose chlordiazepoxide regime stipulates 470mg of chlordiazepoxide across 6 days; most of the participants in our sample fall well below this in terms of dose and duration. Given the associated risks of significant benzodiazepine doses, this can only be a positive. Interestingly, we did find that benzodiazepines were being used on non-consecutive days, suggesting that perhaps further work is required to reduce inappropriate benzodiazepine administration within CIWA-Ar. Regarding alcohol liaison nurse referrals, our audit does highlight significant omissions in referrals to alcohol liaison nurses (only 46% of patients on a CIWA-Ar were referred). This could be highlighted as an area for improvement, either through practitioner education (e.g. posters, seminars) or through improving the alcohol withdrawal bundle within our electronic patient system.

**Pribek, I. K., Kovacs, I., Kadar, B. K., Kovacs, C. S., Richman, M. J., Janka, Z., . . . Lazar, B. A. (2021). [Evaluation of the course and treatment of alcohol withdrawal syndrome with the clinical institute withdrawal assessment for alcohol - revised: A systematic review-based meta-analysis.](#) *Drug and Alcohol Dependence*, 220(pagination), Article Number: 108536. Date of Publication: 01 Mar 2021.**

Background: Although the Clinical Institute Withdrawal Assessment for Alcohol - Revised (CIWA-Ar) is a gold standard tool for the clinical evaluation of alcohol withdrawal syndrome (AWS), a systematic analysis using the total scores of the CIWA-Ar as a means of an objective follow-up of the course and treatment of AWS is missing. The aims of the present study were to systematically evaluate scientific data using the CIWA-Ar, to reveal whether the aggregated CIWA-Ar total scores follow the course of AWS and to compare benzodiazepine (BZD) and non-benzodiazepine (nBZD) therapies in AWS.





Higgins, J., Bugajski, A. A., Church, D., Oyler, D., Parli, S., Halcomb, P., . . . Bernard, A. C. (2019). [A psychometric analysis of CIWA-ar in acutely ill and injured hospitalized patients.](#) *Journal of Trauma Nursing*, 26(1), 41–49.

Alcohol withdrawal syndrome (AWS) manifests after alcohol-dependent individuals suddenly cease alcohol consumption. Clinical Institute Withdrawal Assessment-Alcohol, revised (CIWA-Ar) is a widely used tool to assess and guide treatment of AWS. CIWA-Ar was developed in voluntarily detoxification centers, and the reliability and validity of CIWA-Ar have been minimally evaluated in hospitalized patients. We performed a retrospective chart review of 479 cases of screening and treatment of AWS using CIWA-Ar, of which 118 were admitted to a trauma/orthopedic (T/O) service and 361 to an internal medicine (IM) service. Exploratory factor analyses with varimax rotation were applied for each population, and reliability testing was performed on the determined subscales. Exploratory factor analyses yielded 2 unique structures, each explaining 56% of the variance of CIWA-Ar. The IM group had a 3-factor structure with the Physical Disturbances (23%), Anxiety (19%), and Confusion (14%) subscales. The T/O group had a 2-factor structure with the Neurological Disturbances (36%) and Physical Disturbances (20%) subscales. Overall, Cronbach's alphas were acceptable (0.74 and 0.82 for IM and T/O, respectively); however, Cronbach's alphas for the IM subscales were 0.66 and 0.69 for physical disturbances and anxiety, respectively. Cronbach's alpha for the Confusion subscale was not calculated because only 1 scale item loaded. The subscales of the T/O factor structure yielded Cronbach's alphas of 0.81 for neurological disturbances and 0.62 for physical disturbances. Our analyses did not support the reliability or validity of CIWA-Ar in acutely ill or injured patients, warranting further investigation and tool development for AWS management in the hospital setting.

Eloma, A. S., Tucciarone, J. M., Hayes, E. M., & Bronson, B. D. (2018). [Evaluation of the appropriate use of a CIWA-ar alcohol withdrawal protocol in the general hospital setting.](#) *American Journal of Drug and Alcohol Abuse*, 44(4), 418–425.

Background: The Clinical Institute Withdrawal Assessment-Alcohol, Revised (CIWA-Ar) is an assessment tool used to quantify alcohol withdrawal syndrome (AWS) severity and inform benzodiazepine treatment for alcohol withdrawal.

Littlefield, A. J., Heavner, M. S., Eng, C. C., Cooper, D. A., Heavner, J. J., Kurtz, J. M., & Pisani, M. A. (2018). [Correlation between mMINDS and CIWA-ar scoring tools in patients with alcohol withdrawal syndrome.](#) *American Journal of Critical Care : An Official Publication, American Association of Critical-Care Nurses*, 27(4), 280–286. For a copy of the full text please email [library@somersetft.nhs.uk](mailto:library@somersetft.nhs.uk)

BACKGROUND: Many alcohol withdrawal scoring tools are used in hospitalized patients to assess the severity of alcohol withdrawal and guide treatment. The revised Clinical Institute Withdrawal Assessment (CIWA-Ar) and the modified Minnesota Detoxification Scale (mMINDS) are commonly used but have never been correlated.

[Schwartz, L., & Renson, A. \(2018\). A comparison of baws \(brief alcohol withdrawal scale\) and CIWA-AR to diagnose the severity of alcohol withdrawal in hospitalized medical patients.](#)

Statement of problem: Treating alcohol withdrawal in the inpatient medical setting requires timely identification of the severity of alcohol withdrawal so that appropriate treatment can be administered. Delayed or missed diagnosis can lead to increased morbidity and mortality, and it contributes to increased cost, length of stay and ICU admissions. The most commonly used measuring tool to quantify the severity of alcohol withdrawal is the CIWA-Ar scale. This scale is lengthy and prone to subjectivity, and it is also more difficult to administer in diverse patient populations where many may not speak English. Many have attempted to devise an alternative to the CIWA-Ar scale that is less subjective and quicker to administer. One such alternative measure is





the BAWS scale developed by Darius Rastegar et. al at the Center for Chemical Dependence at the Johns Hopkins Bayview Medical Center. It is a 5-item scale that uses more objective measurements to determine the severity of alcohol withdrawal. Description of the intervention or program: We created a scale to convert CIWA scores into BAWS scores as a quality improvement project and applied this conversion retrospectively to all patient encounters where a CIWA score was obtained to assess for agreement of the scores and compute AUC. The data was obtained from EPIC computerized records for all inpatient encounters on the medicine service in a 13 month period (6,478 scores in total). Findings to date: Using BAWS to predict a range of CIWA, we get a high AUC of 0.92. When we compare a BAWS score of 3 to a CIWA of 8 (the thresholds for treatment with benzodiazepines), we get a sensitivity of 0.9 [95% CI 0.88,0.92] and a specificity of 0.8 [95% CI 0.79,0.81]. We also compared higher CIWA scores and found that for CIWA 12 compared to BAWS 6, we get a Kappa score of 0.71 [0.67-0.74] and for CIWA 15 and BAWS 7, we get kappa 0.76 [0.72-0.80]. Lessons learned: BAWS can be converted to CIWA scores retrospectively. We conclude that medical providers can use the BAWS scale to assess the severity of alcohol withdrawal and initiate medical treatment in diverse inpatient populations. The BAWS is easier and faster, especially when working with patients who are delirious or who speak different languages. Our findings can raise awareness and acceptance of this tool for assessing the severity of alcohol withdrawal and guiding appropriate treatment with medical inpatients.

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DATABASES AND INFORMATION SOURCES USED					
	Pubmed		HMIC		BMJ Best Practice
X	Medline		Social Policy and Practice		Cochrane Library
	Emcare		CINAHL	X	TRIP
X	Embase		PsycINFO	X	Grey Literature
	AMED		UpToDate	X	Other





### PURPOSE OF SEARCH

	Patient info/health & well being	X	Clinical decision making (inc. patient care)
	Executive Team support		Research/Education/Professional development
	Quality Improvement		Primary Care & Neighbourhoods Directorate support
	KM/Management decision making		Other

### USER CATEGORY OF REQUESTOR

	Medical students		Patients/public
	Nursing/midwifery students		Physician Associates
	Junior doctors		Public Health (Somerset CC)
X	Nurses/Midwives		Other
	Allied Health professionals		

### HAS PERMISSION TO SHARE THE RESULTS BEEN OBTAINED FROM THE REQUESTOR?

X	YES - share		NO – do not share
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### KEY WORDS/SEARCH STRATEGY INCLUDING MESH HEADINGS

### LIMITS USED

CIWA CIWA-AR Clinical Institute Withdrawal Assessment	
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